# Prosthodontics and the Patient. Part 2: Need Becoming Demand, Demand Becoming Utilization

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***Purpose:*** Patients' oral health needs are estimated through dialogue and professional assessment. The concepts of *need* and *demand* are vital to studies of dental care and oral health. Need does not always lead to demand for treatment or to utilization, depending on the gatekeeping processes between need and demand and between demand and utilization. Demand must be accepted with the understanding that there is no objective need and that demand depends on the patient's opinion. In accordance with this, the need for prosthodontic treatment is highly individual and is not automatically related to oral health status, making need and demand difficult to measure in that respect. Therefore, sociodental factors should be included and evaluated in studies of need and demand for utilization of prosthodontic care. ***Materials and Methods:*** This theoretical and analytic paper focuses on the gatekeeping processes between need and demand and between demand and utilization of prosthodontic care. ***Results:*** The concept of *gatekeeping* refers to the social and psychologic processes that transform need into demand and demand into utilization. It implies that they are complex processes that can render great differences between demand and actual utilization. ***Conclusion:*** It is not possible to estimate a patient's needs for prosthodontic care, since there is no objective need. Demand and utilization are factors that play an important role in the gatekeeping process. These factors are dependent on the patient's opinion, which is influenced by numerous factors. *Int J Prosthodont 2007;20:183–189.*

To correctly assess a patient's oral health, both a clinical examination and a dental history obtained through dialogue are necessary. Traditionally, poor oral health has been regarded as a component of treatment need, but such need is also socially constructed and established in the interaction between patient and clinician.[1] Perceived need may depend on access to treatment options, technologic possibilities, social norms, and attitudes among both care providers and patients. In the prosthodontic decision-making process, the emancipatory perspective with the patient-clinician dialogue at the forefront plays a central role in achieving optimal treatment results.[2]

A conceptual analysis of need has previously been reported.[1] It is also important to examine how need may transfer into demand and the mechanisms involved in such a process. It is also of special interest to investigate how these factors can be identified, especially from a prosthodontic point of view. Studies have shown that several "gatekeeping" processes are involved when need is transformed into demand. The concept of gatekeeping has been identified as the social and psychologic processes that transform need into demand and demand into utilization.[3–5] The present paper will analyze the gatekeeping process between need and demand, as well as on the gatekeeping process between demand and utilization of dental treatment from a theoretical point of view (Fig 1).

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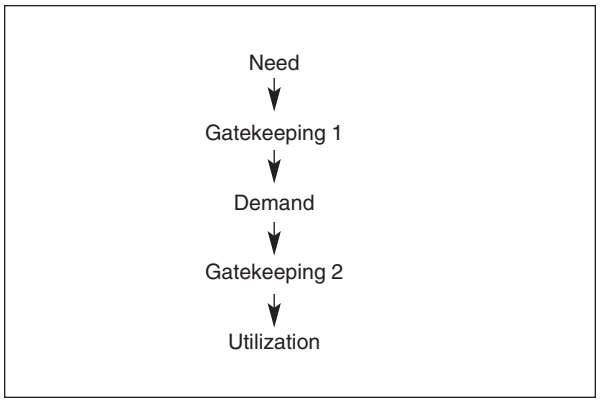


**Fig 1** Transformation of need into care utilization.

| | Gatekeeping 1 | References | |
|---|---|---|---|
| Need | Problems in oral health, quality of life | 7–24 | Demand |
| | Psychologic factors, health beliefs | 25–34 | |
| | Social structure factors, demographics | 9,35–43 | |

**Fig 2** The gatekeeping structure between need and demand.

| | Gatekeeping 2 | References | |
|---|---|---|---|
| Demand | Explanatory model for utilization | 11,44–51 | Utilization |
| | Oral health and service utilization | 47, 52–61 | |
| | Economic factors | 11,19,44,47, 51,62–71 | |
| | Dental insurace | 51,60,68,72, 73 | |

**Fig 3** The gatekeeping structure between demand and utilization.

## Gatekeeping

The process between *need* and *demand* is influenced by several factors, identified as barriers or gatekeepers[6] (Fig 2). Need can be regarded as latent or manifest. Becoming aware of a latent need, which eventually becomes manifest, is a multifactorial process that involves:

- *Oral health* and edentulism
- *Quality of life* and perception of need
- *Psychologic factors* (eg, dental anxiety state)
- *Health beliefs* (attitudes, values, and behavior)
- *Social structure* (education, occupation, and ethnicity)
- *Demographics* (age, gender, marital status, and income)

The process between demand and utilization of dental services (Fig 3) is closely related to social and economic factors, which can act as inhibitors in the process between a demand and utilization of this demand. Gatekeeping mechanisms have been used to the control costs of care and to promote cooperation between different groups of care providers.[6]

Prosthodontic treatments are often associated with a high cost for the patient. Supplier-induced demand and dental insurance schemes are factors of interest in that respect. The aim of the present paper is to analyze the gatekeeping mechanisms with respect to the patient, to different treatment options, and to service utilization.

## Gatekeeping 1: Between Need and Demand

### *Oral Health: Complete and Partial Edentulism*

Edentulous patients with denture problems do not necessarily translate such concern into demand for treatment.[7] Most edentulous individuals adapt to wearing complete dentures; however, for some, impaired oral health resulting in loss of the natural dentition is a serious life event and has been compared with other stressful events such as divorce or retirement.[8] It can be experienced as a mutilation or a serious change of life.[9] A greater concern about demand is a consequence of the realization that there is no objective need. Still, in most cases demand must be recognized as the result of an actual need. There are, of course, financial aspects involved in the process related to need and demand for prosthodontic treatment, and it is well known that edentulism is more prevalent among individuals with low or no income.

Need and demand for prosthodontic treatment among partially edentulous individuals are even more difficult to estimate. A missing maxillary anterior tooth is a strong incentive for demanding treatment, while loss of a posterior tooth usually is not. Position and number of teeth have strong effects on the perceived need for prosthodontic treatment.[10,11]

The results of the replacement of lost teeth with removable dentures are contradictory, indicating that demand is dependent on the patient's opinion.[12] It has been shown that about 25% to 50% of individuals who have

removable dentures seldom or never use them.[13] Cost seems to play an important role here, and there is a higher probability of low dental care utilization among those who consider dental care as expensive compared to those who state that they have no problem with the cost.[11]

The shortened dental arch (SDA) concept, first introduced by Käyser[14] and Witter et al,[15] is becoming widely accepted among many dental practitioners, as it seems to reflect the actual perceived demand among most partially edentulous individuals. The principles of the SDA concept include different levels of functional needs in relation to age and other individual factors. It further implies that teeth should be replaced only when there is a demand to restore essential functions, such as esthetics, oral comfort, and occlusal stability. With this concept, limited treatment goals can be achieved and still satisfy patient demands.

### *Quality of Life*

Oral quality of life (QOL) includes freedom from pain and optimal oral function and dental appearance.[16,17] Subsequent studies of elderly individuals found significant relationships between oral health status and QOL as well as between self-esteem and perceived oral health status.[9,18,19] The introduction of dental implants has revolutionized prosthetic dentistry,[20] and reports indicate that increased patient satisfaction and perceived QOL are strongly associated with the use of dental implants.[21–24]

### *Psychologic Factors*

Four main groups of psychosocial factors have been identified as potential barriers between need and demand: *(1)* dental anxiety, *(2)* perception of need, *(3)* financial concerns, and *(4)* lack of access.[25] The 2 latter factors belong mainly to the gatekeeping process between demand and utilization. Concern about oral health has been reported as significantly predicting perceived treatment need.[26] Individuals who regularly attend a dental office are likely to have a much higher perceived need than irregular attendees. Barriers such as fear of pain, anxiety, cost, and long waiting times have been found to have little influence, but the clinician's recommendation was found to be important.[27,28]

Dental anxiety is one of the major parts of the psychologic barrier between need and demand. It appears to be dependent mostly on experiences from youth,[29] but some patients might use it as a pretext not to meet a demand because of a poor economic situation.

### *Health Beliefs*

Healthy teeth are important to most people regardless of age.[30,31] Dissatisfaction with appearance has been found to be a major reason for transforming need into demand.[32] New adhesive techniques with veneers and all-ceramic restorations require minimal tooth preparation. The increasing commercialization of body image and changes in social normative standards have resulted in subjective demand for cosmetic dental care, so that practitioners may have difficulty identifying patient need. However, the demand for cosmetic dental care varies in different age groups and in different cultures. Expectations of dental health status and dental care may vary between individuals with different social norms and cultural traditions.[33,34] In some ethnic and social groups, edentulism following dental disease is considered as a likely development and a natural part of life.

### *Social Structure and Demographics*

There seems to be a gender variation in the social impact of oral health on perceived QOL. Women reportedly consider oral health as more important, whereas men rank chewing ability higher.[9,35–37] But there are also contradictory reports regarding the need for prosthodontic services in men versus women.[38–40]

Edentulism may be correlated with age and gender and is also more prevalent in rural areas, whereas there seems to be a greater demand for treatment in more densely populated areas.[40–42] Factors such as ethnicity, cultural attitudes, and standard of living have an impact on need and attitudes toward dental care, where, for instance, citizens in urban Western societies have a much higher level of demand for treatment than patients in less developed countries.[43] Individuals with high levels of education, prominent occupations, and high incomes have a lower barrier to treatment demand compared with those with a low level of education and reduced financial capacity. It is likely that global internationalization and growing prosperity may change the need for dental treatment, and through changes in the gatekeeping process, new demands may be developed. Moreover, technical achievements in the field of prosthetic dentistry may also contribute to a change in demand among individuals.

## Gatekeeping 2: Between Demand and Utilization of Dental Treatment

### *Explanatory Models of Utilization*

Originating from models of health service utilization, several explanatory models for utilization of dental care have been put forward. A sociologic comprehensive conflict model from Petersen emphasizes 4 groups of explanatory factors to explain inequalities in dental health.[44,45]

1. *Background factors* comprising experiences in the public dental service for children. There are associations between poor dental conditions and poor social conditions.[11] It has also been shown that there is a great amount of variation between general practitioners regarding prosthodontic services. About 20% of the variation in prosthodontic service rate was related to the clinician and not to the patient; factors related to the clinician, such as gender, age, years in the profession, and prosthodontic production, seem to have a great impact on the clinician's choice of prosthodontic treatment.[46] The clinician's medical or ethical consideration of a patient's demand will sometimes affect the gatekeeping process, resulting in no treatment.
2. *Socioeconomic factors* comprise work and living conditions and social norms and values.[47] Low education and advancing age have strong correlations with few remaining teeth, and the prevalence of removable dentures indicates socioeconomic inequality in dental conditions.[48] Social differences in dental care utilization are related to treatment costs and attitudes toward cost.[11]
3. *Individual factors* comprise dental visit habits, attitudes, and opinions regarding teeth and dental care.
4. *Dental health service system factors* include treatment fees and subsidies, availability and accessibility, and behavior of the practitioner.[49,50] The introduction of a subsidy system normally increases utilization.[51] In a system with limited dental manpower capacity, there may be a risk that patients may not receive adequate care, especially those who require extensive prosthodontic treatment.

### *Oral Health and Service Utilization*

Utilization is conceived as the received amount of care; the most common measure is the annual number of dental visits per person. Usually, there is a presumption that a high level of utilization in a population has a positive correlation with oral health.[47,52,53] Other studies suggest that dental treatments may be performed as a result of iatrogenic injuries and are also related to the so-called supplier-induced demand.[54] Oral health is also likely to affect utilization in a reverse relationship, meaning that good oral health is closely related to a high level of utilization of dental services.[55] Several studies indicate that edentulism per se is related to a low level of utilization.[56–58] Extensive prosthodontic treatments will require maintenance. The need for maintenance is usually higher for removable prostheses than for fixed prostheses, and several studies indicate excellent long-term survival rates following treatment with fixed prostheses.[59–61]

**Socioeconomic factors.** Social and economic factors can influence the process between recognition of a demand and utilization of this demand. There is evidence that national economic recession, to some extent, affects utilization of dental services.[62] In countries with public health care systems, accessibility and financial aspects are important factors for utilization.[44,47] Individuals with low income have a lower level of utilization and spend less money on dental care[11,63] compared with individuals with higher income, even in subsidized systems.[64]

**Cost and supplier factors.** Cost is the most frequently mentioned barrier regarding utilization of dental care, but there is evidence that free or reduced-cost services increase utilization only slightly.[65] However, dental care utilization could be related to attitudes toward costs.[11] Refraining from dental care because of the high cost may negatively affect the self-image of individuals who have a perceived need because of poor dental health.[19] Dental insurance schemes have a positive influence on attitudes and motivations for dental services and therefore could increase utilization of dental services.[51] However, the use of dental services is also influenced by socioeconomic factors, and insurance schemes may play only a limited role in changing this.[64,66] Individual factors such as attitudes and opinions regarding teeth and dental care, as well as dental anxiety, might in many cases have a greater influence on demand and utilization. Treatment fees seem to have a greater impact on utilization than on demand.[67,68]

However, an example of the reverse situation was seen when a new regulation was introduced in the National Dental Insurance System in Sweden a few years ago. The regulation permitted highly subsidized treatment costs for prosthodontic services and included only patients age 65 and older. The demand and utilization for extensive conventional fixed and implant-supported prosthodontic treatments increased dramatically, and the cost of the new regulation was 3 times higher than estimated. It seems that demand and utilization in this case were highly dependent on actual costs.

One would have expected that the traditional gatekeeping process between need, demand, and utilization changes quite dramatically in a situation in which patients, through a subsidized system, are given the financial capacity to choose a treatment and meet a latent need. The clinician's role in a highly subsidized dental health care system should also be considered because of the risk of supplier-induced demand, ie, overconsumption of medical services generated by the economic self-interest of physicians. This has also been discussed with regard to dental services.[69,70] Private practitioners and dental clinicians employed in

the Public Dental Health Service have different incentives.[70,71] It has been shown that the type of care organization influences both utilization and cost of care, resulting in higher costs and more frequent utilization for those attending private care.[71]

**Dental insurance.** The lack of dental insurance is one of several obstacles in obtaining oral health care and accounts in part for the generally poorer oral health of individuals with reduced financial capacity.[72] More dental treatment is performed in patients with comprehensive dental insurance when compared to a population with similar income, age, and gender but with less extensive insurance plans,[73] although regular attendance at appointments does not necessarily indicate good dental health. Another important factor is whether the dental insurance covers all kind of treatments or not. If only some treatments are included, this tends to result in treatment that does not meet the needs and demands of the patient. Implant treatments, for example, are not fully recognized by insurance companies worldwide as a standard of care in the treatment of the edentulous or partially edentulous patient. The quality and long-term prognosis of prosthodontic treatments seem to be unaffected by whether the treatment was performed within a system with high-cost protection or not.[60,68]

## Conclusion

Patients' oral health need is estimated through dialogue and professional assessment. Need does not always lead to demand for treatment or to utilization, depending on the gatekeeping processes between need and demand and between demand and utilization. These processes are influenced by numerous factors, such as education, occupation, income, individual preferences, costs, cultural differences, psychosocial factors, comfort, age, and accessibility of services. Patients with higher levels of education, more prominent occupations, and higher incomes have a lower gatekeeping barrier than less wealthy individuals and those with lower levels of education.

Demand must be accepted while taking into account the knowledge that there is no objective need and that demand depends on patient opinion. In accordance with this, changes in demand and utilization must be accepted and considered when prosthodontic treatment options are discussed and evaluated. Prosthodontic treatment is highly individual and not immediately related to oral health status, making need and demand difficult to measure. Therefore, socio-dental factors should be included and evaluated in studies of need, demand, and utilization regarding prosthodontic treatment.

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*Literature Abstract*

**Facial disfigurement in patients with head and neck cancer: The role of social self-efficacy**

The purpose of this clinical study was to investigate the role of social self-efficacy in patients with facial disfigurement with respect to their psychologic and social functioning. Social self-efficacy was defined as the extent to which patients believe that they are capable of exercising control over the reaction and openness of others. Consecutive patients during routine check-up appointments who met the eligibility criteria were asked to participate in this study. A total of 76 patients participated (72% response rate), which was a representative sample in terms of age and gender of the head and neck cancer population seen at this hospital. The average age of the 44 males and 32 females in the study was 58 years (SD = 12.69). The extent of facial disfigurement (1 = not at all to 4 = very) was rated for each patient, with a mean score of 1.97 found (SD = 0.97). Impairments of patients' facial expressions (1 = not at all to 4 = very much) were rated by physicians, with a mean score of 2.17 found (SD = 1.62). Patients reported social self-efficacy using a 4-point scale (1 = never to 4 = always), with a mean of 3.04 found (SD = 0.41). Psychologic distress was assessed using the State-Trait Anxiety Inventory, another 4-point scale (1 = not at all to 4 = very much), with a mean of 1.64 found (SD = 0.66). Patients' level of distress in reaction to unpleasant behavior of others was assessed using a 4-point scale (1 = seldom to 4 = very often), with a mean of 1.58 found (SD = 0.75). Finally, the mean score for patients' level of social isolation (1 = never to 4 = always) was found to be 1.83 (SD = 0.46). Regression analyses revealed an interaction effect between extent of facial disfigurement and social self-efficacy on psychologic distress. Regression analyses also revealed an interaction effect between extent of facial disfigurement and social self-efficacy on patients' distress in reaction to others' unpleasant behavior. In conclusion, facial disfigurement, as assessed both by patients and physicians, was positively related to psychologic distress and distress in reaction to others' unpleasant behavior, but only when patients did not feel self-efficacious in social encounters.

**Hagedoorn M, Molleman E.** *Health Psychol* 2006;25:643–647. **References:** 29. **Reprints:** Mariet Hagedoorn, Department of Public Health and Health Psychology, Northern Center for Health Care Research, University Medical Center Groningen, University of Groningen, The Netherlands, PO Box 196, Groningen 9700 AD, The Netherlands. E-mail: m.hagedoorn@med.umcg.nl—*Alvin G. Wee, OSU College of Dentistry, Columbus, OH*