RESEARCH PAPER

Use of Motivational Interviewing and Perceptions of Its Effectiveness in Changing Patient Behaviors: A Cross-Sectional Study

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1. Introduction

Oral diseases constitute a major global public health challenge, affecting approximately 3.5 billion people worldwide and significantly impacting quality of life, productivity, and overall well-being[1]. Dental caries and periodontal diseases are among the most prevalent conditions and are largely preventable through the modification of behavioral risk factors such as poor oral hygiene, excessive sugar consumption, tobacco use, and irregular dental attendance[2]. Despite advances in clinical dentistry, the persistence of these diseases highlights the limitations of traditional treatment-oriented approaches and underscores the need for effective preventive strategies[3].

Conventional oral health education has primarily relied on directive advice-giving and information dissemination. Although these approaches may enhance patient awareness, they often fail to produce sustained behavioral change due to limited patient engagement and resistance to externally imposed recommendations[4]. Long-term improvement in oral health requires strategies that actively involve patients in the decision-making process and enhance their intrinsic motivation to adopt healthier behaviors[5].

Motivational Interviewing (MI) is an evidence-based, patient-centered counseling technique developed by Miller and Rollnick to facilitate behavior change by exploring and resolving ambivalence[6]. MI is grounded in the principles of expressing empathy, developing discrepancy, rolling with resistance, and supporting self-efficacy, all of which foster a collaborative clinician–patient relationship[7]. Unlike traditional directive methods, MI respects patient autonomy and encourages individuals to articulate their own reasons for change, thereby enhancing commitment and adherence to recommended health behaviors[8-13].

Understanding the determinants influencing the use of MI is essential for its successful integration into dental care. The Theory of Planned Behavior (TPB), proposed by Ajzen, provides a robust theoretical framework for examining these determinants[14-17]. According to TPB, an individual's behavior is influenced by their attitudes toward the behavior, subjective norms, and perceived behavioral control. Previous studies have demonstrated that positive attitudes and higher perceived behavioral control significantly increase healthcare professionals' intention to adopt MI techniques in clinical practice[18-20].

In the Indian context, particularly in rural and semi-urban regions, there is a paucity of research exploring the awareness, perceptions, and utilization of MI among dental students and professionals. Institutions located in these areas play a pivotal role in shaping future dental practitioners and addressing the oral health needs of underserved populations[21]. Evaluating the knowledge, attitudes, and perceptions of MI within such settings is crucial for identifying

educational gaps and informing curriculum development and policy initiatives.[21-27]

Given the high burden of preventable oral diseases and the limitations of traditional educational approaches, there is a pressing need for effective, patient-centered strategies to promote sustainable behavioral change. Motivational Interviewing has emerged as a promising intervention; however, its integration into dental education and practice remains limited, particularly in the Indian setting[22]. The lack of empirical data regarding the perceptions and preparedness of dental students and professionals represents a significant gap in the literature.

Assessing these perceptions is essential for understanding the factors that facilitate or hinder the adoption of MI techniques. Such insights can guide the development of targeted educational programs, enhance clinical training, and promote the incorporation of MI into routine dental practice[28]. Furthermore, applying the Theory of Planned Behavior provides a theoretical basis for identifying psychological determinants that influence the intention to use MI, thereby enabling the design of effective implementation strategies[29-32].

Therefore, this study is justified as it aims to evaluate the knowledge, attitudes, and perceptions of dental students and professionals regarding Motivational Interviewing and to assess its perceived effectiveness in changing patient behaviors.

2. Materials and Methods

2.1 Study Design

A cross-sectional observational study was conducted to evaluate perceptions regarding Motivational Interviewing among dental students and professionals.

2.2 Study Setting, Sample Size Determination and Sampling Technique

The study was conducted at Yogita Dental College and Hospital, Khed, Ratnagiri. A convenient sampling technique was adopted. All eligible participants available during the study period were included. Sample size (n = 265) was determined based on feasibility and participant availability, ensuring representation across different academic levels.

2.3 Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee prior to data collection (Ref. No.: YDCH/IEC/2107/135/2026). The study adhered to standard ethical principles, including voluntary participation, informed consent, confidentiality, and anonymity. Ethical clearance was obtained from the Institutional Ethics Committee. Informed consent was obtained prior to participation. Confidentiality and anonymity were strictly maintained. Participants had the right to withdraw at any stage

2.4 Study Population

The study population comprised of 3 groups namely, IV BDS (n=116), Interns(n=62) and Dental Professionals(n=87). The dental students enrolled in the Yogita Dental College and Hospital in Maharashtra during the study period.

2.5 Eligibility Criteria

Inclusion Criteria

1. Enrolled Dental Students (undergraduate BDS years) - IV BDS, Interns, Dental Professionals) at the study institution during the data-collection period. 2. Dental Students Aged ≥ 18 years.
2. Access to internet and an electronic device (smartphone/computer) to complete the online questionnaire.
3. Provided informed consent (electronically or written) before participation.

Exclusion Criteria

1.Dental students who declined to provide informed consent or withdrawn consent at any time.
2. Incomplete or invalid questionnaire responses

2.6 Data Collection Instrument

Method of Data Collection:

After obtaining appropriate permissions from the head of Dental College and Hospital, Institutional Ethical committee data collection procedure will be as follows: Informed consent was taken from patient regarding the questionnaires prepared for the same.

1. Data Collection Tool

A pre- validated, structured questionnaire was used , consisting of: Section A: Demographic details (age, gender, year of study,clinical experience),Section B: Behavioral attitudes,Section C: Subjective norms, Section D: Behavioral control.The questionnaire included multiple-choice questions selected to Dental Hygienists' Use of Motivational Interviewing and Perceptions of Its Effectiveness in Changing Patient Behaviors in dental professionals and practitioners in Yogita dental college and hospital, Khed.

2. Data Collection Procedure

Participants were briefed about the purpose of the study. Informed consent was obtained. The questionnaire was distributed during college hours and collected upon completion.

2.7 Statistical Analysis

The Chi-square analysis demonstrated that most variables related to behavioral attitudes, subjective norms, and perceived behavioral control showed statistically significant differences among the study groups. In contrast, certain variables such as theoretical understanding and reflective listening did not show significant variation. These findings suggest that while foundational knowledge may be consistent, practical application, perceptions, and external influences significantly differ among IV BDS students, interns, and dental professionals.

2.8 Result

A total of participants comprising IV BDS students, interns, and dental professionals were evaluated for awareness and application of motivational interviewing.

Demographics and Awareness:

A statistically significant difference in gender distribution was observed among the groups (χ^2 = 40.245, p < 0.001), with females predominating among students and interns, and males among dental professionals. Awareness of motivational interviewing differed significantly (χ^2 = 11.610, p = 0.021), with higher awareness among IV BDS students (60.7%) and interns (58.1%) compared to dental professionals (51.2%).

Behavioral Attitudes:

Significant differences were observed in multiple behavioral attitude parameters. Use of motivational interviewing in patient communication (χ^2 = 22.727, p = 0.004), perception of its effectiveness (χ^2 = 23.266, p = 0.003), belief in internal patient motivation (χ^2 = 17.537, p = 0.025), assessment of readiness for change (χ^2 = 26.249, p = 0.001), use of open-ended questions (χ^2 = 15.915, p = 0.044), and recognition of patient efforts (χ^2 = 29.844, p < 0.001) were all statistically significant. Frustration due to lack of patient motivation (χ^2 = 26.414, p = 0.001) and belief in coercion as necessary (χ^2 = 16.209, p = 0.039) were also significant. However, understanding of basic principles did not differ significantly (χ^2 = 10.669, p = 0.221).

Subjective Norms

Significant differences were noted in subjective norms, including reliance on colleagues' approaches (χ^2 = 31.353, p < 0.001) and perceived lack of institutional support (χ^2 = 25.752, p = 0.001).

Behavioral Control

No significant difference was found in reflective listening ability (χ^2 = 12.075, p = 0.148). However, perceived proficiency (χ^2 = 23.871, p = 0.002) and positive behavioral outcomes (χ^2 = 18.850, p = 0.016) showed significant differences. Negative perceptions, including inability to motivate unmotivated patients (χ^2 = 17.687, p = 0.024) and belief that some patients will never change (χ^2 = 15.540, p = 0.049), were also significant.

RESULTS

Table 1: Distribution of participants according to gender and awareness of motivational interviewing

Parameters	Sub parameters	IV BDS (n = 116)	Interns (n = 62)	Dental professionals (87)	χ^2	P value
Gender	Males	21(17.9%)	18(29.0%)	51(60.7%)	40.245	0.000**
	Females	95(81.2%)	44(71.0%)	33(39.3%)		
Awareness of motivational interviewing	Yes	71(60.7%)	36(58.1%)	43(51.2%)	11.610	0.021*
	No	28(23.9%)	22(35.5%)	36(42.9%)		
	Maybe	18(15.4%)	4(6.5%)	5(6.0%)		

** - significant*
*** - highly significant*
 # - not significant

Table 2: Comparison between IV BDS, Interns and Dental professionals based on Behavioral attitudes

Questions	Year	Responses			χ^2	P value
		IV BDS (n = 116)	Interns (n = 62)	Dental professionals (87)		
I use motivational	**Strongly agree**	26(9.9%)	8(3.1%	34(13.0%	22.727	0.004**

interviewing when communicating with patients.	Agree	73(27.9%)	46(17.6%)	37(14.1%)		
	Neutral	8(3.1%)	4(1.5%)	5(1.9%)		
	Disagree	0(0.0%)	2(0.8%)	3(1.1%)		
	Strongly disagree	9(3.4%)	2(0.8%)	5(1.9%)		
I understand the basic ideas and principles of motivational interviewing.	Strongly agree	24(9.2%)	8(3.1%)	23(8.8%)	10.669	0.221#
	Agree	80(30.5%)	42(16.0%)	50(19.1%)		
	Neutral	2(0.8%)	6(2.3%)	3(1.1%)		
	Disagree	3(1.1%)	2(0.8%)	3(1.1%)		
	Strongly disagree	7(2.7%)	4(1.5%)	5(1.9%)		
Motivational interviewing is an effective behavioural counselling approach.	Strongly agree	24(9.2%)	8(3.1%)	31(11.8%)	23.266	0.003**
	Agree	80(30.5%)	44(16.8%)	40(15.3%)		
	Neutral	9(3.4%)	6(2.3%)	3(1.1%)		
	Disagree	1(0.4%)	2(0.8%)	3(1.1%)		
	Strongly disagree	2(0.8%)	2(0.8%)	7(2.7%)		
I think that the most effective way to motivate patients to change is by drawing on their own internal motivations.	Strongly agree	26(9.9%)	6(2.3%)	28(10.7%)	17.537	0.025*
	Agree	80(30.5%)	46(17.6%)	45(17.2%)		
	Neutral	3(1.1%)	6(2.3%)	3(1.1%)		
	Disagree	2(0.8%)	2(0.8%)	3(1.1%)		
	Strongly disagree	5(1.9%)	2(0.8%)	5(1.9%)		
I assess my patient's readiness for change.	Strongly agree	18(6.9%)	6(2.3%)	28(10.7%)	26.249	0.001**
	Agree	72(27.5%)	42(16.0%)	48(18.3%)		
	Neutral	9(3.4%)	6(2.3%)	3(1.1%)		
	Disagree	4(1.5%)	2(0.8%)	0(0.0%)		
	Strongly disagree	8(3.1%)	6(2.3%)	5(1.9%)		
I intentionally ask open ended questions	Strongly agree	23(8.8%)	6(2.3%)	28(10.7%)	15.915	0.044*
	Agree	72(27.5%)	42(16.0%)	48(18.3%)		
	Neutral	9(3.4%)	6(2.3%)	3(1.1%)		
	Disagree	4(1.5%)	2(0.8%)	0(0.0%)		
	Strongly disagree	8(3.1%)	6(2.3%)	5(1.9%)		
I intentionally recognize my patients' effort in changing their oral health habits.	Strongly agree	25(9.5%)	8(4.4%)	25(9.5%)	29.844	0.000**
	Agree	82(31.3%)	42(16.0%)	22(12.0%)		
	Neutral	19(10.4%)	27(14.8%)	10(5.5%)		
	Disagree	5(2.7%)	1(0.5%)	0(0.0%)		
	Strongly disagree	1(0.5%)	1(0.5%)	1(0.5%)		
My patients' lack of motivation for change is a significant frustration	Strongly agree	19(7.3%)	4(1.5%)	31(11.8%)	26.414	0.001**
	Agree	71(27.1%)	44(16.8%)	35(13.4%)		
	Neutral	16(6.1%)	10(3.8%)	9(3.4%)		
	Disagree	2(1.1%)	2(1.1%)	3(1.6%)		

in my work.	Strongly disagree	8(3.1%	2(1.1%	6(2.3%		
Some patients need to be coerced or pressured to change.	Strongly agree	18(6.9 %	4(1.5%	24(9.2%)	16.209	0.039 *
	Agree	80(30.5 %	46(17.6 %	46(17.6%		
	Neutral	9(3.4%	6(2.3%	7(2.7%)		
	Disagree	3(1.1%	2(0.8%	0(0.0%)		
	Strongly disagree	6(2.3%	4(1.5%	7(2.7%)		

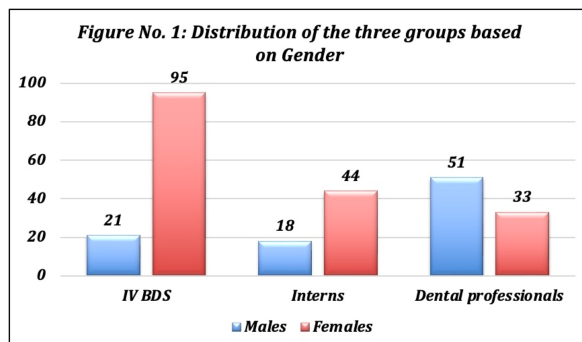
Table 3: Comparison between IV BDS, Interns and Dental professionals based on Subjective norms

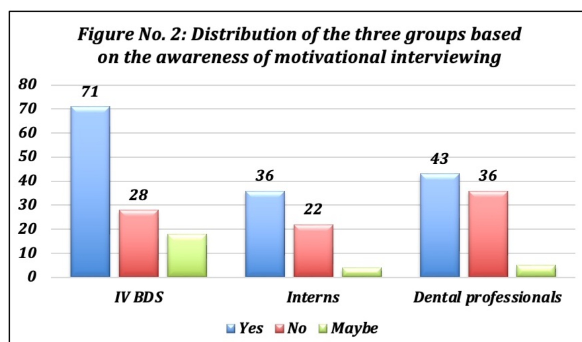
Questions	Year	Responses			χ^2	P value
		IV BDS (n = 116)	Interns (n = 62)	Dental professionals (87)		
I tend to use the same approaches to patient education that my co-workers use.	Strongly agree	22(8.4 %	4(1.5%)	20(7.6%)	31.353	0.000 **
	Agree	74(28.2 %	38(14.5 %	30(11.5%)		
	Neutral	11(4.2 %	16(6.1 %	25(9.5%)		
	Disagree	2(0.8%)	2(0.8%)	0(0.0%)		
	Strongly disagree	7(2.7%)	2(0.8%)	9(3.4%)		
There is limited support from my employer for integrating motivational interviewing into my work.	Strongly agree	22(8.4 %	4(1.5%)	18(6.9%)	25.752	0.001 **
	Agree	73(27.9 %	32(12.2 %	36(13.7%)		
	Neutral	11(4.2 %	16(6.1 %	22(8.4%)		
	Disagree	0(0.0%)	2(0.8%)	0(0.0%)		
	Strongly disagree	10(3.8 %	8(3.1%)	8(3.1%)		

Table 4: Comparison between IV BDS, Interns and Dental professionals based on Behavioral control

Questions	Year	Responses			χ^2	P value
		IV BDS (n = 116)	Interns (n = 62)	Dental professionals (87)		
I am a good reflective listener in working with patients.	Strongly agree	24(9.2 %	12(4.6 %	31(11.8%)	12.075	0.148 #
	Agree	81(30.9 %	42(16.0 %	47(17.9%)		
	Neutral	7(2.7%)	4(1.5%)	3(1.1%)		
	Disagree	1(0.4%)	2(0.8%)	0(0.0%)		
	Strongly disagree	3(1.1%)	2(0.8%)	3(1.1%)		
I feel proficient and able to use motivational interviewing in my practice	Strongly agree	31(11.8 %	4(1.5%)	26(9.9%)	23.871	0.002 **
	Agree	78(29.8 %	46(17.6 %	50(19.1%)		
	Neutral	1(0.4%)	4(1.5%)	0(0.0%)		
	Disagree	2(0.8%)	2(0.8%)	0(0.0%)		
	Strongly disagree	4(1.5%)	6(2.3%)	5(1.9%)		
I feel the use of motivational interviewing has resulted in positive behavior	Strongly agree	22(8.4 %	2(0.8%)	22(8.4%)	18.850	0.016 *
	Agree	79(30.2 %	48(18.3 %	50(19.1%)		
	Neutral	7(2.7%)	6(2.3%)	3(1.1%)		
	Disagree	0(0.0%)	2(0.8%)	3(1.1%)		
	Strongly disagree	8(3.1%)	4(1.5%)	6(2.3%)		
If a patient is not initially	Strongly agree	25(9.5 %	2(0.8%)	17(6.5%)	17.687	0.024 *
	Agree	63(24.0 %	38(14.5 %	33(12.6%)		

motivated, I do not thin that I wil be able t increase his or he motivation	Neutral	15(5.7 %	12(4.6 %	21(8.0%)		
	Disagree	3(1.1%	2(0.8%	3(1.1%		
	Strongly disagree	10(3.8 %	8(3.1%	10(3.8%		
Some patients will never change regardless of how interact with them.	Strongly agree	22(8.4 %	6(2.3%	27(10.3%	15.54	0.049 *
	Agree	75(28.6 %	40(15.3 %	45(17.2%		
	Neutral	9(3.4%	8(3.1%	7(2.7%		
	Disagree	4(1.5%	2(0.8%	0(0.0%		
	Strongly disagree	6(2.3%	6(2.3%	5(1.9%		





4. Discussion

The findings of the present study indicate that dental students and professionals possess a generally positive perception of Motivational Interviewing as a behavior change tool. These results are consistent with previous studies . demonstrating that MI is effective in improving oral health behaviors and patient compliance[19]. Rogers et al. reported that dental hygienists exhibit strong intentions to use MI, supported by positive attitudes and confidence in their skills[20]. Similarly, Kay et al. concluded that MI is an effective communication strategy in general dental practice and should be incorporated into routine patient care[2].

The effectiveness of MI can be attributed to its patient-centered approach, which contrasts with traditional directive methods. By encouraging patients to explore their own motivations, MI enhances intrinsic motivation and long-term adherence to health behaviors[21]. This approach aligns with Bandura's self-efficacy theory, which emphasizes the importance of confidence in one's ability to perform a behavior[22].

The application of the Theory of Planned Behavior in this study revealed that attitudes and perceived behavioral control significantly influence MI adoption. Participants who believed in the effectiveness of MI and felt confident in their ability to use it were more likely to incorporate it into practice[23]. highlighting the importance of psychological determinants in behavior change among healthcare professionals[24].Despite positive perceptions, the actual implementation of MI remains limited. One of the most commonly reported barriers is lack of adequate training. Although MI is included in theoretical curricula, practical training opportunities are often insufficient[25]. have shown that hands-on training and role-playing significantly improve MI skills and confidence among dental professionals[26].

Time constraints were also identified as a major barrier. Many practitioners perceive MI as time-consuming; however, evidence suggests that even brief MI interventions can be effective in promoting behavior change[27]. This highlights the need for training programs that focus on integrating MI into routine clinical practice efficiently. Understanding the factors influencing the adoption of MI is essential for improving its implementation. The Theory of Planned Behavior (TPB), proposed by Ajzen, provides a useful framework for analyzing such behaviors[15]. According to TPB, an individual's behavior is influenced by three key components: attitudes toward the behavior, subjective norms, and perceived behavioral control. In the context of MI, these factors determine whether dental professionals are likely to use MI techniques in clinical practice[16]. Institutional support plays a crucial role in facilitating MI adoption. A supportive work environment, availability of training resources, and encouragement from faculty members significantly enhance the use of MI techniques[28]. In the present study, participants who reported institutional support were

more likely to use MI. The variation in confidence levels among different academic groups observed in this study is consistent with previous findings Dental hygiene students' perceptions of importance and confidence in applying motivational interviewing during patient care. Interns and postgraduates demonstrated higher confidence due to greater clinical exposure and experience[32]. This suggests that early clinical integration of MI training in undergraduate education may improve competence and confidence. Furthermore, MI has been shown to be effective in addressing a wide range of behaviors beyond oral hygiene, including tobacco cessation, dietary modification, and improving compliance with preventive measures[33- 36]. Its versatility makes it a valuable tool in comprehensive patient care.

5. Conclusion

Motivational Interviewing is an effective, patient-centered approach that is positively perceived by dental students and professionals. However, its practical implementation is limited due to barriers such as lack of training and time constraints. The evidence supporting the effectiveness of MI shows that it remain underutilized in dental practice. Bridging this gap requires curriculum reforms, enhanced training programs, and increased awareness among dental professionals.Based on the findings of this study, it is recommended that structured training programs on motivational interviewing be integrated into undergraduate dental curricula as well as continuing dental education for practicing professionals. Emphasis should be placed on developing practical communication skills, including the use of open-ended questions, reflective listening, and patient-centered counseling techniques. Institutions should also provide supportive environments and standardized guidelines to facilitate the consistent application of motivational interviewing in clinical practice. Additionally, periodic workshops, hands-on training sessions, and assessment of competency may help bridge the gap between theoretical knowledge and clinical implementation.

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