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Research Article

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A Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge Among Caregivers of Post Operative Craniotomy Patients in Post Operative Ward in Selected Hospital, Erode, Tamil Nadu.

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Abstract:

Background: Craniotomy is a major neurosurgical intervention, and caregivers have a crucial role in maintaining postoperative care and reducing complications after discharge. This study assessed the effectiveness of a structured teaching programme in improving caregivers' knowledge regarding postoperative craniotomy care. **Methods**: A quantitative evaluative research approach using a one-group pretest-posttest design was conducted among 30 caregivers of postoperative craniotomy patients admitted to the postoperative ward of Sudha Institute of Medical Sciences, Erode, Tamil Nadu. Participants were selected through convenience sampling. Data were gathered using a semi-structured interview schedule with a maximum possible knowledge score of 40. Following the pretest, caregivers received a structured teaching programme addressing essential aspects of postoperative craniotomy care. A posttest was conducted one week later. **Results**: During the pretest, 25 (83%) caregivers demonstrated inadequate knowledge, 5 (17%) had moderate knowledge, and none had adequate knowledge. Following the intervention, 22 (73%) caregivers achieved adequate knowledge, while 8 (27%) demonstrated moderate knowledge and none remained in the inadequate category. The mean knowledge score increased from 9.13 (22.8%) before the programme to 28.5 (71.25%) after the programme. The paired t-value was 18.9, indicating a statistically significant improvement ($p<0.05$). Pretest knowledge was significantly associated with primary caregiver, age, sex, educational status, and previous family history of craniotomy. **Conclusion**: The structured teaching programme was effective in enhancing caregivers' knowledge of postoperative craniotomy care .

Key Words: Suicide prevention, Adolescents, Knowledge, Structured teaching program, Mental health education

INTRODUCTION

The nervous system consists predominantly of specialized tissue capable of conducting impulses rapidly from one part of the body to another. Neurons are the functional units of the nervous system, and the brain and spinal cord are supported by specialized connective tissue. The nervous system controls motor, sensory, autonomic, cognitive and behavioural activities and contributes to maintenance of homeostasis.

Neurosurgery is the specialty concerned with the prevention, diagnosis, treatment and rehabilitation of disorders affecting the brain, spinal cord, peripheral nerves and related cerebrovascular structures. Craniotomy is a commonly performed neurosurgical procedure in which a portion of the skull is temporarily removed to provide access to the brain. It may be undertaken for brain tumours, intracranial bleeding or hematoma, vascular abnormalities, infections, trauma and selected seizure disorders.

Postoperative care following craniotomy requires close observation of neurological status, vital signs, respiratory function, pain, incision condition and possible complications. Prevention and early recognition of increased intracranial pressure, bleeding, infection, seizures, brain swelling and other complications are important components of nursing care. Positioning, oxygenation, breathing exercises, range-of-motion exercises, incision care and appropriate pain management are also important during recovery.

Family caregivers are an important part of the recovery process because many patients require assistance with activities of daily living and continuation of care after discharge. Caregivers may, however, have inadequate knowledge regarding mental-status assessment, incision care, pain control, exercises, complications, prevention and follow-up care. Inadequate knowledge can affect the continuity and safety of postoperative care.

The investigator observed that caregivers of postoperative craniotomy patients required additional information about postoperative assessment, symptoms and their management, incision care, exercises, psychological support, complications and home-care measures. A structured teaching programme can provide systematic information in a simple and organized manner and may improve caregivers' ability to provide appropriate postoperative care

NEED FOR THE STUDY

Craniotomy patients may experience physical, psychological, social and functional problems during recovery. Postoperative complications include infection, hemorrhage, seizures, stroke and brain injury. Systemic factors such as poor nutrition, chronic illness, diabetes mellitus, immunosuppressive therapy and prolonged immobilization may further favour complications. Caregivers therefore require adequate knowledge to support safe postoperative management at the bedside and at home.

The dissertation reviewed evidence describing complications following craniotomy and studies evaluating teaching programmes for caregivers. Previous investigations reported improvements in caregiver knowledge after planned or structured teaching. These findings provided the rationale for evaluating a structured teaching programme among caregivers of postoperative craniotomy patients.

MATERIAL AND METHODS

The A quantitative evaluative research approach was adopted. A one-group pretest-posttest design was used. The study was conducted in the postoperative wards of Sudha Institute of Medical Sciences, Erode, Tamil Nadu. The target population comprised male and female caregivers of postoperative craniotomy patients admitted to the hospital. A total of 30 caregivers were selected through convenience sampling. One caregiver from each patient who provided continuous and complete care was included. The study also included caregivers of postoperative craniotomy patients admitted to the postoperative ward who were willing to participate. Caregivers who were unwilling to participate, those caring for patients admitted to intensive care units, those involved in seriously ill patient-care situations, and individuals below 20 years of age were excluded.

Data were collected using a semi-structured interview schedule. The first part obtained selected socio-demographic information about the patient and caregiver, while the second part consisted of 40 knowledge items. Among these, 5 items assessed general knowledge related to the brain and craniotomy, and 35 items focused on postoperative craniotomy care. The maximum obtainable knowledge score was 40. Scores below 50% were interpreted as inadequate knowledge, scores from 50–75% as moderate knowledge, and scores above 75% as adequate knowledge.

The structured teaching programme was developed based on the objectives of the study, relevant literature, and expert recommendations. The content was prepared in Tamil, taking into consideration the literacy level of caregivers, clarity and simplicity of language, appropriate teaching strategies, and suitable teaching aids. The programme covered patient assessment, neurological status, monitoring and prevention of increased intracranial pressure, incision care, pain management, exercises, recognition and prevention of complications, psychological disturbances, and home-care management.

For data analysis, frequency and percentage were used to describe socio-demographic characteristics and knowledge categories. Mean, mean percentage, and standard deviation were calculated for knowledge scores. A paired t-test was applied to determine the effectiveness of the structured teaching programme by comparing pretest and posttest knowledge scores. Chi-square analysis was performed to determine the association between pretest knowledge and selected socio-demographic variables.

RESULT AND DISCUSSION

Table 1 shows that among the 30 postoperative craniotomy patients, the largest proportion were aged 31–40 years (30%), male (73%), illiterate (47%), and coolie workers (47%). Half had a monthly income of ₹5,001–7,000 (50%), while most were married (80%) and belonged to nuclear families (67%). Previous craniotomy history was reported by 40% of the patients.

Table 2 shows that most caregivers were spouses (63.3%), aged 31–40 years (56.7%), female (67%), illiterate (46.7%), and coolie workers (73.3%). Nearly half stayed with the patient within a week (47%), and 53.3% received information from healthcare professionals.

Table 3 shows that in the pretest, 83% of caregivers had inadequate knowledge, 17% had moderate knowledge, and none had adequate knowledge regarding postoperative care of craniotomy.

Table 4 shows that in the posttest, 73% of caregivers had adequate knowledge, 27% had moderate knowledge, and none had inadequate knowledge regarding postoperative care of craniotomy.

Table 5 shows that the mean knowledge score increased from 9.13 (22.8%) in the pretest to 28.5 (71.25%) in the posttest, with a paired t-value of 18.9, indicating a significant improvement in knowledge.

Table 6 shows that pretest knowledge was significantly associated with primary caregiver, age, sex, educational status, and previous family history of craniotomy.

DISCUSSION

The present study evaluated the effectiveness of a structured teaching programme on caregivers' knowledge regarding postoperative care of craniotomy. Pretest findings showed that 83% had inadequate and 17% had moderate knowledge, with none having adequate knowledge. Following the programme, 73% had adequate and 27% had moderate knowledge, with none remaining inadequate, demonstrating a clear improvement.

The mean knowledge score increased from 9.13 (22.8%) in the pretest to 28.5 (71.25%) in the posttest, with a paired t-value of 18.9 ($p<0.05$), supporting the effectiveness of the programme. The findings were consistent with previous teaching-programme studies by Ailey Thomas (2011), Manley GT (2010), and Gully et al. (2009), which reported improved caregiver knowledge following structured teaching.

Aspect-wise findings showed improvement in both general information about craniotomy and postoperative care, particularly in practical areas such as neurological assessment, positioning, incision care, complications, psychological disturbances, and home-care management. Pretest knowledge was significantly associated with primary caregiver, age, sex, educational status, and previous family history of craniotomy, with educational status showing the highest reported Chi-square value ($\chi^2=26.34$, $df=8$). No significant association was reported with occupational status, duration of stay with the patient, or source of information.

CONCLUSION

The present study confirmed that, nursing officers had average level of emotional intelligence in respective to the demographic characteristics, the increased age, experience and marital status had influence over the emotional intelligence.

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Table 1. Distribution of Postoperative Craniotomy Patients According to Selected Socio-Demographic Variables (N = 30)

S. No.	Variable	Category	n	%
1	Age	21–30 years	8	27%
		31–40 years	9	30%
		41–50 years	6	20%
		51 years and above	7	23%
2	Sex	Male	22	73%
		Female	8	27%
3	Educational level	Illiterate	14	47%
		Primary school	3	10%
		High school	4	13%
		Higher secondary	5	17%
		Graduate	4	13%
4	Occupation	Student	4	13%
		Self-employee	4	13%
		Private employee	6	20%
		Government employee	0	0%
		Coolie worker	14	47%
		Retired	2	7%
5	Monthly income	₹5,001–7,000	15	50%
		₹7,001–9,000	7	23.5%
		₹9,001–11,000	7	23.5%
		>₹11,001	1	3%
6	Marital status	Married	24	80%
		Unmarried	6	20%
7	Type of family	Nuclear	20	67%
		Joint	10	33%
8	Previous history of crani-otomy	Yes	12	40%
		No	18	60%

Table 2. Distribution of Caregivers According to Selected Socio-Demographic Variables (N = 30)

S. No.	Variable	Category	n	%
1	Primary caregiver	Parents	6	20%
		Spouse	19	63.3%
		Siblings	4	13.4%
		Children	1	3.3%
2	Age	21–30 years	7	23.3%
		31–40 years	17	56.7%
		41–50 years	4	13.3%
		Above 51 years	2	6.7%

3	Sex	Male	7	23%
		Female	23	67%
4	Educational level	Illiterate	14	46.7%
		Primary education	10	33.3%
		High school	3	10%
		Higher secondary	2	6.7%
		Graduate	1	3.3%
5	Occupational status	Self-employed	5	16.7%
		Private employee	1	3.3%
		Government employee	2	6.7%
		Coolie	22	73.3%
		Retired officer	0	0%
6	Duration of stay with patient	Within a week	14	47%
		1–2 weeks	9	30%
		2–3 weeks	3	10%
		Above 3 weeks	4	13%
7	Previous family history of craniotomy	Yes	11	36.7%
		No	19	63.3%
8	Source of information	Health care professionals	16	53.3%
		Friends	9	30%
		Relatives	5	16.7%
		Other patients	0	0%

Table 3. Pretest Level of Knowledge Regarding Postoperative Care of Craniotomy Among Caregivers (N = 30)

S. No.	Level of knowledge	n	%
1	Inadequate (<50%)	25	83%
2	Moderate (50–75%)	5	17%
3	Adequate (>75%)	0	0%

Table 4. Posttest Level of Knowledge Regarding Postoperative Care of Craniotomy Among Caregivers (N = 30)

S. No.	Level of knowledge	n	%
1	Inadequate (<50%)	0	0%
2	Moderate (50–75%)	8	27%
3	Adequate (>75%)	22	73%

Table 5. Comparison of Pretest and Posttest Knowledge Scores Among Caregivers of Postoperative Craniotomy Patients (N = 30)

Time	Maximum score	Range	Mean	Mean %	SD	Paired t-value
Pretest	40	3–18	9.13	22.8%	3.9	18.9*
Posttest	40	20–38	28.5	71.25%	4.2	
Enhancement	40	17–20	19.37	48.45%	0.3	

*Significant at $p<0.05$.

Table 6. Significant Association Between Pretest Knowledge Level and Selected Socio-Demographic Variables of Care-givers (N = 30)

Variable	Category	Inadequate n (%)	Moderate n (%)	χ^2	df	Significance
Primary caregiver	Parents	6 (20%)	0	9.96	5	Significant
	Spouse	17 (57%)	2 (7%)			
	Siblings	2 (7%)	2 (7%)			
	Children	0	1 (3%)			
Age	21–30 years	4 (13%)	3 (10%)	10.4	5	Significant
	31–40 years	17 (57%)	0			
	41–50 years	2 (7%)	2 (7%)			
	Above 51 years	2 (7%)	0			
Sex	Male	4 (13%)	3 (10%)	4.6	1	Significant
	Female	21 (70%)	2 (7%)			
Educational status	Illiterate	14 (47%)	0	26.34	8	Significant
	Primary school	10 (33%)	0			
	High school	0	3 (10%)			
	Secondary / Higher secondary	1 (3%)	1 (3%)			
	Graduate	0	1 (3%)			
Previous family history of craniotomy	Yes	7 (23%)	4 (14%)	4.95	1	Significant
	No	18 (60%)	1 (3%)			

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