

Oral Rehabilitation for Compromised and Elderly Patients

Alexandre Mersel
Editor

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Director for the Europe FDI Continuing Education Program

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Foreword 1

Professor Alex Mersel, an internationally respected authority in geriatric dentistry, is the editor and author of several chapters in this significant new book titled *Oral Rehabilitation for Compromised and Elderly Patients*. This resource is directed toward teaching dentists how they can better provide evidence-based dental treatment for their aging patients. Professor Mersel has assembled an outstanding cadre of chapter authors who represent true gerodontic expertise in their respective disciplines. Together they examine such salient concerns as oral/systemic relationships, periodontology, endodontics, neurological/psychological dimensions, masticatory function and nutrition, diagnosis and treatment of destructive caries, minimally invasive restorative dentistry approaches, removable and fixed prosthodontics considerations, and prevention strategies.

Geriatric dentistry requires from the practitioner the best of clinical, psychological, and social skills and demands an integrated and collaborative approach. With these chapters providing expert guidance, dental professionals will have the opportunity to significantly expand their clinical capabilities for oral rehabilitation.

This text also effectively utilizes a case-based approach, recognizing that we often learn how to best care for our patients from our involvement with and observation of real cases. By considering authentic, complex, and multifaceted patient circumstances, a valuable “real-life” framing is created that promotes deeper engagement and authentic learning.

Douglas Berkey
Professor Emeritus
University of Colorado School of Dental Medicine
Aurora, CO, USA

Foreword 2

Aging population? Today it seems outdated to consider the “senior” population as part of old age when we know that the appearance of dependency risk occurs at around 80 years on average. In addition, the heterogeneity of the age groups making up the elderly population should not be overlooked, so that all the very elderly cannot be considered to belong to a homogenous group. There is no strict definition of the elderly person.

For example, in France, in 1905, the birth of a social policy for old men set down the principle of compulsory assistance for old people who were indigent, infirm, and had incurable diseases. This legal provision thus offers the elderly without income the possibility of living in hospices or receiving a pension.

When considering the Nordic model of social protection, reference is often made to the principle of universality, as opposed to selectivity. Universalism is multidimensional. This means that all citizens have access to the same system of services and that this system offers rather uniform services in all countries.

We have to go back to fundamentals that the whirlwind of our daily life tends to sweep away. Old age is often a symbol of wisdom that combines self-awareness with other attributes: temperance, prudence, sincerity, discernment, and justice based on reasoned knowledge. Thus, the wisdom of the sages and the experience of the ages are perpetuated. I quote here from Konstantin Stanislavski: “May old wisdom guide young courage and youthful strength support the old wisdom. It is only in these natural conditions that art can flourish and have a future.”

It is in this sense that the reference book *Oral Rehabilitation for Compromised and Elderly Patients* finds all its nobility.

Denis Bourgeois
Dental Faculty
University of Lyon
Lyon, France

Preface

The development of knowledge in oral system sciences, the changes in health care, and the increase in the cohort of elderly people will have an important impact on daily dental practice.

With the increase in the number of elderly people, the numbers of edentulous patients will increase by 2050 to 40 million in Europe and 250 million in East Asia, according to the World Health Organization.

Rationale: Oral rehabilitation in this complex case is a difficult challenge. Medical and psychological factors are important, as are the skill of the general practitioner and the technical facilities. Also, the burden of these restorations is too great in a national health budget, as it is for a simple individual. Implant support overdentures are an excellent solution but are not accessible for most elderly patients.

Satisfaction of the elderly patient: A number of surveys have pointed out that on average, 30% of patients are not satisfied or do not feel comfortable with their dentures. This will be the cause of endless after-insertion visits.

A new approach: Since the 1940s and the 1950s, no important changes have been presented in textbooks. The important issues are impressions, phonetic impressions, the intermaxillary relationship, masticatory function and nutrition, the conjunction between implants and prosthetic restoration, the overall relation between the quality of dental care and patient satisfaction, and insertion strategies. With aging, more and more patients have remaining teeth. It is compulsory to maintain this status. Therefore, new treatments are recommended in periodontology, cariology, and endodontics. The elderly patient is a frail patient; any intervention could lead to a psychological or medical collapse. During treatment it is essential to maintain balance and in this way provide a good quality of life. Therefore, a new bioethical approach should be introduced into basic and continuing education programs. The publication of this book is an essential step.

Jerusalem, Israel

Alexandre Mersel

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Introduction

In prosthetic dentistry, although practitioners generally apply the rules they have been taught, they may be very disappointed with the results.

In fact there is no evidence-based correlation between the quality of the prosthetic and the satisfaction of the patients. However, in recent years we have witnessed several attempts to update our clinical approach.

Unfortunately some dogmas seem to have held us back in the performance of prosthetic procedures. As Albert Einstein stated: “It is what we think we know that prevents us from learning more”.

With the huge increase of the elderly population the general practitioner in dentistry has to face important issues.

Scrutiny of classic prosthodontic theories shows that many common clinical procedures lack basic scientific support. There are now new strategies that need to be incorporated in conservative restorations.

Even classic endodontics is changing in response to new technology.

Periodontal disease is actually the main factor responsible for tooth loss.

Easy and simple treatment in all these fields leads to surprising results.

With aging, the needs of the patient are more complicated, and the number of aging patients needing removable prosthodontics is important.

Against this background, the chapters in this book are devoted to the taking of impressions, occlusion, jaw relation records and the relation between denture quality and patient satisfaction, and coordination between implants and removable prosthetic restoration. In consequence of some crucial dogmas are important issues are not underlined as the interferences of the systemic diseases.

The benefits of a specific psychological approach are also noted and age-related changes in the oral sphere are explained.

The aim of this book is to help the general dental practitioner to overcome difficulties in these areas with the employment of simple and easy procedures.

Geneva, Switzerland
20th December, 2017

Alexandre Mersel



Demography and Aging

1

Alexandre Mersel

Abstract

The aging of the population may be defined as a concept of shifts in age distribution. The study and research of this aging population is mainly driven by a concern for the burdening of social retirement programs. The aging of the population is mainly measured by increases in the percentage of elderly people reaching retirement age. Therefore, the definition of retirement age may vary, depending on the country.

1.1 Introduction

The aging of the population may be defined as a concept of shifts in age distribution. The study and research of this aging population is mainly driven by a concern for the burdening of social retirement programs. The aging of the population is mainly measured by increases in the percentage of elderly people reaching retirement age. Therefore, the definition of retirement age may vary, depending on the country. For example, in Europe, it was decided that 65 is to be considered the retirement age [1].

1.2 The Age Concept

This standard is usually utilized for the definition of elderly persons. Another important reference is the elderly dependence ratio (EDR). This index evaluates the retirement age of individuals compared with the working age. A patient may be retired but still working. The old age dependency ratio defines the ratio of the elderly who

A. Mersel
FDI Europe Continuing Education Program, Geneva, Switzerland
e-mail: Mersal@netvision.net.il

are dependent with those who are financially active. Currently, it is often utilized as the aging index indicator, which looks at the ratio of the number of individuals aged 65 and over, per 100 youths under age 15. For example, in Germany, Italy, Bulgaria, and Japan, the index is above 100, and by 2030 this index is projected to exceed 200. For administrative facilities, the head count ratio simply relates the number of persons in broad age categories. In the same way, the median age system indicates the age at which half the population is younger and a half is older. In the United States, the finding was 36 years. Unfortunately, these indexes do not take into consideration several factors and consequences of the aging process.

1.2.1 The Aging Population: A Global Phenomenon

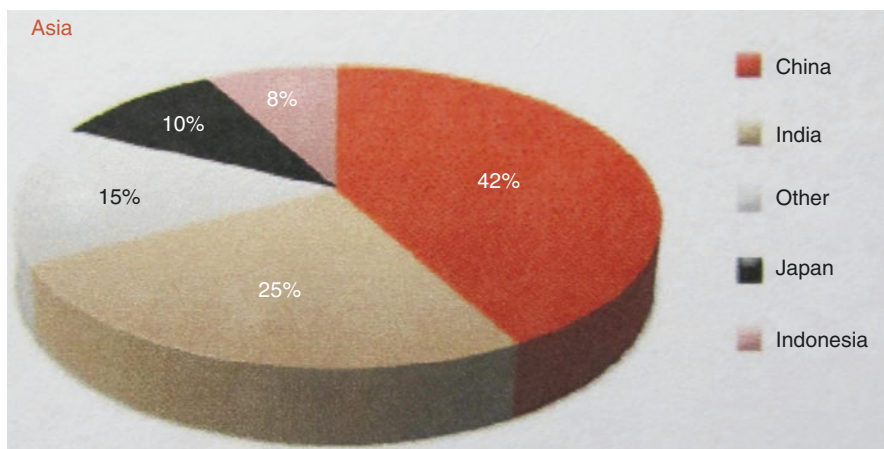
With the beginning of the twenty-first century, the aging population has emerged as a major worldwide phenomenon. The global world population increased from approximately 2.526 billion in 1950 to 7.62 billion in 2015 and is projected to reach 8.083 billion in 2025 and 9.551 in 2050. Most will live in the developing countries. From a historical perspective, it was noted that the average life expectancy was around 40 years in the eighteenth century. The life expectancy reached 50 years in the twentieth century and then rose further to 80 years from the middle of the twenty-first century. In particular, the percentage of persons aged 65 years and over increased from 7.7 to 16.1% in the developed countries in comparison with an increase from 3.8 to 5.8% in developing countries. By 2050, China and India will have the largest older population. Japan, which has the largest share of the world's elderly, who are 60 years and over, will reach 44% in 2050. In the USA, 44 million citizens are aged 65 or over, and the number is expected to reach 89 million, that is double, by 2050 [2].

1.2.2 The Aging Population: Three Main Factors Increasing Life Expectancy

1.2.2.1 Age Dynamics

Between 2015 and 2030, the number of people living in the world aged 60 years and over is expected to grow by 56%; from 901 million to 1.4 billion. By 2050, the population of older people will double in size compared with 2016, reaching nearly 2.1 billion. At the same time, the cohort of “**oldest-old**” aged 75 and over will increase faster than the number of older persons. The projections indicate that the number, which was 125 million in 2015, will triple by 2050 to 435 million (Fig. 1.1).

Another important fact is that from 2010 to 2015, women outlived men by an average of 4.5 years. Consequently, women represent 54% of the global population aged 60 years old or over. Women constitute 61% of the “**oldest-old**” group. Nevertheless, in the coming period, the survival of men is expected to increase reaching 42% of the elderly population by 2050. The older population is increasing faster in urban districts than in the rural regions. As a comparison, on a global level, from 2000 to 2015, the number of people aged 60 years and over has increased by 68% in urban districts versus 25% in rural regions.



250 million people are edentulous in Asia:
67% live in China and India.

Fig. 1.1 Aging and edentulism—a projection

Consequently, elderly people are living concentrated in the urban cities. In particular, the “**oldest-old**” persons aged 80 years and over are living in the urban districts, which is an increase from 56 to 63% between 2000 and 2015.

1.2.2.2 Fertility Rates and Longevity Increase

The growing phenomenon of the elderly is a direct function of the levels of fertility from 60 years ago. The immediate reason for the population aging is the decline in fertility, but the increase in longevity contributes as well. In 2050, the life expectancy is evaluated to surpass 80 years in Europe, America, and Asia, and 70 years in Africa. In conclusion, the global proportion of older persons is estimated to increase from 14% in 2015 to more than 20% in 2050 (Fig. 1.2).

1.2.2.3 Factors of Life Expectancy

The reasons for this trend are the consequences of several factors: the amelioration of health conditions, the rise in health services, the increase in education, better nutrition in quality and in quantity, the instauration of psychological support, wide promotion of oral hygiene, and better housing conditions, with increased possibilities for dependent or handicapped people.

Medical Conditions

General health conditions or involvement may define oral rehabilitation. Systemic diseases are frequent, needing special care and prohibiting an invasive procedure. The most common diseases and the major causes of mortality are: heart diseases, cancers, cerebrovascular problems, arteriosclerosis diabetes, impaired lung diseases, and the neuro-psychological conditions, such as Parkinson’s and Alzheimer’s [3].

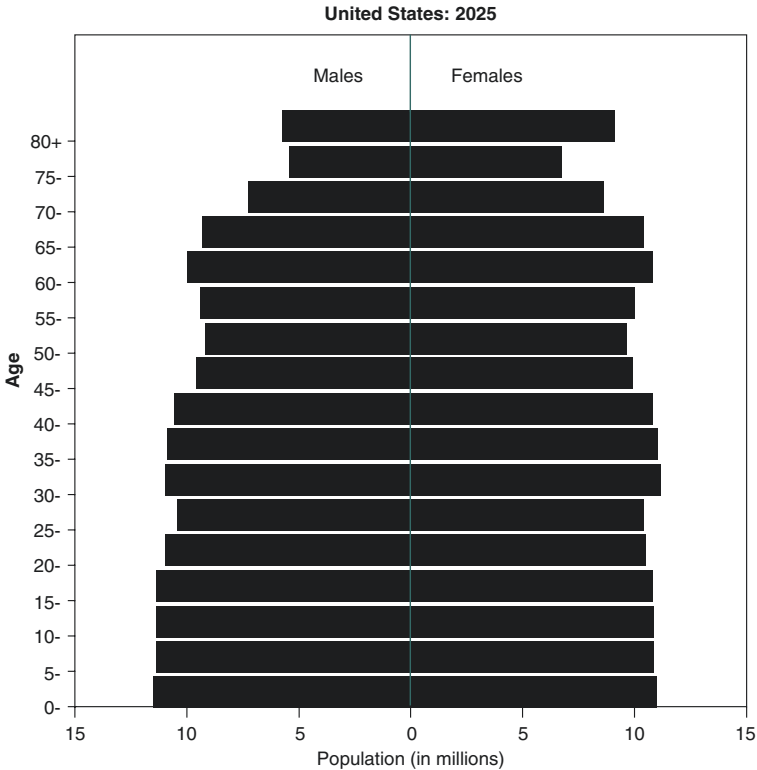


Fig. 1.2 Demographic situation in the USA by 2025

Mental Status Evaluation

During the first examination of the patient and before starting any diagnosis, prognosis or treatment, it is essential to carry out basic mental status testing. Dementia is the main brain illness of elderly patients. The practitioner must understand that elderly people who appear to have dementia may be suffering from pseudo-senility syndromes and may in fact have communication disorders.

Often, ageism contributes to an over-diagnosis of dementia. Therefore, it is crucial to have a good knowledge of the cognitive status (speech, hearing, and language difficulties), and to know how to evaluate a patient who is suspected of suffering from dementia. Aside from these factors, it was proved that “fatigue” is a clinical sign of biological aging. Frailty is described as a phase of acceleration in the aging process. Therefore, the identification of fatigue is an interesting parameter for knowledge about patients with increased vulnerability to stress conditions [4].

Oral Status of the Elderly

Aging is characterized by important changes in the human organs. The combination of these changes with age-related pathological conditions leads to the need for multiple medications to maintain their quality of life. There is a danger that taking a large number of medications could also provoke undesirable side-effects in the elderly, for example, mouth dryness [5].

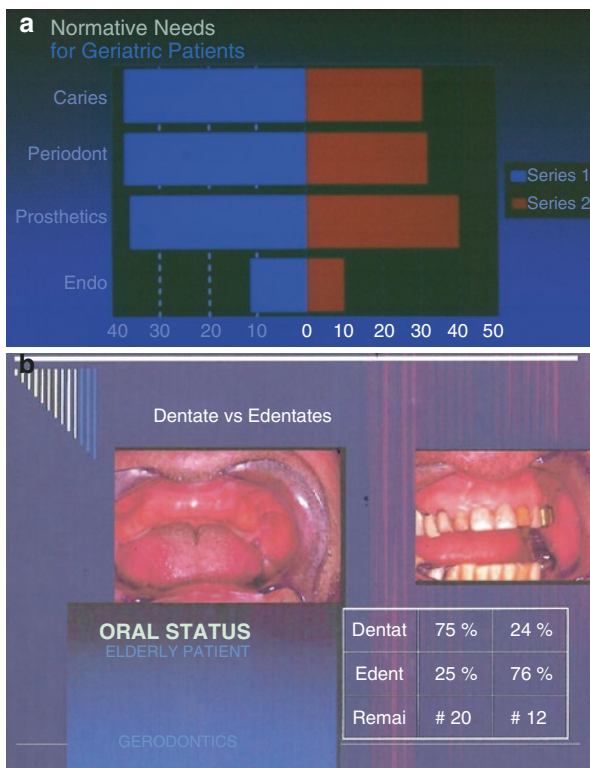


Fig. 1.3 (a) Normative needs for an elder population. (b) Dental status number of edentulous elderly

Edentulism

Edentulism is most common in the oldest cohort of the population. In the main European countries, there is a decline in the remaining natural teeth with increasing age. In Denmark, France, and Germany, the number of teeth is decreasing more rapidly between the ages of 60 and 70. In general, 25% of aged patients suffer from edentulism before the age of 80 years and 50% by the age of 90. Prosthodontic replacement of the missing teeth differed between countries. The WHO goal for the next decade is evaluated as having 20 remaining teeth at the age of 80 years. This target has been achieved by 25% of the population in most European countries (Fig. 1.3).

Aging and Sexuality

With the aging process, common stereotypes define the elderly as asexual. Nevertheless, many aged individuals continue to be active in a range of patterns of sexual activity, often shifting to other forms of sexual expression and intimacy in later life [6].

As the physiological changes in the oral sphere are clear indicators of patient aging, the silent patient's request is to overrule this handicap. Older adults are looking for a form of sexual activity to desire or be desirable. This emphasizes the importance of



Fig. 1.4 Vertical dimension at rest

the esthetic factor when planning orofacial rehabilitation. This is not only a matter of the color of the teeth, but a correct evaluation of the patient aspiration.

From this perspective, the dentist has the obligation to involve the patient's partner in the strategic decision about the esthetic target. Over the past few years, there has been an increase in sex education for senior patients, providing them with sound information about their problems. In fact, by developing this approach for harmonious dialogue is a matter of basic continuing education for the practitioner. An example is the relationship between the vertical dimension of the face and the facial aspect, and the shape of the lips (Figs. 1.4 and 1.5).

Old age refers to ages nearing the life expectancy of human beings, and thus the end of the human life cycle. In 2016, scientists identified the maximum lifespan to be an average of 115 years, with an upper limit of 125 years (en.wikipedia.org/wiki/old age).

Terms and euphemisms for the aged include: old people, seniors, senior citizens, older adults, the elderly, and elders. Old people often have limited regenerative abilities and are more susceptible to diseases and sickness than younger adults. The organic process of ageing is called **senescence**, medical study is called **gerontology**, and in the oral sphere **gerodontology**. The study of diseases that afflict the elderly is called **geriatrics**. The elderly also face other social issues around