

From Philosophy to Practice: Bridging Concept and Competence in Non-Restorative Cavity Control Training among Pediatric Dental Postgraduates

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Abstract

Background: Non-restorative cavity control (NRCC) is a minimally invasive, biofilm-focused approach to managing cavitated carious lesions in children. Despite growing endorsement, its translation into postgraduate pediatric dental training remains variable. This study assessed awareness, knowledge, attitudes, and clinical practice of NRCC among Indian pediatric dental postgraduates.

Methods: An online, cross-sectional survey (Google Forms) was conducted following IRB approval and STROBE guidance. A validated 18-item questionnaire (demographics, awareness, knowledge, attitude, practice) was piloted (n = 30) and distributed to 600 postgraduate students; 250 completed responses were analyzed. Knowledge and attitude items were scored dichotomously; descriptive statistics summarized frequencies and percentages.

Results: The majority of participants demonstrated exposure to NRCC concepts, with 78.0% reporting prior awareness. Among those aware (n = 195), 82.1% (n = 160) reported routinely practising NRCC in college or clinic. Conceptual understanding was relatively strong: 72.8% (n = 142) recognized NRCC's goal of rendering lesions self-cleansable and 69.7% (n = 136) acknowledged its use for enamel and dentinal lesions. However, detailed procedural knowledge was limited—only 31.8% (n = 62) identified the Non-Operative Cavity Treatment Programme (NOCTP) terminology, 44.1% (n = 86) correctly described the V-shaped outcome of proximal slicing, and 39.0% (n = 76) understood its implications for space maintenance. Among NRCC practitioners (n = 160), silver diamine fluoride (SDF) was the most frequently used agent (26.3%, n = 42); 60.5% (n = 118) reported performing restorative intervention after NRCC, most commonly with glass ionomer cement (32.2%, n = 38).

Conclusions: While NRCC philosophy and clinical uptake are common among pediatric dental postgraduates, important gaps exist in procedural knowledge and standardised terminology. Integration of competency-based modules, supervised experiential training (simulation and clinical exposure), curricular standardisation (NRCC/NOCTP), outcome audits, and faculty development is recommended to bridge the concept–practice gap and improve consistent, evidence-aligned care.

Keywords: non-restorative cavity control, NRCC, pediatric dentistry, postgraduate education, minimally invasive dentistry, silver diamine fluoride

Introduction

Dental caries in children remains a major clinical and public health concern worldwide, with a particularly high burden observed in populations with limited access to

oral healthcare and preventive awareness¹⁻³. Conventional restorative management has traditionally been the cornerstone of treatment for cavitated carious lesions; however, its application in pediatric dentistry is often associated with practical challenges such as high treatment costs, limited accessibility, poor child cooperation, anxiety related to invasive procedures, and the frequent need for local anesthesia⁴. These limitations have stimulated a paradigm shift toward treatment philosophies that emphasize disease control rather than surgical intervention.

Current concepts in cariology recognize dental caries as a biofilm-mediated, dynamic disease process, in which lesion progression or arrest is largely influenced by the metabolic activity of the dental biofilm^{1,2}. Clinical observations and experimental evidence indicate that disruption and regular removal of plaque can arrest carious lesions at various stages of development^{2,3}. This biological understanding has led to the emergence of minimally invasive and non-invasive caries management strategies, including non-restorative cavity control (NRCC)⁵. NRCC aims to control caries by addressing its etiological factors through modification of cavitated lesions to facilitate plaque removal, use of anticariogenic agents such as fluoride varnish or silver diamine fluoride, caregiver-assisted oral hygiene practices, behavioral guidance, and regular clinical monitoring, without placing definitive restorations^{4,6,10,11,12}. As a causal treatment approach, NRCC aligns with contemporary preventive and risk-based caries management recommendations^{13,14}.

Despite increasing international endorsement of minimally invasive caries management, the clinical implementation of NRCC remains inconsistent. Limited awareness, preference for conventional restorative approaches, dependence on caregiver compliance, and

lack of standardized clinical protocols have been identified as major barriers to its widespread adoption^{6,15,16}. Furthermore, insufficient emphasis on biological caries management during professional training and uncertainty regarding indications, contraindications, and outcome assessment contribute to variability in clinical practice⁶. These challenges highlight a disconnect between evolving scientific principles and their translation into routine clinical care.

Given the critical role of postgraduate education in shaping future pediatric dental practice, understanding how minimally invasive caries concepts are perceived and applied during training is essential. Therefore, the present study aimed to assess the knowledge, attitudes, and clinical use of non-restorative cavity control among pediatric dental postgraduate students, with the hypothesis that gaps exist between theoretical understanding of NRCC and its consistent clinical application.

Materials and method

An online cross-sectional survey was administered via Google Forms. Institutional Review Board (IRB) approval and Institutional Ethics Committee clearance were obtained prior to data collection. The study was conducted in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines and carried out over a six-week period between August and November 2025. A list of students enrolled in postgraduate training in the pediatric dentistry specialty was compiled from various educational groups. A pilot study of 30 pediatric dentistry postgraduates was performed to evaluate the questionnaire's clarity, feasibility, and reliability and to generate preliminary estimates for the sample size calculation for the main study. Using previously published survey data reporting 85% awareness of non-

restorative cavity control (NRCC) among pediatric dentists and a pilot prevalence estimate of 77.5%, with a significance level (α) of 0.05, 80% power, and a 5% margin of error, the minimum required sample size was calculated to be approximately 250 participants.

Design and Structure of the Study Questionnaire

The questionnaire was developed in English from two previously published NRCC studies and validated for content and language by five pediatric dentistry experts. The initial 25 items were reduced to 18 after expert review. The instrument contains five sections: (1) Demographics (name, age, gender, year of study, college type [private/government], email), (2) Awareness (3 items on prior exposure to NRCC and source of information), (3) Knowledge (8 items on protocol, indications, outcomes, and success), (4) Attitude (2 items assessing positive/negative disposition toward NRCC), and (5) Practice (4 items: two closed-ended and two open-ended about clinical methods/materials). In total there were 16 closed-ended and 2 open-ended items. The Google Form link was distributed individually and via WhatsApp groups and email. Willing respondents provided implied consent. Responses were collected over 6 weeks (initial reminder weekly) from 600 invited postgraduates; duplicate submissions were identified and only the first response per email was included.

Scoring

Awareness items were reported as percentages. Knowledge and attitude items were scored dichotomously (correct/preferred = 1, incorrect = 0). Closed-ended practice items were scored (yes = 1, no = 0). For open-ended practice items, similar responses were grouped; frequencies and percentages were calculated for grouped answers, and unique answers were reported with their individual percentages.

Statistical analysis

Data were exported to Microsoft Excel (Office 2016). Descriptive statistics were used to calculate frequencies and percentages of responses; Google Forms summaries were cross-checked against the Excel sheet prior to analysis.

Results

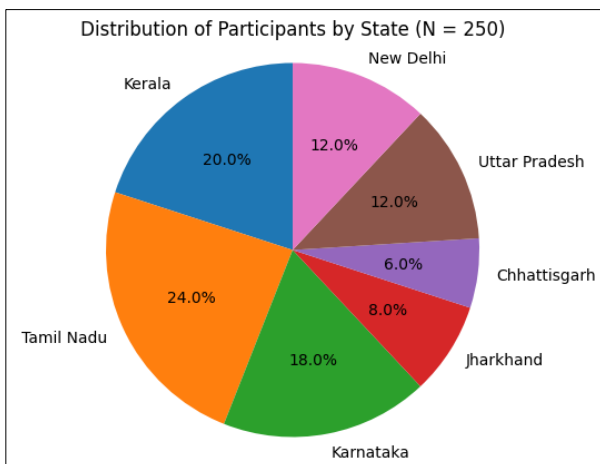
A total of 250 postgraduate dental students were analyzed in the present study. Representation across the three years of training was comparable, with a slight

predominance of third-year postgraduates (III MDS: 36%). Participants were predominantly aged 26–28 years (48%), and females constituted nearly two-thirds of the sample (62%). The majority were affiliated with private institutions (88%), while government colleges contributed 12% of the respondents (Table 1). Participants were drawn from seven states/regions, with the highest representation from Tamil Nadu (24%) followed by Kerala (20%) (Fig.1).

Table 1: Demographic characteristic of postgraduate students

Variable	Category	Count	Percentage (%)
Year of postgraduate study	I MDS	75	30.0
	II MDS	85	34.0
	III MDS	90	36.0
Age (years)	23–25	60	24.0
	26–28	120	48.0
	29–31	50	20.0
	≥32	20	8.0
Sex	Male	95	38.0
	Female	155	62.0
Type of institution	Government	30	12.0
	Private	220	88.0

Figure 1: State-wise distribution of postgraduate dental students participating in the study (N = 250).



As summarized in Table 2, 195 of 250 respondents (78.0%) reported awareness of Non-Restorative Cavity

Control (NRCC). Among those aware (n = 195), the leading primary sources of information were faculty-led teaching and academic discussions (n = 58, 29.7%), followed by inclusion in the undergraduate/postgraduate curriculum (n = 44, 22.6%) and textbooks (n = 32, 16.4%); Continuing Dental Education programs, conferences, webinars and e-learning platforms accounted for the remaining proportions (Fig. 2). Initial exposure to NRCC was more commonly reported during postgraduate training (n = 117, 60.0%) than during undergraduate training (n = 78, 40.0%). These results highlight the pivotal role of formal academic instruction and curricular integration in generating NRCC awareness among postgraduate dental trainees.

Table 2: Comparison of responses on the awareness of NRCC

	Category	Count (n)	Percentage (%)
Are you aware of a term called non restorative cavity control (NRCC)?	Yes	195	78.0
	No	55	22.0
Source of awareness	Faculty teaching / academic discussions	58	29.7
	Undergraduate / Postgraduate curriculum	44	22.6
	Textbooks	32	16.4
	Continuing Dental Education (CDE) programs	24	12.3
	Conferences / conventions	17	8.7
	Webinars / virtual academic programs	12	6.2
	E-learning platforms	8	4.1
Timing of first exposure (among aware, n = 195)	During undergraduate training	78	40.0
	During postgraduate training	117	60.0

Figure 2: Distribution of primary sources of awareness of Non-Restorative Cavity Control (NRCC) among participants aware of NRCC (n = 195)

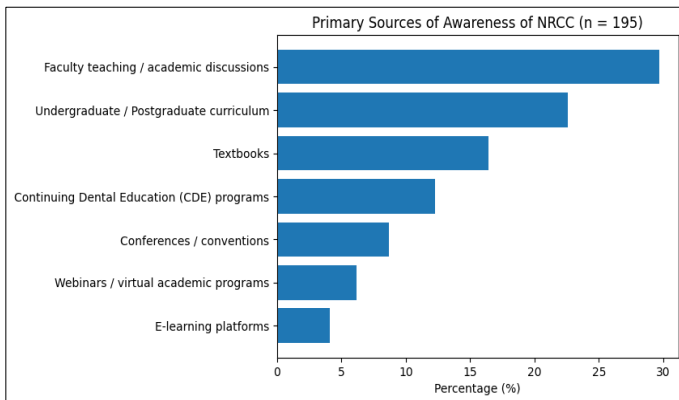


Table 3 summarizes the responses assessing participants' knowledge of Non-Restorative Cavity Control (NRCC). A majority of participants (69.7%; n = 136) correctly identified that NRCC can be used for the management of both enamel and dentinal carious lesions, indicating satisfactory awareness of the scope of the technique. However, knowledge regarding specific non-operative terminology was limited, as only 31.8% (n = 62) correctly identified the Non-Operative Cavity Treatment Programme (NOCTP) as the procedure used for managing enamel lesions within the NRCC framework.

Understanding of the core principle of NRCC was relatively high, with 72.8% (n = 142) correctly recognizing that NRCC aims to render the carious lesion self-cleansable, thereby facilitating plaque control and arrest of caries progression. In contrast, knowledge related to the technical aspects of proximal slicing was comparatively lower. Less than half of the participants (44.1%; n = 86) correctly identified that slicing of proximal caries converts the lesion into a V-shaped cavity, a design intended to enhance self-cleansing and reduce plaque stagnation. Furthermore, only 39.0% (n = 76) correctly understood that appropriate proximal slicing helps prevent food impaction and does not necessarily result in space loss when cervical contact between adjacent teeth is preserved.

Regarding the prevention of post-operative sensitivity following proximal slicing, 56.4% (n = 110) of participants selected at least one appropriate preventive measure. Among these, silver diamine fluoride was the most commonly chosen agent (40.9%; n = 45), followed by fluoride varnish (31.8%; n = 35) and acidulated phosphate fluoride gel (27.3%; n = 30), reflecting

variability in awareness of recommended desensitizing strategies.

Knowledge of comparative effectiveness in children with high caries risk was moderate. Only 42.6% (n = 83) correctly identified the order of success as Hall technique > NRCC > Compomer, suggesting limited familiarity

with outcome-based hierarchies of minimally invasive caries management approaches. Encouragingly, a substantial proportion of participants (74.4%; n = 145) correctly recognized that the success of NRCC is largely dependent on caregiver or parental compliance with oral hygiene maintenance and preventive practices.

Table 3: Comparative analysis of knowledge-based responses on Non-Restorative Cavity Control (NRCC)

	Correct answers n (%)	Wrong answers n (%)
Can NRCC be used to treat both enamel and dentinal lesions?	136 (69.7%)	59 (30.3%)
In NRCC, treatment of enamel lesions is referred to as _____.	62 (31.8%)	133 (68.2%)
Does NRCC make the area of decay self-cleansable?	142 (72.8%)	53 (27.2%)
Slicing of proximal caries converts the cavity into a _____ shape	86 (44.1%)	109 (55.9%)
Does slicing of the tooth during NRCC lead to space loss or food impaction?	76 (39.0%)	119 (61.0%)
To prevent sensitivity after slicing of tooth-	110 (56.41%) SDF: 45 (40.9%) Fluoride varnish: 35 (31.8%) APF gel: 30 (27.3%)	85 (43.59%)
Order of success rate in children with high caries risk	83 (42.6%)	112 (57.4%)
The success of NRCC is mainly dependent on	145 (74.4%)	50 (25.6%)

As presented in Table 4, participants generally expressed a favourable attitude toward NRCC, with 60.5% agreeing on the limitations of conventional restorative care in children with neglected oral hygiene, 57.4% willing to recommend NRCC as a first-line option, and 66.2% reporting its feasibility in routine clinical settings.

Table 4: Comparison of attitudinal responses regarding Non-Restorative Cavity Control (NRCC)

Attitude on NRCC	Agree, n (%)	Disagree, n (%)
Restorative treatment of carious lesions in a child with neglected oral hygiene masks the lack of oral health care.	118 (60.5%)	77 (39.5%)
I would recommend NRCC to caregivers as a first-line approach for primary teeth with shallow to moderate carious lesions.	112 (57.4%)	83 (42.6%)
NRCC is feasible to perform in routine clinical practice without the need for specialised equipment.	129 (66.2%)	66 (33.8%)

Table 5 findings demonstrate a high level of clinical uptake of NRCC, with more than four-fifths of respondents (82.1%) reporting routine use of the technique in college or clinical practice. Among practitioners, silver diamine fluoride emerged as the most

commonly employed agent for caries control following removal of undermined enamel, followed by fluoride varnish and glass ionomer cement, reflecting a preference for fluoride-based, minimally invasive interventions (Fig.3).

Restorative intervention following NRCC was performed by approximately two-thirds of respondents (60.5%), with glass ionomer cement being the predominant restorative choice, likely due to its fluoride release and favorable handling characteristics in pediatric patients. The selective use of composite resin, fluoride-releasing materials, and stainless-steel crowns indicates

individualized decision-making based on lesion severity and clinical requirements (Fig.4). Overall, the observed practice patterns suggest broad acceptance of NRCC principles, with clinicians favoring conservative, biologically oriented materials aligned with contemporary caries management strategies.

Table 5: Comparison of responses assessing practice behavior on NRCC

Practice on NRCC	Response / Material	n (%)	
Are you practicing the NRCC technique in college/clinic?	Yes	160 (82.1)	
	No	35 (17.9)	
What material do you use after removal of undermined enamel, for caries control? (among those practicing NRCC, n = 160)	Silver diamine fluoride (SDF)	42 (26.3)	
	Fluoride varnish (NaF)	34 (21.3)	
	Glass ionomer cement (GIC)	28 (17.5)	
	Acidulated phosphate fluoride (APF) gel	24 (15.0)	
	Pit and fissure sealant	16 (10.0)	
	Fluoride-releasing restorative material	9 (5.6)	
	CPP-ACP / other bioactive agents	5 (3.1)	
	Do you restore the teeth after NRCC?	Yes	118 (60.5)
		No	77 (39.5)
What type of restorative material do you use after the NRCC technique? (among those who restored, n = 118)	Glass ionomer cement (GIC)	38 (32.2)	
	Composite resin	24 (20.3)	
	Fluoride-releasing restorative material	21 (17.8)	
	Pit and fissure sealant	15 (12.7)	
	Stainless steel crown (SSC)	12 (10.2)	
	Cention	6 (5.1)	
	Zinc oxide eugenol	2 (1.7)	

Figure 3: Distribution of materials used for caries control following removal of undermined enamel among NRCC practitioners.

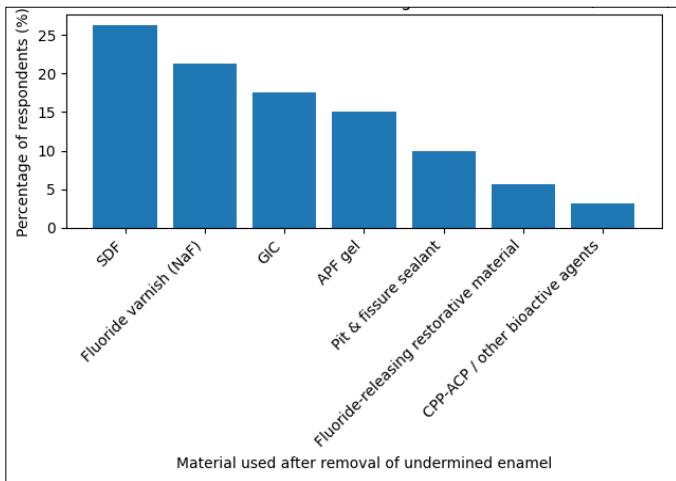
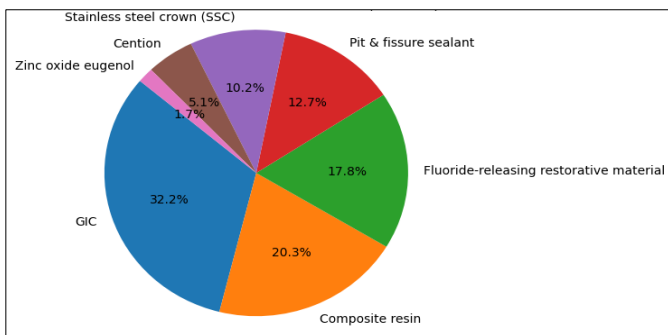


Figure 4: Distribution of restorative materials used following the NRCC technique among postgraduate trainees who performed restorative intervention (n = 118).



Discussion

This multi-centre survey of 250 pediatric dental postgraduate students across seven Indian states evaluated awareness, knowledge, attitudes and practice relating to Non-Restorative Cavity Control (NRCC) and provides new insight into how minimally invasive caries philosophies are translating into postgraduate training and clinical behaviour. Overall, awareness of the NRCC concept was high (78%), conceptual understanding of its core objective (making lesions self-cleansable) was good (72.8%), and clinical uptake was substantial (82.1% reported practising NRCC). However, specific technical

knowledge (e.g., cavity form following proximal slicing, implications for space maintenance) and familiarity with established terminology such as the Non-Operative Cavity Treatment Programme (NOCTP) were notably lower (31.8%). These findings indicate that while the minimally invasive philosophy is reaching trainees, granular procedural understanding and standardised terminology are inconsistently assimilated.

The predominance of NRCC awareness in our sample aligns with trends showing increased dissemination of minimally invasive caries concepts through consensus statements and practice guides during the last decade. The International Caries Consensus Collaboration (ICCC) and related consensus outputs have promoted terminology and management frameworks that prioritise lesion activity control and tissue preservation over routine excavation-and-restore cycles^{17,18}. The ICCMS/CariesCare pathways also explicitly support non-operative management of many early and moderate lesions, reinforcing the pedagogic shift from surgical to preventive/conservative teaching^{19,20}.

Historically, non-restorative approaches to caries management predate the widespread use of fluoride. Anderson, as early as 1938, demonstrated that when occlusal cavitated lesions in primary teeth were rendered accessible for effective plaque removal, caries progression could be arrested²¹. This early evidence supports the biological principle that caries is a biofilm-mediated disease and that lesion activity can be controlled without immediate operative intervention.

Contemporary caries management recognizes both restorative and non-restorative approaches as integral components of care²². However, restorative treatment in primary teeth is not without limitations. A systematic review by Chisini et al. reported annual restoration failure rates ranging from 0% to 29.9%, with secondary

caries identified as the most frequent cause of failure (36.5%)²³. Failed restorations often necessitate replacement, which may increase the risk of pulpal involvement and impose additional physical and psychological burden on children and their caregivers²⁴. Repeated restorative cycles, therefore, may be counterproductive and should be avoided whenever biologically sound alternatives exist.

Ethical considerations further complicate decision-making in pediatric caries management. Nainar emphasized that in children presenting with occluso-proximal dentinal lesions in primary molars, it may be unethical to withhold restorative intervention altogether²⁵. This highlights the need for individualized treatment planning that balances disease control, child comfort, and long-term oral health outcomes.

Reflecting this paradigm shift, community-based dental programs have increasingly adopted non-operative strategies. In 2010, the Danish community dental services transitioned from predominantly operative treatment to non-operative management for caries in the primary dentition²². Importantly, non-restorative cavity control (NRCC) should not be misconstrued as “no treatment.” The approach includes structured oral hygiene and dietary counseling, professional fluoride varnish applications, and regular recall visits to monitor lesion activity and ensure disease control²⁶.

Together, these findings support the rationale for NRCC as a biologically driven, child-centered strategy that aims to arrest disease progression while minimizing the need for repeated operative interventions.

In the present study most, trainees correctly identified the self-cleansable aim of NRCC (72.8%) is consistent with other surveys showing good conceptual awareness of Minimally Invasive Dentistry (MID) among students and clinicians when the philosophy is taught within curricula

or continuing education programs. For example, several KAP studies report that a majority of respondents understand the preventive/behavioural core of MID, though fewer report detailed confidence in executing specific MID techniques^{27,28}.

The observed deficit in specific procedural knowledge — only 44.1% correctly identifying that proximal slicing produces a V-shaped, self-cleansable cavity and just 39.0% recognising that preservation of cervical contact prevents space loss indicates a disconnect between conceptual instruction and practical competence. This pattern mirrors prior surveys in postgraduate and practising dentists that report stronger performance on conceptual MID items (risk assessment, prevention) than on technical procedural items (indications, stepwise technique, and material selection)^{29,30}. The gap is likely multifactorial, arising from predominately didactic exposure without sufficient hands-on demonstration, limited opportunities to manage relevant clinical cases during training, and inconsistent faculty adoption of NRCC techniques. These findings carry clear implications for curriculum design: to translate theoretical understanding into reliable clinical practice, programmes should integrate targeted skills training (simulation and supervised clinical exposure), standardized procedural protocols, and faculty development to ensure consistent teaching and assessment of NRCC competencies.

From an attitudinal perspective, participants in the present study demonstrated a generally favourable orientation toward NRCC, with 57–66% indicating that they would recommend the approach or considered it feasible for routine clinical practice. Such positive attitudes, despite identifiable gaps in technical knowledge, are consistent with international reports in which clinicians increasingly endorse NRCC principles

but simultaneously describe barriers to implementation, including insufficient hands-on training, concerns regarding parental acceptance, uncertainty about long-term outcomes, and limitations in clinical resources^{31,32}. Importantly, the high proportion of respondents reporting active use of NRCC (82.1%) is encouraging and may reflect the impact of contemporary postgraduate curricula and supportive faculty attitudes within Indian training programs. Comparable institutional influences have been documented in cross-sectional studies from other settings, where structured teaching and explicit endorsement of MID approaches were associated with greater clinical adoption among trainees and practitioners^{33,34}.

The present findings highlight a strong inclination toward fluoride-based, minimally invasive strategies for managing undermined enamel, as reflected by the predominant use of SDF (26.3%) and fluoride varnish (21.3%) among clinicians practising NRCC. This aligns with growing evidence supporting SDF and topical fluoride in arresting caries and facilitating non-restorative approaches, especially in young or uncooperative patients and in low-resource settings. Systematic reviews and meta-analyses confirm SDF's efficacy in arresting dentinal caries in primary teeth and supporting its use as a minimally invasive adjunct^{30,34,35}.

Glass ionomer cement (GIC) was the most common restorative material used after NRCC among those who restored (32.2% of restorers; n = 118), which is consistent with its known advantages — fluoride release, chemical adhesion, and forgiving handling in pediatric settings. Previous systematic reviews of restorations in primary teeth document higher failure rates from secondary caries and recommend conservative choices that maximise caries-preventive benefits; GIC is

commonly used for its cariostatic properties in such scenarios³⁶.

The reported moderate knowledge about the relative effectiveness hierarchy (Hall technique > NRCC > Compomer; correctly identified by 42.6%) needs interpretation. The Hall technique (preformed metal crowns cemented without caries removal) has demonstrated high survival and favourable outcomes compared with conventional restorations in clinical studies and systematic reviews, and it is increasingly recognised as a biological, minimally invasive option for multi-surface dentinal lesions^{37,38,39}. That many trainees correctly ranked Hall technique above other conservative restorations suggests awareness of its favourable outcomes, but the less than majority correct response highlights incomplete integration of comparative evidence into trainee decision-making.

Several factors probably explain the pattern of strong conceptual uptake but weaker technical detail in our cohort. First, consensus reports and practice guides (ICCMS/CariesCare, ICC) have focused on shifting philosophy and terminology, but translation into practical training (hands-on technique teaching, structured clinical pathways, assessment rubrics) has lagged in many curricula worldwide. Surveys of dental schools and educators demonstrate variability in how and when MID and specific techniques (SDF application, NRCC/NOCTP protocol, proximal slicing, Hall technique) are taught, often depending on local faculty expertise and institutional priorities^{19,33}. Second, clinical exposure drives competence: trainees with more supervised clinical cases and protocolised rotations in MID show greater procedural knowledge and confidence, a relationship described in educational studies²⁷. Third, clinician perceptions about parental acceptance (e.g., concerns about SDF staining) and limited availability of

some materials or equipment may bias teaching and practice. Surveys from India report both enthusiasm for and reservations about SDF and other MID elements among graduates and practitioners⁴⁰.

These findings highlight clear educational priorities. First, terminology and protocols should be standardised through consistent use of ICCC/ICCMS language (e.g., NRCC, NOCTP) in curricula, assessments, and clinical documentation to reduce conceptual ambiguity²⁰. Second, the concept–procedure gap must be addressed through competency-based training that integrates brief didactic updates with supervised experiential learning, such as simulation and clinical exposure to proximal slicing, SDF application, and the Hall technique; evidence shows that such approaches improve both knowledge and clinical uptake of MID^{30,33}. Third, implementation of structured NRCC/NOCTP clinical pathways with outcome tracking and audit would familiarise trainees with indications, follow-up, and medium-term outcomes, in line with ICCMS/CariesCare recommendations¹⁹. Finally, targeted training in parental communication and context-appropriate adaptations is needed to address perceived barriers such as SDF staining and resource constraints⁴⁰. The moderate knowledge of comparative effectiveness highlights the need for more outcome-oriented teaching and locally relevant evidence. India-specific comparative effectiveness research (e.g., pragmatic trials or implementation studies comparing NRCC, SDF protocols, Hall technique and restorative approaches in routine care) would meaningfully inform local guidelines and curricula. Systematic reviews summarising NRCC and other nonrestorative approaches indicate promise but also heterogeneity in methods and outcomes that complicate direct comparisons; more standardised, patient-centred outcomes and medium-term follow-up are required⁴¹.

Strengths and limitations of the study

Strengths include national coverage of postgraduate programmes, a robust sample (n = 250), and a focus on postgraduate trainees who will shape future clinical practice. Limitations include reliance on self-report (which may overestimate clinical uptake), potential sampling bias towards private institutions (88% in our sample), and cross-sectional design (which cannot determine causality between curricular exposure and practice). Despite these limitations, the concordance between high awareness and variable technical competence is a consistent theme that aligns with international KAP studies and highlights clear educational opportunities.

Conclusion

Our data indicate that Indian pediatric dental postgraduates are generally aware of NRCC and regard it favourably; many already apply NRCC principles clinically. However, important gaps persist in technical knowledge, standardised terminology and comparative outcome understanding. To accelerate the translation of minimally invasive philosophy into reliable clinical practice, postgraduate programmes should (a) standardise NRCC/NOCTP terminology across curricula; (b) implement competency-based, supervised clinical modules (SDF application, proximal slicing technique, Hall technique); (c) incorporate locally relevant outcome audits into training; and (d) facilitate faculty development to ensure uniform teaching and mentorship. These steps would align training with international consensus and improve the quality and consistency of minimally invasive pediatric oral care.

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