



“Choice of Rotary Instrument Usage Among Endodontist and General Practitioners in Latur District: A Questionnaire Based Survey.”

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ABSTRACT

Aim: To evaluate the preference and usage of rotary and hand instruments among endodontists and general dental practitioners in Latur district.

Materials and Methods: A questionnaire-based cross-sectional survey was conducted among 105 dental practitioners using a structured 12-item questionnaire. Data were analyzed using descriptive statistics and chi-square tests.

Results: Most participants (87.6%) preferred using both hand and rotary instruments. File fracture was the most common procedural error with both hand (31.4%) and rotary instruments (45.7%). Lack of experience was the primary reason for not using rotary instruments.

Conclusion: Rotary instrumentation is widely accepted; however, experience and training significantly influence its clinical use. Continued education may improve confidence and reduce procedural errors.

Keywords

Rotary endodontics; Hand instruments; Dental practitioners; Endodontists; Survey

I. INTRODUCTION:

Endodontic therapy plays a vital role in maintaining natural dentition by treating pulpal and periapical diseases. The long-term success of root canal treatment is dependent on thorough cleaning and shaping of the root canal system, adequate disinfection, and hermetic obturation of the prepared canal space (1,2).

Effective biomechanical preparation not only facilitates microbial reduction but also ensures optimal conditions for obturation and periapical healing (3).

Over the past few decades, endodontic instrumentation has undergone significant advancement. Dental practitioners now have access to a variety of techniques and instruments designed to enhance clinical outcomes and reduce procedural

errors (4). Despite these improvements, the adoption of newer instrumentation methods shows considerable variation among practitioners, particularly between specialists and general dentists (5).

Studies across different regions have revealed that endodontists are more likely to adopt contemporary techniques compared to general practitioners. This discrepancy has been attributed to differences in postgraduate training, clinical experience, perceived cost-benefit ratio, and continuing dental education opportunities (6-8). For example, surveys from European and Middle Eastern countries reported higher adoption rates among specialists, while general practitioners cited barriers such as high costs, risk of instrument fracture, and lack of training (9,10).

Similar patterns have been observed in developing countries, where limited access to advanced training programs and resource constraints may influence adoption rates (11). In India, with its large and diverse dental workforce, these variations become more pronounced due to urban-rural disparities, differences in academic exposure, and availability of infrastructure (12).

Understanding these practice patterns is crucial to identifying gaps in knowledge and training, thereby guiding interventions to improve the standard of care (13). The Latur district of Maharashtra presents a unique context, as it encompasses both urban and rural populations and includes practitioners with varying degrees of clinical exposure and access to postgraduate education. However, limited literature exists regarding the endodontic practice trends in this region. A localized evaluation can provide valuable insights into the prevailing patterns of instrument usage among dental practitioners and highlight the factors influencing their choices (14).

Hence, this study aims to evaluate the choice of instrumentation techniques among



endodontists and general practitioners in Latur district using a structured questionnaire survey. The findings will not only contribute to the existing body of literature but also serve as a baseline for designing targeted continuing dental education programs and policy recommendations to enhance the quality of endodontic care in the region.

II. METHODS:

An online questionnaire-based survey was conducted among endodontists and general dental practitioners practicing in the Latur district of Maharashtra. A structured questionnaire on rotary instrument use was sent to 120 dentists. The questionnaire comprised 12 questions, including close-ended formats. There were neither time limitations nor true/false-based questions.

The questions covered aspects such as the type of instruments used, frequency of use, reasons for preference, limitations during clinical practice. The questionnaire was sent via email and social media platforms (e.g., WhatsApp) to the participants, along with an explanation of the study's purpose and assurance of confidentiality. Participation was entirely voluntary and anonymous,

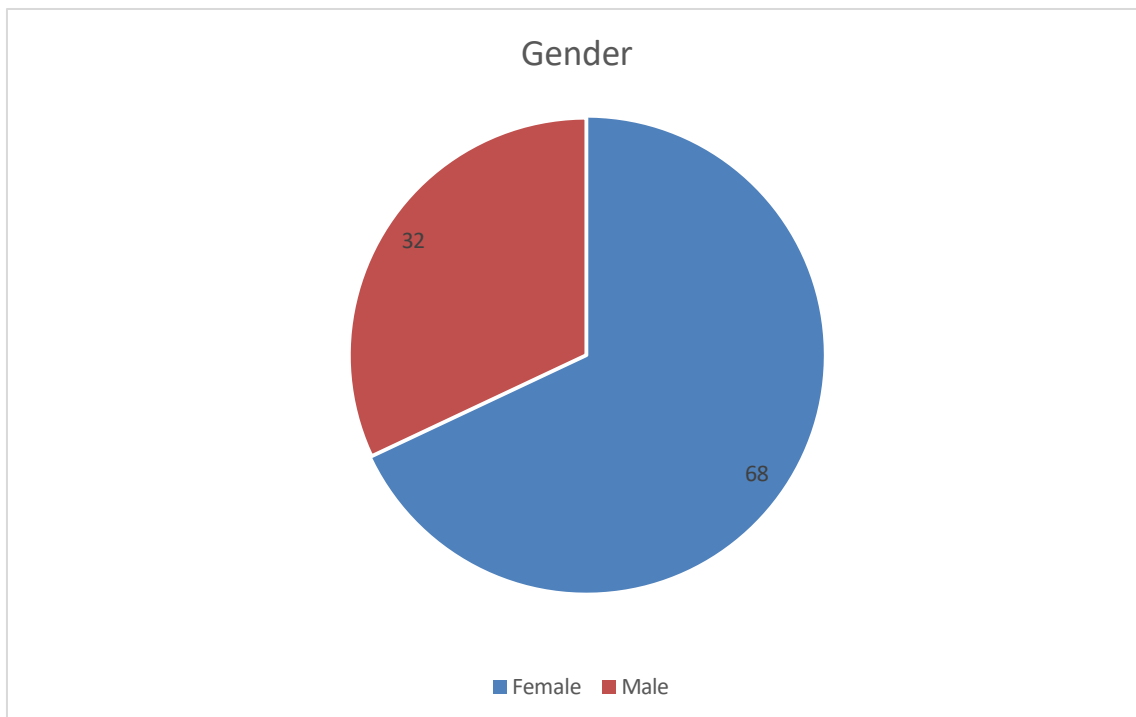
and no personal data were collected. Only completely filled questionnaires were considered for analysis.

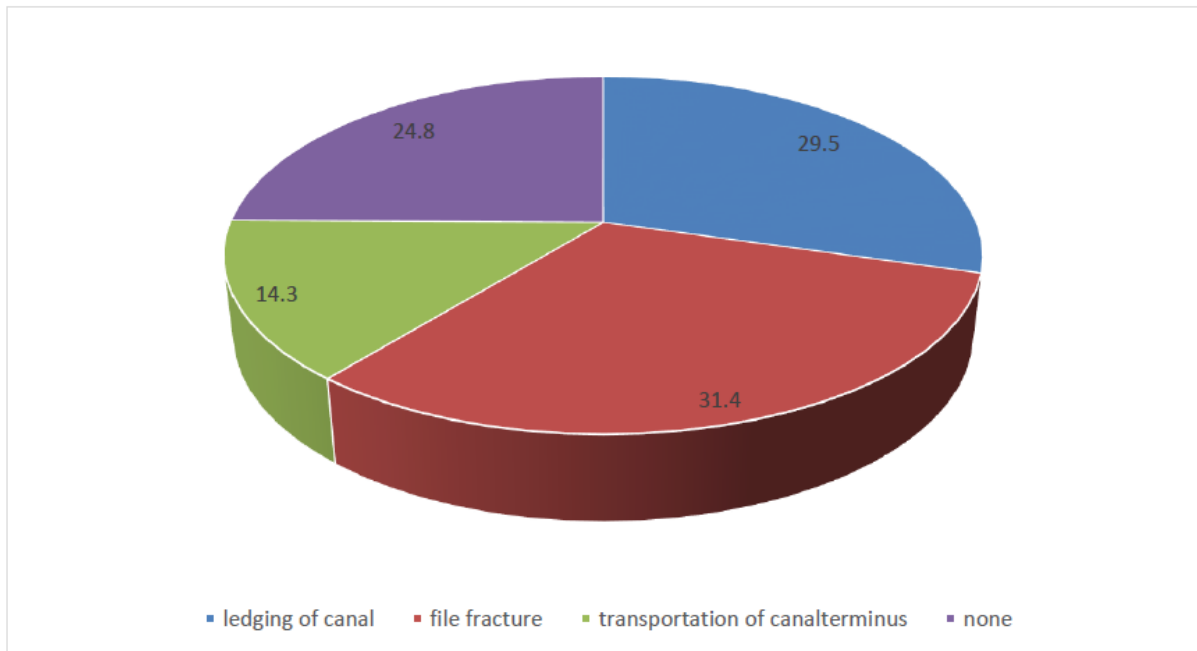
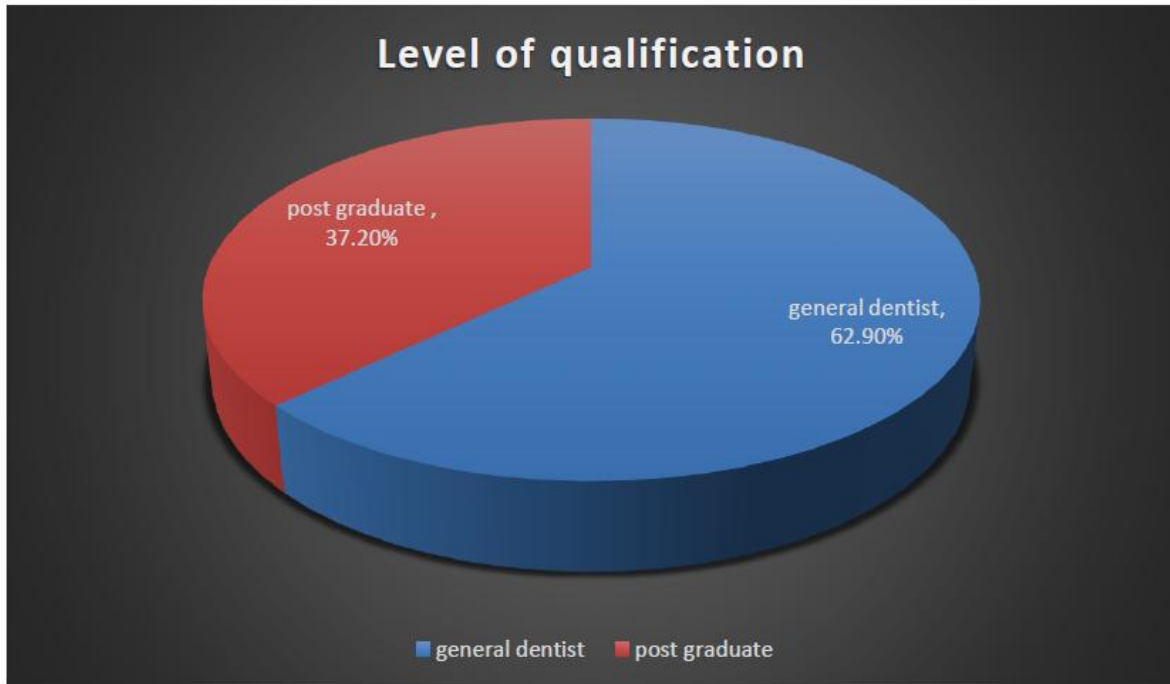
Inclusion criteria comprised Dentists who consented to participate in the survey. Dental practitioners actively involved in endodontic practice. Practitioners practicing in the Latur region (including urban and rural locations). Practitioners with less than 1 year or more than 1 year of experience in endodontic practice.

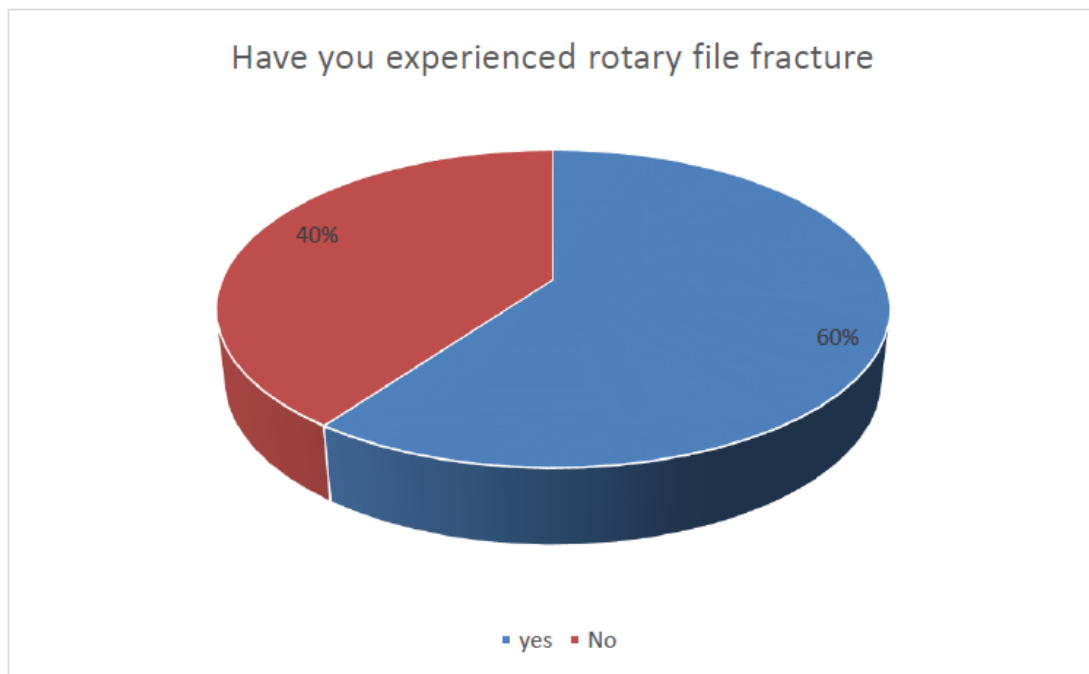
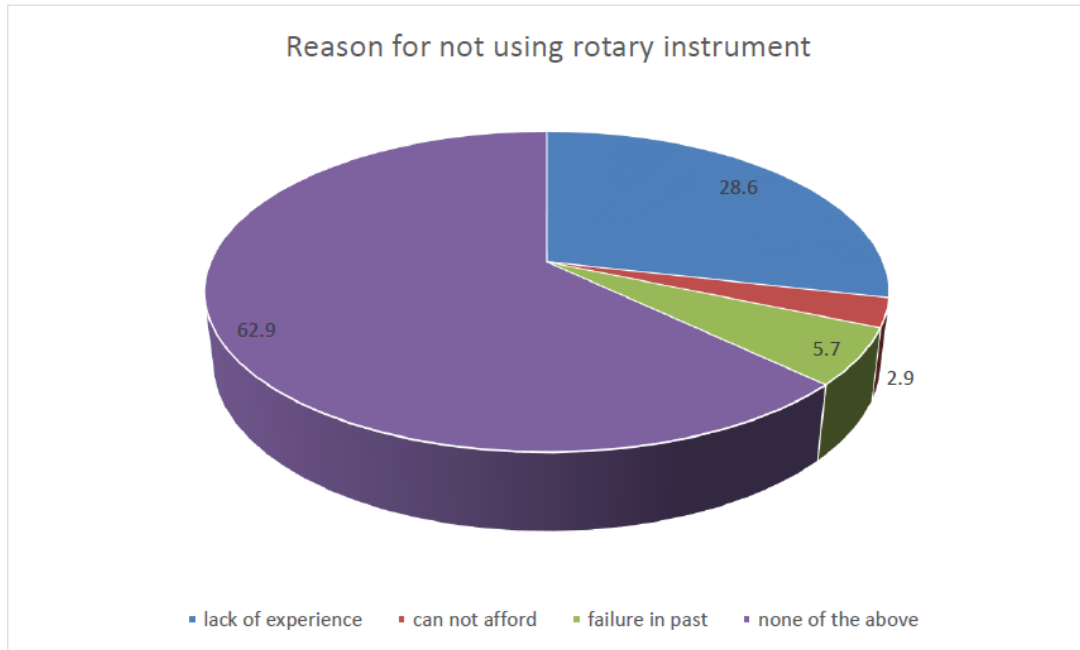
III. RESULTS:

Among 105 respondents, 62.9% were general dentists and 37.1% were postgraduate endodontists. A majority (87.6%) used both hand and rotary instruments. File fracture was the most frequently reported

complication with both hand and rotary systems. Sixty percent of practitioners experienced rotary file fracture, mainly due to curved canals and excessive pressure. More than half of the respondents (56.2%) were satisfied with rotary instrumentation.







IV. DISCUSSION:

The present study evaluated the preference for rotary and hand instruments among dental practitioners and identified factors influencing their use in endodontic practice. A majority of respondents were young practitioners and general dentists, reflecting the increasing participation of early-career clinicians in root canal procedures. The high percentage (87.6%) using both rotary and hand instruments suggests a transitional phase in clinical

practice, where traditional methods are integrated with modern rotary systems.

File fracture and ledging were common complications with hand instrumentation, while instrument separation was the most frequently reported issue with rotary systems. These findings are consistent with previous literature highlighting mechanical fatigue, canal curvature, and operator technique as major contributors to procedural errors.



Lack of experience and training were the primary barriers to rotary adoption, followed by cost considerations. Despite these challenges, more than half of the practitioners expressed satisfaction with rotary instruments, indicating growing acceptance due to advantages such as improved efficiency and shaping quality.

Overall, the findings suggest that while rotary instrumentation is widely embraced, continued training and hands-on workshops are essential to enhance clinical confidence and minimize procedural complications.

V. CONCLUSION:

Dental practitioners in Latur district commonly use rotary instruments, often in combination with hand files. File fracture remains the most frequent procedural complication. Lack of experience is the main barrier to exclusive rotary usage. Structured training and continuing dental education programs are recommended to improve clinical confidence and outcomes.

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