Assessment of non-pharmacological nursing (NPN) for pain management A case study on cancer patients

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***Abstract*—Summary background: Cancer is a multifactorial disease associated with intense pain and fatigue. Pain is the main discomfort experienced during cancer treatment. Cancer pain is pain that results from cancer or cancer treatment.Cancer pain may be caused by the cancer or by the treatments and tests used. The kind of pain may vary depending on the cause. The first step in managing cancer pain is understanding the cause.**

Objective: This study has aimed at investigating the degree of reduction of pain by NPNS among cancer patients in Coimbatore district. By formulation of hypotheses the investigator tries to testing the relationship between innovative (acceptability, adaptability) and implementation variables (utilisation, satisfaction).Using Spearman's correlation , Scaffee's Post hoc test.

Search methodology: In order to justify the application of NPN, a study was conducted to determine the level of acceptability & adaptability behavior among cancer patients with respect to satisfaction variables. In this research, cancer patient were chosen and given NPN treatment. After one year they were asked to answer a survey questionnaire based on acceptability & adaptability based on NPN. Regression analysis was applied to determine the relationship between the cancer patients' acceptability & adaptability with non-pharmaceutical treatment Scaffee's post hoc test is used to find out where the difference occurs between different stage of cancer.

Results: The findings showed there was a positive relationship between acceptability and adaptability among cancer patients with respect to utilization and satisfaction. In conclusion, the cancer patients have a positive thought about acceptability & adaptability of NPN.

Conclusion: The implication was acceptability & adaptability were not critical factors for cancer patients in implementing NPN treatment. For future research related to this study, it could introduce the variable study, such as feasibility, applicability etc.

***Index Terms*—Non-Pharmacological nursing, Cancer patients, pain reduction, acceptability, adaptability, Spearman's correlation, Scaffee's Post hoc test.**

I. INTRODUCTION

Non-pharmacological nursing strategies is the management of pain without medications. This method utilizes ways to alter thoughts and focus concentration to better manage and reduce pain.

1.1 Methods of NPN

- Education and psychological conditioning
- Hypnosis
- Relaxation/guided imagery:
- Comfort therapy
- Physical and occupational therapy
- Psychosocial therapy/counseling
- Neuro stimulation

1.2 Types of Pain

Acute pain is of short duration, usually the result of an injury, surgery or illness. This type of pain includes acute injuries, post-operative pain and post-trauma pain.

1.3 Chronic Pain

Chronic Pain is an ongoing condition, such as back and neck pain, headaches, complex regional pain syndrome Type 1 (reflex sympathetic dystrophy), neuropathic pain (nerve injury pain), musculoskeletal pain, and pain related to illness. Your physician may refer you to the Pain Management Center because your chronic pain condition has not responded to conventional therapies.

1.4 Cancer pain

Cancer pain is pain that results from cancer or cancer treatment.
Cancer pain may be caused by the cancer or by the treatments and tests used. The kind of pain may vary depending on the cause. The first step in managing cancer pain is understanding the cause.
Pain from the cancer itself can happen when:

- ✓ A tumor presses on bones, nerves, or organs.
- ✓ A tumor presses on the spinal cord, causing pain in the back, legs, or neck.
- ✓ A tumor causes organs to swell or be blocked. For example, a tumor can cause a bowel obstruction.
- ✓ Cancer cells spread to the bone and destroy it.

1.5 Treatment

Treatments such as surgery, radiation, and chemotherapy may also cause pain. Cancer treatments have to be strong. As a result, they often cause pain and other side effects. Some medical tests, such as bone marrow aspiration, may cause pain too.

II. REVIEW OF LITERATURE

Pain is frequently reported during cancer disease, and it still remains poorly controlled in 40% of patients. Recent developments in oncology have helped to better control pain. Targeted treatments may cure cancer disease and significantly increase survival [1]. Therefore, a novel population of patients (cancer survivors) has emerged, also enduring chronic pain (27.6% moderate to severe pain). Review discusses the different options currently available to manage pain in (former) cancer patients in light of progress made in the last decade [2]. Major progress in the field includes the recent development of a chronic cancer pain taxonomy now included in the International Classification of Diseases (ICD-11) and the update of the WHO analgesic ladder [3].

Until recently, cancer pain management has mostly relied on pharmacotherapy, with opioids being considered as the mainstay. The opioids crisis has prompted the reassessment of opioids use in cancer patients and survivors [4]. This review focuses on the current utilization of opioids, the neuropathic pain component often neglected, and the techniques and non-pharmacological strategies available which help to personalize patient treatment [5]. Cancer pain management is now closer to the management of chronic non-cancer pain, i.e., “an integrative and supportive pain care” aiming to improve patient’s quality of life [6].

III. MAIN ISSUES

The main issues, which emerged, have been presented here in the form of following hypotheses.

Hypothesis 1 Cancer patient’s acceptability of NPN is directly related to utilization & satisfaction with NPN.

Hypothesis 2 Cancer patient’s adaptability of NPN is directly related to utilization & satisfaction with NPN.

Hypothesis 3. There is a significant difference between acceptability of NPN by different types (based on the stage of cancer, low, medium, high) of cancer patients.

Hypothesis 4. There is a significant difference between adaptability of NPN by different types (based on the stage of cancer, low, medium, high) of cancer patients.

IV. EXPERIMENTAL DESIGN

In order to justify the application of non-pharmaceutical treatment in pain reduction a study was conducted to determine the level of adaptability and usability behaviour among cancer patient with respect to satisfaction variables

V. SAMPLE

The sample for this study was cancer patients from Coimbatore City of Tamil Nadu State.Random sampling method was used to make sure all cancer patients had an equal chance to be selected. The population is cancer patients from Coimbatore. According to Krejcie and Morgan (1970), the number of the sample should be between 80% to 90% of the total population. Therefore, the researcher distributed survey questionnaire to each in the city However, the researcher only got back 84 sets of the survey, which was about 87.5%.

The cancer patients were given NPN treatment for one year Jan 5th 2025 to 10th Feb 2026. On 10TH Feb 2026 they were given survey questionnaire contained 67 questions and used a five-point Likert scale ranging from 'highly disagree' to 'highly agree 'based on their reaction towards NPN in order to test the level of acceptability & adaptability of the method. The data were analysed using SPSS-12 version multiple regressions were obtained.

Multiple regression analysis was applied to ascertain how much acceptability & adaptability related to NPN applicability in terms utilisation and satisfaction. Scaffee's Post hoc test is used to find out where the difference occurs between acceptability & adaptability among different types of cancer patients (low, medium, higher) with respect to NPN treatment.

VI. RESULT

Majority of the respondents were unknown of NPN. Among them 52 percentage combined their attitude to 'aid medication', 'to access the treatment, or 'to aid pain reduction'. The majority are in need of the technique. The acceptability & adaptability of the method are generally positive. They believe it is potential pain-relieving tool. It can bridge the educational gap between modern and natural medication and bring about better way of life for average cancer patient.

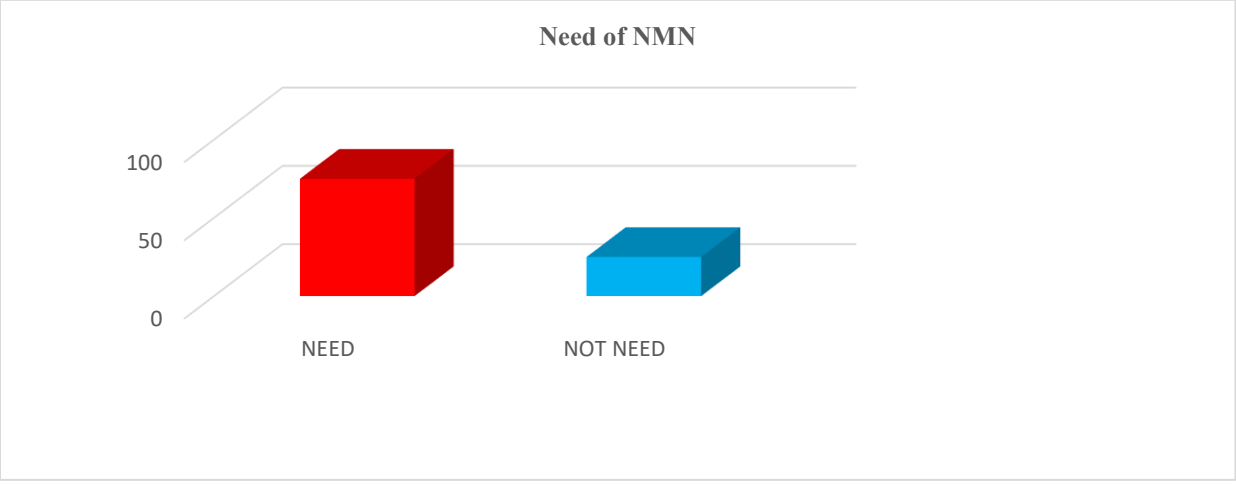

Fig. 1. Distribution of cancer patients based on need of NPN

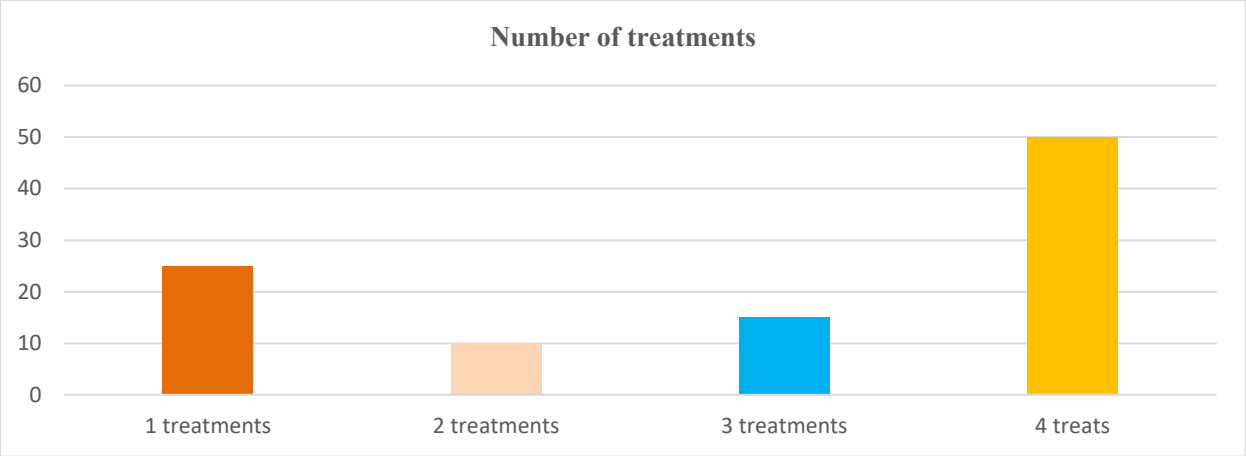

Fig 2. Distribution of cancer patients on number of treatments under N

The data showed that the cancer patients to be assured NPN do not pose a threat to medical treatment. Cancer patients had a positive perception over NPN practices as creative and innovative compared to traditional method of medical solution. NPN could enable quicker access to medical treatment.

VII. SATISFACTION AND UTILIZATION

Cancer patients perceived NPN as reliable, accurate, and meeting their medication skills and they declared it is as an essential relieving tool. They unable to ascertain the questions concerned with complexity.

VIII. ANALYSES ON HYPOTHESES

8.1 Spearman's correlation coefficient method

Hypothesis 1 Cancer patient's acceptability of NPN is directly related to utilization & satisfaction with NPN.

Table 1**.** To calculate the degree of relationship between acceptability with utilization & satisfaction

Innovative variables	Implementation variables	Correlation value (r)	Significant value
Acceptability	Utilization	0.436	P>0.05
	Satisfaction	0.503	P>0.05

Spearman's correlation coefficient for utilization, satisfaction with acceptability 0.436, 0.503 respectively. It is significant at 0.05. It is found that there is a positive significant relationship between acceptability with utilization, satisfaction. The inference is that if the utilization, satisfaction of the cancer patients increases, then the application of NPN increases.

Hypothesis 2 Cancer patient's adaptability of NPN is directly related to utilization & satisfaction with NPN.

Table 2. To calculate the degree of relationship between adaptability with utilization & satisfaction

Innovative variable	Implementation variables	Correlation value (r)	Significant value
Adaptability	Utilization	0.511	P>0.05
	Satisfaction	0.412	P>0.05

Spearman's correlation coefficient for utilization and satisfaction with adaptability techniques are 0.511, 0.412, respectively. It is significant at 0.05. It is found that there is a positive relationship between adaptability with utilization and satisfaction. The inference is that if the utilization and satisfaction of the cancer patients increases then application of NPN increases.

8.2 Scaffee's post hoc test

Scaffee's post hoc test to test the hierarchy of cancer patients with respect to acceptability and adaptability

Hypothesis 3. There is a significant difference between acceptability of NPN by different types (based on the stage of cancer, low, medium, high) of cancer patients.

Table 3. To find the significant difference between three types of patients

Low cancer patients	Medium cancer patients	High cancer patients	I-J
	33.255	54.246	5.511
31.117		54.246	7.759
31.117	33.255		0.048

Scaffee's post hoc test shows that acceptability behavior of low cancer patients is less than medium cancer patients as well as high cancer patients. Accessibility behavior of medium cancer patients is less than high cancer patients.

Hypothesis 4. There is a significant difference between adaptability of NPN by different types (based on the stage of cancer, low, medium, high) of cancer patients.

Table 4. To find the significant difference between three types of patients

Low cancer patients	Medium cancer patients	High cancer patients	I-J
	31.255	52.246	4.511
22.117		52.46	6.759
22.117	31.255		2.048

The Scaffee's post hoc test shows that adaptability behavior of low cancer patients is less than medium cancer patients as well as high cancer patients. Adaptability behavior of medium cancer patients is less than high cancer patients.

IX. CONCLUSION

Hospitals could organize awareness program on NPN among cancer patients. Curriculum for medical science education showed address issues related to rapid changes in NPn techniques. Cancer patients also must be provided with adequate opportunity to practice with techniques following their pain reduction programme. Hospitals with NPN facilities should collaborate with those that lack them to afford patients the opportunities to learn from successful related experiments.

The medical curriculum should make guidelines for thee effective use of NPN. It is critically important that trained and technologically competent nurses should be utilized as resources in the medical curriculum making bodies. Strong commitment from cancer patients to embrace NPN is essential in attaining the country's goals of 100% use.

Active involvement of patients and medical personal who are users and non-users is a practical means of moving the techniques initiative forward. A cadre of cancer patients motivated by potential of NPN techniques can ignite the interest of others become users.The goal of this study was to identify the factors which lead to successful implementation of NPN in the medical education. Finally the shared involvement and leadership quality as well as curriculum makers facilitate a 'buy in' element that will guarantee the successful implementation of NPN techniques throughout medical education in India and in abroad

ACKNOWLEDGEMENT

This work was supported by PSG Super speciality Hospital.

REFERENCES

[1] Brozović G, Lesar N, Janev D, Bošnjak T, Muhaxhiri B. Cancer pain and therapy. Acta Clin Croat. (2022) 61(Suppl 2):103–8. 10.20471/acc.2022.61. s2.13 –

[2] Shipton EE, Bate F, Garrick R, Steketee C, Shipton EA, Visser EJ. Systematic review of pain medicine content, teaching, and assessment in medical school curricula internationally. Pain Ther. (2018) 7(2):139–61. 10.1007/s40122-018-0103-z –

[3] Saleh AM. Nurses' assessment and management practices of pain among intensive care patients in King Khalid Hospital, Kharj, Riyadh. Heliyon. (2023) 9:e19986. 10.1016/j.heliyon. 2023.e19986

[4] Bennett M.I., Kaasa S., Barke A., Korwisi B., Rief W., Treede R.D., The IASP Taskforce for the Classification of Chronic Pain the IASP classification of chronic pain for ICD-11: Chronic cancer-related pain. Pain. 2019; 160:38–44. doi: 10.1097/j.pain.0000000000001363.

[5] Snijders R.A.H., Brom L., Theunissen M., van den Beuken-van Everdingen M.H.J. Update on Prevalence of Pain in Patients with Cancer 2022: A Systematic Literature Review and Meta-Analysis. Cancers. 2023; 15:591. doi: 10.3390/cancers15030591. 3.Roberto A., Greco M.T., Uggeri S., Cavuto

[6] S. Deandrea S., Corli O., Apolone G. Living systematic review to assess the analgesic undertreatment in cancer patients. Pain Pract. 2022; 22:487–496. doi: 10.1111/papr.13098.