

A Study to Assess the Effectiveness of Plan Teaching Program on Care of Craniotomy Wound among Staff Nurses in Selected Neurological Hospital, Guwahati, Assam

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Abstract: *The study attempted to assess the effectiveness of plan teaching program in terms of knowledge and skill regarding care of craniotomy wound among staff nurses working in selected hospitals at Guwahati, Assam. It adopted a pre-experimental one group pre-test post-test design. According to the study, the calculated 't' value between pre-test knowledge and post-test knowledge ($t=33.35$, $p=0.000$) was higher than the tabulated 't' value [$t=2.02$, $df=49$] and is thus statistically significant at 0.05 level of significance. In addition, the calculated 't' value between pre-test skill and post-test skill ($t = -38.77$, $p = 0.000$) was found higher than the tabulated 't' value [$t = 2.02$, $df = 49$] which is statistically significant at 0.05 level of significance. Also, the calculated chi square value of knowledge with area of work and previous experience in care of craniotomy wound knowledge was found statistically significant at 0.05 level of significance. The study concluded that plan teaching program on care of craniotomy wound among staff nurses improved the knowledge and skill of staff nurses regarding care of craniotomy wound.*

Keywords: Effectiveness, Plan Teaching Program, Knowledge, Skill, Care of Craniotomy Wound, Staff Nurses

1. Introduction

Craniotomy is a surgical approach to treat brain lesion that involves removing a flap of skull bone and surgically opening the dura matter to gain access to the brain tissue. Craniotomy entails significant risk with post-operative mortality and complications such as brain swelling, brain or nerve damage, cerebro spinal fluid leakage, stroke, seizure, coma and infection. These complications may be avoided by careful perioperative planning, strict adherence to aseptic technique, meticulous microsurgical dissection, proper wound closer, the judicious use of prophylactic agent, and proper wound care. Postoperative complication can often lead to permanent neurologic injury undetected. Caring of patient with craniotomy thus requires a multidisciplinary approach with the bedside nurse playing a vital role. Prompt recognition of post-operative neurologic injury, timely diagnosis and intervention by multidisciplinary team improves patient outcome and subsequent quality of life.

2. Literature Survey

Marwein B., Clement N. and Clement I. (2019) conducted a study on "Effectiveness of SIM on Care of Patient with Craniotomy among Staff Nurses Working in Neurological Units at Selected Hospitals, Bangalore." A structured knowledge questionnaire was used to assess the knowledge in pre-test that was followed by implementation of self-instructional module. The post-test was conducted after seven days using the same structured questionnaire. This study concluded that SIM was significantly effective in improving the knowledge of staff nurses regarding care of patient with craniotomy, which in turn contributed to improve the patient's outcome and total quality of patient's life and wellbeing. [39]

Jisha M. (2007) conducted a study on effectiveness of health education for discharged patients after craniotomy. The investigator used self-prepared questionnaire regarding craniotomy home care based on modified Barthel Index while a health education pamphlet on craniotomy home care was used to educate the patient after pre-test. The major findings of the study were, by health education, patient's knowledge level was increased. [40]

3. Methods/Approach

The objective is to assess the effectiveness of plan teaching program in terms of knowledge and skill regarding care of craniotomy wound among staff nurses by finding out the relationship between pre-test knowledge and pre-test skill and also the association between knowledge and skill regarding craniotomy wound care among staff nurses with selected demographic variables.

The study adopted a pre-experimental one group pre-test post-test design. Fifty staff nurses working in Rahman Hospital Pvt. Ltd., Guwahati, Assam were recruited as sample of the study using non probability purposive sampling technique. Demographic performa, structured knowledge questionnaire on care of craniotomy wound and observational skill checklist on care of craniotomy wound were used to collect the data. Descriptive and inferential statistics were used for analysing the data.

4. Results

Half of the nurses involved in the study are in the age group of below 25 years [50%]. Forty-eight [96%] are female and in regard to educational qualification, 30 [60%] are GNM graduates while 31 [62%] have less than one year experience

in the present hospital. As for the area of working, 16 [32%] are working in Male General Ward and 15 [30%] in Neuro ICU. In terms of work experience, 32 [64%] have less than one year of total working experience and considering previous experience in care of craniotomy wound, 29 [58%] of them do not have previous experience. Thirty-one [62%] did not attend any CNE on care of craniotomy wound. Considering the sources of information regarding care of craniotomy wound, 38 [76%] received information from healthcare professionals. Regarding special training on Neuro-Nursing, 46 [96%] do not have special training on Neuro-Nursing.

The mean and standard deviation of pre-test knowledge score was 12.28 ± 1.97 and the mean and standard deviation of post-test knowledge score was 21.58 ± 1.97 . The mean difference between pre-test and post-test knowledge was 9.30. The calculated 't' value between pre-test knowledge and post-test knowledge ($t=33.35$, $p=0.000$) was found higher than the tabulated 't' value [$t=2.02$, $df=49$] which is statistically significant at 0.05 level of significance. It can therefore be inferred that there is a significant difference between pre-test and post-test knowledge of staff nurses in regard to care of craniotomy wound. Thus, it was found that plan teaching program on care of craniotomy wound was effective in improving the knowledge of staff nurses on care of craniotomy wound.

The mean difference between the pre-test skill regarding care of craniotomy wound and post-test skill regarding care of craniotomy wound was -14.34. The calculated 't' value between pre-test skill and post-test skill ($t = -38.77$, $p = 0.000$) was found higher than the tabulated 't' value [$t = 2.02$, $df = 49$] which is statistically significant at 0.05 level of significance. So, it was inferred that skill regarding care of craniotomy improved after the implementation of plan teaching program. The calculated chi square value of pre-test knowledge on care of craniotomy wound with demographic variables, like age in year, gender, educational qualification, duration of work in present hospital, total experience in years, any CNE attended on care of craniotomy wound knowledge, sources of information regarding care of craniotomy wound, and special training on neuro-nursing, was found statistically insignificant at the 0.05 level of significance. But the calculated chi square value of knowledge with area of work and previous experience in care of craniotomy wound knowledge was found statistically significant at 0.05 level of significance.

5. Discussion

Findings related to effectiveness of plan teaching program in terms of knowledge and skill regarding care of craniotomy wound among staff nurses.

The present study shows that plan teaching program was found effective in terms of knowledge and skill regarding care of craniotomy wound. This finding is supported by a Quasi experimental study conducted by Varghese S. Thomas D, Shokanda S. (2020) to evaluate the effectiveness of planned teaching programme on management of head injury patients in terms of knowledge and expressed practices among caregivers of head injury patients. [41] The planned teaching programme on management of head injury patients

was effective to enhance the knowledge and practice of caregivers of head injury patients.

Findings related to correlation between the knowledge and skill regarding care of craniotomy wound among nurses.

The present study shows that there was a statistically significant positive correlation between knowledge and skill regarding care of craniotomy wound among nurses. This finding is supported by a descriptive quantitative research study conducted by Mocluskey P, Mccarthy G (2012), to explore knowledge and competence in wound assessment and management. [42] The study showed that there was a significant correlation between knowledge and wound assessment competence. The present study finding is however contradictory to a cross sectional descriptive study conducted by Nourah Y.A., Nahed A.M., Ruba M.A. (2022) to explore Nurses' knowledge and Practices Regarding Wound Dressing at Primary Health Care Centres. [43] The study revealed a negative correlation between level of nurses' knowledge and practices regarding wound dressing in primary health care centres.

Findings related to association between the knowledge and skill regarding care of craniotomy wound among staff nurses with selected demographic variables.

The present study only reveals a significant association of knowledge on care of craniotomy wound with selected demographic variables like area of work and previous experience in care of craniotomy wound and not variables like age, gender, educational qualification, duration of work in present hospital. Likewise, in an evaluative study conducted by Marwein B., Clement N. and Clement I (2018) to assess the knowledge of staff nurses regarding the care of patient with craniotomy, [44] it was found that there were no significant association of knowledge with age, educational status, attended program and sources of information regarding craniotomy.

6. Limitations

In the course of the research, the researcher faced the problem of motivating and collecting data from the staff nurses as they often could not allot time as desired by the researcher. It was difficult for the researcher to motivate the staff nurses to attend the teaching programs as they were in a hurry to go home after work.

7. Future Scope

The findings of the study reveal scope for further study. A similar study can be undertaken on large samples of staff nurses. True experimental study can be done on the same study as well.

8. Conclusion

According to the findings of the study, the mean of post-test knowledge score is significantly higher than the pre-test knowledge score regarding care of craniotomy wound among the staff nurses. In addition, the mean of post-test skill score is significantly higher than the pre-test skill score.

Therefore, the study concluded that the Plan Teaching Program was effective in enhancing the knowledge and skill regarding care of craniotomy wound among staff nurses.

References

- [1] AhmedAbdelmowla RA, Essa A, Abdelmaged ES. Role of nurse in preventing or reducing increase intracranial pressure following craniotomy. *IJANS*. 2017; 6(2): 92-98. Available from: Website: www.sciencepubco.com/index.php/IJANSdoi:10.144i9/ijans.v6i2.8293.
- [2] Craniotomy [Internet]. [last edited on 22 Feb; at 00:3(UTC)]. Available from: <https://en.wikipedia.org/wiki/Craniotomy>
- [3] Srejith SM. A study to assess the knowledge of home care among caregivers of patients after craniotomy in SCTIMST, [Diploma in Neuro Nursing, Project Report] Trivandrum. 2011 Nov. Available from: <http://dspace.sctimst.ac.in/jspui/bitstream/123456789/1604/1/478.pdf>.
- [4] Dubey A, Sung WS, Shaya M, Patwardhan, Willis B, Smith D et al. Complications of posterior cranial fossa surgery-an institutional experience of 500 patients. *J.surneu*. 2009, Oct; 72 (4):369-75. DOI: 10.1016/j.surneu.2009.04.001.
- [5] Marwein B, Clement N, Clement I. Effectiveness on Care of Patient with Craniotomy among Staff Nurses Working in Neurological Units. *Journal of Medical Surgical Nursing Practice and Research, MAT Journals*. 2018;2(1): p24-33.
- [6] Traumatic Brain Injury/Indian Head Injury Foundation [Internet]. Available from: <https://indianheadinjuryfoundation.org.traumatic-injury/#:~:text=India>.
- [7] Smeltzer SC, Bare B. Brunner & Suddarth;s Textbook of Medical-Surgical Nursing. 10th ed.Philadelphia, Lippincott Williams & Wilkins; 2004.
- [8] Kourbeti IS, Anke VJ, Maxim K, Dimitris K, Robert SH. Risk factors associated with post craniotomy meningitis, *Neurosurgery*. 2007, Feb; 60 (2): 317-25.
- [9] Buang SS, Haspani MS. Risk factors for neurological site infections after a neurological procedure. *Med J Malaysia*. 2012 Aug, 67 (4): 393-8.
- [10] Martinez EJ, Cuervo G, Hornero A, Ciercoles P, Gabarros A, Cabellos C, et al. Risk factors for surgical site infection after craniotomy: a prospective cohort study, *BMC*. 2019, May; 8:69 Available from: <https://doi.org/10.1186/s13756-019-0525-3>.
- [11] Von Bertalanffy L. (1968) General System Theory: Foundations, Development, Applications. New York: Georg Braziller. Available from: [http://www.nwlink.com/~donclark/history_isdbertalanffy.html#~:text=von%20Bertalanffy%20\(1968\)%20wrote%20that,are%20in%20a%20continual%20evolution](http://www.nwlink.com/~donclark/history_isdbertalanffy.html#~:text=von%20Bertalanffy%20(1968)%20wrote%20that,are%20in%20a%20continual%20evolution).
- [12] Thomas RF, Craniotomy. Article Library. 2020, Nov, 14. Available from: <https://www.statpearls.com/ArticleLibrary/viewarticle/20104>
- [13] Simon H, Jonathan PM, Jeffrey NB, Craniotomy, Medscape. [Updated 2017, Dec, 21 Available from: <https://emedicine.medscape.com/article/1890449-overview#al>.
- [14] Byeong JH, Cheong JH, Joong H. Risk Factors for Cerebrospinal Fluid Leakage after Craniotomy and the Efficacy of Dural Sealants Application versus Dural Suturing Alone. *The Nerve* 2016; 2(2):22-25. Available from: <https://www.thenerve.net/journal/view.php?number=70>.
- [15] Thibault M, Girard F, Moundjian R, Chouard P, Boudreault D, Ruel M. *Br J Neurosurg*. 2007; 54 (7):544-8.
- [16] Rocha-Filho PA, Fujura FJ, Gherpelli JL, Rabello GD. The long term effect of craniotomy on temporalis muscle function *ArqNeuropsiquiatr*. 2007; 70 (2) 505-5.
- [17] Cardoso AC, Fernandes YB, Ramina R, Borges G. Acoustic neuroma (Vestibular schwannoma). Surgical results on 240 patients operated on dorsal decubitus position. *ArqNeuropsiquiatr*. 2007; 65(3A) 605-9.
- [18] Hickey JV. *The Clinical Practice of Neurological and Neuro Surgical Nursing*, 5th ed USA: Lippincott Williams and Wilkins.2003.
- [19] Lietard C, Thebaud V, Besson G, Lejeune B. Risk factors for neurosurgical site infections: an 18 month prospective survey. *J Neurosurgery*. 2008, Oct; 109(4):729-34.
- [20] Ireland S, Carlino K, Gould L, Frazier F, Haycock P, Ilton S, et al. Shampoo after craniotomy: a pilot study. *Can J NeurosciNurs*, 2007 ;(2991):14-9.
- [21] Barker FG. Efficacy of prophylactic antibiotics against meningitis after craniotomy, *Neurosurgery*. 2007, Jun; 60(5):887-94.
- [22] Kourbeti IS, Jacobs AK, Maxim K, KosloM,Karabetos D, Holzman RS, Risk factors associated with post craniotomy meningitis, *Neurosurgery*. 2007, Feb; 60(2):317-25.
- [23] Korinek AM, Golmard JL, Elcheick A, Bismuth R, Effenterre RV, Coriat P, et al. Risk factors for neurosurgical site infections after craniotomy: A critical reappraisal of antibiotic prophylaxis on 4,578 patients, *BrJNeurosurg*. 2005, Apr; 19(2):155-62.
- [24] Bekar A, Korfali E, Dogan S, Yilmazlar S, Baskan Z, Aksoy K. The effect of hair on infection after cranial surgery. *ActaNeurochir (Wien)*. 2001, Jun, 143(6):533-6.
- [25] Koninger J, Russ M, Schmidt R, Feilhauer k, Butters M, Postoperative wound healing in wound-water contact. *Journal of Neuronursing*. 2000;125(2):157-60.
- [26] Iawim R, Dutta B, A Study to Assess the Effectiveness of a Planned Teaching Programme on Body Mechanics in Selected Nursing Interventions In Terms of Knowledge and Practice among Staff Nurses Working In General Ward of Selected Hospitals, Kolkata and West Bengal. *International Journal of Health Sciences and Research*. 2020, Apr; 10 (4).
- [27] Marwein B, Clement N, Clement I, Effectiveness on Care of Patient with Craniotomy among Staff Nurses Working in Neurological Units. *Journal of Medical Surgical Nursing Practice and Research*. 2018; 1 (1): p 24-33.
- [28] Jisha M. Effectiveness of health education on Knowledge about post discharge home care of patients

- after craniotomy in SCITIMST [Diploma in Neuro Nursing Project Report] Trivandrum. 2007, Oct.
- [29] Bird A, Wallis MC, Nursing knowledge and assessment skills in the management of patients receiving analgesia via epidural infusion, *Journal of Advanced Nursing*. 2002, Dec; 40(5):522-531.
- [30] Kumar R, *Nursing Research and Statistics*. 1st ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.
- [31] Sharma SK. *Nursing Research & Statistics* 3rd ed. Reed Elsevier India Private Limited, 2014.
- [32] Ahmed Abdelmowla RA, Essa A, Abdelmaged ES. Role of nurse in preventing or reducing increase intracranial pressure following craniotomy. *IJANS* 2017; 6 (2): 92-98. Available from: Website: www.sciencepubco.com/index.php/IJANS doi:10.1014419/ijans.v6i2.8293.
- [33] Varghese S, Thomas D, Shokanda S. Evaluate the Effectiveness of Planned Teaching Programme on Management of Head Injury Patients in Terms of Knowledge and Expressed Practices among Caregivers of Head Injury Patients. *International Journal of Health Sciences and Research*. 2020, Oct; (10). Website: www.ijhsr.org ISSN 2249-9571.
- [34] Mocluskey P, Mccarthy G., Nurses' knowledge and competence in wound management. *Wounds UK*. 2012;8(2): 37-47. Available from: <https://www.researchgate.net/publication/288752995>.
- [35] Nourah YA, Nahed AM, Ruba MA. Nurses' Knowledge and Practices Regarding Wound Dressing at Primary Health Care Centers. 2022; 4(2) OAJBS.ID.000443. DOI: 1038125/OAJBS.000443.
- [36] Marwein B, Clement N, Clement I, Effectiveness on Care of Patient with Craniotomy among Staff Nurses Working in Neurological Units. *Journal of Medical Surgical Nursing Practice and Research*. 2018; 1(1): p 24-33.
- [37] Saeed AE, Emeritus, Jaddoue BA, Hameed DM, (2021) Assessment of the Nurse's knowledge in Pre and Post Applying Education Program up on Postoperative Wound Care at Al-Diwaniya Teaching Hospital, *Annals of the Romanian Society for Cell Biology*,1317-1325..Available from: <https://www.annalsofrscb.ro/index.php/journal/article/view/4482>.
- [38] Martinez EJ, Cuervo G, Hornero A, Ciercoles P, Gabarros A, Cabellos C, et al. Risk factors for surgical site infection after craniotomy: a prospective cohort study. *BMC*. 2019. May; 8:69 Available from: <https://10.1186/s13756-019-0525-3>.
- [39] Marwein B, Clement N, Clement I, Effectiveness on Care of Patient with Craniotomy among Staff Nurses Working in Neurological Units. *Journal of Medical Surgical Nursing Practice and Research*. 2018; 1 (1): p 24-33.
- [40] Jisha M. Effectiveness of health education on Knowledge about post discharge home care of patients after craniotomy in SCITIMST [Diploma in Neuro Nursing Project Report] Trivandrum. 2007, Oct.
- [41] Varghese S, Thomas D, Shokanda S. Evaluate the Effectiveness of Planned Teaching Programme on Management of Head Injury Patients in Terms of Knowledge and Expressed Practices among Caregivers of Head Injury Patients. *International Journal of Health Sciences and Research*.2020, Oct; (10). Website: www.ijhsr.org ISSN 2249-9571.
- [42] Mocluskey P, Mccarthy G., Nurses' knowledge and competence in wound management. *Wounds UK*. 2012;8(2): 37-47. Available from: <https://www.researchgate.net/publication/288752995>.
- [43] Nourah YA, Nahed AM, Ruba MA. Nurses' Knowledge and Practices Regarding Wound Dressing at Primary Health Care Centers.2022; 4(2) OAJBS.ID.000443. DOI: 1038125/OAJBS.000443.
- [44] Marwein B, Clement N, Clement I, Effectiveness on Care of Patient with Craniotomy among Staff Nurses Working in Neurological Units.*Journal of Medical Surgical Nursing Practice and Research*. 2018; 1(1): p 24-33.

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