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Original Research Article

Questionnaire-Based Assessment of Patients Knowledge, Attitude, and Practices Regarding Restorative and Endodontic Treatment

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Abstract:

Background: Dental caries and pulpal diseases constitute a significant public health burden in developing nations, often leading to tooth loss if untreated. While restorative dentistry and endodontics offer viable alternatives to extraction, patient acceptance is frequently hindered by a lack of knowledge, economic constraints, and prevailing cultural misconceptions.

Objectives: The primary objective of this study was to evaluate the current level of knowledge, prevailing attitudes, and self-reported practices regarding restorative and endodontic treatments among patients attending a tertiary care facility. Additionally, the study aimed to identify the socioeconomic barriers preventing the utilization of conservative dental procedures.

Methods: A retrospective analysis was conducted on data collected from 500 patients visiting the Department of Dentistry at Anugrah Narayan Magadh Medical College and Hospital (ANMMCH), Gaya Ji, over a three-month period. Data was originally gathered using a standardized questionnaire focusing on demographics, awareness of Root Canal Treatment (RCT) and fillings, attitudes toward tooth preservation versus extraction, and oral hygiene practices.

Results: The study population (n=500) predominantly comprised individuals aged 18–45 years. Analysis revealed that while 62% of participants were aware of dental fillings, only 38% possessed accurate knowledge regarding RCT. A significant portion (58%) preferred extraction over preservation, citing cost (45%) and fear of pain (32%) as primary barriers. Practices were suboptimal, with 42% reporting visits to unqualified practitioners (quacks) prior to seeking professional care.

Conclusion: There exists a substantial gap in knowledge and positive attitudes toward restorative and endodontic procedures in the Gaya region. Fear and economic factors act as major deterrents. Targeted awareness campaigns and improved accessibility to conservative dental care are imperative to shift the paradigm from extraction to preservation.

Introduction

Oral health is an integral component of general well-being, yet it remains a significantly neglected aspect of public healthcare in many developing regions [1,2]. Dental caries affects approximately 60–80% of the Indian population, a statistic that translates into a massive burden of untreated disease [3]. When left unchecked, caries progresses to irreversible pulpitis and apical periodontitis, conditions that compromise the structural integrity of the tooth and cause severe morbidity. Historically, the treatment of choice for such compromised teeth in rural and semi-urban India has been extraction. This trend is often driven not by clinical necessity, but by a lack of awareness about conservative options like restorative dentistry and endodontics.

The Shift to Conservative Dentistry: Modern dentistry has shifted its paradigm from extraction-based treatments to the preservation of natural dentition. Restorative treatments, such as composite or amalgam fillings, and endodontic therapies, specifically Root Canal Treatment (RCT), have revolutionized the management of carious teeth. These interventions allow for the retention of function, aesthetics, and proprioception, which are invariably lost with extraction [4]. However, the clinical success of these interventions depends heavily on patient acceptance. This acceptance is intrinsically linked to the patient's Knowledge, Attitude, and Practices (KAP). As observed by Babalola et al., the rejection of essential endodontic interventions is often driven more by procedure-

related fears and unfounded negative perceptions than by the clinical rationale for tooth preservation [5].

Regional Context: Gaya Ji

Gaya Ji (Gaya), located in the state of Bihar, represents a unique demographic landscape characterized by a blend of urban, semi-urban, and rural populations. The region faces distinct healthcare challenges, including lower literacy rates compared to the national average and a high prevalence of tobacco and betel nut usage, which significantly exacerbates the oral disease burden [6]. While tertiary care facilities like Anugrah Narayan Magadh Medical College and Hospital (ANMMCH) provide advanced care, the region battles systemic challenges such as low oral health literacy and the widespread presence of unqualified dental practitioners, locally known as "quacks" [7]. These informal providers often reinforce the notion that extraction is the only viable cure for dental pain.

Rationale and Objective: Existing literature on dental KAP in India often focuses on metropolitan cities or southern states, leaving a paucity of data regarding the Magadh region of Bihar. Understanding local barriers is crucial for policy formulation and community health interventions. Consequently, this retrospective study was undertaken to analyze pre-existing data on patients' knowledge, attitude, and practices regarding restorative and endodontic treatments at ANMMCH, Gaya Ji, to better understand the gap between available medical technology and patient utilization.

Methodology

Study Design and Setting: This investigation was designed as a retrospective, hospital-based cross-sectional study. It was conducted at the Department of Dentistry, Anugrah Narayan Magadh Medical College and Hospital (ANMMCH), Gaya Ji, Bihar. As a government-run tertiary care center, this institution serves as a primary referral hub for the Magadh division, catering to a diverse patient load ranging from local urban residents to patients referred from remote rural villages who often present with advanced dental pathologies.

Study Duration and Sample Size: The study involved the analysis of patient records and completed questionnaires accumulated over a three-month duration, specifically from January 1, 2025, to March 31, 2025. Through a convenience sampling method based on the availability of complete medical records, a total sample size of 500 subjects was finalized for the analysis. The protocol adhered to the ethical guidelines regarding patient data privacy, ensuring that personal identifiers were removed prior to data synthesis, and the study was conducted in compliance with the institution's research protocols.

Inclusion and Exclusion Criteria: The selection of records followed strict eligibility criteria to ensure data validity. The inclusion criteria comprised records of patients aged between 18 and 60 years who had visited the outpatient department (OPD) with primary complaints related to dental pain or visible caries. Crucially, only those files containing a fully completed standard departmental KAP questionnaire were included in the final dataset. Records were excluded if the questionnaires were incomplete, illegible, or filled out by a proxy. Furthermore, patients who presented exclusively for orthodontic corrections, prosthetic rehabilitation without prior pain, or those with physical or mental disabilities that would have impaired valid communication during the initial history taking were removed from the dataset to avoid confounding the attitude variables.

Data Collection Instrument: The primary tool for data extraction was a standard 20-item semi-structured questionnaire routinely used by the department for initial patient assessment and counseling. This instrument was conceptually divided into four comprehensive sections. The first section gathered demographic details, including age, gender, education level, and socioeconomic status based on a modified Kuppuswamy scale. The second section assessed Knowledge, probing awareness of terms like "cavities," "nerve treatment" (RCT), and the purpose of fillings. The third section evaluated Attitude, specifically focusing on the patient's perception of pain, the financial value of saving a tooth, and anxiety levels associated with dental equipment (drills, needles). The final section on Practice investigated daily oral hygiene habits, frequency of dental visits, and the history of self-medication or visits to non-professional healers.

Statistical Analysis: The raw data extracted from the physical records were coded and digitally entered into Microsoft Excel to create a master chart. Subsequent statistical analysis was performed using SPSS version 22.0 (IBM Corp, Armonk, NY). The analysis primarily utilized descriptive statistics, where categorical variables were expressed as frequencies and percentages. To understand the relationship between social determinants and health awareness, the Chi-square test was employed to assess associations, particularly between education levels and knowledge scores. A p-value of less than 0.05 was established as the threshold for statistical significance.

Results

Demographic Profile: The final dataset included 500 subjects. The gender distribution was relatively balanced but showed a slight male predominance, with 54% male and 46% female participants. In terms of age distribution, the majority of the patients fell into the young adult to middle age categories,

with 45% belonging to the 26–35-year age group. The literacy profile of the study population was diverse; 28% of the participants were recorded as illiterate, while only 18% had completed graduate-level education or higher, reflecting the semi-urban and rural catchment area of the hospital.

Table 1: **Demographic Distribution of the Study Population (N=500)**

Variable	Category	Frequency (n)	Percentage (%)
Age	$18-25$ years	110	22.0
	$26-35$ years	225	45.0
	$36-50$ years	105	21.0
	>50 years	60	12.0
Gender	Male	270	54.0
	Female	230	46.0
Education	Illiterate	140	28.0
	Primary/Secondary	270	54.0
	Graduate/Above	90	18.0
Residence	Rural	310	62.0
	Urban	190	38.0

Knowledge Assessment: The analysis of knowledge-based parameters indicated specific gaps in health literacy. While a high number of patients (85%) correctly identified that high sugar intake contributes to tooth decay, awareness regarding restorative procedures was significantly lower. Only 38% (n=190) of the respondents were familiar with the term "Root Canal Treatment" or its vernacular equivalent "Nas ka ilaaj." Although 62% were aware of dental fillings, a deeper probe revealed that 70% of these individuals held the misconception that fillings were only suitable for small, painless holes, unaware that deep caries could also be managed conservatively. Statistical evaluation highlighted a strong positive correlation between education level and knowledge of RCT ($p < 0.001$).

Attitude Toward Treatment: Patient attitudes appeared to be heavily influenced by misconceptions regarding the intensity of pain and the cost of treatment. When presented with a hypothetical scenario of a painful decayed tooth, 58% (n=290) of the respondents expressed a preference for extraction over preservation. As illustrated in Figure 1, the barriers to seeking restorative care were multifactorial. The most significant deterrent was Cost (45%), followed closely by Fear of Pain (32%). A smaller but notable segment (15%) cited the long duration of treatment and multiple visits required for endodontics as a reason for opting for extraction.

Table 2: **Sources of Information Regarding Dental Treatments**

Source of Information	Frequency (n)	Percentage (%)
Family/Friends/Relatives	265	53.0
Previous Dental Visit	110	22.0
Mass Media (TV/Internet)	60	12.0
General Physician	40	8.0
Others (Pharmacist/Quack)	25	5.0

Practices: The assessment of oral health practices revealed a reactive approach to dental care rather than a preventive one. Only 22% of the participants reported brushing their teeth twice daily. A substantial proportion (35%) relied on traditional cleaning methods such as datun (neem twigs), tooth powder, or ash, rather than using a standard toothbrush and fluoridated toothpaste. Regarding professional consultation, 68% reported visiting a dentist only when the pain became "unbearable" and interfered with sleep or work. Perhaps the most concerning finding was that 42% of the rural participants admitted to visiting unlicensed street practitioners or quacks for pain relief or extraction before eventually reporting to the tertiary center.

Table 3: **Key Responses Regarding Knowledge, Attitude, and Practice**

Domain	Question	Yes (%)	No (%)	Not Sure (%)
Knowledge	Do you know a painful tooth can be saved by RCT?	38.0	52.0	10.0
	Do you know fillings can prevent further decay?	62.0	28.0	10.0
Attitude	Is retaining a natural tooth better than artificial?	44.0	36.0	20.0
	Do you think dental treatment is expensive?	78.0	12.0	10.0
Practice	Do you visit a dentist for routine check-ups?	8.0	92.0	–
	Have you ever self-medicated for toothache?	65.0	35.0	–

Discussion

The present retrospective study provides a critical snapshot of the oral health landscape in the Gaya region, revealing a population in transition. While patients demonstrated awareness of basic etiology such as the link between sweets and cavities, they remained largely ignorant of modern therapeutic possibilities. The findings elucidate a complex interplay between socioeconomic status, education, and health-seeking behavior.

Knowledge Deficit and Literacy Influence: The low awareness of Root Canal Treatment (38%) observed in this study is consistent with findings from other rural Indian demographics, such as the study by Bala et al. in Jammu, which reported moderate knowledge but poor attitude toward preservation [8]. This contrasts with urban studies where awareness often exceeds 70%, suggesting that the lower literacy rate in the Magadh region significantly contributes to this knowledge gap [9]. The data indicates that while patients recognize the problem (pain/decay), they are often unaware of the specific solutions available beyond extraction, highlighting a need for targeted educational interventions as suggested by Haq et al. [9].

Socio-Economic Barriers and the "Extraction Culture": A striking 58% of participants preferred extraction over preservation, a finding that underscores the "extraction culture" prevalent in lower socioeconomic groups. This aligns with findings from western India by Shah et al., who noted that periodontal disease and caries are leading causes of extraction, with periodontal disease becoming the predominant cause in older age groups [10]. In the current study context, cost was identified as the dominant barrier (45%). Even though ANMMCH is a government facility offering subsidized care, the indirect costs including travel from rural villages, loss of daily wages, and the cost of consumable materials deter patients from opting for multi-visit treatments like RCT. This economic burden forces patients to choose the cheaper, immediate solution of extraction over the long-term benefit of retention [11].

Psychosocial Barriers: Fear and Myths: Fear of pain (32%) constituted the second most significant barrier to seeking restorative care. This corroborates the findings of Janczarek et al., who emphasized that dental apprehension and the "white coat syndrome" significantly hinder RCT acceptance [12]. Furthermore, cultural misconceptions play a pivotal role in this region. A persistent rural myth in Bihar that "dental treatment affects eyesight" was noted in the free-text comments of the questionnaires. This myth acts as a powerful psychological barrier, fueling reluctance to undergo procedures involving local anesthesia or rotary instruments [13]. As shown in the results, the heavy reliance on family and friends for medical information (53%) rather than professionals likely perpetuates these myths, creating a cycle of misinformation.

Impact of Unqualified Practitioners on Treatment Outcomes: The practice data revealed a disturbing trend regarding the utilization of unqualified practitioners. With 42% of patients having visited "quacks" prior to hospital admission, the region faces a public health concern specific to semi-urban India. These practitioners often perform unsterile extractions or provide temporary relief with hazardous chemicals, complicating the clinical picture before the patient reaches the tertiary center. This pathway to care causes delays that often render a tooth non-restorable by the time the patient sees a qualified dentist [7]. The lack of preventive practices, such as routine check-ups (only 8%), further exacerbates this issue, as conditions are rarely diagnosed in the incipient, reversible stages [14].

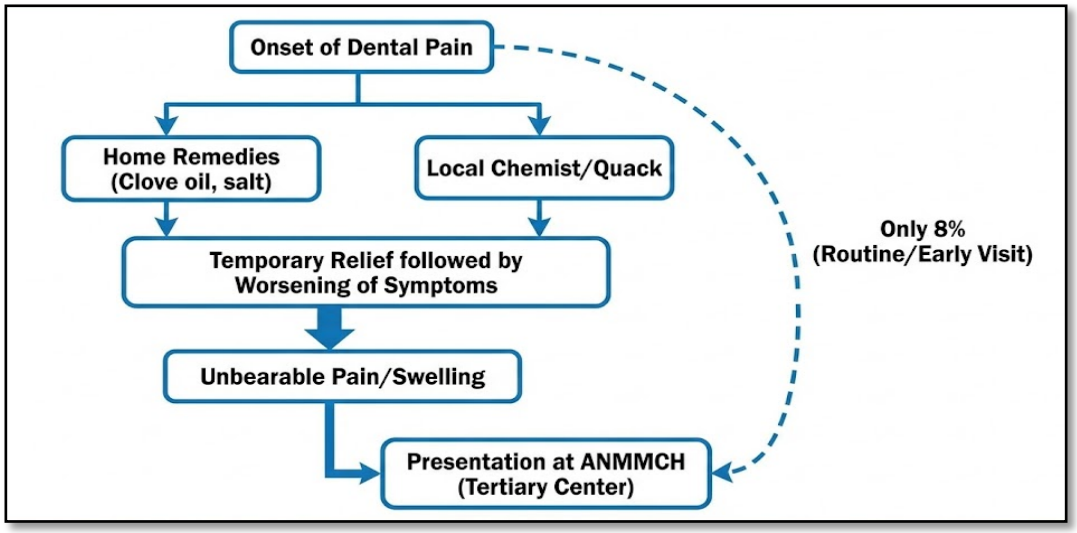

Figure 1: **Flowchart of Patient Pathway to Tertiary Care**

Education as a Social Determinant: Finally, the study highlights the critical role of education as a social determinant of oral health. The significant association found between higher education levels and better knowledge of RCT suggests that general literacy empowers patients to seek better health solutions. However, the disconnect between knowledge and practice implies that awareness alone is insufficient without addressing the structural barriers of cost and access [15]. Efforts to improve oral health in Gaya Ji must therefore address both the educational deficits and the economic realities of the patient population [16, 17].

Conclusion

This study concludes that while patients in Gaya Ji possess a rudimentary understanding of dental hygiene, their awareness of complex restorative and endodontic options remains critically low. The prevailing attitude significantly favors extraction, a decision driven principally by economic constraints, fear of pain, and deep-seated cultural myths regarding the safety of dental procedures. Practices in the region are characterized by a reactive approach to pain and a high dependence on non-professional care providers, which complicates treatment outcomes and reduces the viability of tooth preservation.

To bridge this gap, a multi-faceted approach is required. Firstly, extensive community outreach programs and awareness camps must be conducted in rural Gaya to debunk myths, specifically focusing on the safety of dental procedures and their lack of association with vision impairment. Secondly, the adoption of single-visit endodontics should be promoted within the hospital setting to reduce the economic burden of multiple trips for daily-wage earners. Finally, there is an urgent need for stricter enforcement against unqualified dental practitioners to ensure patient safety. By addressing these educational and economic barriers, the oral healthcare system can facilitate a paradigm shift from extraction-oriented care to a preservation-centric model.

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