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HUMANIZING CLINICAL DENTISTRY THROUGH A PERSON-CENTRED MODEL

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ABSTRACT

The clinical approach in dentistry stems from a biomedical model of health that is anchored in positivism. This biomedical model was never explicitly developed or reflected on, but rather implicitly acquired as a product of historical circumstance. A reductionist understanding of health served dentistry well in the past, when health afflictions were mostly acute. Today, however, in the age of chronic illnesses, the current clinical approach is no longer adequate: patients and dentists are both dissatisfied, and there are problems with dental education and dental public health.

After a thorough review of the literature, highlighting the current state of the profession, we propose an alternative clinical model upon which updated approaches can be based. We call this model "Person-Centred Dentistry". Our proposed model is rooted on the notion of sharing of power between the dentist and the patient: a sharing of power in the relationship and epistemology. This leads to an expanded understanding of the person and the illness; a co-authoring of treatment plans; and interventions that focus not only on eliminating disease but also on patient needs.

MeSH KEYWORDS: Patient-Centered Care, Dentist-Patient Relations, Evidence- Based Dentistry, Dentistry, Decision making

INTRODUCTION

> *"Theories are integral to healthcare practice, promotion, and research. The choice of theory, although often unacknowledged, shapes the way practitioners and researchers collect and interpret evidence."*[1] *– P. Alderson*

As illustrated by Alderson's quote, dentistry's clinical approach is based on a biomedical model that is unacknowledged and implicit. Indeed, "there is no model or description of clinical reasoning to explain the complicated cognitive and interactive process used by dentists."[2] Moreover, "practitioners are commonly unaware of their model since it represents the unquestioned norm, and they are consequently unaware of how this model influences the way they reason."[3]

The implicit biomedical model, whose roots go back to the 19th century, stems from an interpretation of health that is based on positivism, the leading paradigm of that period. The positivist paradigm claims, "an apprehendable reality is assumed to exist, driven by immutable natural laws, and mechanisms."[4] Its basic posture is that of reductionism and determinism. Dentistry most likely acquired this model through its educational and practice acculturation, trying to dissociate itself from a less than glorious past.[5] Consequently, dentists, the experts in their biomedical field, have adopted a paternalist[6] approach in treating their patients.

The paternalist approach served dentistry well in the past when dental care involved managing acute infections. Dentists were mostly extracting teeth and fabricating dentures.[7] However, with the epidemiologic transition of disease,[8] dentistry has now entered an age where treatment increasingly consists in managing chronic afflictions.

In this article, we describe the historical context in which the biomedical model emerged, and we argue that its validity should be questioned. Indeed, patients are dissatisfied, dentists are dissatisfied, dental education is facing difficulties, and social inequity is on the rise. We also propose an alternative model – a person-centred model – that we think would be a step towards addressing those issues.

HISTORICAL PERSPECTIVE ON THE DENTAL CLINICAL APPROACH

In most western countries, medicine and dentistry are different professions. They fall under different jurisdictions, independent academic institutions and professional organisations.[9] Dentistry though, has followed medicine in its quest of professionalization and scientificity. During the 19th century, "medicine's ability to draw upon the growing appeal of science defin[ed] its professional expertise and legitimat[ed] its claims to professional status."[10] After the turn of the 20th century, just like medical doctors before them, dentists, once perceived as "unscrupulous liars,"[11] legitimated their claims to professional status and expertise by asserting that "like the medical profession, they too utilized the discoveries of medical science in their work."[9]

The reigning medical ideology at the time was positivism, a legacy of the philosophies of René Descartes and Auguste Comte. The dominant medical model relied on a reductionist view of the human body that explained away disease as the description of an organ or a cell that departs from the norm.[12] Dentistry relied on the same positivist principles to establish itself as a scientific profession. It also adopted a biomedical model that was associated with important discoveries, such as the identification of *Streptococcus mutans* as an aetiological factor of dental caries.[13] Eventually, "dentists raised matriculation and education standards, regulated professional behaviour, and engaged in a public education campaign to convince the public that dentists were educated middle-class men with expertise in the area of dental health;" thus, "dental education and practice were based largely on a biomedical model of health care, from its historical relationship with medicine and surgery and the emphasis on managing diseases."[2]

Throughout the 20th century, new domains like psychology and social sciences enriched the medical landscape.[14] This allowed the emergence of new medical models that began to challenge the biomedical approach. Most prominent of them was Engel's biopsychosocial model, which suggested that "all three levels, biological, psychological, and social, must be taken into account in every health care task."[15] Its holism thus opposed to the reductionism of the traditional approach. And even though the biopsychosocial model was accused by some to be "mere eclecticism, passing for sophistication,"[16] it nevertheless paved the way to the development of other foundational approaches, such as Balint's "patient-centred medicine,"[17,18] or Doherty and Baird's "family systems approach to patient-care."[19] In contrast, poorly influenced by psychology and social sciences, dentistry did not follow medicine in its turn toward patient-centred care. Dentists thus remained surgeons whose technique and dexterity played a central role in their practice.

In the late 20th century, Evidence-Based Medicine (EBM) emerged, defined as "the integration of best research evidence with clinical expertise and patient values."[20,21] The argument was that "intuition, unsystematic clinical experience, and pathophysiological rationale are insufficient grounds for clinical

decision making" [21]: "EBM refers to making medical decisions that are consistent with evidence, and to serve as a neutral arbiter among competing views."[22] Dentistry was quick to adopt this concept.[23] Today, a large proportion of dentists claim to have adopted an evidence-based approach in their clinics,[24] and "the majority of U.S. dental school graduates in the twenty-first century will have been exposed to the acquisition, assessment, and implementation of scientific evidence in the practice of dentistry."[24]

ISSUES WITH THE CURRENT CLINICAL APPROACH IN DENTISTRY

At the dawn of the 21st century, the positivist and reductionist biomedical model is still at the heart of clinical dentistry. The profession is using Evidence Based Dentistry (EBD) as a "heuristic structure for optimizing clinical practice."[22] The adoption of EBD as a clinical approach offers several advantages. In particular, EBD forms practitioners able to maintain a critical autonomy in the face of a complex and ever growing scientific literature. Also, it encourages dentists to take into consideration the patients' preferences, which somewhat invites them to become patient-centred.

However, the current implementation of EBD is far from ideal. Dentists still rely on their clinical experience, using research to mostly confirm their interventions. Moreover, dentists receive no educational or research support when it comes to integrating patient preferences. Consequently, the patient perspective ends up greatly underrepresented. In the next section, we will describe four issues that, according to us, stems from this patient-dentist divide which is the product of a paternalist approach.

1. Patient dissatisfaction

"Research points to the substantial gap that exists between patients' expectations and dentists' understanding of those expectations, and studies suggest that dentists believe they know what patients should want, rather than finding out what they do want".[25] In a recent survey on more than 3,500 Canadians, almost 40% of patients admitted that they thought dentists sometimes recommended unnecessary treatments.[26] Other reasons for dissatisfaction, according to surveys conducted in Greece, include issues regarding the information patients receive and the 'responsiveness' of the practitioner.[27] Yet another study from the US, showed that patients are often excluded from treatment decision-making.[28] Moreover, bad experiences with previous dentists and perceptions based on media reports of dental malpractice could also contribute to patients' lack of trust.[29]

Non-compliance is one way some patients express their dissatisfaction: "the average dental practice has a 50% turnover in patients every 5 years. Half of the turn-over is attributed to lack of satisfaction on the patient's part."[30] "The most common reasons attributed for satisfaction with dentists are interpersonal characteristics of the dentist and staff."[31]

Patient dissatisfaction could also explain the increase of malpractice litigations since the end of the 20th century.[32] This rising trend has not halted since the advent of the EBD concept.[33] In fact, it is still on the rise.[34] One paper reports "most of the lawsuits in oral surgery practice can be prevented either through preoperative measures or by dealing with the impact of the surgical error through good patient rapport and communication."[35]

Finally, dissatisfaction leads patients to lean towards unconventional dental practices which tend to be characterized by their lack of a biomedical model.[36] Patients who consult alternative dentistry, e.g. 'holistic dentistry', "may be satisfied, dissatisfied or disillusioned with conventional treatment and with dentists' and physicians' attitudes and interpersonal communication skills."[37] It is interesting to note that some of the reasons alternative dentists reject the biomedical model are "a genuine interest and belief in holistic health versus tooth-oriented practice, boredom with conventional dentistry, ego gratification and financial motivation."[37]

2. Dentist dissatisfaction

The most shocking manifestation of the dissatisfaction of some dentists is the high suicide rate, one of the highest, in comparison to other professions.[38–40] A profound sense of overwhelm and exhaustion, particularly emotional exhaustion, and professional stress are also very common among dentists.[41–43] One explanation could be that patients learn to dislike their dentists as they come to associate them with fear. Consequently, dental work is often unwelcome and unappreciated. Hence, the dentist-patient relationship becomes strained when the dentist, poorly prepared by his education, is faced with patients affected by the complex consequences of pain, mastication, pronunciation, and aesthetics on their lives. Added to all this are time pressures and financial worries, which also appear to be important factors related to complete exhaustion.[44] The trend of shifting from healthcare to business management and from patient to customer[45] is not necessarily well accepted or well perceived by dentists. Also, somewhat echoing dissatisfied patients, perceived patient non-compliance has been shown to be the most frequent source of practitioner frustration.[46] Together with musculoskeletal disorders, all these sources of stress are the main factors influencing dentists to retire early.[47]

EBD does not quite address this issue of dissatisfaction, and for some practitioners, it clashes with the clinical reality they experience. The concept of the hierarchy of evidence gives the illusion that if we are able to eliminate all bias, truth can be discovered, although this is impossible according to the philosophies of Kant and Hume.[48] This issue is at the heart of the expressed scepticism by many practitioners: one of the most common barriers to implementation of EBD is the lack of trust in evidence or research.[49] Carlsen and colleagues found that general practitioners' trust in guidelines is outweighed by their concerns with widespread guideline implementation – primarily because of differences between real patients and those portrayed in the guidelines. According to some professionals, guidelines

encourage certain types of behaviours and treatments and are proscriptive of others.[50] Other barriers to the EBD implementation are a lack of up-to-date evidence, a lack of clear answers to clinical questions, and contradictory information in the scientific literature.[49,51]

Those flaws particularly affect dentistry since dental research funding is inferior to other medical fields where mortality/morbidity is higher. Also, instead of prescribing medication, the main interventions in dentistry involve complex manual manipulations (e.g. implant placement, precise cutting of teeth, root canal negotiations, etc.), which make clinical trial design very difficult and subject it to the mercy of inter-operator variability. This has led some clinicians to question the benefit of clinical trials in their practice: "at this point in the advancement of clinical implant dentistry, case reports are the main source of evidence for how we operate. Thus, rather than looking to manufacturers to elucidate and edify our discipline, we should publish our particular clinical experiences, both successful and unsuccessful."[52]

Other commonly-perceived barriers towards the implementation of EBD are 'lack of time'[53,54] and financial constraints.[54] Some argue that evidence-based medicine in its current state is not efficiently providing guidance to labour-intensive services,[55] like dentistry. Also, although guidelines that were likely created for regular use focus on prevention, financial reimbursement does not always promote preventive procedures.[56] This creates tension between practitioners and patients and raises some ethical issues for the professionals.[57]

3. Dental education: a steady disillusion?

Multiple articles have looked at how dental students perceive their future careers, and how these perceptions evolve throughout their studies. One finding is that "first-year dental students had significantly higher empathy scores than students in any subsequent year. The timing of the decline in empathy levels corresponded to increases in patient exposure".[58,59] Cynicism is also very frequent among dental students. Almost two-thirds of graduating students have been reported to be cynical about their future profession, and believe that many practising dentists regularly violate professional norms.[60] In medicine, the academic context strongly encourages medical specialization[61] at the expense of learning more global patient approaches, and this is probably the case in dentistry as well.

Dental students are exposed to a lot of stress during their schooling. A multi-national study highlights that intimidation and bullying is prevalent within dental teaching and training environments.[62] In addition to examinations and clinical requirements, dental supervisors have been reported to be a major cause of stress, which could have detrimental effects for the dental outcomes of real patients.[63] Stress can have different sources, but if the teaching body generates it, it contributes to building mental models perpetuating relationships of authority in their future professional behaviour. "Paternalism in an adult educational relationship is rarely appropriate".[64] In the medical literature, the patient's perception of students' position within the medical education hierarchy was described as being low due to their learning

status.[65] Given such an environment, when a student graduates into an autonomous practitioner, she is thus more likely to lean towards paternalism, "creating and maintaining an unhealthy dependency which is out of step with other currents in society."[66] Students react to these ethical tensions by assuming the role of a mediator between the supervising dentists and the patients,[65] but eventually adopting a paternalist attitude themselves once graduated.[67]

Finally, the massive introduction of 'scientific-based competencies' in dental curricula[68] is far from being counterbalanced by patient preferences: "as they are so little recognized, their integration in EBD is problematic, and ethical tensions exist where paternalism privileges science over patient's self-determined best interests."[69] In fact, as admitted by one of its founders, EBM "has yet to present a fully developed theoretical framework for accomplishing effective problem-solving."[22]

4. Social repercussions

In 2006, Goldenberg wrote that "in the current age where the institutional power of medicine is suspect, a model that represents biomedicine as politically disinterested or merely scientific should give pause."[70] In dentistry particularly, it is now accepted that efficient public health programs and policies can prevent caries and periodontal disease. However, what halts this prevention is not a lack of knowledge but rather "a political and scientific climate that favors individualism and considers socioeconomic factors 'not easily modifiable' and 'too political' to address."[71] In a way, a reductionist approach to scientific research maintains a distance from any political considerations. For example, the reductionist approach might study the physio-pathological mechanisms that lead to the loss of teeth and discover biotechnological ways to regenerate them. In this reductionist perspective of the biomedical model, the objective of research is to increase knowledge rather than improve the health of a population.

Another potential consequence of the biomedical model is the fear that insurance companies, whether private or public, will use the 'hierarchy of evidence' and the concept of 'recommendations' as a way to standardize care in an attempt to control costs and risks,[72] as is done in the corporate management world.[73] This denial of uncertainty is unscientific in nature and even goes against the premises of the biomedical model itself.

Dentists have begun to question the role of the biomedical model in the creation and maintenance of oral health inequalities in modern societies.[74,75] The 'best' care (i.e. the most expensive) tends to be given to those on the upper end of the socio-economical spectrum while it is those on the lower end that need it the most.[76,77] Dental care is often expensive and not covered by social services. Therefore, patients' finances play a decisive role on access. Using the EBD heuristic at best leads to a 'compromise' between the dentist and the patient, and at worst, might lead to the complete refusal of treatment.[77,78] This is a consequence of 'dentistry as a business' encouraged by the idea of 'quality of care': there are "many individuals in society who are in need of care, but lack the economic wherewithal to pursue care in the

marketplace of dentistry as a business. The attitude of dentistry as a business is social Darwinism."[79] It needs to be noted that most dentists who systematically adopt this strategy are simply in a quest for 'quality' that is deeply anchored in the dental university and continuing education, in line with the biomedical model. Also, a dentist who invests considerable sums in her equipment would have a harder time assuming the role of a healer for those who are in need.

Adding to the financial burden are the weak 'communication skills, interpersonal skills and socio-cultural competencies' gained in school[80,81] explaining "negative perceptions, experiences and frustrations regarding poor people, leading to patient selection and scheduling strategies that contribute to this population's exclusion from the oral healthcare system."[80]

PROPOSED MODEL OF PERSON-CENTRED CARE IN DENTISTRY

It is not surprising that the current implicit care model – a positivist disease-oriented interpretation of health – sets the stage for a detached diagnostic process coupled with paternalistic decision-making[82] and a clinician-centred, process-focused intervention. However, it would be an exaggeration to attribute all of dentistry's problems to an inadequate model. Besides, the current model we describe is merely a theoretical representation of a complicated and shifting reality. Nevertheless, a paternalistic approach stemming from a biomedical model contributes to the aforementioned problems. It is time for a new philosophical model to replace the existing paradigm in dentistry, especially since most health professions have already moved towards a patient-centred model of care.[18,82,83]

Patient-centred care puts "medical attention on the individual patient's needs and concerns, rather than the doctor's." [84] It assumes that patients desire that their voices and preferences are heard and taken into account during their dental encounters, and that patients desire more decision-making power than has been previously systematically offered to them. It is based on humanism as a guiding principle, which is defined as "any system or mode of thought or action in which human interests, values, and dignity predominate."[85]

Unlike other professions, dentistry has a therapeutic intervention process, often surgical, within the initial encounter. Also, the therapeutic relationship spans over long periods of time – often years, and the interventions are associated with pain, anxiety, and financial considerations that need to be effectively managed. Therefore, existing models in other health professions are not readily transferable to dentistry.

To develop a patient-centred model in dentistry, we started by applying patient-centred approaches existing in other fields[18,83,86] into clinical practice. Author JNV observed author NA in his dental office. NA applied the different medical approaches during his encounters. We discussed our impressions between each patient, modified the approach appropriately, reapplied it, discussed it again, and then tweaked it

some more. After about 30 iterations, we were finally satisfied with the results and conceptualized the approach and the underlying model. We called this clinical model "person-centred dentistry."[87] (Fig. 1)

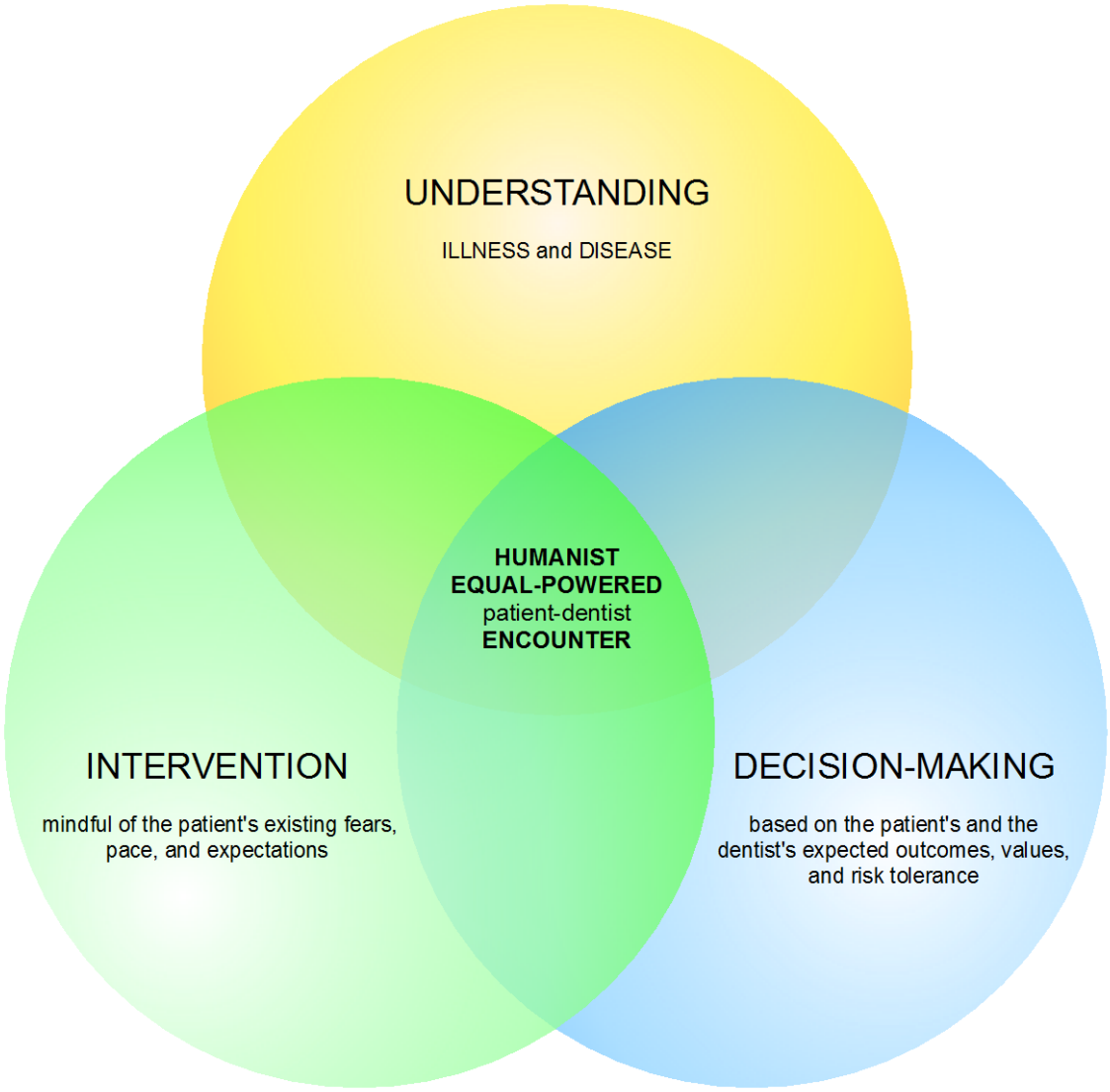

Fig. 1 Heuristic representation of the Person-Centred dental clinical model

Although we refer to it as a model, it is actually a heuristic representation of the underlying philosophy. By heuristic, we mean "practical rules for doctors in assessing how to treat and diagnose disease in the face of practical uncertainty."[22] This philosophy is based on humility, hospitality, non-judgmentalism, respect, authenticity, and positive attitudes.[88] It promotes a relationship where the patient and the dentist share the power equally. This, in turn, leads to an interpretive cooperative clinical approach.

It leads to a cooperative approach because unlike paternalism[66] or consumerism, it aims to "elucidate the patient's values and what he or she actually wants, and to help the patient select the available medical interventions that realizes these values."[89] The resulting approach is also interpretive because patient's values are not necessarily fixed and readily known to the patient himself: the dentist "works with the patient to reconstruct the patient's goals and aspirations, commitments and character."[89] In other words, the practitioner is a 'counsellor' and not an authority figure, nor a mindless 'technical expert'.[89]

Moreover, instead of being based on positivism, this model is influenced by constructivism. Its central tenet, the belief in an equal-powered relationship, should lead to constructed approaches based on different practitioners' interpretations. It also subscribes to the idea that 'health' is an interpreted condition, varying from individual to individual. However, even though we recognize that different clinical realities might lead to different clinical approaches, the underlying philosophy should persist. This philosophy colours the behaviour of the dentist throughout the three constantly overlapping principles of the clinical encounter: Understanding, Decision-making, and Intervention. Therefore, the role of this heuristic representation of the clinical model is to facilitate future constructs of approaches taking into consideration individual variability in patients, practitioners, and the particular needs of the context and situation.

It is also important to note that these three principles are not chronologically distinct. The dental encounter is constantly being guided and feeding those principles, often concurrently.

1. Understanding

> *"In illness we lose most of the freedoms we ordinarily associate with being able to act as fully human persons."*[90]*– E. Pellegrino*

The understanding principle encompasses on one hand the exploring and identification of disease, and the sharing and explaining of our medical models and preventive disease prevention and health promotion concepts. It also encompasses on the other hand, the invitation to the patient to share his stories of illness,[91] and the gift of witnessing those narratives.

Pellegrino eloquently describes a state of illness as resulting in a 'wounded humanity'[90] that reduces the patients' capacity to view themselves as equal to everyone else. The act of healing consists in not only repairing the damaged body, but also addressing the downward shift of this emotional state.

Hence, for effective care to occur, not only should the dentist explore the disease's manifestation, but also understand the illness the patient is experiencing as a personal process. This 'shared epistemology'[92] is only possible if the dentist believes in the importance of understanding the 'patient-as-person'.

Moreover, Engel's psychosocial model of health[15] alludes to the possible interconnectivity of all the social components of a person, from the immediate family to the environment the patients live in. Therefore, to fully understand the person, the dentist might also explore the patient's life as a context for disease, and add that information to the overall interpretation.

Understanding the patient as a whole-person[18,83] also attunes the dentist to the particular fears and anxieties that the patient might have about receiving dental care. Acknowledging and validating those concerns guides the practitioner in fine-tuning the intervention process.

Finally, medical outcomes might not be what patients expect or desire. In order to synchronize expectations, a sharing of models[91] through frank conversation must occur. This process ensures that the eventual treatment the patient receives is in line with established goals, and any involved risks are within negotiated, acceptable limits.

2. Decision-Making

The decision-making principle rests on the firm belief of an equally powered relationship. It results in the co-authoring of a treatment plan, always subject to discussion, evaluation, and validation. The outcome of the treatment plan is meant to respond to the patient's present and future needs and expectations.

Some researchers have made a parallel between shared decision-making and the concept of equipoise in clinical trials.[93] Elwyn et al. define 'dual-equipoise' as situations where both the practitioner and the patient recognise that there is more than one option with no clear superiority of one over the others. The decision is then based on the patient's preference.[93-94]

'Dual-equipoise' situations require a 'decision support intervention' by the dentist. The role of the 'decision support intervention' is to help the patient understand and reflect on the different available options that are clearly explained without giving any personal recommendations. In the case of a decision where there is no dual-equipoise, and strong evidence exists for the relative superiority among the given options, the dentist's role becomes one of 'behaviour support intervention', where she ranks and justifies the presented options.[93]

Whether providing decision-support or behaviour-support, our person-centred model establishes that the dentist's role is that of an advisor in this process of the therapeutic alliance.[82] Through the influence of the balanced relationship, the dentist recognizes the patient's autonomy and appreciates individual values. This humanized approach to decision making, in return, reinforces the central relationship of trust by giving the patient a 'clear and loud voice.'[92] The empowered patient, no longer complying to a dictated treatment, becomes an active participant of a treatment plan that he could realistically adhere to and therefore better tolerate any uncertainty.[95] At this stage, it should be acknowledged that the decision

making is also influenced by 'shapers'[82] such as public health policies, cultural or professional norms, dentists' clinical experience, and the patients' ability to pay: "fees should be discussed openly, as should guarantees for, and limitations of, proposed treatment."[96]

Thus, informed consent is no longer a signed paper that needs to be demanded, but rather an inherent part of the decision-making process through which a treatment plan becomes co-authored. It implicitly requires that both parties accept and fully understand their entwined responsibilities, as well as any consequences and expected outcomes of the clinical interventions.

3. Intervention

In its most direct form, intervention in dentistry consists in the dentist performing surgical procedures in the patient's mouth. Traditionally, these interventions are performed with an undivided focus on the process. A person-centred version of those interventions would take into account the patient's own pace, previous fears, and values and accommodate the intervention to them.

Intervention in dentistry is executed by the patient at home and/or by the dentist in the office. Most modern dental diseases being chronic in nature,[97] the patient's lifestyle habit modifications (diet and oral hygiene) are crucial to the prognosis of any undertaken treatment. Also, the level of participation of the patient at home influences the timing and the invasiveness of the intervention by the dentist. Hence, for effective care to occur, the non-judgemental understanding achieved in the 'understanding' process is crucial: what behavioural changes do patients think they can realistically achieve? What kind of support do they need? With a shared decision-making, expectations become more realistic, and treatment adherence more predictable.

At a social level, dentistry has always been associated with anxiety and pain in the popular imagination. In its beginnings, dentistry was a very painful experience, but since the development of local anaesthetics,[98] physical discomforts associated with the interventions have been greatly reduced. However, anxiety in patients prevents adapting and redefining the expected pain experience. By exploring the person, their fears and concerns, and expectations, the dentist can be more sensitive to the patients' needs, thus reducing their anxiety, and then, with time, reducing the perception of an unpleasant experience.[99]

Finally, intervention also means referring a patient to another professional. Whether providing care as part of an oral healthcare team[100] or simply referring out to a specialist[101], the person-centred dentist recognizes the limits of his competencies and their impact on the patient's needs. Moreover, a thorough exploration of illness can sometimes reveal health issues that go beyond dentistry. A well-developed professional network gives the opportunity to address the patient's global needs by referring her to the

appropriate professional. This, in turn, establishes the dentist as a useful member of the overall healthcare team.[102]

This balanced relationship defines and facilitates the exploration of illness[91], empowers the patient for a shared decision making,[103] promotes her right to be involved in decisions concerning her health,[104] while decreasing the anxiety associated with dental treatment.[105] In return, these principles applied with the person-centred perspective reinforce and grow the relationship of trust.[106] Indeed, physicians who explore the patients' experience of their disease and illness or who spend more time during the visit tend to be trusted more.[107]

CONCLUSION

> *"Creating a new theory is not like destroying an old barn and erecting a skyscraper in its place. It is rather like climbing a mountain, gaining new and wider views [...] but the point from which we started out still exists and can be seen, although it appears smaller and forms a tiny part of our broad view gained by the mastery of the obstacles on our adventurous way up." – A. Einstein*

Dentistry involves both complex human behaviours that demand an interpretive, holistic approach and complex biological mechanisms that require a deductive, reductionist approach.

In 1995, the same year the term 'evidence-based dentistry' was introduced,[23] the Institute of Medicine published a report titled "Dental Education at the Crossroads - Challenges and Change", signalling that "the typical dental clinic, put simply, is not patient-centred. A procedure-oriented model of care must give way to a model that is patient and community oriented, focused on outcomes, scientifically and technologically up to date, team based, and efficient."[108] In almost 20 years, caught in the inertia of a secular positivist movement deeply entrenched in its foundations, our discipline made strides in the advancement of knowledge. Centring our care model on the person does not mean we should reject EBD concepts but rather rediscover and develop the art of healing, at the individual level, and promote better policy decisions, at a population level. Hence, the model we propose attempts to humanize clinical dentistry through its three complementary domains: education, research, and practice.

Sensitizing future practitioners to communication, listening, emotional validation and cultural competency requires a specific education. Empathy, for an individual entering a helping profession such as dentistry, is of equal importance to intelligence and perceptual motor skill.[109] However, "dentistry's twin internal weaknesses – factionalism and parochialism – contribute to academic resistance to change and unwillingness to share power."[110] Indeed, 'traditional' faculty members may "see themselves as providing 'expert' experience delivered in a typical teacher-centered, passive learning environment, offering the prospect of maximum classroom control."[110] Instead, "education needs to be 'learner centred', and

educational models need to be relevant to adult learning."[64] This will ensure a patient-student-teacher/doctor continuum, based on cooperation, sharing of knowledge, and respect. Along the same lines, Sir William Osler, a famous physician from McGill University, taught, "medicine is an art based on science; not simply a science, but also not merely an art. [He] viewed the science of medicine as biological and the art as humanistic: he thus advocated learning about human beings from classic sources, literature and poetry – the humanities."[16]

It is likely that "the search for clinical evidence associated with psychosocial influences requires a more inductive form of inquiry than the deductive methods of science."[2] Guba and Lincoln suggested that the scientific rigour of theorizing from qualitative data be defined, not in terms of reliability, validity and generalizability, but in terms of credibility, transferability, dependability, and confirmability.[111] Qualitative research, defined as a "process of understanding based on a distinct methodological tradition of inquiry that explores a social or human problem"[112] provides unique insights about people's behaviours, perceptions and beliefs,[113] but is still underutilized in oral health research.[114] Still, quantitative and qualitative approaches are not only compatible, but complementary, as evidenced in mixed methods studies.[113]

Without denying the paramount importance of technical skills in this profession, dentistry can improve patients' wellness beyond the technical aspects of the interventions. "Practice is justified with theories, guidelines and professional training. The ideology behind these theories and training remains hidden. To bring the assumptions out of hiding and question our way of reasoning enhances our practice awareness and provides us real choices to practice optimally in each given clinical context."[3] In our person-centred model, patients are at the heart of the clinical encounter, and the balance of power is negotiated equally between the patient and the doctor. We hope that this theoretical framework will be the first step towards developing clinical approaches that could then be validated qualitatively and quantitatively, in different clinical settings.

The human element cannot be removed from the dental practice of the future. It is time for dentistry to embrace some of the emerging post-modern concepts.[115] With dental education focused on a person-centred model that also favours the pluralism of research methods, dentists and dental researchers can enter the 21st century with the confidence of having the ability to promote a humanistic dental workforce that is rooted ever more strongly within the patients' best interests. ■

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The authors declare that they have no competing interests.

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