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Investigating Preventive Mouth Care Behaviors Among Albanian Adults Through Structured Responses

Arben Kelmendi

Department of Dental Medicine, Faculty of Medical Sciences, Adriatic Institute of Health Studies, Tirana, Albania

Abstract

Preventive oral care constitutes an essential component of individual health behavior because the accumulation and persistence of dental plaque are closely associated with the development of gingival inflammation, periodontal deterioration, and dental caries. Although preventive dentistry increasingly emphasizes regular plaque control, appropriate toothbrushing, interdental cleaning, professional dental attendance, and health-oriented behavioral practices, population-level adherence to these measures may vary substantially. Understanding how adults perform preventive mouth care is therefore important for identifying behavioral gaps and designing effective oral-health interventions. The present study is designed to investigate preventive mouth care behaviors among Albanian adults through structured questionnaire responses, with particular attention to routine oral hygiene practices, preventive dental attendance, self-perceived oral-health behavior, and factors potentially associated with variations in preventive care.

The study adopts a cross-sectional questionnaire-based research design. A structured instrument is proposed to collect information concerning demographic characteristics, frequency and regularity of toothbrushing, use of supplementary oral-hygiene methods, patterns of professional dental attendance, perceived importance of preventive care, and selected behavioral characteristics. The analytical framework distinguishes between routine mechanical plaque-control behavior, supplementary preventive practices, professional prevention, and self-perceived adherence. Descriptive analysis is intended to characterize the distribution of preventive behaviors, while inferential procedures can be applied to determine whether meaningful differences occur according to demographic and behavioral characteristics once empirical observations are available.

The theoretical basis of the investigation is supported by evidence demonstrating the central role of microbial plaque in gingival inflammation and periodontal disease. Experimental evidence



has historically demonstrated that inadequate plaque control can produce gingival inflammatory changes and that improvement in plaque control can reverse important early pathological processes (Löe et al., 1965). Long-term observations further indicate that differences in oral hygiene and disease progression can accumulate over time, reinforcing the importance of sustained preventive behavior rather than occasional intervention (Löe et al., 1986). Contemporary preventive frameworks similarly place control of gingivitis and dental biofilm at the center of primary periodontal prevention (Chapple et al., 2015), while integrated recommendations emphasize prevention of both caries and periodontal disease at individual and population levels (Jepsen et al., 2017).

The study is particularly relevant because oral-health behavior should not be interpreted solely as the frequency of toothbrushing. Preventive performance represents a multidimensional construct involving technique, consistency, supplementary plaque control, professional monitoring, risk awareness, and continuity of behavior. Evidence linking oral conditions with broader systemic health considerations further strengthens the public-health relevance of preventive practices (Cullinan et al., 2009). Population research has also demonstrated associations between toothbrushing patterns and cardiovascular risk characteristics, although such observational relationships should not be interpreted as direct evidence of causality (Moon et al., 2024).

The proposed Albanian investigation therefore provides a structured framework for evaluating preventive mouth care at the behavioral level. Once populated with actual questionnaire observations, the study can identify areas of adequate preventive practice as well as behaviors requiring targeted intervention. Its principal contribution lies in integrating everyday oral-hygiene behavior with contemporary preventive concepts and providing a basis for evidence-informed oral-health education, professional preventive strategies, and future population-based research in Albania.

Keywords: preventive oral care; oral hygiene behavior; toothbrushing; dental plaque; periodontal prevention; dental caries; questionnaire survey; Albanian adults; preventive dentistry; oral health

1. Introduction

1.1 Background

Oral health is influenced by a complex interaction among biological processes, behavioral practices, environmental exposures, professional dental care, and individual awareness.

Within this interaction, preventive behavior represents one of the most modifiable determinants of oral-health maintenance. Daily removal and disruption of dental biofilm, appropriate use of preventive products, supplementary cleaning of areas inadequately reached by routine brushing, and timely professional dental assessment collectively contribute to the prevention or early control of common oral diseases. Consequently, preventive mouth care cannot be reduced to a single activity. It represents a pattern of repeated behaviors through which individuals attempt to maintain oral cleanliness and reduce exposure to preventable disease.

The biological importance of regular plaque control is supported by foundational periodontal research. The experimental gingivitis study conducted by Löe et al. (1965) demonstrated the relationship between cessation of effective oral hygiene, accumulation of microbial plaque, and development of gingival inflammation. This work established an important conceptual foundation for preventive periodontal care: microbial deposits are not merely cosmetic concerns but biologically active contributors to inflammatory disease. The implication for everyday preventive behavior is significant. Effective plaque control must be sufficiently regular and sustained to interfere with the biological processes that contribute to inflammation.

Longitudinal evidence further suggests that periodontal outcomes cannot be understood only through isolated episodes of care. Löe et al. (1986) documented heterogeneous patterns of periodontal attachment loss over time, demonstrating that disease progression varies among individuals. Such findings highlight the importance of considering risk, behavior, and long-term exposure together. From a preventive perspective, sustained oral hygiene provides an important modifiable component within this broader risk environment.

Modern preventive periodontal frameworks have extended these concepts. Chapple et al. (2015) emphasized management of gingivitis as a primary preventive strategy for periodontitis. Their approach places effective plaque control and behavioral management at the center of prevention rather than treating professional intervention as the sole mechanism of maintaining periodontal health. Similarly, Tonetti et al. (2015) distinguished primary and secondary prevention within periodontal and peri-implant care, emphasizing that prevention must operate across different stages of disease risk.

The preventive importance of oral hygiene is not restricted to periodontal conditions. Dental caries is a biofilm-mediated disease influenced by multiple interacting biological and behavioral determinants. Fejerskov et al. (2015) provide a conceptual basis for understanding dental caries as a dynamic



disease process rather than merely the presence of cavitated lesions. This interpretation supports preventive approaches directed toward modifying the conditions under which disease develops and progresses.

Jepsen et al. (2017) further emphasized the importance of coordinated prevention of dental caries and periodontal diseases at both individual and population levels. This integrated perspective is especially relevant when examining self-reported preventive behavior because individuals do not normally separate their daily toothbrushing into distinct periodontal and cariological objectives. A single preventive routine may influence several oral-health outcomes simultaneously.

1.2 Preventive Behavior as a Multidimensional Construct

Toothbrushing frequency is frequently used as a convenient indicator of oral-hygiene behavior, but frequency alone provides an incomplete representation of preventive performance. Two individuals may report brushing twice daily while differing substantially in brushing duration, technique, coverage, use of fluoride toothpaste, interdental cleaning, replacement of toothbrushes, and professional preventive attendance.

Preventive mouth care should therefore be conceptualized as a multidimensional behavioral construct. At minimum, it includes routine mechanical plaque control, supplementary oral-hygiene practices, preventive professional care, and behavioral consistency. These dimensions interact. An individual with regular brushing but no interdental cleaning may maintain relatively effective accessible-surface hygiene while leaving interproximal areas insufficiently cleaned. Conversely, professional dental attendance cannot fully compensate for persistently inadequate daily plaque control.

This distinction is relevant to questionnaire research. Asking respondents whether they "brush their teeth" provides little discriminatory information because brushing is likely to be widely practiced. More informative questions concern how frequently the behavior occurs, when it occurs, what supplementary practices accompany it, and whether professional dental care is sought preventively or only after symptoms appear.

1.3 Oral Health and Wider Health Considerations

The importance of oral prevention extends beyond localized dental outcomes. Periodontal disease has been examined in relation to systemic health, although the strength and causal interpretation of individual associations vary. Cullinan et al. (2009) reviewed the relationship between periodontal disease and

systemic health and highlighted the broader significance of periodontal inflammation.

More recently, Moon et al. (2024) investigated associations between toothbrushing and cardiovascular risk factors using data from the Korean National Health and Nutrition Examination Survey. Their findings illustrate the potential value of studying routine oral-health behaviors within broader health contexts. However, observational associations should be interpreted cautiously. Toothbrushing behavior may correlate with education, socioeconomic position, general health awareness, diet, healthcare utilization, and other factors. Therefore, associations between oral-hygiene behavior and systemic outcomes do not establish that brushing itself directly causes changes in systemic disease risk.

For the present investigation, the broader implication is that preventive mouth care may function partly as an indicator of general health-oriented behavior. Understanding its distribution among adults can consequently provide information relevant not only to dentistry but also to health promotion.

1.4 Problem Statement

Preventive dental recommendations can only produce population benefits when individuals adopt and maintain the relevant behaviors. A discrepancy may exist between awareness of recommended practices and their consistent implementation. Individuals may understand that brushing is important but fail to brush regularly, use supplementary cleaning methods, or seek preventive dental examinations.

The central research problem addressed by this study is therefore the need to characterize how Albanian adults report performing preventive mouth care and to determine which components of preventive behavior appear strong or deficient.

A structured questionnaire provides a practical mechanism for examining these patterns across a population sample. Unlike clinical examinations, questionnaires can investigate behaviors that occur outside the dental clinic, including habitual frequency, motivations, preventive attendance, and use of hygiene aids. Their principal limitation is that responses represent reported rather than directly observed behavior.

1.5 Research Relevance

Understanding preventive behavior has direct practical relevance. If inadequate prevention is concentrated in particular behaviors, interventions can be targeted accordingly. For example, widespread regular toothbrushing combined with low



supplementary interdental cleaning would suggest a different educational priority from generally irregular brushing. Likewise, high rates of symptom-driven dental attendance would indicate a need to strengthen preventive utilization of dental services.

Preventive assessment is also relevant because treatment alone does not eliminate the behavioral conditions contributing to recurrent disease. Nyman et al. (1977) demonstrated the importance of plaque conditions in periodontal surgical outcomes, while Graziani et al. (2017) reviewed nonsurgical and surgical approaches to periodontal treatment. Together, these perspectives reinforce the principle that therapeutic intervention and effective preventive maintenance should be viewed as complementary rather than competing strategies.

1.6 Objectives

The primary objective of this study is to investigate preventive mouth care behaviors among Albanian adults using structured questionnaire responses.

The study additionally aims to characterize the frequency and regularity of routine toothbrushing; examine supplementary oral-hygiene behaviors; evaluate patterns of preventive versus symptom-oriented dental attendance; assess perceived adherence to preventive practices; explore differences in preventive behavior across relevant demographic groups; and establish a behavioral framework that may support future oral-health promotion initiatives in Albania.

1.7 Scope and Significance

The investigation focuses on self-reported preventive behavior rather than clinical diagnosis. It therefore does not attempt to determine the prevalence of caries, gingivitis, periodontitis, or malocclusion directly. Instead, it examines behavioral factors relevant to the prevention and management of oral disease.

This distinction is important. Clinical oral health and self-reported hygiene behavior are related but not interchangeable. Individuals reporting favorable hygiene behavior may still present disease because oral conditions have multifactorial etiologies. Conversely, some individuals reporting imperfect preventive routines may have limited clinical disease at a particular point in time.

The significance of the investigation lies in its capacity to characterize behavioral patterns that clinical examinations alone cannot fully explain. Such information can support patient education, preventive service planning, community oral-health

programs, and the design of more detailed epidemiological studies combining questionnaire and clinical measures.

2. Literature Review

2.1 Biological Foundation of Preventive Oral Hygiene

One of the strongest theoretical foundations for preventive oral hygiene derives from experimental research on plaque-induced gingival inflammation. Loe et al. (1965) demonstrated that interruption of oral-hygiene procedures was followed by plaque accumulation and gingival inflammation. The study remains conceptually important because it illustrates the biological consequences of inadequate plaque disruption.

This evidence has two implications for behavioral research. First, oral hygiene is meaningful because it modifies an etiologically relevant exposure rather than merely improving appearance or freshness. Second, consistency is essential. Preventive benefit depends on repeated disruption of biofilm rather than sporadic cleaning.

Long-term periodontal observations provide a complementary perspective. Loe et al. (1986) reported different patterns of periodontal disease progression, ranging from rapid to moderate or minimal attachment loss. These heterogeneous trajectories caution against assuming that identical behavior produces identical clinical outcomes in every individual. Nevertheless, they reinforce the importance of controlling modifiable risk factors wherever possible.

Chapple et al. (2015) subsequently positioned gingivitis management within primary prevention of periodontitis. This approach establishes a prevention continuum in which plaque control, behavioral support, professional assessment, and management of relevant risk factors operate before advanced periodontal destruction develops.

2.2 Integrated Prevention of Caries and Periodontal Disease

Preventive oral care also intersects with dental caries. Fejerskov et al. (2015) describe dental caries as a disease process influenced by the relationship among biofilm, the tooth surface, environmental conditions, and behavioral exposures. Prevention therefore requires attention to routine practices rather than relying exclusively on restorative treatment after lesions develop.

Jepsen et al. (2017) integrated prevention and control of caries and periodontal diseases within a combined individual- and population-level framework. This is particularly useful for



questionnaire-based behavioral research because many preventive behaviors influence both conditions.

A person brushing regularly with an appropriate toothpaste, maintaining interdental hygiene, controlling relevant dietary exposures, and attending dental services preventively participates in a behavioral system rather than performing unrelated isolated actions. Consequently, a questionnaire that evaluates only one preventive action risks underestimating the complexity of oral-health maintenance.

2.3 Professional Treatment and Continuing Prevention

Professional periodontal treatment provides another perspective on the importance of sustained preventive behavior. Nyman et al. (1977) examined periodontal surgery in plaque-infected dentitions, underscoring the relevance of plaque conditions to treatment outcomes. Graziani et al. (2017) reviewed nonsurgical and surgical options for periodontitis and illustrated the range of therapeutic approaches available.

The existence of sophisticated treatments does not reduce the need for prevention. Instead, treatment and prevention form a continuum. Professional intervention can manage established disease, whereas continuing personal and professional preventive care is necessary to reduce recurrence and maintain treatment outcomes.

Tonetti et al. (2015) explicitly addressed primary and secondary prevention of periodontal and peri-implant diseases. Primary prevention seeks to prevent disease onset, while secondary prevention is relevant to individuals with previous disease who require maintenance and recurrence control. For questionnaire studies, this distinction suggests that dental attendance should be evaluated according to purpose, not merely frequency.

2.4 Broader Health Relevance

Periodontal disease has been investigated in relation to systemic health. Cullinan et al. (2009) reviewed the status of evidence connecting periodontal and systemic conditions. Although specific causal pathways require careful interpretation, the literature supports viewing periodontal health as an important component of general health.

Moon et al. (2024) reported an association between toothbrushing and cardiovascular risk factors in a large Korean population dataset. The relevance of this study to behavioral research lies in its demonstration that a simple routine behavior can be examined as part of a broader health profile.

However, such associations must not be overinterpreted. Oral-hygiene behavior may be associated with other health-promoting behaviors and socioeconomic characteristics. Therefore, questionnaire research should describe associations rather than imply biological causation where the study design cannot support it.

2.5 Oral Habits, Occlusion, and Preventive Context

Several of the supplied references concern primary dentition, occlusion, malocclusion, and childhood oral habits. Although these studies are not direct evidence regarding adult Albanian toothbrushing behavior, they contribute to a broader life-course understanding of oral-health prevention.

Baume (1959) and Foster and Hamilton (1969) provided foundational descriptions of primary dentition development and occlusion. Later research has examined occlusal characteristics in different populations. Berneburg et al. (2010) investigated orthodontic findings among young children in Germany, while Davidopoulou et al. (2022) reported occlusal features among five-year-old Greek children. Pimenta et al. (2023) examined malocclusion in primary dentition in a Lisbon population.

The relevance of these studies is primarily conceptual. Oral-health trajectories begin before adulthood, and preventive behavior develops within a life-course context. Early oral habits, parental practices, dental attendance, and orthodontic conditions may influence later engagement with oral healthcare.

Rai et al. (2022) investigated oral habits and malocclusion among children in Nepal, while da Rosa et al. (2020) examined breastfeeding, pacifier use, preterm birth, and primary-dentition malocclusion. Grabowski et al. (2007) investigated relationships between occlusal findings and orofacial dysfunctions. These studies demonstrate that oral health is shaped by behavior and development long before adult preventive routines become independently established.

2.6 Caries and Occlusal Characteristics

Several supplied studies investigated relationships between dental caries and occlusal conditions. Stahl and Grabowski (2004) examined malocclusion and caries prevalence in primary and mixed dentitions. Marquezan et al. (2011) investigated associations between occlusal anomalies and dental caries among Brazilian children, while Gomes et al. (2017) similarly examined occlusal alterations and caries among preschool children.

Cho et al. (2021) investigated spacing in the primary dentition in relation to caries experience. Zhang et al. (2017) assessed both



occlusal features and caries experience among preschool children in Hong Kong. Wang et al. (2021), working with adolescents, examined relationships among malocclusion, adverse oral habits, and caries.

Collectively, these investigations demonstrate that oral disease and structural characteristics can interact in complex ways. They also caution against simplistic behavioral explanations for disease. Preventive mouth care remains important, but clinical outcomes emerge from interactions among biological susceptibility, morphology, behavior, environmental exposure, and access to professional care.

2.7 Preventive and Interceptive Perspectives

Paglia (2023) emphasized awareness and prevention in interceptive orthodontics. Carli et al. (2023) investigated early orthodontic treatment need among Italian schoolchildren, while Moimaz et al. (2021) reviewed malocclusion indices and their applications in public health.

Although orthodontic prevention differs from routine plaque-control behavior, these studies reinforce a common preventive principle: earlier identification and intervention can reduce the burden associated with conditions that become more difficult to manage after progression.

For adult oral-health behavior, the parallel is straightforward. Regular preventive care can facilitate early recognition of gingival inflammation, caries, and other abnormalities before they progress to more complex disease.

2.8 Microbial Considerations

The microbial dimension of oral healthcare is illustrated by Bucci et al. (2017) and Parrini et al. (2023), who investigated microbial retention associated with different suture materials in oral surgery. Their specific clinical context differs from routine home hygiene, but the studies demonstrate how material surfaces and local conditions can influence bacterial retention.

The broader preventive implication is that microbial accumulation is affected by local ecological and mechanical conditions. Effective preventive behavior therefore depends on disrupting deposits across relevant oral surfaces rather than assuming that a general sense of cleanliness corresponds to adequate microbial control.

2.9 Research Gap

The supplied literature provides strong evidence concerning plaque-associated disease, periodontal prevention, caries prevention, professional treatment, oral habits, and developmental or occlusal conditions. However, relatively little within this reference set directly characterizes contemporary preventive mouth care behavior among Albanian adults.

This represents the principal contextual gap addressed by the present study. The investigation shifts the analytical focus from disease occurrence to reported preventive performance. Rather than asking only whether oral disease exists, it examines how adults engage with behaviors intended to reduce disease risk.

3. Materials and Methods

3.1 Study Design

The study is designed as a cross-sectional questionnaire-based investigation of preventive mouth care behaviors among adults in Albania. A cross-sectional approach is appropriate for estimating the distribution of behaviors and examining associations between preventive practices and participant characteristics at a defined point in time.

Because the study concerns behavior rather than direct clinical diagnosis, questionnaire methodology provides an efficient means of collecting information regarding practices that occur outside clinical settings.

3.2 Target Population

The target population consists of adults residing in Albania who are capable of independently reporting their routine oral-health practices. Eligibility should be restricted to participants aged 18 years or older.

Individuals unable to provide informed responses independently or submitting substantially incomplete questionnaires should be excluded according to predetermined criteria.

The final manuscript must report the actual recruitment method, geographical coverage, study dates, number approached, number responding, number excluded, and final analytical sample.

3.3 Questionnaire Framework

The questionnaire should be organized into logically distinct domains.



The first domain should capture demographic characteristics necessary for describing the study population and examining behavioral differences. Relevant variables may include age group, sex, educational level, employment status, place of residence, and other characteristics justified by the study objectives.

The second domain should assess routine mechanical oral hygiene. Questions should address toothbrushing frequency, typical timing, regularity, and related behaviors. Frequency categories should be mutually exclusive and sufficiently detailed to distinguish participants with different preventive patterns.

The third domain should examine supplementary preventive practices. These may include interdental cleaning and other oral-hygiene aids. Because preventive performance is multidimensional, these variables should not automatically be combined with toothbrushing into a single measure unless the scoring approach is defined before analysis.

The fourth domain should evaluate professional dental attendance. Respondents should be distinguished according to whether they attend routinely for preventive examinations, intermittently, or mainly in response to pain or another perceived problem.

The fifth domain should examine perceived preventive performance and awareness. These responses can help determine whether self-perception corresponds with reported behavioral patterns.

3.4 Conceptual Model of Preventive Performance

The analytical framework conceptualizes preventive mouth care through four interconnected dimensions: routine plaque control, supplementary hygiene, professional prevention, and behavioral consistency.

Routine plaque control reflects the regular performance of basic mechanical cleaning. Supplementary hygiene captures additional behaviors intended to clean areas not consistently reached through brushing alone. Professional prevention reflects engagement with dental services before acute symptoms necessitate treatment. Behavioral consistency represents the stability with which preventive practices are maintained.

This framework avoids equating one favorable behavior with overall preventive adequacy.

3.5 Questionnaire Quality and Pilot Testing

Before full data collection, the questionnaire should undergo content review to ensure that items correspond with the study objectives. Questions should use clear language and avoid unnecessarily technical terminology.

Pilot testing should be conducted among a small group resembling the target population. The purpose is to identify ambiguous wording, response options that do not adequately represent participant behavior, excessive questionnaire length, or technical problems in data collection.

Where a composite preventive-behavior score is created, its reliability and conceptual justification should be evaluated. Reliability statistics should not be reported unless calculated from actual study data.

3.6 Data Collection

Questionnaires may be administered electronically, in person, or through a mixed-mode strategy. The final paper should specify the actual recruitment and distribution procedure.

Participants should receive information regarding the study purpose, voluntary participation, confidentiality, and their ability to discontinue participation. No personally identifying information should be collected unless necessary and ethically approved.

3.7 Variables and Operational Definitions

The primary outcome is preventive mouth care behavior.

Individual behaviors should initially be analyzed separately. Toothbrushing frequency can be categorized according to the questionnaire response structure. Supplementary hygiene can be represented by individual binary or frequency-based variables. Dental attendance can be classified according to preventive, irregular, or symptom-driven patterns.

If an overall preventive performance index is used, its components and scoring thresholds must be defined transparently. Arbitrary post hoc classification should be avoided because it may distort interpretation.

3.8 Statistical Analysis

Data analysis should begin with descriptive statistics. Categorical variables can be summarized using frequencies and percentages, while continuous variables can be summarized using means and



standard deviations or medians and interquartile ranges according to their distribution.

Associations between categorical preventive behaviors and participant characteristics can be evaluated using appropriate contingency-table procedures. Multivariable regression may be employed when the objective is to determine which characteristics are independently associated with a defined preventive outcome.

Effect estimates should be reported with confidence intervals where applicable. Statistical significance should not be treated as equivalent to clinical or public-health importance.

Missing observations should be documented, and the method used to handle them should be reported.

3.9 Ethical Considerations

The final study must identify the actual ethics committee or institutional review mechanism, approval number where applicable, and informed-consent procedure. Ethical approval must not be invented retrospectively.

Participation should be voluntary and questionnaire responses handled confidentially.

3.10 Methodological Limitations

A cross-sectional questionnaire study has several inherent limitations. It identifies associations but cannot establish temporal or causal relationships. Self-reported behavior may be affected by recall error and social-desirability bias. Participants may report practices perceived as recommended rather than their actual routine.

Selection bias is also possible when participation is voluntary. Individuals interested in oral health may be more likely to respond and may have better preventive practices than the general population.

Finally, behavioral data cannot substitute for clinical examination. Reported brushing frequency does not directly establish plaque levels, gingival condition, periodontal status, or caries experience.

4. Results

Important reporting note: Numerical results cannot be scientifically generated without the actual Albanian questionnaire dataset. The following section establishes the complete reporting

structure to be populated from observed data rather than fabricated values.

The final analytical sample should first be characterized according to age, sex, educational characteristics, residence, and any additional demographic variables collected. The number of questionnaires distributed, completed, excluded, and retained for analysis should be reported clearly so that response and completion patterns can be evaluated.

The first major outcome should concern routine toothbrushing. Participants should be classified according to the predefined frequency categories, and the proportion meeting the study's operational criterion for regular preventive brushing should be reported. Rather than presenting brushing as a simple yes/no variable, the analysis should distinguish between more frequent, once-daily, irregular, and other relevant patterns represented in the questionnaire.

Supplementary oral-hygiene behavior should constitute the second major outcome. The analysis should determine how frequently participants report interdental or other supplementary cleaning and whether these practices accompany regular brushing. This distinction is important because favorable brushing frequency does not necessarily indicate comprehensive plaque-control behavior.

Professional dental attendance should then be examined. Participants attending primarily for routine examinations should be distinguished from those attending irregularly or only after symptoms develop. A predominance of symptom-driven attendance would represent a different preventive challenge from inadequate home hygiene and would require a service-utilization response rather than exclusively educational intervention.

Self-perceived preventive performance should be compared with reported behaviors. Participants rating their oral care favorably may not necessarily report a complete preventive routine. Any discrepancy between perceived adequacy and reported practice would be relevant because individuals who believe their existing behavior is sufficient may be less receptive to generic educational messages.

Associations between preventive behavior and demographic characteristics should subsequently be evaluated. The analysis should determine whether distributions differ across age groups, sex, educational categories, residence, or other prespecified variables. Results should include actual effect estimates and uncertainty measures rather than relying exclusively on p-values.



Where multivariable analysis is undertaken, the dependent variable must be defined before modelling. For example, a clearly specified criterion for favorable preventive performance may be analyzed in relation to demographic and behavioral predictors. Adjusted estimates should then indicate which characteristics remain associated with the outcome after accounting for other included variables.

The interpretation of the empirical results should focus on patterns rather than isolated percentages. A population may, for example, exhibit strong adoption of basic brushing but limited use of supplementary cleaning and preventive dental attendance. Such a profile would suggest partial rather than comprehensive preventive engagement.

Conversely, if favorable behaviors occur consistently across several domains, the findings would indicate a comparatively strong preventive orientation within the sampled population. Even in this situation, interpretation should remain limited to the sampled participants unless the sampling design supports population-level generalization.

The final results section should report observations without introducing explanations that belong in the Discussion. Tables may efficiently present participant characteristics, oral-hygiene practices, dental attendance, and associations with demographic variables. Every numerical value must derive from the actual dataset.

5. Discussion

The present study is designed to provide a multidimensional assessment of preventive mouth care among Albanian adults. Its central analytical premise is that preventive oral behavior cannot be adequately represented by a single indicator. Toothbrushing, supplementary plaque control, preventive dental attendance, and behavioral consistency provide related but distinct information about an individual's preventive orientation.

The biological rationale for examining these behaviors is well established. Experimental research demonstrated the relationship between plaque accumulation and gingival inflammation (Löe et al., 1965), while subsequent preventive frameworks emphasized control of gingivitis as an important component of primary prevention of periodontitis (Chapple et al., 2015). Consequently, any observed inadequacy in regular plaque-control behavior would have plausible preventive significance.

The findings should also be interpreted in relation to integrated disease prevention. Jepsen et al. (2017) emphasized prevention

and control of both dental caries and periodontal disease at individual and population levels. This perspective suggests that behavioral interventions should avoid presenting oral hygiene as relevant to only one disease category. Preventive routines operate within a common oral environment and may influence several disease processes.

If the Albanian data demonstrate a discrepancy between regular brushing and limited supplementary hygiene, this would support the need for more differentiated preventive communication. Generic instructions to "brush regularly" may provide limited additional benefit to individuals already performing that behavior. Education could instead focus on quality, completeness, interdental plaque control, and professional preventive assessment.

Patterns of dental attendance would be similarly important. Predominantly symptom-driven attendance would suggest that preventive dentistry is not fully integrated into healthcare-seeking behavior. Professional services are important not only for treating established disease but also for risk assessment, early detection, reinforcement of effective home care, and continuing maintenance. The literature concerning periodontal treatment further demonstrates that professional therapy exists within a broader context of continuing plaque control and maintenance (Nyman et al., 1977; Graziani et al., 2017).

Any demographic differences identified in the dataset should be interpreted carefully. Differences associated with education, age, residence, or other characteristics may reflect variations in knowledge, healthcare access, resources, established habits, or broader social conditions. Cross-sectional questionnaire data cannot determine which mechanism is causal.

The wider relevance of preventive oral behavior should also be acknowledged. Periodontal health has been examined in relation to systemic health (Cullinan et al., 2009), and population research has identified associations between toothbrushing patterns and cardiovascular risk characteristics (Moon et al., 2024). These observations support integration of oral-health promotion within broader preventive-health strategies while avoiding unsupported causal claims.

Several limitations require explicit recognition. Self-reported behaviors are susceptible to recall and social-desirability bias. The cross-sectional design prevents causal inference. Sampling procedures may restrict generalizability, particularly if participants are recruited through convenience or online channels. Most importantly, behavioral responses do not provide direct evidence of clinical oral-health status.



Despite these limitations, questionnaire-based assessment can provide information unavailable from clinical examination alone. Clinical findings show what oral conditions are present, whereas behavioral data help identify what individuals report doing to prevent them. Combining these perspectives in future studies could substantially strengthen understanding of preventive oral health in Albania.

6. Conclusion

Preventive mouth care represents a multidimensional behavioral system encompassing regular plaque control, supplementary hygiene, professional preventive attendance, awareness, and sustained adherence. Investigating these behaviors among Albanian adults can provide an important foundation for understanding how preventive recommendations are translated into everyday practice.

The scientific rationale for such investigation is supported by extensive evidence concerning microbial plaque, gingival inflammation, periodontal prevention, dental caries, and the importance of continuing preventive care. Foundational experimental evidence established the relationship between plaque accumulation and gingival inflammation (Löe et al., 1965), while contemporary preventive frameworks emphasize effective management of gingivitis and coordinated prevention of caries and periodontal disease (Chapple et al., 2015; Jepsen et al., 2017).

The present research framework provides a systematic approach for examining these behaviors through structured responses. Its principal contribution is the distinction between basic hygiene participation and comprehensive preventive performance. This distinction is essential because an individual may report regular brushing while remaining deficient in supplementary plaque control, preventive dental attendance, or behavioral consistency.

Actual questionnaire observations are required before conclusions can be drawn regarding the prevalence or determinants of preventive behaviors among Albanian adults. Once empirical data are incorporated, the study can identify behavioral strengths, preventive deficiencies, and demographic patterns relevant to oral-health promotion.

Future research should combine self-reported behavioral measures with standardized clinical indicators of plaque, gingival health, periodontal condition, and caries experience. Longitudinal designs would further help determine whether changes in preventive behavior correspond with subsequent changes in clinical outcomes. Population-based sampling could

improve generalizability, while validated behavioral instruments could strengthen comparisons across countries and time periods.

Ultimately, effective preventive dentistry requires more than awareness. It requires consistent translation of preventive knowledge into daily behavior and appropriate professional care. Understanding this translation within the Albanian adult population can support more precisely targeted oral-health education, preventive service planning, and future epidemiological research.

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