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A Survey-Based Evaluation of a Multi-Angle Dental Mouth Mirror Among Practicing Dentists

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ABSTRACT

Background: Dental mouth mirrors are essential diagnostic instruments; however, limited visibility in posterior regions and operator fatigue remain common challenges. A multi-angle dental mouth mirror has been proposed to overcome these limitations.

Aim: To evaluate dentists' perception regarding the usefulness, visibility enhancement, ergonomic benefit, and acceptability of a multi-angle dental mouth mirror.

Materials and Methods: A cross-sectional questionnaire-based survey was conducted among 100 practicing dentists using Google Forms. The questionnaire consisted of eight close-ended questions assessing clinical experience, perceived usefulness, clinical applications, visibility improvement, operator strain reduction, willingness to use, recommendation likelihood, and purchase intent. Responses were recorded on Likert and categorical scales. Data were analyzed using descriptive statistics.

Results: Most participants perceived the multi-angle dental mouth mirror as useful, with high scores for improved visibility and willingness to adopt the design in routine practice. A majority also felt that the design could reduce operator strain.

Conclusion: Dentists showed a positive perception toward the multi-angle dental mouth mirror, indicating its potential clinical usefulness, ergonomic advantage, and market acceptability.

Introduction: Dental mouth mirrors play a vital role in indirect vision, illumination, and retraction during routine clinical procedures. Conventional single-plane mirrors often limit

visualization of posterior teeth, lingual surfaces, and complex access areas, leading to frequent repositioning and increased operator strain.[1]

Ergonomic challenges in dentistry contribute to musculoskeletal disorders, reduced efficiency, and clinician fatigue. Innovations in dental instruments focusing on improved visibility and ergonomics are therefore essential.[2]

A **multi-angle dental mouth mirror** has been conceptualized to provide enhanced indirect vision by allowing visualization from different angles without repeated hand movement. However, before clinical adoption, understanding dentists' perception of its usefulness and practicality is important. Hence, this study aimed to assess dentists' opinion regarding this novel mirror design through a structured survey.

Materials and Methods

Study Design: A cross-sectional questionnaire-based survey.

Study Population: A total of **100 dentists** including general practitioners and specialists.

Inclusion Criteria

- Practicing dentists
- Willing to participate in the survey
- Able to understand English

Exclusion Criteria

- Dental students
- Incomplete survey responses

Survey Tool: A self-structured questionnaire consisting of **8 close-ended questions**, designed to assess:

- Clinical experience
- Perceived usefulness
- Area of maximum benefit
- Improvement in visibility
- Reduction in operator strain
- Willingness to use in practice
- Recommendation to peers
- Purchase intent

The questionnaire was circulated using **Google Forms**, and responses were collected anonymously.

Ethical Consideration: Participation was voluntary, and informed consent was obtained digitally before survey initiation. No personal identifiers were collected.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using descriptive statistics (frequency and percentage).

Results: Out of 100 dentists surveyed, the majority perceived the multi-angle dental mouth mirror as useful, with high ratings for improved visibility and posterior access. Most participants believed it could reduce operator strain and expressed willingness to use, recommend, and purchase the mirror if commercially available.

Table 1: Distribution Based on Years of Clinical Experience

Experience	Number (n)	Percentage (%)
< 1 year	12	12
1–5 years	38	38
6–10 years	26	26
> 10 years	24	24

Table 2: Perceived Usefulness of Multi-Angle Dental Mouth Mirror

Response	Number	Percentage
Not useful	2	2
Slightly useful	6	6
Moderately useful	22	22
Very useful	40	40
Extremely useful	30	30

Table 3: Area Where Design Helps Most

Area	Number	Percentage
Posterior visibility	42	42
Pediatric patients	18	18
Endodontic access	16	16
General examination	20	20
Other	4	4

Table 4: Rating for Improvement in Visibility

Rating	Number	Percentage
Very poor	1	1
Poor	4	4
Neutral	18	18
Good	44	44

Excellent	33	33

Table 5: Opinion on Reduction of Operator Strain		
Response	**Number**	**Percentage**
Yes	62	62
Maybe	26	26
No	12	12

Table 6: Willingness to Use in Practice		
Response	**Number**	**Percentage**
Definitely yes	36	36
Probably yes	40	40
Not sure	14	14
Probably no	6	6
Definitely no	4	4

Table 7: Recommendation to Other Dentists		
Response	**Number**	**Percentage**
Definitely yes	34	34
Probably yes	38	38
Not sure	16	16
Probably no	8	8
Definitely no	4	4

Table 8: Likelihood of Purchase if Commercially Available		
Response	**Number**	**Percentage**
Very unlikely	4	4
Unlikely	8	8
Neutral	20	20
Likely	40	40
Very likely	28	28

Discussion: The present survey assessed dentists' perception toward a multi-angle dental mouth mirror. A majority of participants rated the design as very useful or extremely useful, highlighting the need for improved visualization tools in routine dental practice.[3,4]

Posterior visibility was identified as the most beneficial area, supporting the concept that multi-angle mirrors may reduce difficulty in indirect vision. Additionally, more than half of the respondents felt that the design could reduce operator strain, aligning with principles of ergonomic dentistry.[5,7]

High willingness to use, recommend, and purchase the mirror suggests strong clinical acceptability. These findings indicate that innovative dental instrument designs focusing on ergonomics and visibility are welcomed by practitioners.[8]

However, as this was a perception-based survey, clinical trials are recommended to objectively evaluate efficiency, time reduction, and ergonomic benefits.

Conclusion: The multi-angle dental mouth mirror was positively perceived by the majority of surveyed dentists. Improved visibility, potential reduction in operator strain, and high willingness to adopt the design suggest that this instrument may serve as a valuable adjunct in dental practice. Further clinical and ergonomic evaluation is recommended.

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