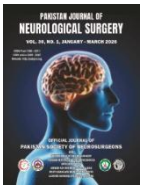

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Original Research

Ethical Challenges for Healthcare Providers in End-of-LIFE Decision-Making for Severe Head Injury Patients

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ABSTRACT

Objectives: This study aims to determine the ethical challenges healthcare providers encounter while making end-of-life decisions for patients with severe head injuries in a tertiary care hospital.

Materials & Methods: A cross-sectional, questionnaire-based survey was conducted targeting neurosurgeons, ICU physicians, and nurses with a minimum of one year of experience. The structured tool examined frequency, types, and sources of ethical dilemmas, decision-making approaches, and institutional support. Statistical analysis was performed using SPSS version 26.

Results: Of the 100 healthcare professionals surveyed, 78% frequently encountered ethical dilemmas, with resource limitations, familial pressure, and lack of institutional policy cited as the primary issues. A significant association was found between professional role and perceived institutional support ($p<0.05$), and a positive correlation between experience and confidence in decision-making ($r=0.32$).

Conclusion: The findings highlight a lack of ethical preparedness and insufficient institutional support for end-of-life decision-making. Improving this area requires structured ethics training, the implementation of formal policies, and multidisciplinary collaboration that reflects the local sociocultural context.

Keywords: End-of-life care, ethical challenges, severe head injury, healthcare providers, Pakistan.

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INTRODUCTION

All over the world, healthcare professionals frequently face moral distress when making end-of-life decisions for patients with catastrophic neurological injuries such as severe head trauma.[1] These ethical tensions are more pronounced in low and middle-income countries like Pakistan, where the intersection of limited healthcare infrastructure, religious values, cultural norms, and legal ambiguity influences complex decision-

making landscapes.[2] In such cases, the principle of autonomy often clashes with that of beneficence, especially when patients are incapacitated, and families are expected to act as surrogates.[3,4] While developed countries have formulated strong legal frameworks, advance directives, and ethics consultation systems to address such challenges, healthcare systems in Pakistan are still evolving in this regard.[5]

Globally, traumatic brain injury (TBI) affects nearly 69 million people annually, with approximately 5.5 million classified as severe cases.[6] Severe head injury carries a high mortality rate of 30–50% and results in long-term disability in 40–60% of survivors.[7,8] In Pakistan and South Asia, road traffic accidents contribute to more than 60% of severe TBI cases, especially among young adults.[9] The short-term outcomes for these patients often include 50–70% survival rates, prolonged ICU stays of 7–14 days, and complications such as ventilator-associated pneumonia, sepsis, seizures, and elevated intracranial pressure.[10] Healthcare providers, including neurosurgeons, ICU physicians, and nurses, play a critical frontline role in managing these patients, yet they frequently encounter ethical dilemmas related to resource scarcity, family dynamics, and lack of structured institutional guidance.[11]

In the neurosurgical and intensive care unit (ICU) settings, clinical decisions about withdrawing or withholding life-sustaining treatment (LST), performing brain death assessments, and facilitating family discussions remain emotionally charged.[1] Medical staff face dilemmas related to discontinuation of mechanical ventilation, artificial hydration and nutrition, and when or whether to declare futility of care.[12] In many instances, decisions must be made without formal institutional policies or adequate support systems.[13] The emotional burden on healthcare workers is compounded by fear of litigation, misinterpretation of religious doctrines, and family expectations.[14]

As end-of-life care decisions continue to gain attention in ethical literature, little empirical data exists from Pakistan. Previous work has highlighted a lack of preparedness among physicians, nurses, and healthcare administrators in navigating these challenges.[15] This study seeks to bridge this gap by investigating the frequency and types of ethical dilemmas reported by healthcare providers managing patients with severe head injuries. We aim to examine the perceived institutional, legal, and cultural barriers influencing these decisions. Furthermore, the research advocates for better ethics training, the establishment of hospital-based ethics committees, and the formulation of national guidelines to ensure equitable, culturally appropriate, and legally safe end-of-life care practices.[16,17]

All over the world, healthcare providers face dilemmas in balancing patient autonomy, beneficence, and institutional limitations when treating severe head injuries.[18] While data from high-income countries reflects clearly the legal and cultural diversity in end-of-life care, similar research in our institution is lacking.[19] Local practices are often influenced by socioeconomic constraints, family dynamics, and the absence of good ethical policies.[20] This research seeks to bridge that knowledge gap by analyzing the challenges faced by clinicians and nurses managing such situations. These dilemmas are particularly important in settings where healthcare infrastructure is underdeveloped, legal frameworks are lacking, and ethical training is minimal. Furthermore, decisions related to the continuation or withdrawal of life-sustaining treatment often occur in emotionally charged environments.[21] It becomes necessary to understand the interplay of medical, ethical, cultural, and legal perspectives to facilitate better care for patients with poor prognoses.[22] This study not only provides empirical data on healthcare provider experiences but also aims to bring reforms in ethical policy frameworks.

MATERIALS & METHODS

A severe head injury, also known as severe traumatic brain injury (TBI), refers to a significant disruption of normal brain function and anatomy, typically measured by a Glasgow Coma Scale (GCS) score of 3 to 8 upon initial assessment. The GCS categorizes head injuries into three levels: a score of 13–15 indicates a mild head injury, a score of 9–12 represents a moderate head injury, and a score of 3–8 reflects a severe head injury.

This injury often results in prolonged unconsciousness or coma, and may involve skull fractures, bleeding within the brain (e.g., subdural, epidural hematomas), brain swelling, and diffuse axonal injury, which requires ICU care.

Global and National Statistics

Worldwide, approximately 69 million people suffer traumatic brain injury (TBI) each year, of which around 5.5 million cases are classified as severe. Severe head injuries carry a mortality rate of 30–50%, depending on factors such as access to care, age, and the mechanism of injury. Among survivors, 40–60% experience moderate to severe long-term disability. In Pakistan and across South Asia, road traffic accidents account for over 60% of severe TBI cases, disproportionately affecting young males aged 18–35.

Outcomes of Severe Head Injury

Outcomes vary depending on factors such as time to treatment, age, comorbidities, and injury severity.

Short-term Outcomes

The survival rate for patients with severe head injury varies between 50% and 70%, with an intensive care unit (ICU) stay typically ranging from 7 to 14 days. Common complications include ventilator-associated pneumonia, sepsis, seizures, and increased intracranial pressure (ICP).

Healthcare Providers

This term refers to doctors and nurses who are directly involved in the management of patients with severe head injuries, including neurosurgeons, ICU physicians, and nurses working in neurosurgical wards or intensive care units.

Study Design and Setting

This cross-sectional study was conducted in the Neurosurgery and Intensive Care Unit (ICU) departments of Nishtar Medical University, Multan, from February to May 2025. The study aimed to explore ethical challenges among healthcare professionals involved in end-of-life care decisions while managing severe head injury patients.

Participants and Sampling

A convenience sample **of** 100 healthcare providers was recruited, including neurosurgeons**,** ICU physicians**, and** nurses**.**

Inclusion Criteria

Healthcare providers, including neurosurgeons, ICU physicians, and nurses with at least one year of clinical experience, were included in the study.

Exclusion Criteria

Providers who were interns, administrative staff, or had less than one year of direct patient care experience were excluded. Also, those who are treating patients other than head injury patients.

Data Collection

Data were collected using a structured, self-designed questionnaire approved by the Institutional Review Board (IRB Approval #7541, dated January 31, 2025). The tool consisted of eight mixed-format questions, incorporating both quantitative (closed-ended) and qualitative

(open-ended) items. The questionnaire primarily covered demographic information, the frequency and nature of ethical challenges encountered, sources of conflict in clinical decision-making, current practices in ethical decision-making, the availability of institutional policy and support, as well as training needs and participant recommendations. The questionnaire was distributed digitally using **Google Forms** and shared via **email and WhatsApp** to facilitate participation.

Table 1: *Responses of Groups (Q1–Q3) – Comparison of Doctors and Nurses.*

Question	Doctors (%)	Nurses (%)
Q1. Frequency of Ethical Dilemmas	75	90
Q2. Challenge: Resource allocation	70	85
Q2. Challenge: Family Pressure	40	50
Q2. Challenge: Autonomy vs Judgment	35	45
Q3. Institutional Policy Support	30	10

Data Analysis

Data were analyzed using IBM SPSS Statistics version 26. The analysis included descriptive statistics, with mean and standard deviation (SD) calculated for continuous variables such as age and years of experience, and frequencies and percentages determined for categorical variables. Chi-square tests were used to assess associations between professional roles, such as neurosurgeons, ICU physicians, and nurses, and variables including perceived institutional policy support, the frequency of ethical dilemmas, and the expressed need for ethics training.

RESULTS

Participant Demographics

A total of 100 healthcare providers participated in the study, of which 80% were doctors and 20% were nurses. Among the participants, half were Neurosurgeons (50%). Regarding professional experience, 42% of participants had more than 5 years of experience, 19% had 3 years, 11% had 5 years, and 28% selected 'Other'.

Frequency and Types of Ethical Dilemmas

Most participants (78%) reported frequently encountering ethical dilemmas in end-of-life care. The most commonly reported ethical challenge was resource allocation and availability (77%), followed by pressure from family members (43%), balancing patient autonomy with medical judgment (40%), lack of institutional guidelines (35%), and cultural or religious considerations (35%). Only 30% of participants felt adequately supported by institutional policies, whereas the majority (73%) did not. Conflicts within the healthcare team regarding end-of-life decisions were experienced by 39% of respondents, while 61% reported no such conflicts.

Table 1 shows responses of groups (Q1–Q3) and presents the differences between doctors and nurses. Doctors reported facing ethical dilemmas less frequently than nurses (75% vs. 90%). Regarding challenges, resource allocation was reported by 70% of doctors and 85% of nurses, family pressure by 40% of doctors and 50% of nurses, and autonomy versus judgment by 35% of doctors and 45% of nurses. In terms of institutional policy support, 30% of doctors felt supported compared to only 10% of nurses. The most influential factor in decision-making was resource allocation, followed by family pressure and institutional policy support.

Ethical Discussions and Family Communication

Ethical challenges were rarely discussed with colleagues or ethics committees by 39% of respondents. About 31% discussed them sometimes, 19% often, and only 12% always.

Structured communication with families about end-of-life care options was affirmed by 62% of respondents, while 39% reported that families were not informed.

Table 2 depicts responses of groups (Q4–Q10) and highlights group-specific responses. Nurses reported more conflicts in healthcare teams (60%) compared to doctors (35%). Patient prognosis influenced decisions similarly across groups (70% of doctors vs. 65% of nurses). Nurses were less involved in ethical discussions (45% rarely discussed vs. 35% of doctors) and slightly less likely to inform families structurally (55% vs. 65%). Both groups strongly supported the recommendation for ethics training programs (60% doctors, 65% nurses).

Table 2: *Responses of Groups (Q4–Q10) – Comparison of Doctors and Nurses.*

Question	Doctors (%)	Nurses(%)
Q4. Conflict in the Healthcare Team	35	60
Q5. Influence: Patient Prognosis	70	65
Q6Rarely Discuss Ethical Challenges	35	45
Q7. Families Informed Structurally	65	55
Q8. Recommend Ethics Training	60	65

Table 3: *Associations between role and ethical changes faced by both groups.*

	Chi-Square Significance	Interpretation
Role vs. Policy Support	Significant ($p<0.05$)	Doctors feel more supported
Role vs. Ethical Dilemma Frequency	Significant	Nurses face more dilemmas
Role vs. Team Conflict	Significant	More conflict reported by nurses
Role vs. Ethical Discussion	Significant	Nurses less involved
Role vs. Training Need	Not significant	All groups support training

Recommendations for Improving Ethical Decision-Making

To enhance ethical decision-making, 62% of participants recommended implementing ethical training programs, providing counseling support, and promoting regular team discussions. Additionally, 50% of respondents suggested stronger institutional policies to guide end-of-life care.

Associations Between Role and Ethical Challenges

Chi-square analysis examined associations between the participants' roles and various ethical challenges. Table 4 highlights Associations between Role and Ethical Challenges. The results showed that doctors felt more institutional support (30%) than nurses (10%) ($p<0.05$). Nurses reported more frequent ethical dilemmas (90% vs. 75%) and more team conflicts (60%). Nurses were also less likely to engage in ethical discussions with colleagues. The need for ethics training was strongly supported by both groups, with no significant difference ($p>0.05$).

DISCUSSION

This study highlights the ethical complexities encountered by healthcare providers in Pakistan when delivering end-of-life care to patients with severe head injuries. The high frequency of ethical dilemmas, particularly conflicts between patient autonomy and physician judgment, indicates a systemic issue that demands institutional and policy-level attention. Balancing ethical principles becomes particularly difficult in a context where advance directives are rarely documented, family-centered decision-making predominates, and resource constraints limit choices.[23]

The conflict between autonomy and beneficence is frequently complicated by deeply

rooted sociocultural values. In Pakistani society, family members often exert significant influence in clinical decisions, occasionally overriding what might be inferred as the patient's best interest. Healthcare providers report being placed in ethically troubling situations where life-sustaining treatments are continued despite clinical futility, primarily due to family insistence or institutional fear of public backlash.[21]

Institutional guidelines or the lack thereof further exacerbates these dilemmas. Only 39% of respondents felt their institutions had adequate policies to support ethical decision making. This aligns with previous studies suggesting that Pakistani hospitals rarely have structured ethical frameworks or functioning hospital ethics committees.[24] Moreover, clinical staff often work in environments where they are unsure of the legal consequences of their decisions, thus erring on the side of aggressive treatment even when not clinically justified.

End-of-life decisions in severe head-injury patients in Pakistan are ethically challenging due to uncertain prognosis, absence of advance directives, strong family involvement, and lack of clear legal guidelines on withdrawal of life support. Cultural and Islamic values influence acceptance of limiting futile treatment, while resource constraints and fear of medico-legal consequences further burden clinicians. Clear communication, shared decision-making, and proper documentation are essential.[26]

The lack of training in clinical ethics remains a substantial barrier. Medical education in Pakistan has yet to fully integrate structured ethics modules into undergraduate or postgraduate curricula. Many providers learn to handle these situations through observation or personal experience, leading to variability in practice and ethical discomfort.[25]

Our findings support the need for policy reforms aimed at integrating ethics consultation services and decision-support tools within tertiary care institutions. Interdisciplinary ethics committees can serve as valuable platforms to mediate conflicts, ensuring that decisions respect patient rights while upholding medical standards. Additionally, implementing culturally sensitive family counseling practices and promoting advanced care planning may ease some of the ethical burden faced by physicians and nurses.

In summary, this study underscores the urgent need for context-sensitive ethical support structures in Pakistani healthcare settings. Without clear institutional guidelines, ethics training, and legal protections, healthcare providers will continue to face significant stress and moral uncertainty in end-of-life care.

The results underscore persistent ethical tensions in end-of-life care for neurosurgical patients. The high frequency of reported dilemmas reflects not only the emotional and clinical complexity of such cases but also institutional inadequacies in providing ethical guidance. The conflict between respecting autonomy and pursuing beneficence is compounded by a cultural context that values family involvement and lacks formalized advance directives.

The results point to a systemic need for ethics education, dedicated consultation services, and clearer communication protocols. Interdisciplinary ethics committees and structured family counseling sessions could serve as vital tools to mediate disputes and ensure ethically sound practices. More complexity arises from the limited awareness and implementation of advance care planning and living wills among patients and families. Healthcare professionals often struggle with insufficient legal protection and fear of litigation when making ethically justified decisions. This underscores the importance of establishing institutional support systems such as ethics liaisons or advisors, in addition to formal committees. Additionally, cultural competence training and inclusion of ethics in medical curricula could prepare future providers for real-world decision-making dilemmas.

CONCLUSION

Healthcare providers frequently encounter ethical challenges when managing end-of-life care in severe head injury cases. Institutional shortcomings, cultural pressures, and clinical uncertainties contribute to decision-making stress. Strengthening ethics training, developing standardized policies, and promoting collaborative decision-making models are critical steps to support providers and ensure patient-centered care.

RECOMMENDATIONS

Recommendations include implementing formal ethics committees in neurosurgery and ICU settings, developing national guidelines tailored to local cultural and institutional contexts, conducting regular training workshops on end-of-life decision-making, encouraging structured family meetings for shared decision-making, and promoting documentation of patient wishes and advance directives wherever possible. The findings will be disseminated through peer-reviewed journal publications, presentations at national and international conferences, and institutional training seminars and workshops.

LIMITATION

This study is limited by its cross-sectional design, reliance on self-reported data, and a sample confined to selected tertiary care hospitals, which may limit generalizability.

Also, this was an exploratory, institution-based study, self-made questionnaire formal psychometric validation (e.g., factor analysis or test–retest reliability) was not performed.

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Additional Information

Disclosures: The authors declare no financial or personal conflicts of interest related to this research.
Ethical Review Board Approval: The study protocol was reviewed and approved by the ethical review committee of the participating institutions, and all participants gave informed consent.
Human Subjects: Every patient and volunteer in this study gave their informed consent.
Conflicts of Interest: All authors affirm the following in accordance with the ICMJE uniform disclosure form:
Financial Relationships: Each author has stated that they have no financial relationship to any organizations that might be interested in the submitted work, either now or within the last three years.
Other Relationships: Each author has stated that the submitted work was not impacted by any other relationships or activities.
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AUTHORS CONTRIBUTIONS

Sr.#	Author's Full Name	Intellectual Contribution to Paper in Terms of:
1.	Iqbal Ahmad	1. Study design, analysis of data, interpretation of results and methodology.
2.	Khitam-ul-Haq	2. Editing, literature review and referencing.
3.	Habib Ullah	3. Paper writing, editing and quality insurer.
4.	Muhammad Sajjad	4. Data collection and calculations.