

# An existential model of oral health from evolving views on health, function and disability

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**Objective:** This study explores the evolution of conceptual frameworks and models of health and disability to construct an explanatory model of oral health. **Results:** The International Classification of Impairments, Disabilities, and Handicaps adopted by the WHO is based largely on social role theory and a utilitarian tradition portraying disablement as a negative and socially unacceptable consequence of impairment. It has been the major conceptual influence on the construction of psychometric tools for dentistry. However current views of chronic disease are refocused on the influence of coping strategies used by people to prevent or limit disability and handicap. Consequently, the WHO adopted the International Classification of Functioning, Disability and Health (ICF) as an alternative description of health and health-related states based on an existentialist view of the body, the person and society. In addition, an ethnographic exploration has identified three major domains of oral health – oral hygiene, comfort and general health - that dominate the opinions of people with oral impairments. **Conclusions:** Application of the framework and language of the ICF to the major domains of oral health provides the basis for a new biopsychosocial model of oral health, function and disablement.

*Key words:* Dentistry; disability; international classification of functioning; model of health; oral health; quality of life.

## Introduction

Increased life expectancy has drawn attention to chronic illness as a major challenge to health services, and to the need for biopsychosocial frameworks and models\* that explain reactions to ill-health and disability (Engel, 1977). Health in biological terms is the absence of disease; illness in psychological terms is the subjective experience of disease; and sickness in social terms is the expression of illness by society (Bickenbach, et al., 1999; Christopoulos, 2001; Twaddle, 1979; Zola, 1989). Efforts to reconcile the biological view of disease with the psychosocial interactions of illness and sickness led the World Health Organization in 1980 to report the International Classification of Impairments, Disabilities, and Handicaps (ICIDH), and in 2001 to report the International Classification of Functioning, Disability and Health (ICF) as tools for collecting information on populations, quality of life (QoL), treatment and outcome evaluations, and social policy (WHO, 2001). However, the challenge of establishing a testable model of relationships among the different concepts and domains† of health, health-related QoL, and disability remain in dentistry as in other disciplines. This paper explains the limitations of the ICIDH with its conceptual origins in utilitarianism and social role theory, and describes the ICF in combination with the opinions of people with oral impairments as a more realistic foundation in the existentialist tradition for building a new model of oral health.

## Utilitarian Perspectives

### *Social Role Theory*

Utilitarian tradition, in an effort to achieve the greatest good for the greatest number of people, presumes that everyone has a predetermined identity and set of biopsychosocial needs that demand conformity to the established mores of society (Hodge, 1990). Expressed simply as “functionalism”, this tradition portrays each person as a functioning unit of society, and disease as a disturbance to social function and productivity. It claims a coherent social structure and a readily identifiable expression of disease, illness and sickness, all closely related to a person’s utility or functional role within the established set of community values. There is little room for self-determination or personal autonomy when global solutions are prescribed for all ills, and input from individuals is neither encouraged nor valued.

An alternative outlook sees social role theory as empirically weak, lacking a clear definition of health, failing to account for the influence of different social environments or the passage of time, and ignoring the dynamics of the doctor-patient relationship (Linn, 1967; Nord-Larsen, 1983). It has been criticized because it depicts health and sickness mostly from the perspective of caregivers and investigators rather than from the perceptions of people who are impaired or ill (Conrad, 1990), and also because it dwells more on physical dysfunction than on psychosocial disruption (Bury, 2001).

\* A framework refers here to the essential components of the structural concepts and assumptions supporting a phenomenon, whereas a model refers to a simplified representation used to explain or demonstrate relationships between the essential components of the phenomenon.

† A domain is a set of related ideas representing an array of structures, functions, activities, interactions, and psychological needs, such as eating, talking, accessing care, and portraying emotions (WHO, 2001).

### *Sick Role*

Parsons (1951) evoked the utilitarian tradition by linking social role theory with Freud's personality theory to depict illness as a source of devious behaviour that upsets a person's usual productivity. People, he believed, are obliged to neglect their social obligations when they adopt a "sick role". In contrast, he portrayed health as a "capacity for the effective performance of valued tasks" established by society, and health care as a process of social order to help people meet their obligations. Within the same tradition, Patrick et al. (1973) identified an assortment of conditions - including tooth and jaw pain; sore lips, tongue, gum and mouth; and missing or irregular teeth - that could affect the functional status of a population. However, despite a focus on functional utility, they acknowledged that the disadvantages and deprivations associated with some disabilities were due more to the stigma imposed by the social environment than by physical impairment alone.

### *Sickness Impact Profile*

The utilitarian portrayal of disability finds practical applications with the Sickness Impact Profile (SIP), which was developed as a generic index of health status to measure or evaluate behavioural dysfunction and the outcome of health care (Gilson et al., 1975). In practice, the profile is built from responses to structured questions about sickness-related dysfunction and social disruption, and purports to measure how respondents feel about the roles and tasks expected of them by society (Nord-Larsen, 1983).

### *Quality-Adjusted Life-Year*

The utilitarian concept of a quality-adjusted life-year (QALY)\* as part of a cost-utility analysis in economics assumes that people are unvarying in their convictions and constant in their preferences and behaviours over long periods of time. It assumes also that an objective scale of preferences can reflect their choice of physical conditions. It has been adapted to dentistry as a quality-adjusted tooth-year (QOTY) in attempts to measure the trade-off people will make between a healthy dentition and the time they might spend in dental treatment for an unhealthy condition. Although interest in measuring the utility value of various treatments is growing, Birch and Ismail (2002) have expressed concern "that we measure the right thing in the right way and for the right group". Additional concerns about the complexity and controversy of measuring changes in health were raised by Locker (1998) who concluded that "the decision as to what strategy [of measurement] to adopt is far from simple".

### *Evolution of Sociodental Indicators*

Reports of dental disorders causing work exemptions were available (Gerson and Skipper, 1973; Rutzen, 1973), and Reisine (1981) credited Nikias and colleagues for recommending sick-role theory as the basis for quantifying the relative psychosocial impact of oral disorder. Cohen and Jago (1976) were sceptical about the claim

that disorders of the mouth were psychologically hazardous or a substantial cause of social discrimination and time off work. Nonetheless, Smith and Sheiham (1979) used role theory and the SIP as a basis for a structured interview to explore the negative impact of the mouth in old age, and in consequence they established the utilitarian tradition as the major influence on psychometric developments in dentistry (Carlsson, 1984; Cushing et al., 1986; MacEntee et al., 1985; 1988; 1991; 1993; Nikias, 1985; Reisine, 1984; Slade, 1997). Reisine (1981) attributed oral disability more to social stigma than to a sick-role, but she did use Freidson's (1970) ideas on illness to conclude that dental conditions are legitimate reasons for a sick-role. She described the dysfunctional potential of cleft palates, missing teeth and other aesthetic abnormalities to support role theory as the base for sociodental indicators.

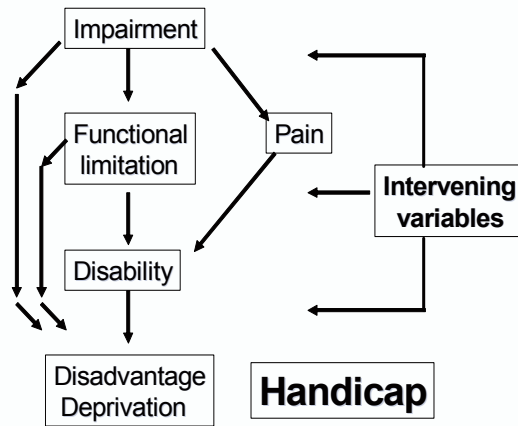
### *International Classification of Impairments, Disabilities, and Handicaps*

The World Health Organization (WHO) Study Group on Measurement of Levels of Health proposed in 1957 that health indicators should consider the impact of health status, the physical environment, and the availability of health services, but the group was unable to link the various components of health into a cohesive framework (Rosser, 1983). Much later in 1983, the WHO endorsed the ICIDH as a conceptual frame for disability with a glossary of terms - impairment; functional limitation; disability; disadvantage; deprivation; handicap - derived from a utilitarian view of disease and its consequences (Wood, 1980a; Wood, 1980b). Originally the ICIDH was aimed to complement data on morbidity and mortality from the International Classification of Diseases (ICD) so that the ICD and the ICIDH together would account for the range of phenomena associated with health care (Gray and Hendershot, 2000). The three principal components - impairment, disability, and handicap - would operate independently with impairment addressing impact on the body; disability to impact on the person; and handicap to impact on the person interacting with the environment.

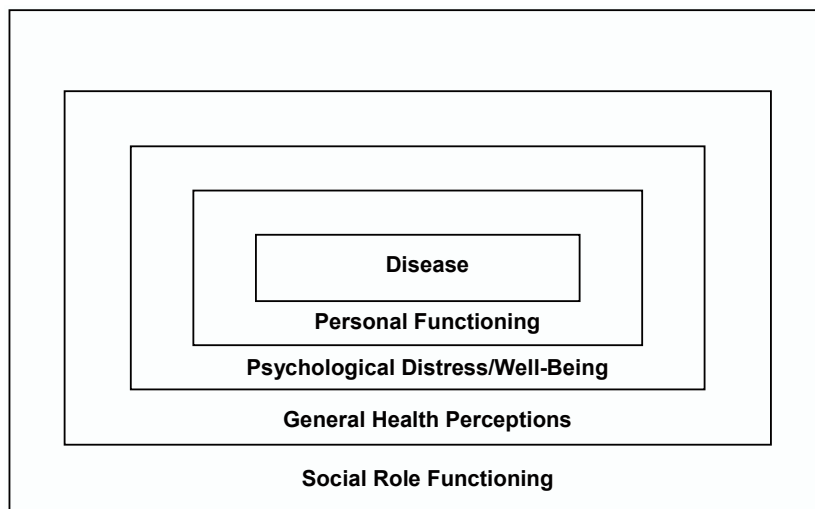
### *Dentistry and the ICIDH*

Locker (1988; 1992) adapted the ICIDH framework to portray the functional and psychosocial impact of chronic oral disease and dysfunction typically as a progression from impairment to handicap, through intermediary steps of functional limitation and disability (Figure 1). He described how people can feel ill without disease, or be diseased without feeling ill, and all in an environment of "intervening variables" influenced by an array of social, economic and cultural circumstances (Culyer, 1983). He connected the experiences of impairment, functional limitation, disability and handicap to the biological and QoL characteristics of dissatisfaction, discomfort, disease, disability and death while recognizing that impairment does not necessarily disable nor dysfunction handicap, because people can adapt to cope with impairment and disability. Impairment, he explained, can be measured in numbers of defective or missing teeth, however, restrictions to eating, speaking and other dental activities

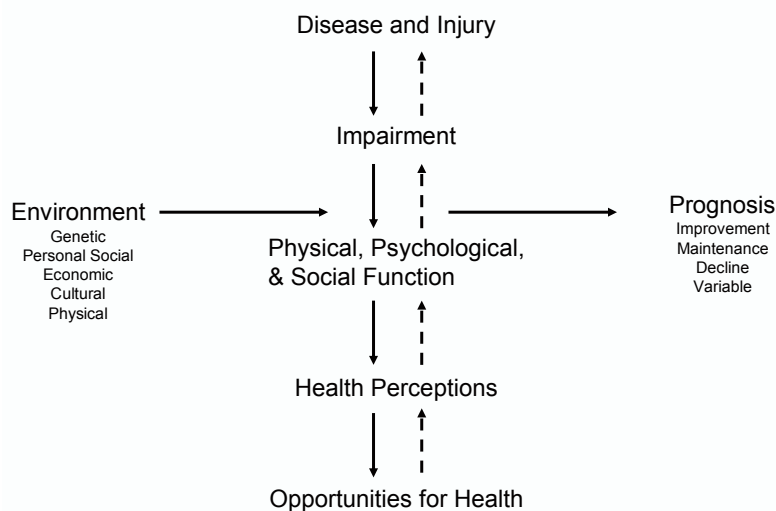
\* QALY = time by QoL



**Figure 1.** Framework of the impact of oral disorders adapted by Locker (1988) from the International Classification of Impairments, Disabilities, and Handicaps.



**Figure 2.** Framework illustrating social and personal environments surrounding disease (adapted from Ware, 1984).



**Figure 3.** Relationships between the constructs of health-related quality of life (adapted from Patrick and Bergner, 1990).

cannot be assessed fully without accounting for social prejudice and personal or cultural intolerance. Locker's adaptation of the ICIDH offered a major conceptual incentive for further development of sociodental indicators. He expressed doubt about the SIP as a medium for constructing a comprehensive measure of health because it ignores "feeling states"; on the other hand he favoured the Oral Health Impact Profile (OHIP), developed by Slade and Spencer (1994) from social role theory and the ICIDH, for measuring the negative impacts of oral disease. In all, Locker's framework, as a sophisticated adaptation of the ICIDH and its antecedents, offered a solid utilitarian foundation for most of the psychometric instruments used in dentistry today (Slade, 1997).

### *Influence of the Environment on Health Status*

The influence of the environment on growth of a handicap was obscure in the original ICIDH framework (Gray and Hendershot, 2000). Since then, it has assumed a much more dominant role in explaining fluctuations of disablement, QoL, and responses to health care (Albrecht and Devlieger, 1999; Hunt, 1997; Patrick and Bergner, 1990; Strauss, 1995; Ware, 1984). A framework of concentric boxes offered by Ware (1984) to illustrate how social and personal environments surround and influence disease (Figure 2), whereas Patrick and Bergner (1990) used arrows in a linear model to show ebb and flow between impairment, function and health (Figure 3).

A study of factors presumed to influence oral health, and based loosely on a health-related QoL model (Patrick and Erickson, 1993), found that half of the variance in clinical status and responses to questionnaires could be attributed to several factors: history of oral disease and tooth loss; presence of specific oral diseases; self-perceived problems; and oral-related values (Gift et al., 1997). Surprisingly, opportunity for care and other environmental factors were not strong measures of oral health in this study. However, the investigators acknowledged the potential significance of the environment, and concluded that health and disease should be joined conceptually to develop more appropriate measures of health promotion.

Atchison (2002) adapted Patrick and Bergner's (1990) idea of changing personal and social environments to contrast the oral health-related QoL of two elderly women with the same impairment (tooth loss and inadequate dentures) and limitations (eating problems) but with different perceptive abilities (one was cognitively alert; the other mildly demented) and different access to treatment. The alert woman sensed the negative impact of her impairment, and could afford new dentures, and so she regained her physical, psychological, and social role. The other woman, unaware of her impairment, allowed her limitations to deteriorate and becomes further impaired and handicapped.

## **Existential Perspectives**

### *Positive Health*

Existentialism, with its attention to diversity in human preferences and its disregard for prescribed social order and authority, endorses the social environment as a domi-

nant influence on personal values, behaviours, and interpretations of disability (Hodge, 1990). The liberal theory of natural rights, in contrast to the pragmatic functionalism of utilitarian theory, is less prescriptive to personal and social impairment and disorder, and offers a more positive approach to health and disability. The conceptual foundations for "positive health" are based on theories of personality (e.g. ego-psychology), personal control (e.g. self-efficacy), social learning (e.g. adaptation), and other affective phenomena (Patrick and Erickson, 1993). Positive outlooks on health are associated usually with a social role determined largely by personal preferences rather than authoritarian principles. Consequently, the search for a positive definition of health and related QoL centres on a variety of conceptual models emphasizing a subjective assessment of health or wellness rather than an objective measurement of dysfunction.

### *Moving Towards a Positive View of Oral Health*

Psychometric instruments specific to oral health, with few exceptions, accentuate the negative impacts of oral dysfunction (Adulyanon et al., 1996; Atchison and Dolan, 1990; Cornell et al., 1997; Cushing et al., 1986; Gooch et al., 1989; Kressin et al., 1996; Leao and Sheiham, 1996; Locker and Miller, 1994; MacEntee et al., 1993; Reisine, 1981; Slade, 2002; Slade and Spencer, 1994; Slade et al., 1996; Strauss and Hunt, 1993). Yet, assessment of health from a predominantly negative context is effectively a focus on ill health. Clinicians and clinical researchers probably feel quite comfortable with this negative outlook because of regular encounters with disease, sickness and illness. Nevertheless, people in general are inclined to positive images of oral health when speaking freely about their experiences and beliefs. This inclination has been reported from several ethnographical explorations of oral health-related beliefs and behaviours among participants who endeavoured to maintain a sense of well-being when coping with oral disability (Fiske et al., 1998; MacEntee et al., 1997; McGrath and Bedi, 1998; Millwood and Heath, 2000). Indeed, the Dental Impact Profile (Strauss and Hunt, 1993), which along with the Oral Health Quality of Life Inventory (Cornell et al., 1997) accepts positive responses to questions about the impact of oral function, has revealed that respondents offer essentially a positive opinion on how the mouth functions

### *The Stigma of Oral Disorder*

Davis (1976) rejected the utilitarianism of role theory as an explanation for oral health-related behaviour. In contrast to Reisine (1981), he interpreted Freidson's ideas about the impact of illness to indicate that dental disorders rarely offer incentive for a sick-role or exemption from social responsibilities. He was influenced by theories of compliance (Etzioni, 1961), social structure (Nadel, 1957) and labelling (Goffman, 1963) with empirical support from an ethnographical exploration by Linn (1967) to explain the stigma of oral disorder and why dentists and their patients comply or not with one another. Foucault (1973) presented a compelling view of the medical profession's tendency to objectify and classify patients through a stigmatizing practice of diagnostic labelling and professional surveillance, and dentistry is

subject to the same tendencies through a multitude of environmental factors influencing clinicians and their professional relationships (Bryant et al., 1995; Davis, 1976; Locker, 1988; Dharamsi and MacEntee, 2002; Weiss, et al., 1993). Depression and social isolation induced by orofacial impairments or pain can be particularly disabling when social intolerance and prejudice label and stigmatize people. Complete denture wearers, for example, frequently suffer from social intolerances associated with poverty and ageism (Fiske et al., 1998).

### *International Classification of Functioning, Disability and Health*

International consultation and systematic field trials between 1996 and 2001 confirmed the shortcomings of the original ICIDH for explaining or analyzing the fluctuation of responses to chronic disease. A series of four draft reports\* on an evolving concept of functioning, disability and health led to the ICF as a new framework encompassing multiple aspects of health and illness (Bickenbach, et al., 1999; Wade and Halligan, 2003; WHO, 2001). The conceptual basis for the ICF reflects ageing and QoL as a dynamic process of coping and of adaptation (Allison et al., 1997; Heydecke et al., 2004; Hunt, 1997; Locker, 1983; Schroots, 1995). It blends biological and social components of health, disorder and disease in a positive portrayal of bodily functions and structures that act and participate under the influence of various environmental factors (Figure 5). Impairment, limited activity and restricted participation can all be disabling, but only when there is dysfunction. Consequently, the ICF can accommodate one person with impairment† whose activities are completely unrestricted, and another whose social participation is restricted seriously by the same condition.

The ICF identifies nine domains of activity§, each qualified by difficulty, and many bearing directly on oral health. They all relate to realistic performances with or without assistive devices (e.g. dentures), whereas restricted activities are assessed against a person's usual health status and resources, and can lead to disabling handicaps, especially when mixed with social stigma and low self-esteem (Lazaridou-Terzoudi et al., 2003). Both activity and participation can be modified positively or negatively by a person's performance and capacity¶, and by a person's personal and social environment, such as wealth and social status (Evans et al., 1994). Furthermore, restricted activity can be assessed environmentally from a biomedical perspective, to avoid pain for example, or from a social viewpoint to avoid personal interactions when, for example, dentures are loose or unsightly. A similar distinction is made between hearing loss that restricts physical activity because sounds or tones cannot be heard, and hearing loss that restricts social participa-

tion because of embarrassment from deafness (Stephens et al., 1995).

### *Shortcomings of the ICF*

The words "impairment", "disability" and "handicap" have negative connotations of injury and dysfunction that detract somewhat from the efforts of the ICF to impart a positive perspective on health and disability. Alternatively, "alteration" or "modification" could convey the same meaning as "impairment" without the implications of damage and disease. There is potential confusion also between the terms "activity" and "participation". The restricted facial expressions and speech of some complete denture-wearers could be interpreted as a healthy coping strategy by someone who limits their facial activity, or as an unhealthy social handicap by someone who restricts their social participation. In essence, the components and structure of the ICF does not distinguish well between the different influences from the environment.

There is need to distinguish more clearly between the organ level and the cellular and sub-cellular levels of human structure, function and capacity (Wade and Halligan, 2003). The normal radiographic appearance of a jaw joint in the presence of painful and restricted jaw movements is a typical situation where structural appearance at the macroscopic level belies the inflammation of an arthritic joint at the cellular level. Similarly, recent research on bone around implants, and on residual ridge resorption, has focussed at the sub-cellular and chromosomal levels (Nishimura and Garrett, 2004; Stanford and Schneider, 2004).

The ICF does not accommodate feelings or personal values, and cannot help to identify and explain relationships between the different perspectives of recipients of care and those who render it (Berglund and Ericsson, 2003; Wade and Halligan, 2003). Nor does it demonstrate or help to explain the outcome of disorders that behave differently at different stages of life. Moreover, the addition of a positive orientation to health and disability adds another dimension to the unresolved difficulty of "measuring" health change (Locker, 1998). Overall, its ability to demonstrate and explain is confined to psychosocial phenomena that have clearly observable and stable features over time. Until the management and inclusion of all these relationships and distinctions are clarified, the practical challenge of measuring and predicting the negative, neutral, and positive impacts of impairment, disability and handicap will remain.

### *Dentistry and the ICF*

Awareness of the moderating role played by the environment and the positive potential of many disabilities, including the distinction between activities and disabilities, has indeed influenced current concepts of oral

\* ICIDH-2 Alpha Version (May, 1996); ICIDH-2 Bete-1 Draft (April, 1997); ICIDH-2 Beta-2 Draft (August, 1999).

† Impairments can occur at the level of organs, tissues and cells, and at the subcellular level.

§ Learning and applying knowledge; general tasks and demands; communication; mobility; self-care, interpersonal interactions and relationships; major life areas; community, social and civic life (WHO, 2001).

¶ Performance qualifies what a person does in the current environment, while capacity denotes what a person can do at the highest level possible.

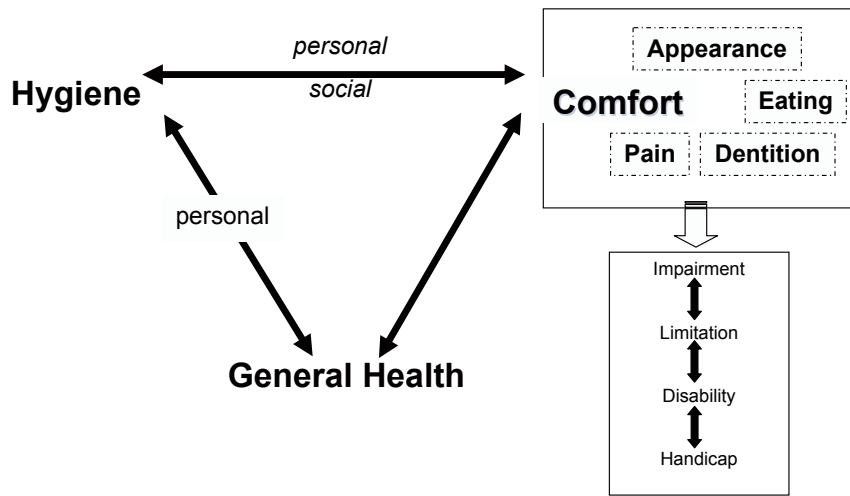


Figure 4. Structural domains of a framework of oral health significant to older adults (adapted from MacEntee, et al., 1997).

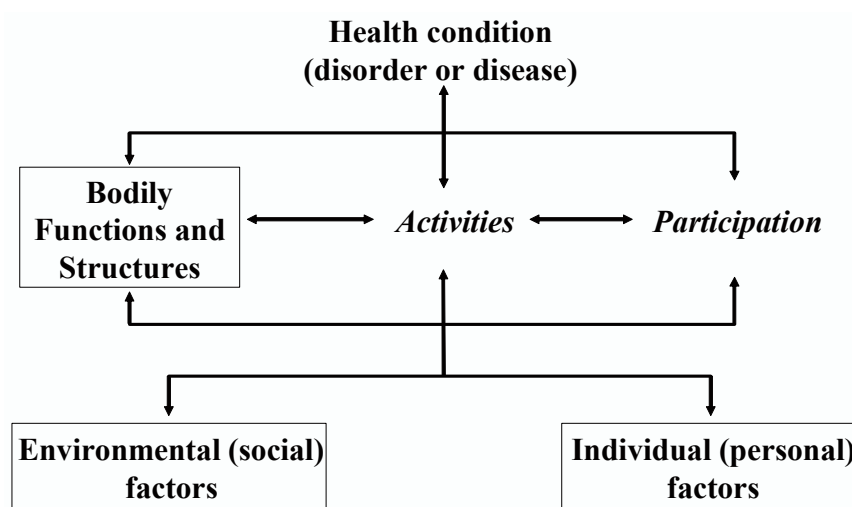


Figure 5. An example of interactions between components of the International Classification of Functioning, Disability and Health (adapted from the WHO, 2001).

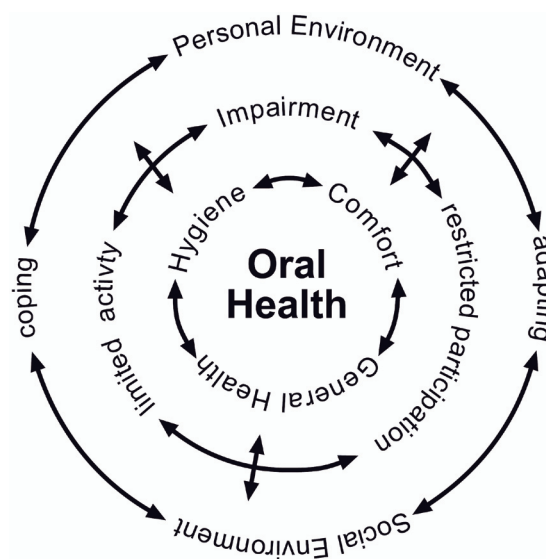


Figure 6. Interactive relationships between the major constituents of an existential model of oral health.

health and disability (MacEntee et al., 1994; Slade and Sanders, 2004; Slade et al., 1996; Winter, 1990). Acceptance of missing molars and the “shortened dental arch” (Käyser, 1990; Öwall et al., 1996; Scurria et al., 1998; Witter et al., 1999) demonstrates that impaired dentitions are not necessarily diagnosed as functional limitations or handicaps. The influence of the social environment on oral health-related beliefs and behaviours is seen even more dramatically in nursing homes where edentulism and acceptance of ill-fitting or unsightly dentures is a typical finding among frail elders, probably because there is limited social stigma associated with tooth loss in this social environment (Butz-Jørgenson, 1999; MacEntee et al., 1991; MacEntee et al., 1999; Millwood and Heath, 2000).

### *Performance and Capacity*

Structural or functional impairment from missing or defective teeth might or might not debilitate depending upon a person’s performance and capacity to cope effectively without feeling limited or handicapped. The distinction between performance and capacity in the ICF offers the possibility of enhancing performance by modifying the environment, either personally, as when food is pureed to help nutrition, or socially when water is fluoridated to control caries (Burt, 2002). Difficulties executing specific activities, such as talking, smiling, and chewing are influenced strongly by social norms, and the extent of a limited activity is subject to the interpretation offered by a particular model of disablement. The medical model associates ill-fitting dentures with an elevated risk of nutritional deficiency (Sheiham and Steele, 2001), whereas the social model offers the possibility that a soft diet could help to avoid nutritional deficiencies when the dentition is impaired (Millwood and Heath, 2000). Similarly, within the ICF, the absence of molar teeth can be interpreted either as a disabling impairment requiring prosthodontic treatment (Allen et al., 1996; McGivney and Carr, 2000), or as a non-disabling impairment managed without dentures (Witter et al., 1999).

### *Principal Domains of Oral Health*

Older people identified repeatedly three dominant domains – hygiene, comfort and general health – when asked in unrestricted interviews to explain the significance of oral health in their lives (MacEntee et al. 1997). They explained that oral hygiene and comfort with their dental appearance have both a personal and a social significance, while general health has mostly a personal significance (Figure 4). Identification of the three domains contributes in part at least to the “intervening variables” in the Locker/ICIDH framework of oral disorder (Figure 1). Although the domains emerged from a narrative analysis of interviews with older adults, there is evidence that oral health-related beliefs and behaviours do not change much with advancing age (MacEntee et al., 1993). The personal and social dimensions of the domains reflect the environmental influences of the ICF, and the double-ended arrows between impairment and handicap in the side box of Figure 4 indicate, as in Patrick and Bergner’s model of health-related QoL, a potential for ebb and flow between impairment and

handicap. The dynamic relationships between the three domains reflect current theories of human progress as a series of gains and losses or fluctuations of order and disorder throughout life (Schroots 1995). Indeed, coping by adapting personal expectations and activities is a familiar strategy for maintaining a positive outlook on life and health, and for controlling the potential stigma of oral impairment and disability (Carlsson et al., 1991; Locker, 1983; Millwood and Heath, 2000).

### *A New Model of Oral Health*

Application of the ICF to the information on the significance of the mouth offers a conceptual and an empirical foundation for a new interactive model illustrating relationships between the principal components of oral health (Figure 6). A spherical representation of the relationships offers three interacting layers. The outer contextual or environmental layer consists of interacting personal and social factors and skills. The middle functional and structural layer contains the potential for impairments or deviations in structure that might or might not restrict participation or limit activities, while the inner layer contains the three domains of oral health that are particularly significant to people. Finally, the multidirectional arrows around and between the layers indicate the dynamic and fluctuating relationships both within and between the layers.

### *Potential Applications of the Model*

The new model could be used to explore and explain dynamic relationships between major components or domains of oral health in the lives of different populations. Many environmental barriers and facilitators to oral health have been identified (Dharamsi and MacEntee, 2002; Locker, 1992). A professional ice hockey player, for example, is likely to accept the impairment of a few teeth missing from the front of the mouth because the ferocious appearance probably contributes positively to his professional environment. A high-ranking politician playing the saxophone, in contrast, is more likely to feel severely handicapped environmentally by the same impairment.

The model offers a conceptual foundation for building and assessing the psychometric properties of sociodental indicators relevant to situations where there is a potential for positive as well as negative impacts on oral health-related QoL. For example, acceptance of the “shortened dental arch” in contrast to more demanding prosthodontic procedures highlights the functional adaptability of many patients, and the need for a model that can accommodate both positive and negative responses to change. Currently, the Dental Impact Profile (Strauss and Hunt, 1993) offers some possibility of meeting this need, although it does not seek information about change in either oral status or change in responses.

Recognition of a potential for adapting and coping with dental impairments extends the possibilities further to identifying therapeutic solutions that are relatively simple and less expensive. The model could help further to direct attention away from treatments that are particularly invasive and expensive, such as implant-dentures, when there is reason to believe that patients can cope effec-

**Table 1.** Contrasting characteristics of two models of oral health.

Characteristics	Model	
	Utilitarian	Existential
Conceptual base	social role; ICIDH*	self-efficacy, social learning, fluctuation of order and disorder; ICF**
Purpose	to explain the consequences of disease	to explain the components of health
Principle applications	people with disabilities	everybody
Interpretive viewpoint	provider; investigator	recipient; patient
Components	impairments, functional limitations; disability; handicap	bodily functions and structures; impairments; activities and participations; environmental factors.
Primary values	social	personal and social
Oral health-related domains	theoretical, unspecified (Culyer, 1983)	empirical, specified (MacEntee et al., 1997)
Environmental role	unspecified	personal and social
Portrayal of chronic disease	progression from impairment to handicap	dominated by social stigma

\* International Classification of Impairments, Disabilities, and Handicaps

\*\* International Classification of Functioning, Disability and Health

tively with less expensive methods, such as conventional dentures or even puréed food (MacEntee, 2003). Finally, the new model should encourage detailed studies on the effectiveness of different coping strategies for maintaining oral health and QoL.

#### *Shortcomings of the New Oral Health Model*

There is room for further investigation in other populations and among other age-groups of the domains selected for the model. Participants in the ethnographical exploration who identified the domains used for the model were over 70 year years of age because the focus of that exploration was on the significance of the mouth in old age. Although there is evidence that people do not change their oral health-related beliefs and behaviours to any large extent as they age (MacEntee et al., 1993), nor is age associated with perceptions of oral health-related problems or values (Gift et al., 1997), more information is required to confirm that the domains and relationships in the model apply similarly to other populations and age groups.

Any biopsychosocial model is incomplete and prone to misrepresentation because of the complexity of the interactions it illustrates. Consequently, this model must be applied also with caution, especially as a foundation for psychometric tools aimed at measuring dynamic constructs, such as changes in health-related QoL, where intervals of measurement are unstable or a participant's terms of reference change (Allison et al., 1997). Perceptions of comfort and self-awareness are notoriously unstable in response to changing circumstances and experiences. Concern for oral hygiene or for dental appearance could be very significant to a healthy person

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seeking a partner or a new job but diminish considerably relative to other concerns on emergence of a life-threatening disease. Although the model provides useful information for constructing a psychometric instrument relevant to oral health, it does not help to resolve the problem of how change in oral health should be defined and measured (Locker, 1998).

#### **Summary**

The ICF, in contrast to the original ICIDH, explains from an existential perspective the components of health rather than the consequences of disease, and it accommodates a positive and a negative outlook on functional and structural impairment (Table 1). The concepts embodied in the new classification, along with empirical evidence on domains of oral health, justify the revision of existing conceptual frameworks and models to provide a broader and more optimistic model of the external and internal factors influencing oral health. Moreover, a contrast of utilitarianism and existentialism as the backdrop to the new model highlights the need to consider the influence of personal and social values on health and health care. Consequently, the new conceptual model offered here is based on the concepts and language of the ICF to help explain relationships between major components of oral health.

#### **Acknowledgements**

I am very grateful to Ross Bryant, Mario Brondani, Donald Brunette, Shiva Khatami and Matana Pruksapong, for their editorial suggestions and advice on the paper

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