

A questionnaire-based survey on the diagnosis and management of non-carious cervical lesions amongst dental practitioners of Gujarat

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ABSTRACT

Background: Non-carious cervical lesions (NCCLs) pose significant challenges in dental practice, often affecting patient aesthetics and function. There are no standardised guidelines to ensure consistent diagnosis and management of NCCLs across dental practices. Additionally, further education on the latest materials and techniques for treating these lesions could enhance practitioner confidence and improve treatment outcomes. This study underscores the importance of ongoing research and professional development to address the complexities surrounding non-carious cervical lesions in dentistry.

Materials and Method: In this ex-post facto investigation, a questionnaire was distributed to a diverse group of dental professionals, including general dentists and specialists, to gather insights on their clinical practices, perceived etiological factors of NCCLs, and treatment modalities utilized. The survey comprised of multiple-choice and open-ended questions focusing on practitioners' experiences with NCCLs, including frequency of occurrence, diagnostic techniques, and preferred management options. It also included questions to correlate between the medical history of the patients and the prevalence of NCCLs.

Results: Data analysis has revealed a consensus on the multifactorial nature of NCCLs, with abrasion, erosion, and abfraction as the most prevalent NCCLs. In terms of diagnosis, most practitioners were given multiple diagnostic criteria for evaluation, although there was a variability in the interpretation of lesion severity. Treatment preferences varied significantly, with options ranging from conservative approaches, such as fluoride application and desensitizing agents, to more invasive interventions like composite restorations and endodontic treatments.

Conclusion: The survey revealed varying levels of awareness and clinical approaches among dental practitioners in Gujarat regarding the diagnosis and management of non-carious cervical lesions (NCCLs). Standardized guidelines and continuing education programs are recommended to enhance the uniformity and effectiveness of NCCL management.

Keywords: Diagnosis, Management, Cervical lesions.

INTRODUCTION

Non-carious cervical lesions (NCCLs) are defined as the pathological loss of tooth structure at the cemento-enamel junction (CEJ), in the absence of

dental caries. These lesions are commonly encountered in clinical dental practice and are of increasing concern, particularly among the aging

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population¹. Unlike carious lesions, NCCLs are attributed to a combination of mechanical, chemical, and stress-related factors. Their aetiology includes abrasive forces such as improper or aggressive tooth brushing (abrasion), chemical dissolution from dietary or intrinsic acids (erosion), and occlusally induced micro fractures resulting from parafunctional habits such as bruxism (abfraction)². As a result, NCCLs can present in various morphological forms—most notably as wedge-shaped or saucer-shaped defects—depending on the underlying cause.

The development of NCCLs is recognized as multifactorial, with contributing risk factors that range from poor brushing techniques, acidic dietary habits, and occlusal stress, to anatomical variations in tooth morphology³. Parafunctional habits such as clenching and grinding further exacerbate the condition by generating abnormal occlusal loads that contribute to cervical stress and enamel-dentin separation.

Due to their complex and often overlapping etiologies, the clinical diagnosis and management of NCCLs pose significant challenges. The lesions may be asymptomatic or cause hypersensitivity, and their subtle clinical presentation can easily be overlooked in routine examinations⁴. Accurate diagnosis requires a comprehensive understanding of the lesion's morphology, patient history, and contributing factors. Furthermore, because NCCLs may not always progress in a linear fashion, determining the appropriate timing and method of intervention can vary widely among practitioners.

Currently, there exists considerable variation in the diagnostic criteria and treatment approaches employed by dental professionals for NCCLs³. Despite the growing body of evidence-based literature, there is no universally accepted standard or guideline for their management. Some practitioners may opt for preventive strategies, while others may proceed with restorative intervention depending on the severity and progression of the lesion. Additionally, the choice of restorative materials—ranging from glass ionomer cements and resin composites to newer bioactive materials—is influenced by factors such as lesion size, esthetic demand, moisture control, and operator preference⁴.

Given these discrepancies, it is essential to investigate the current practices among dental professionals, particularly at a regional level, to understand prevailing trends, clinical decision-making processes, and any areas of inconsistency or uncertainty. A thorough understanding of these parameters will aid in identifying gaps in knowledge and practice and help in formulating standardised protocols to improve patient care outcomes.

This questionnaire-based survey is designed to collect and analyze responses from dental practitioners regarding their approaches to diagnosing and managing non-carious cervical lesions. The survey aims to shed light on common diagnostic criteria, the clinical significance attributed to various etiological factors, treatment decision-making processes, and preferred materials and techniques for restoring NCCLs. Furthermore, the survey explores practitioners' follow-up and evaluation protocols, patient education strategies, and perceived challenges in managing these lesions.

Aim of the Study

The primary aim of this study is to assess the diagnostic and treatment strategies employed by dental practitioners in Gujarat for the management of non-carious cervical lesions. By gaining insights into the clinical practices of local dental professionals, this study intends to contribute to the development of contextually relevant guidelines and continuing education modules.

Objectives of the Study

The objectives of this questionnaire-based survey are as follows:

To evaluate the diagnostic criteria used by dental professionals in identifying NCCLs.

To analyze the factors that influence treatment planning, including lesion severity, patient symptoms, and risk factors.

To determine the most commonly used restorative materials and techniques for NCCL management.

To assess follow-up protocols and patient monitoring strategies post-treatment.

To identify knowledge gaps, variations in practice, and challenges faced by dental professionals in the management of NCCLs.

MATERIALS AND METHOD

In this ex-post facto investigation, a questionnaire via google forms was distributed to a diverse group of dental professionals which included general dentists and specialists of Gujarat to gather insights on their clinical practices, perceived etiological factors of NCCLs, and treatment modalities utilized.

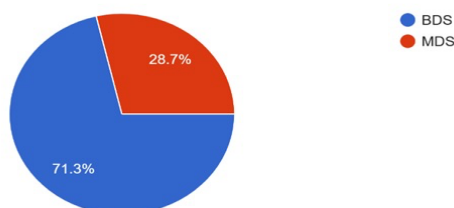
The questionnaire was formed which was divided into 4 sections:

- 1) Demographic data of the dental practitioners
- 2) Factors associated with the prevalence of NCCL
- 3) Diagnosis of NCCLs
- 4) Treatment modalities for the treatment of NCCLs

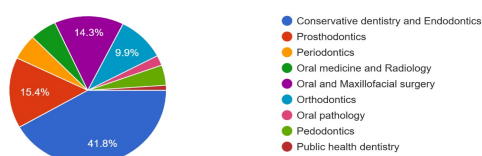
SECTION 1

Questionnaire about the demographic data of participants

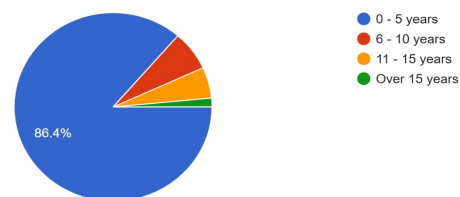
Qualification
136 responses



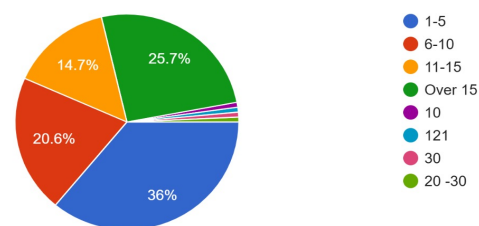
Area of speciality
91 responses



Years of experience
132 responses



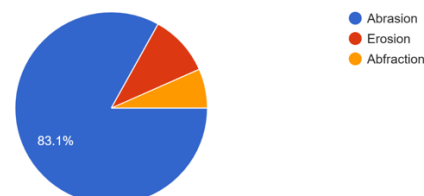
Number of patients encountered in your clinical practice /week
136 responses



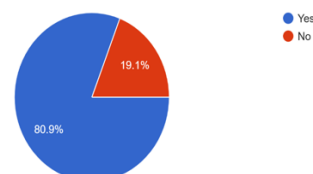
SECTION 2

Questionnaire about the factors associated with the prevalence of NCCL

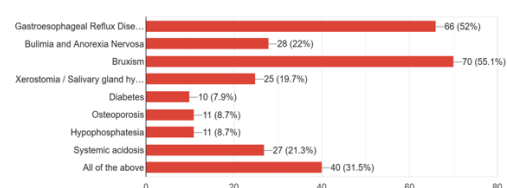
What is the most commonly encountered NCCL in your dental practice ?
136 responses



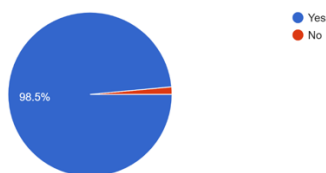
According to you is medical history of the patient associated with the prevalence of NCCL ?
136 responses



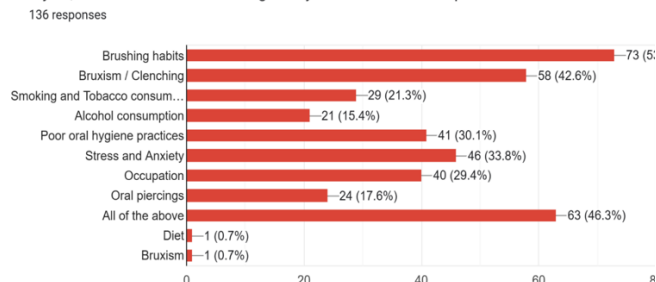
If yes, then according to you which of the following medical conditions are associated with the prevalence of NCCL ?
127 responses



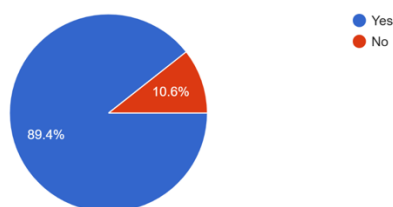
According to you , do lifestyle factors of patients affect the prevalence of NCCL ?
136 responses



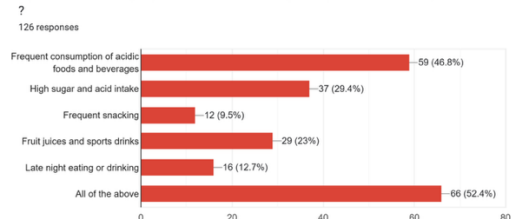
If yes, then which of the following lifestyle factors affect the prevalence of NCCL ?
136 responses



According to you do dietary factors affect the prevalence of NCCLs ?
132 responses



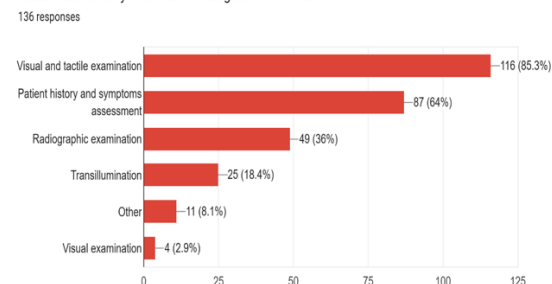
If yes, then according to you which of the following dietary factors affect the prevalence of NCCLs ?
126 responses



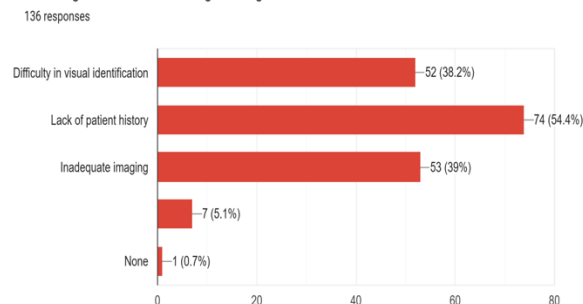
SECTION 3

Questionnaire about the diagnosis of NCCL

What methods do you use for the diagnosis of NCCL ?
136 responses



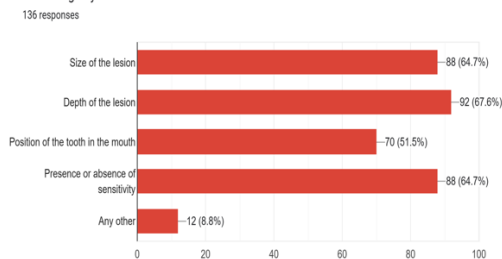
Challenges encountered during the diagnosis of NCCL ?
136 responses



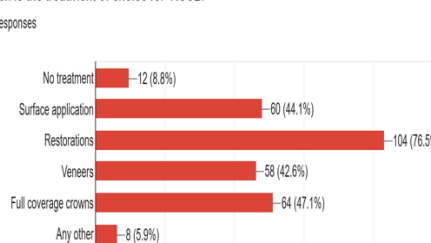
SECTION 4

Questionnaire about the treatment of choice for nccl; materials used, newer treatment options and challenges encountered

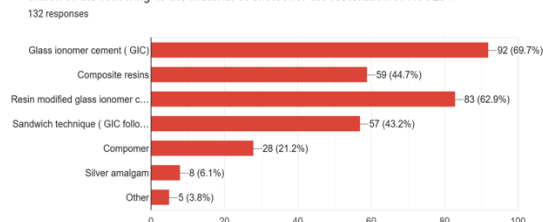
According to you which factors would determine the treatment of NCCLs ?
136 responses



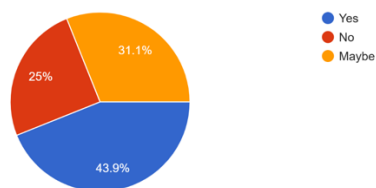
Which is the treatment of choice for NCCL?
136 responses



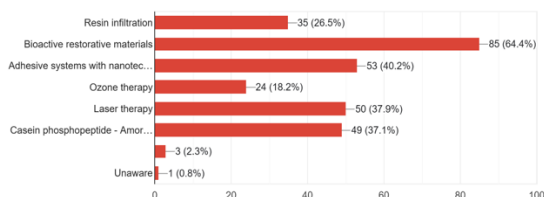
Which of the following is the material of choice for the restoration of NCCLs ?
132 responses



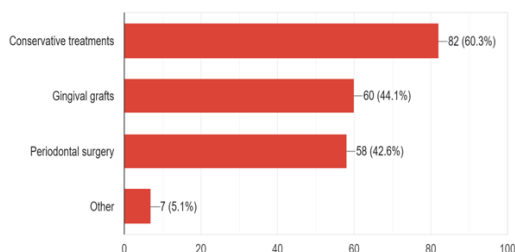
Are you aware about the newer treatment modalities for the treatment of NCCLs ?
132 responses



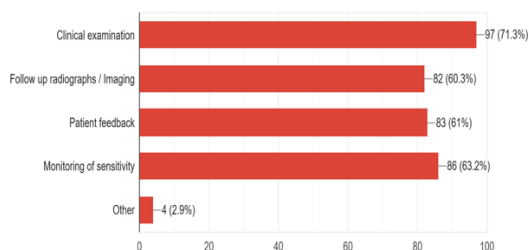
Which of the following newer treatment modalities are you aware about regarding the treatment of NCCLs ?
132 responses



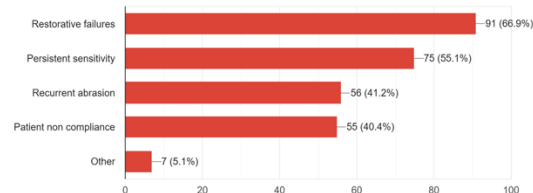
How do u address gingival recession associated with NCCL ?
136 responses



How do you evaluate the success of treatment of NCCLs ?
136 responses



What complications do you encounter during the treatment of NCCLs ?
136 responses



DISCUSSION

A questionnaire-based survey was conducted on the diagnosis, factors affecting, and management of non-carious cervical lesions (NCCLs) among dental

practitioners, providing valuable insights into current clinical practices, perceptions, and challenges. Accurate diagnosis is critical in the management of NCCLs. These lesions can appear as wedge-shaped, shallow, or even rounded defects at the cervical third of teeth, often exposing dentin, leading to hypersensitivity. According to the results of this survey, practitioners rely mainly on clinical and tactile observation along with patient history to determine the aetiology. A study conducted by Grippo et al. in 2012 concluded that many practitioners use visual examination as the primary diagnostic method, often supplemented by tactile assessment with an explorer to detect softness that might suggest erosion or abrasion ⁷.

Additionally, practitioners also have found association between patients' dietary and oral hygiene habits as well as lifestyle factors, as these can influence the etiology. For instance, Wood et al., in his study in 2008, threw a light on the fact that acidic diets and aggressive brushing techniques are often correlated with erosive and abrasive NCCLs, respectively ¹².

However, one challenge identified in the survey is the subjective nature of these assessments, leading to variability in diagnosis between practitioners. Consequently, there is a call for standardized diagnostic criteria and classification systems to improve diagnostic consistency according to a study by Imfeld et al., 2009 ⁹.

NCCLs are known to be multifactorial, involving mechanical (abrasion and abfraction) and chemical (erosion) processes. In this survey, practitioners identified mechanical factors such as improper brushing techniques, bruxism, and malocclusion as major contributors to NCCL formation. According to Pereira et al., (2000), bruxism, in particular, has been associated with abfraction lesions due to occlusal stresses, which can cause microfractures in enamel at the cervical region¹⁰. According to Bamise et al., (2013), chemical factors, notably dietary acids from citrus fruits, soft drinks, and certain medications, are also implicated, especially in younger populations. Practitioners reported that patients with high-frequency acidic exposures are at greater risk of developing erosive NCCLs⁶.

Treatment modalities for NCCLs vary widely based on the lesion's etiology, severity, and clinical

symptomatology for each patient. In many cases, treatment aims not only to restore tooth structure but also to relieve symptoms such as hypersensitivity. The decision to intervene with restorative material is typically based on factors like lesion depth, aesthetic concerns, and patient comfort. Glass ionomer cement still remains as a restoration of choice as highlighted in this survey while composite resin restorations are common due to their aesthetic properties and bonding to dentin.

A significant finding from this survey is the wide range of challenges encountered by practitioners when treating NCCLs, which is mainly due to their complex etiology and variable presentation. One key challenge is achieving a durable bond between restorative materials and the cervical dentin, which has higher organic content than enamel, leading to increased risk of adhesive failure.

Another challenge reported in the survey is patient compliance. According to a study conducted by Smith et al. in 2014, while patient education can play a vital role in preventing NCCLs, many practitioners find it difficult to encourage long-term adherence to preventive behaviours, such as dietary changes, habits or wearing occlusal guards¹¹.

Finally, practitioners cite the difficulty in accurately assessing the progression of NCCLs over time. Implementing regular monitoring protocols could improve outcomes, but this approach requires patient commitment to regular follow-up appointments. The survey highlights a need for further research on NCCLs, particularly regarding preventive strategies and material science. Advancements in adhesive technology could provide solutions to bond longevity issues, while improved understanding of the biomechanical forces involved in abfraction could refine treatment protocols.

CONCLUSION

In summary, a questionnaire-based survey on NCCLs provides insights into practitioners' diagnostic criteria, awareness of etiological factors, and management preferences. Findings from such surveys underscore the importance of continued education on NCCLs to improve diagnostic accuracy, patient management, and prevention strategies. Overall, these surveys can help standardize NCCL

management and highlight areas where practitioners may benefit from further training and updated clinical guidelines.

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