



Original Article

Clinical practice perception in relation with DEPTH model among dental practitioners in Madurai city -A cross sectional study

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Abstract

Introduction : Clinical epidemiology is a science of making predictions, which aims at promoting the quality of clinical and patient oriented health care, in order to make good decision in care of patients. The study aimed to assess the perception of clinical practice in relation with Diagnosis, Etiology, Prognosis, Therapy (DEPTH) Model among dental practitioners in Madurai City.

Materials and Methods : The Questionnaire based cross sectional study was conducted among Dentist in Madurai city for a period of 1 month and the sample size was about 181. The self-structured questionnaire consisted of 13 closed ended questions which was formulated based on their perception towards practice either as Diagnostic, Etiology, Prognosis or Therapy (DEPTH) Model.

Results : The present study was conducted among 183 dental practitioners practicing in Madurai city. The result of the study was based on the questionnaire, which revealed that 32.92% of dental practitioners prefer to give importance to diagnosis of disease, 27.15 % of dental practitioners prefer to give importance to the etiology of disease, 19.14 % of dental practitioners preferred to give importance to prognosis of disease and 31.44 % of dental practitioners preferred to give importance to therapy overall.

Conclusion : The result of the present study highlights the importance of clinical practice decision making, as dental practitioners there a need to investigate the condition in holistic way and not merely the therapy and diagnostic aspect alone. This study attempted to attune their own practice for inculcating effective contribution to overall care and patient well-being.

Key words : DEPTH model, clinical decision making, clinical epidemiology, dental practice perception.

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INTRODUCTION

Health is an important and core aspects of human existence (1). The essence of this value lies in the fact that it is a health as a state of the individual or society that allows a person to realize a certain set of physical, spiritual, and social opportunities (2). Health is an epicenter for leading, a longer and more active life. Clinicians aid patients in managing their health by drawing on their expertise in clinical practice and medical science (3).

Clinical practice emphasizes heavily on providing care for patients with undiscovered health issues as well as ongoing treatment for a variety of medical and dental disorders. Dentists offer complete dental services that are open to everyone. People typically complain of widespread illnesses when they see the dentist. Engel regarded it as reductionist and unscientific to understand a patient's symptoms solely in terms of physical notions, such as the pathophysiology of a disease and the derangement of tissues or organs (4).

The healthcare system must put the individual and their social wellbeing at the centre of decision-making, including the comprehension of elements within and outside the dental office, in order to attain optimal oral health (5). Less than one-third of all health-related factors are determined by medical care, genetics, and individual biology. Therefore, improving patient health overall requires addressing additional elements such as personal behavior, environmental factors, and societal issues (6).

Dentistry has always set a strong emphasis on rebuilding damaged areas. In order to take preventive and therapeutic measures against dental illness, the focus in dentistry has switched towards comprehending and upholding the conditions associated with a healthy stomatognathic system. In light of the recognised prerequisites for optimum oral health, the particular circumstances of each individual must be taken into account. In clinical practice, the clinician should recognize different clinical scenarios scientifically at several levels of natural system continuum. It is a transformation of learned knowledge and skills into physiological and psychological characteristics that are required to solve clinical practical problems (7).

As by William Osler quote “Just listen to your patient, he is telling you the diagnosis” (8). Clinicians should have effective communication skills, active listening abilities. The communication should be based on the patient's requirements, values, and preferences that are necessary for gathering a clinical history and conducting an interview with a patient. The ability of them to use new knowledge has been outpaced by the increasing complexity of health care, the sheer volume of advancements, time restraints on clinicians, and cognitive limitations (9). Clinicians tend to be hypocentre, as healthcare professional who work directly with patients to diagnose and treat disease, injury, or other health conditions. They may be specialists who treat a certain sort of condition or patient population, or they may be generalists who treat a wide range of patients with various problems. The likelihood of the disease does not have to equal one certainty in order for treatment to be recommended (10).

Dentist focuses on functioning for and alongside patient or clients, notably those responsibilities are carried out in their presence and with their cooperation. The dentist chooses the theory that is most relevant for the client's circumstance when implementing these intervention and treatment. Therefore, in this venture clinical desion making in implementing treatment should be based on DEPTH model (Diagnosis, Etiology, Prognosis and Therapy), as these factors have significant roles in clinical decision making. Clinical epidemiology is a science of making predictions, which aims at promoting the quality of clinical and patient-oriented health care, in order to make good decision in care of patients. Hence, the study aimed to assess the perception of clinical practice in relation with Diagnosis, Etiology, Prognosis, Therapy (DEPTh) Model among dental practitioners in Madurai City.

MATERIALS AND METHODS

A cross sectional study was conducted to assess the clinical practice perception in relation with DEPTH model among dental practitioners in Madurai city. The study population includes the private dental practitioners of Madurai city. Convenient sampling method was employed in the study. The participants who were qualified with minimal BDS degree and practicing in Madurai city was included and dental practitioners not practicing in Madurai city and Practitioner who is not willing to participate was excluded. Based on the pilot study results sample size was calculated using formula $N=4PQ/L2$ and calculated to be 180.96 (Rounded off =181). Before the study began, the study volunteers gave their prior written informed consent.

A total of 183 dentists gave their consent for the study. All participants provided their written, informed consent. A self-structured, two-part, self-administered questionnaire was employed; the first part asked about the respondents' demographics, Experience, Qualification and the second part asked about their perspectives on clinical practice. A total of 13 closed-ended questions were created to help in making decisions regarding patients based on their clinical condition. These questions pertained to diagnosis, etiology, prognosis, and treatment. A team of "experts" (from the Department of Public Health Dentistry) evaluated the questionnaire's face and content validity and suggested changes to ensure its comprehensiveness. To ensure that each and every participant can comprehend the questions, the questionnaire was written in English and any complex English words were replaced with easier alternatives. The internal consistency was assessed using Cronbach's alpha and the value suggest 0.9 reliability.

Statistical analysis:

The gathered information was recorded in a master table. Data analysis was done with the help of a computer using MS excel. Based on information gathered from 183 study participants, the outcomes were determined. The unfinished reports were disregarded. Excel spreadsheets were used to enter the data collected for the study. To determine how frequently research participants selected the various options, descriptive statistics were employed. To determine the association between the years of experience and number of correct response spearman's correlation test was used.

RESULTS

The present study was conducted among 183 dental practitioners practicing in Madurai city. The result of the study was based on the questionnaire, revealed 32.92% of dental practitioners prefer to give importance to diagnosis of disease, 27.15 % of dental practitioners prefer to give importance to the etiology of disease, 19.14 % of dental practitioners preferred to give importance to prognosis of disease and 31.44 % of dental practitioners preferred to give importance to therapy overall (graph 1). The result of the study highlights the dental practitioners' prior choice on diagnosis and therapy, followed by etiology and prognosis. (Table 1)

The dynamic association between the years of experience and number of correct response was assessed using spearman's correlation and the result revealed a negative correlation(-.047). (Table 2)

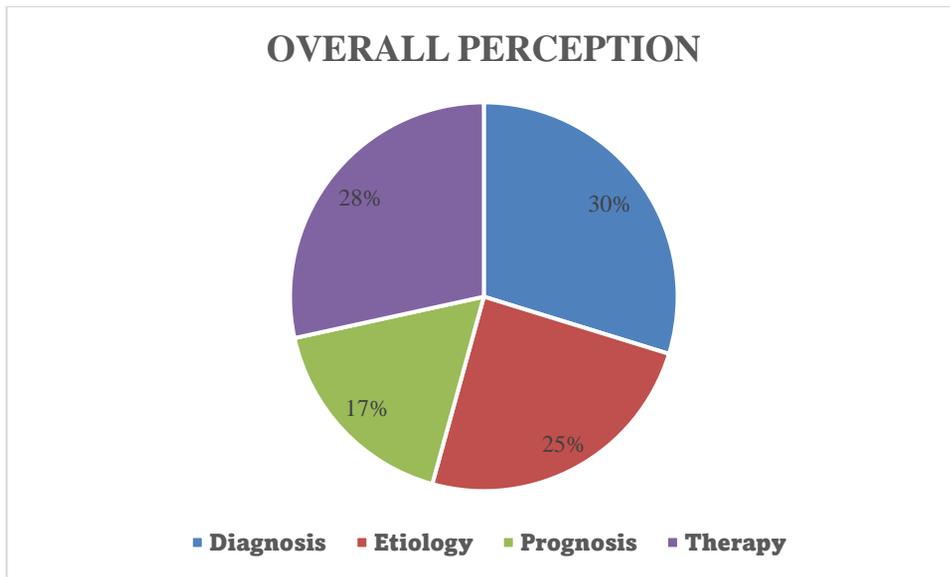
Table 1: Response regarding Clinical Practice Perception in Relation with DEPTH Model

QUESTIONS	RESPONSES	PERCENTAGE
A female in her pre-pubertal stage walks in with a complaint of pain in lower back tooth region (first permanent molar) and discomfort while having food. Patient also has a familial history of early tooth loss. On what basis you will assess the patient?	Diagnose the condition Identify Etiological factor Rate for Prognosis Advise for Analgesics All of the above	29 % 23.5 % 1.1 % 3.8 % 42.6 %
A patient complaint of tipping, sensitivity and pain on chewing in the lower front tooth, clinically tooth has a wear facets. what will you opt next?	Diagnose the condition Identify Etiological factor Rate for Prognosis Advise for Prophylactic therapy All of the above	20.2 % 32.2 % 9.3 % 14.2 % 24.0 %
A patient with a history of systemic disease walks in with a complaint of loosening of lower front teeth, what basis you opt for treatment?	Diagnose the condition Identify Etiological factor Rate for Prognosis Advise for Splinting All of the above	21.9 % 13.7 % 18.6 % 15.3 % 30.6 %
A person with a painless and slowly enlarging swelling in upper right cuspid region, clinically present with a partially erupted upper right cuspid. What will be your first choice?	Diagnose the condition Identify Etiological factor Rate for Prognosis Advise for Analgesics All of the above	46.4 % 14.2 % 4.9 % 12.6 % 21.9 %
A patient complaint of swollen gums and spontaneous bleeding in upper and lower front and back tooth region. what is the best option to choose?	Diagnose the condition Identify Etiological factor Rate for Prognosis Advise for Oral Prophylaxis All of the above	12.6 % 20.8 % 1.6 % 35.0 % 30.1 %
A patient complaint of recurrent unhealing ulcer in the dorsum of tongue with tender and enlarged submandibular lymph nodes, what will be your first choice?	Diagnose the condition Identify Etiological factor Rate for Prognosis Advise for Analgesics All of the above	36.6 % 15.3 % 12.6 % 8.7 % 26.8 %
A patient walks in with restricted mouth opening & unable eat food. What will be your first choice?	Diagnose the condition Identify Etiological factor Rate for Prognosis Advise for muscle relaxants	30.1 % 26.2 % 1.1 % 4.6 %
A 15-year-old female child on intraoral examination revealed a tender diffuse white flaky elevation on both sides of buccal mucosa at the level of occlusion, extending from corner of mouth to second permanent molar. What will be your first choice?	Diagnose the condition Identify Etiological factor Advise for Analgesics gel Rate for Prognosis All of the above	31.1 % 16.9 % 24.6 % - 27.3 %

If a patient of 35 yrs comes with a complaint of flared upper anteriors, what will be your next step?	Diagnose the condition	15.8 %
	Identify Etiological factor	34.4 %
	Rate for Prognosis	19.1 %
	Advise for Braces	30.6 %
If a patient complaint of missing teeth in the upper front tooth region, in clinically examination reveals missing of maxillary canine. what will be your next step?	Diagnose the condition	34.4 %
	Identify Etiological factor	17.5 %
	Rate for Prognosis	1.2 %
	Advise for Replacement	45.9 %
	All of the above	1.0%
Is the biopsy necessary when the patient has an ulcerative lesion?	Never	5.5 %
	Always	3.8 %
	Only after two-three weeks, after removing traumatic factors.	76.5 %
	Adjunct for treatment need	14.2 %
If a patient compliant of gradual swelling which is increasing in size during eating food and decreases afterwards, what will be your next step?	Diagnose the condition	32.8 %
	Identify Etiological factor	15.8 %
	Rate for Prognosis	.6 %
	Advise for Investigation	50.8 %
A patient presents with sensitivity, burning sensation and palatal erythema. What will be your first choice?	Diagnose the condition	17.5 %
	Identify Etiological factor	23.5 %
	Rate for Prognosis	2.7 %
	Advise for desensitizing gel	15.8 %
	All of the above	40.4 %

Table 2: Correlation values between years of experience & correct response

		Correct response	P-value
Years of experience	Correlation coefficient	-.047	.532



Graph 1: Represents the overall perception based on DEPTH model

DISCUSSION

The ultimate goal for healthcare providers is to prevent, arrest and reverse the progression of any condition that is already present. The complete examination and evaluation of the patient's oral and related systemic health is the most fundamental task for a dental clinician. The scope of the examination should not be limited to the dentition and adjacent periodontal tissue, but should also encompass other structures and conditions in the oral cavity, as well as head and neck health and systemic health. When examining the oral cavity, practitioners may overemphasize a single disease process, or miss out that could have been discovered as early as possible (11).

The present study was conducted to assess the dental practitioners clinical practice perception based on DEPTH Model in Madurai city. The present study also attempted to attune their own clinical perception based on different clinical scenario. This was the first study using DEPTH Model to attune regarding clinical practice perception among dental practitioners. Questions were based on four criteria, stemming from a problem encountered in decision making in clinical practice in one of DEPTH areas. Thereby, Diagnostic questions dealing with the challenge of efficiently setting the diagnosis underlying the patient's signs and symptoms, Etiological questions dealing with challenge of determining the cause of disease, prognostic questions dealing with the challenge of efficiently predicting the natural history of disease in a patient predicting potential benefit and harm, and questions dealing with challenge of determining the effect of a particular therapy on patients particular condition.

In current study 57.8% were male and 41.1% were female private practitioners suggestive of higher male practitioners than female in Madurai city. Majority of the dental practitioners had BDS Qualification 69.2% and only 29.7% had MDS qualification in the present study.

In the present study the most preferable option in question relating to juvenile periodontitis was all of the aforementioned choices (42.6%) followed by diagnosing the condition (29%) it might be due to fact as the question clearly directed major sign of juvenile periodontitis by highlighting a female of pre pubertal age with localized pain source and familial history of tooth loss, and 23.5% preferred identifying its etiology and 42.6% preferred all of above (DEPTH), despite the fact prognosis of disease and its therapeutic measure is also seldom important when it comes to management.

In a question related to traumatic occlusion representing features of tipping, wear facets, sensitivity and pain on chewing, the most answered option was identifying its etiology (32.2%) reason would be as removing the etiology which leads the condition has an importance in treating the condition, followed by the option all of the above (24.0%).

In question representing features of dentigerous cyst as painless, slow enlarging swelling related to partially erupted canine the first line of option was diagnosing the condition (46.4%) the reason may be due to the fact when a painless slow enlarging mass grows, the usual clinical presentation might be an erupting permanent tooth but upper cuspid are the second most affected tooth following mandibular third molar in case of dentigerous cyst (12) and when it comes to maxillary cuspid all the factors (DEPTH) have to consider relating to antrum structure.

Another case scenario of swollen gums and spontaneous bleeding pertaining to upper & lower, front & back tooth region the line of preference for advising oral prophylaxis (35.0%) was higher when compared to other options, the reason might to due to the fact poor oral hygiene could have been thought when swollen gums and bleeding. But spontaneous bleeding could also have an underlining systemic disease or a pathology unnoticed, so it is always important to have a bird's view before performing therapy.

In scenario of recurrent unhealing ulcer in dorsum of tongue with tender and enlarged submandibular lymph nodes, the first line of option by the study subjects was diagnosing the condition (36.6%), followed by all of the aforementioned choices (28.8%), the reason could be as ulcer presenting with a tender lymph node directing it either infection or a malignancy. Even though diagnosis through proper investigation would be the first step to explore this kind of case, despite the fact etiology, prognosis of disease and its therapeutic measure is also seldom important when it comes to management.

In a scenario of restricted mouth opening and unable to eat food the most preferred option was diagnosing the condition (30.1%), followed by identifying its etiology (26.1%). Consequently, restricted mouth opening could also have an underlining systemic disease or a pathology unnoticed, so it is always important not to overlook in clinical decision making.

In case of cheek bite also diagnosis (31.1%) was preferred first, followed by all of the aforementioned choices (27.3%), the reason could be due to the fact when a diffuse white flaky elevation on both sides of buccal mucosa at the level of occlusion, the usual clinical presentation might be Linea alba, but its etiology factor and therapeutic management is also important.

In a scenario of flarred upper anteriors, the study participants choose identifying the etiology (34.4%), followed by therapy (advise braces) (30.6%).The reason must be due to the fact, when a 35 yr old represent with a similar features, the reason need not necessary only due to dentitional source, it could also be due to periodontal reasons or edentulousness due to early removal of tooth.

Surprisingly, in case of clinically missing maxillary canine, advised for replacement (45.9%) was the most preferred choice, followed by diagnosing the condition (34.4%). In this scenario, the therapy was most preferred by practitioners, but there can be an underlining pathology or impaction in case of a maxillary canine(13), which has its own importance in clinical decision making before jumping onto therapy.

In case scenario of salivary gland condition, representing a scenario of sialolith, advise for investigation (50.8%) was opted by many study participants and Ultimately in a case of sensitivity, burning sensation & palatal erythema, all of the factors were preferred (40.4%), followed by identifying its etiology (23.5%) as GERD could lead to the presented symptoms.

The study result reveals a negative correlation between the years of experience in clinical practice and the correct response. The reason might be due to the fact that as the year of experience advances they are farther from the newer trends and concepts and lack evidence in recent literature.

Advances in dentistry and the ability to rearward conditions have increased interest in early diagnosis based on quantifiable methods. The diagnosis differentiates ill patients into groups based on pathology and disease. Clinical decision-making is based on the ability of physicians to organize and understand a variety of data offered by patient symptoms, signs, tests, and investigations (14).

In this study overall 32.92% of dental practitioners prefer to give importance to diagnosis of disease. The value of diagnosis seems most evident when there is an acquirable treatment which enact by directly targeting a specific disease. The science of diagnosis acknowledges the ambiguity doctors have when trying to categorize patients as having a condition or not (15).

Pioneer works of John Snow on the mode of the transmission of cholera --identifying the etiological agent is quite important record. Snow in 1855 quoted "In consequence of what I said, the handle of the pump was removed on the following day", (16) thus eliminating an etiological agent in prevention cascade is seldom important. In present study overall 27.15 % of dental practitioners prefer to give importance to etiology of disease. The Clinical decisions are influenced by the diagnosis and disease causes, but the underlying concern is the prognosis for the patient.

Understanding specific progressive patterns of dental disease by continuous monitoring, early detection and proper management of the patient's individual risk factors are essential components of successful treatment. Determining the prognosis of a tooth is an important part of patient care that happens after a diagnosis is made but before treatment is planned and presented to the patient (17). Since most dental issues are complex and involve multiple factors, setting a prognosis is both an art and a science. Further complicating matters, prognostic outcomes also depend on the individual's risk factors and their compliance. In present study overall 19.14 % of dental practitioners preferred to give importance to prognosis of disease. The ability to determine if recommended therapy increases the likelihood of a favorable treatment in long-term outcome is mandatory, as it benefits patients and physicians when each tooth is given an accurate prognosis.

The field of medicine was very limited in terms of what it had to offer for adequate treatment. To treat a patient with confidence, the physician needs to know about the potential benefit of the treatment, which must be weighed against possible risks (18). In present study overall 31.44 % of dental practitioners preferred to give importance to therapy, followed by diagnosis as 32.92%.

The result of the study spotlights the dental practitioners' prior choice on diagnosis and therapy, followed by etiology and prognosis. The present study creates a need for change in dental practitioners' clinical perception to sense into all the domains before the start of the treatment rather than blazing on to diagnosis and therapy.

Limitation and future recommendations

From a methodological standpoint, the study presents a potentially innovative method to quantify clinical decision-making. Limitation pertains as study is first of its kind comparison with similar other was not possible. The study can be carried out in specific specialty, where a perception can reveal difference in choice, and preference in clinical decision making. That would suggest an idea about the precise lacunae which has to be addressed.

CONCLUSION

The result of the present study highlights the importance of clinical practice decision making, as dental practitioners there a need to investigate the condition in holistic way and not merely the diagnosis and therapeutic aspect alone. Clinical practice relevance in the dental field must be supported by scientific literature and guidelines to guarantee better assistance to patients, starting from daily practice. This study attempted to attune their own practice for inculcating effective contribution to overall care and patient well-being. The specific purpose of the study was to provide scientific-based guidance for the implementation of appropriate clinical care for the prevention and treatment of oral diseases and for the promotion of oral health. This implies the need for increasing diffusion of correct information, which can be a good first step for further investigations.

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Conflicts of interest

There are no conflicts of interest

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