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RESEARCH ARTICLE
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UNDERSTANDING THE DECISION-MAKING PROCESS FOR NEUROSURGICAL INTERVENTIONS: A QUALITATIVE ANALYSIS

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ABSTRACT

Background: High-risk operations that have a major effect on patients' quality of life are frequently a part of neurosurgical interventions. Given the intricacy of these choices, it is essential to comprehend the viewpoints of patients, families, and healthcare professionals, especially when it comes to shared decision-making (SDM).

Objective: The purpose of this study was to investigate, through a qualitative method, how neurosurgical care decisions are made, with an emphasis on the emotional, cultural, and cognitive aspects that affect treatment decisions.

Methods: 110 participants, including patients, family members, and medical professionals, participated in a qualitative study at a tertiary care neurosurgery center. Key themes impacting decision-making were identified using thematic content analysis of in-depth, semi-structured interviews.

Results: Although 56.7% of patients favored SDM, power was frequently transferred to surgeons or families due to cultural dominance, emotional suffering, and a lack of medical understanding. Effective SDM was hampered by patient impairment, time constraints, and a lack of teaching resources, according to healthcare providers.

Conclusion: Making decisions on neurosurgery is a complicated process that is influenced by economic, cultural, emotional, and medical aspects. Patient care and family involvement can be improved by using shared decision-making (SDM) in a more methodical and compassionate way. To improve collaborative decision-making, future initiatives should concentrate on educating healthcare professionals and putting decision-support systems into place.

Keywords: Shared decision-making, neurosurgical interventions, patient-centered care

INTRODUCTION

Due to the development of the medical field during the last several decades, a number of alternatives have recently become available to be used during the decision-making process [1]. The general trend that the healthcare system has been shifting toward involves the focus on increased person-centered care that considers values, needs and preferences of patients [2, 3]. The shared decision-making (SDM) tool has attracted the greatest attention to clinical practice in the course of the past decade. SDM attempts to make the patient more involved in the selection of the course of therapy in the future [4].

SDM engages the patient and is based on reciprocal respect and engagement of a discussion with a doctor, whereas informed consent is based on assuring patients of the information given by the doctor [5]. Though no definition of SDM is yet accurate [6], it can typically be found through four steps: initially, a patient is informed that he or she needs to make a decision regarding his or her health and that they would appreciate hearing his or her opinions.

Second, the health practitioner puts out the strengths and weaknesses of the alternatives. It is then followed by the third step, which is a discussion during which the professional takes the patient through the process in a teaching way. Lastly during the fourth step, the wishes of the patient are expressed and either the patient decides, or the patient puts it off [7]. To make the patient have a full value of the risks that come with the treatment option, it is important that the discussion be made on the potential complications and how they will be addressed.

The model of SDM is based on the fact that a patient who is able to make his or her own choice will not necessarily think about what is important in the same way a physician views the same issue as being important. SDM tries to integrate values and preferences of the patient with optimum available clinical evidence in most of the scenarios [8,9,10].

Neurosurgery as a surgical specialty is considered high-risk [11,12]. In addition, asymptomatic or mildly symptomatic lesions have become more often in the clinical practice due to the relative availability of radiologic diagnostics and the fact that the population tends to age these days [13,14,15,16].

Other considerably divergent treatment options can also be relevant, but the decision to treat or not is not always reached (i.e., endovascular treatment versus clipping of cerebral aneurysms, radio surgery versus resection of vestibular schwannomas). Hence, the risk-benefit balance carried by the differing possibilities requires a more active participation of the patient in the decision-making process and it can be said that talking to the patient of the existing variations is a professional responsibility that we have to do in case variations exist. Moreover, many patients seem to prefer SDM with regard to medical decisions; however, some patients with brain tumors can develop cognitive impairment and become incompetent to make decisions by themselves, and in such a case they would use the help of their relatives [17,18,19,20].

This study aims to analyze neurosurgical interventions decision-making through a qualitative study that would help in understanding the role of patients, medical staff, and families in decisions regarding treatment

LITERATURE REVIEW

Because neurosurgical treatments have a significant risk and can have life-altering consequences, the decision-making process is extremely complex. Understanding not just the clinical indications for neurosurgery but also the psychological, social, and ethical factors that affect these choices is becoming more and more important, according to research. The interaction between patient agency and professional competence in clinical decision-making, especially in high-stakes situations like brain and spinal procedures, has been a major topic of contemporary work.

Numerous studies show that patients undergoing neurosurgical procedures frequently experience fear, uncertainty, and a lack of clarity regarding the course of treatment, all of which might make it more difficult for them to make well-informed decisions. Because the problem and surgery are so technically sophisticated, patients frequently submit to the neurosurgeon's authority. This "physician-led" approach has drawn criticism since it may diminish patient autonomy and marginalize their preferences [21]. Consequently, a growing corpus of research supports decision-making models that give priority to patient education, communication, and psychological preparedness for surgery [22]. Patients must decide between aggressive and conservative surgical procedures in the unique setting of neurosurgery oncology. A qualitative study found that when neurosurgical patients are making decisions that potentially lead to significant functional impairment or cognitive risks, they value clarity, emotional support, and reassurance [23]. Family participation and surrogate decision-making are crucial since patients with neurological abnormalities, such as cognitive decline or aphasia, are unable to engage in meaningful decision-making [24]. Decisions regarding neurosurgery are also influenced by socioeconomic, cultural, and religious considerations. For instance, research conducted in low- and middle-income nations shows that when patients must choose amongst neurosurgical treatment options, they frequently rely significantly on family or community feedback [25]. Decisions to accept or reject surgery are often influenced by financial limitations and restricted access to rehabilitative programs. Neurosurgeons must therefore regularly strike a balance between patient context, ethical issues, and medical viability.

Variability in prognostic data also makes it difficult for clinicians to accurately communicate risks and outcomes, particularly when glioblastoma or spinal cord tumors are involved. Although their integration into neurosurgical practice is still restricted, previous research implies that the use of decision aids tools intended to help patients grasp difficult medical information can encourage improved understanding and engagement [26]

Additionally, the emotional toll that decision-making takes on patients and practitioners is gaining attention. Presenting a balanced viewpoint can be difficult for neurosurgeons, especially if they think a particular operation is better from a medical standpoint. The way treatment alternatives are presented may be influenced by this internal conflict, which could sway the patient's decision [27].

RESEARCH OBJECTIVE:

This study aims to investigate and comprehend the decision-making process associated with neurosurgical treatments from the viewpoints of patients, families, and medical professionals. It seeks to pinpoint the major emotional, moral, cognitive, and cultural elements affecting these choices. Using qualitative approaches, the study aims to identify the barriers and facilitators that affect patient engagement in selecting neurosurgical treatment options and to reveal how shared decision-making is applied in practice.

METHODOLOGY

This study was carried out at a tertiary care neurosurgery center and was planned as a qualitative research project. 110 people who were neurosurgical patients, their families, and medical professionals (neurosurgeons, nurses, and medical social workers) involved in treatment decision-making were recruited using a purposive sampling technique. Using a pretested interview guide, in-depth, semi-structured interviews were held in a private, confidential setting. The topics covered included the decision-making process, variables impacting decisions, communication styles, and perceptions of shared decision-making. Thematic content analysis was used to examine the verbatim transcriptions of the audio recordings of the interviews. To let themes naturally arise from the data, an inductive technique was used. The institutional review board granted ethical approval, and each subject gave their informed permission.

RESULTS

Table 1: Patient Participants' Demographic Profile (n=60)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	34	56.7%
Female	26	43.3%
Age Group		
18–30 years	12	20%
31–50 years	25	41.7%
51–70 years	23	38.3%
Educational Level		
Illiterate	10	16.7%
Primary	15	25.0%
Secondary or Higher	35	58.3%
Type of Neurosurgical Condition		
Brain Tumor	28	46.7%
Spinal Cord Compression	20	33.3%
Aneurysm/AVM	12	20.0%

Table 2: Challenges to Collaborative Decision-Making As Reported by Participants(n=60)

Barrier Type	Frequency (n)	Percentage (%)
Limited Patient Knowledge	40	66.7%
Communication Gaps with Doctors	35	58.3%
Time Constraints in Clinics	30	50%
Cultural/Family Dominance	28	46.7%
Emotional Distress	25	41.7%
Cognitive Impairment	10	16.7%

Table 3: Patients' Preferences for the Decision-Making Model (n=60)

Preferred Model of Decision-Making	Number of Patients	Percentage (%)
Shared Decision-Making (SDM)	34	56.7%
Physician-Led Decision	18	30.0%
Family-Led Decision	8	13.3%
Reasons for SDM Preference		
Desire for Control and Understanding	24	70.6% (of SDM)
Satisfaction with Informed Discussion	10	29.4% (of SDM)

Table 4: Key Themes Found Frequently in Interviews with Patients and Families (n=90)

Theme Identified	Frequency (n)	Percentage (%)
Emotional distress after diagnosis	65	72.2%
Family-led decision-making	58	64.4%
Poor understanding of surgical risks	50	55.6%
Trust in surgeon's judgment over own input	47	52.2%
Religious and cultural influence	39	43.3%
Financial concerns as a deciding factor	36	40.0%
Patient autonomy in decision-making	22	24.4%

Table 5: Healthcare Professionals' Identification of Obstacles to Effective Decision-Making (n=20)

Barrier Identified	Frequency (n)	Percentage (%)
Limited patient understanding of neurosurgical risks	16	80.0%
Time constraints during outpatient Consultations	15	75.0%
Lack of decision support tools (visual aids, etc.)	13	65.0%
Overinvolvement or dominance of family members	12	60.0%
Cultural/language barriers in patient communication	10	50.0%
Cognitive or emotional impairment in patients	9	45.0%

DISCUSSION OF RESULTS

According to the demographic profile of the 60 patient participants, women made up 43.3% of the group, while men made up the majority (56.7%). The majority of individuals (41.7%) and 38.3%) were between the ages of 31 and 50 and 51 and 70, respectively, suggesting that middle-aged and older adults were most frequently getting neurosurgical examination. In terms of education, 16.7% were illiterate, 25% had only finished basic school, and 58.3% had completed secondary or higher education. Nearly half (46.7%) had brain tumors as their clinical diagnosis, followed by cases of spinal cord compression (33.3%) and aneurysms or arteriovenous malformations (20%).

One of the main obstacles to collaborative decision-making, according to 66.7% of the patients, is a lack of understanding regarding their condition and available treatments. 50% of respondents said that time limits in the outpatient setting hindered their capacity to have in-depth conversations, while 58.3% of respondents observed communication problems between patients and doctors. 46.7% of respondents cited family or cultural dominance in the decision-making process. Of the participants, 16.7% said that cognitive impairment impacted their comprehension and decision-making skills, and 41.7% identified emotional anguish after diagnosis as a limiting factor.

A shared decision-making method was favored by 56.7% of patients when asked about their preferred models of decision-making, indicating a desire for increased patient involvement in their care. Thirteen percent supported family-led decisions, whilst thirty percent preferred physician-led decisions. Of those who supported shared decision-making, 29.4% felt more satisfied because it featured in-depth and educational conversations with their doctors, and 70.6% said it offered them a sense of power and greater understanding.

Thematic analysis of 90 patient and family member interviews identified important cognitive, emotional, and cultural factors that affect decision-making. According to 72.2% of participants, the most prevalent theme was emotional difficulty upon diagnosis. In 64.4% of cases, family members made decisions which are frequently connected to cultural standards. 52.2% said they trusted the surgeon's judgment more than their own decisions, and 55.6% said they had a poor awareness of the dangers associated with surgery. In 43.3% of the cases, decisions were impacted by religious and cultural convictions, while 40% of the cases mentioned financial restrictions. Merely 24.4% of respondents showed a high sense of independence and took an active role in making decisions.

As reported by 80 percent of the medical experts (n=20), poor understanding of neurosurgical risks by the patients significantly hindered effective shared decision-making. 75 percent of the participants claimed that limited time in consultations was an issue. The second challenge cited by almost 65 percent of the participants was the lack of decision-support tools, including simple instructional materials or images. In addition, two-thirds of the respondents reported that sometimes the desire to take decision-making tasks was placed on other members of the family at the expense of the patient. Going through the decision-making owning to cognitive or emotional disability of patients, was noticed by 45 percent of the professionals and 50 percent of the professionals cited cultural or linguistic challenges.

CONCLUSION

Rich information relating to the decision-making processes involved in neurosurgical interventions was derived from this qualitative study. The research identified that even though shared decision-making (SDM) was welcomed by a significant population of patients, its successful use was inhibited due to various barriers. These were emotional discomfort, cognitive impairment, cultural effects which usually resulted in family dominated family choices and patients poor understanding of complicated medical-related issues. Most patients mostly relied on the decision of the surgeon even though they wished to be more engaged due to the lack of medical experience or emotional fatigue due to the diagnosis.

To ensure that such information gap was closed, these challenges were identified by the healthcare practitioners and the importance of improving communication, and using decision-support systems was emphasized. Commons ones were time limitations in outpatient sessions and the absence of teacher/visual aids. Even though this is considered culturally appropriate in certain cultures, too much familial involvement has been discovered to be the particular factor restricting the autonomy of the patient and increasing the challenging relation between the doctor and patient.

The research paper focused on the psychological and emotional sides of surgical decision-making. Emotional responses such as fear and anxiety affected the patient's perceptions and the processing of given information especially after informed about high-risk neurosurgical conditions. Financial pressures and religious beliefs also played a role in decisions, particularly, where resources were scarce.

Variations between patient-centered care ideal and the real-life limitations that did not allow full implementation of patient-centered care was a routine problem. SDM is more of a mainstream strategy, although to make neurosurgery implement and use it effectively, some structural modifications should be conducted. Such measures are extended consultation times, use of visual materials and support to patients with cognitive problems or inadequate literacy.

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