



Lebanese University
Faculty of Dental Medicine



World Dental Congress

The oral health status of institutionalized elderly people in Lebanon

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I declare that I have no conflict of interest
related to the content of this work

Aging of the population

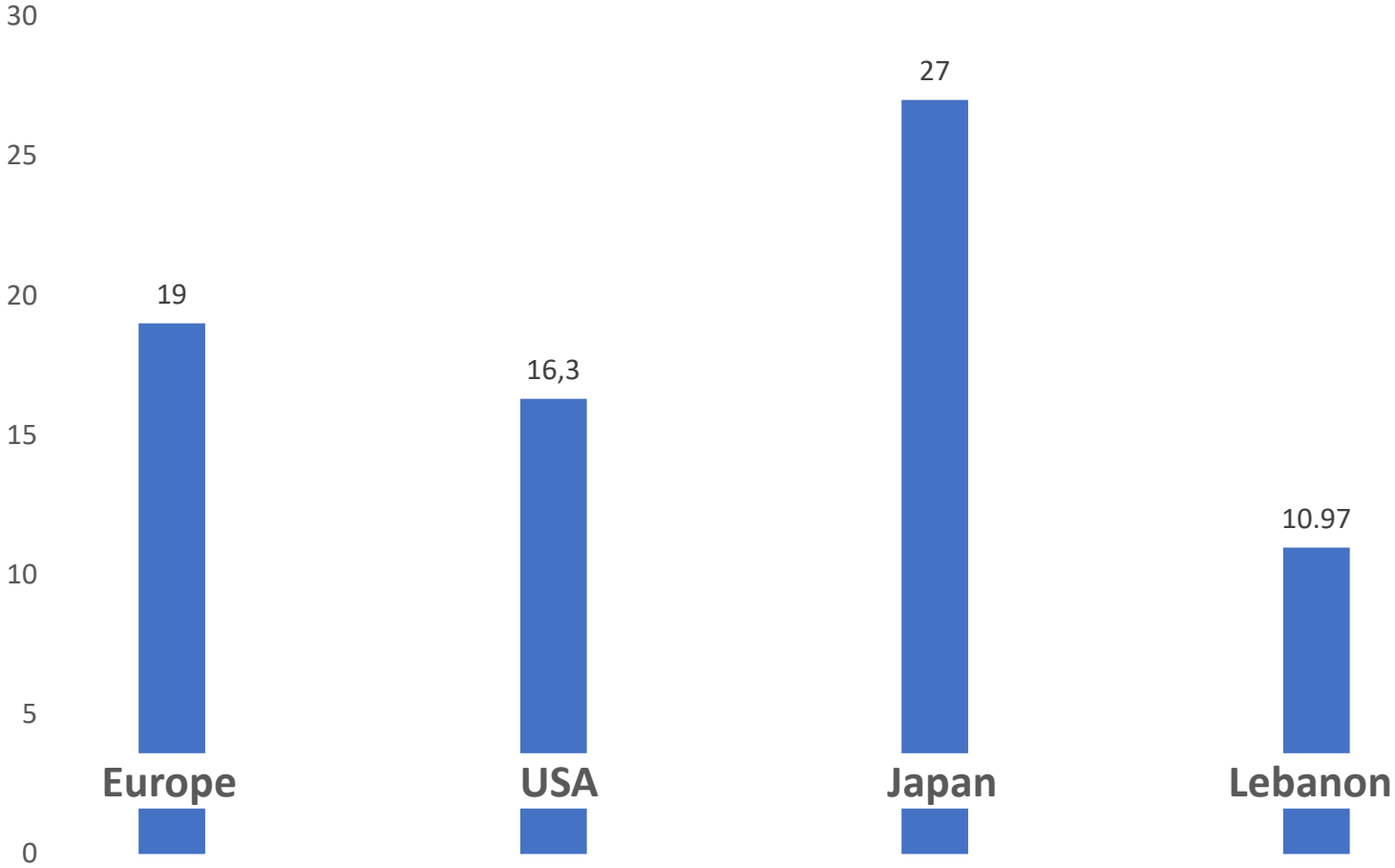
- ❖ By 2050, 25% of the world's population – around 2 billion people – will be over 60 years old
- ❖ The UN estimates that regional life expectancy is now approaching 65 years in Africa and between 75 and 80 years in Asia, Europe, North America, Latin America and Oceania



Fukai, K., Dartevelle, S., Jones, J., McKenna, G., Hirano, H., & FDI World Dental Federation (2025). Making the Right to Oral Health a Reality for Older Adults. *International dental journal*, 75(3), 1732–1735.

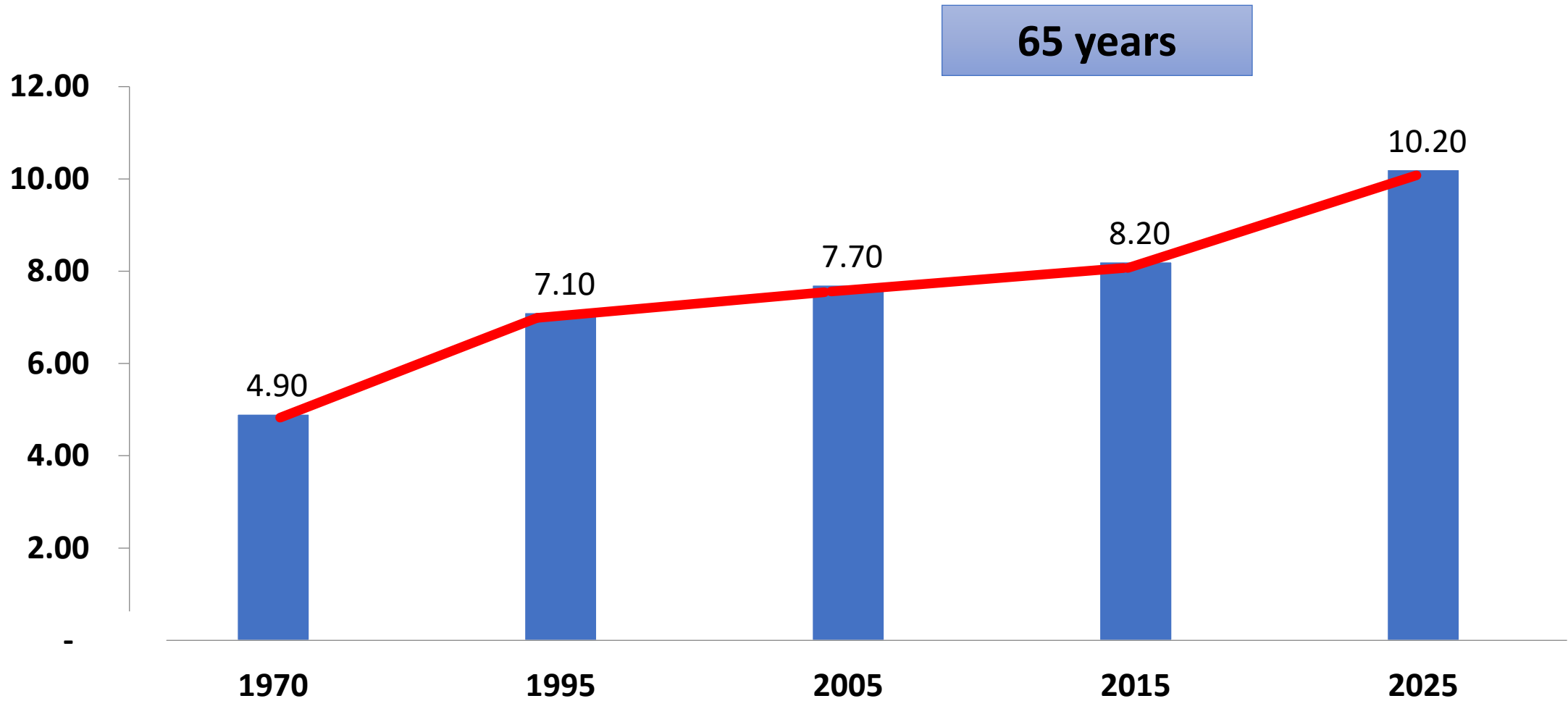
Aging in the World

The percentage of people over 65 of age

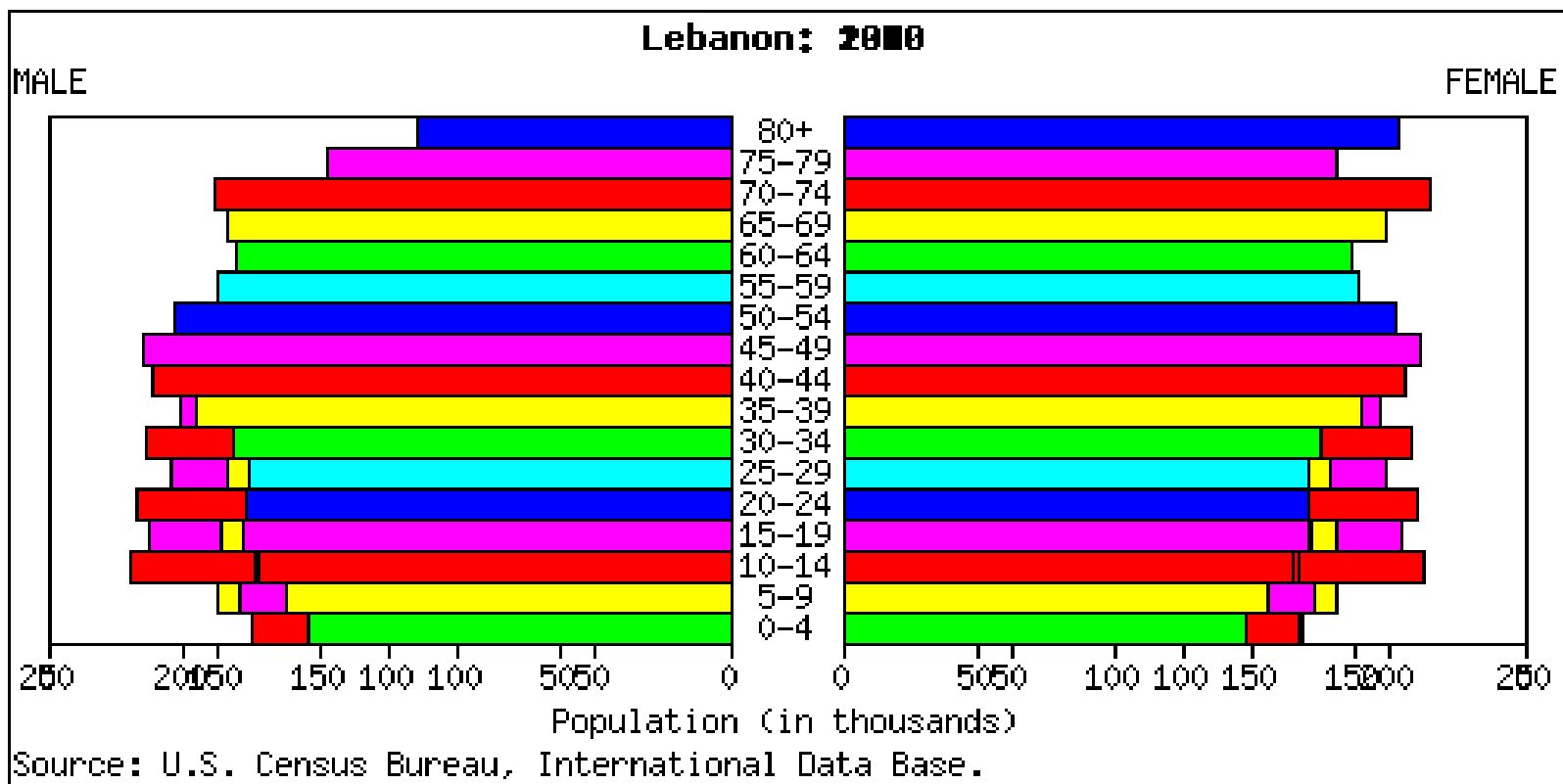


World Bank 2019
Central Administration of statistics 2019

Aging of the Lebanese population



Aging of the Lebanese population



Materials and Methods

Population and sample (Ministry of Social Affairs)

- ❖ Of a total of 55 nursing homes identified, 9 were excluded due to insufficient information (number of beds, size of facility).
- ❖ This resulted in a sampling frame of 46 nursing homes for the elderly, representing a total of 4,709 beds.
- ❖ The facilities are spread across 16 geographic areas.

Gerontological Survey Sheet

Hôpital Maison de retraite domicile adresse _____

Date de d'entrée dans l'établissement: / /
 Date de l'examen : / / Identification : _____

Sexe : homme 1 femme 2 Année de naissance / / / / /

Visites : oui , non , qui : famille , voisin , aide-soignant , autre .

Fréquence : <1/semaine , 1/semaine , >1/semaine .

Autonomie :
 Toilette seul , aide partielle , aide totale .

Alimentation seul , aide partielle , aide totale .

Brossage seul , aide .

Pathologies :

Diabète oui , non .

HTA oui , non .

AVC oui , non .

Démence oui , non .

Troubles du comportement oui , non .

Cancer oui , non .

Insuffisance respiratoire oui , non .

Parkinson oui , non .

Autres oui , non .

Sensation de sécheresse buccale : oui , non , non renseigné .

Médicaments:

Antidépresseurs oui , non .

Corticoïdes oui , non .

Antibiotiques oui , non .

Neuroleptiques oui , non .

Anticoagulants oui , non .

Autres oui , non .

Compréhension (patient, proche) : bonne , médiocre , refus , impossible .

Participation lors de l'examen clinique : bonne , médiocre , refus , impossible .

Consultation dentaire dans les douze derniers mois : oui , non , non renseigné .

Date de la dernière consultation dentaire : _____

Motif de la dernière consultation dentaire : soin , contrôle .

Consommation de tabac : nombre de cigarettes par jour : < 5 , entre 5 et 15 , >15 .

ETAT BUCCO-DENTAIRE

Etat dentaire :

x																	x
18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28		
48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38		
x																	x

Dent absente 0 Carie de la couronne 3 Dent obturée, couronnée 6
 Dent saine 1 Carie de la racine 4 Dent remplacée par une prothèse adjointe 7
 Racine résiduelle 2 Carie couronne + racine 5 Dent remplacée par un inter de bridge 8

Nombre de dents naturelles présentes (à l'exception des racines résiduelles) : / / /
 CAO =

• Hygiène : Oral Hygiene Index (Greene and Vermillion) = Debris Index + Calculus Index

18	17(v)	16(v)	15	14	13	12	11(l)	21(l)	22	23	24	25	26(v)	27(v)	28
Plaque															Plaque
Tartre															Tartre

Plaque															Plaque
Tartre															Tartre
48	47(v)	46(v)	45	44	43	42	41(v)	31(v)	32	33	34	35	36(v)	37(v)	38

Débris Index : faces vestibulaires + faces linguales / nombre total des faces examinées =

Calculus Index : faces vestibulaires + faces linguales / nombre total des faces examinées =

Observation à l'œil nu : pas de plaque 0 ; plaque visible (1/3 couronne) 1 ; plaque visible (2/3 couronne) 2 ; plaque visible (+ des 2/3 couronne) 3 ; pas de tartre 0 ; tartre (1/3 couronne) 1 ; tartre (2/3 couronne) 2 ; tartre (+ des 2/3 couronne) 3

Oral Hygiene Index = Débris Index + Calculus Index =

• Examen parodontal:
 Mesure de l'indice gingival modifié (Indice de Lobene) :



• Examen des muqueuses:
 Lésion observée à l'œil nu: oui , non , localisée: oui , non , généralisée: oui , non .

Brossage dentaire :
 Brossage quotidien : oui , non , non renseigné .

Effectué seul , effectué avec aide , effectué par aide soignant , non effectué .

Si oui, matin oui , non , non renseigné .

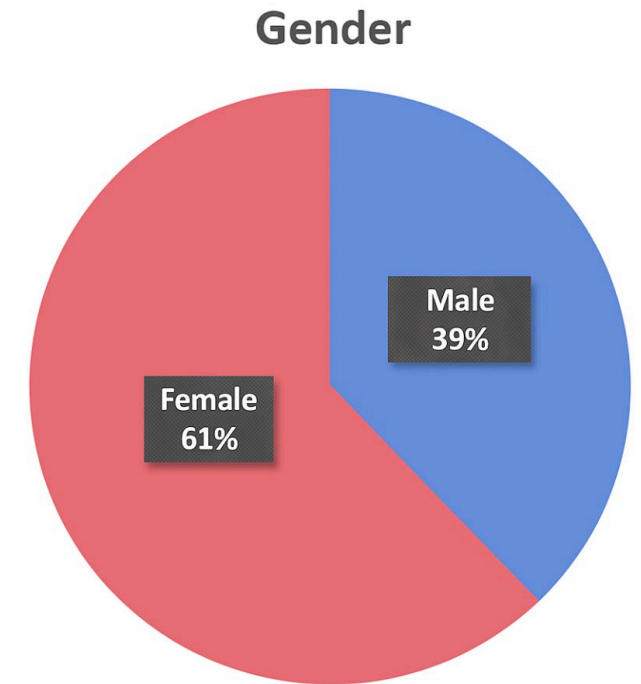
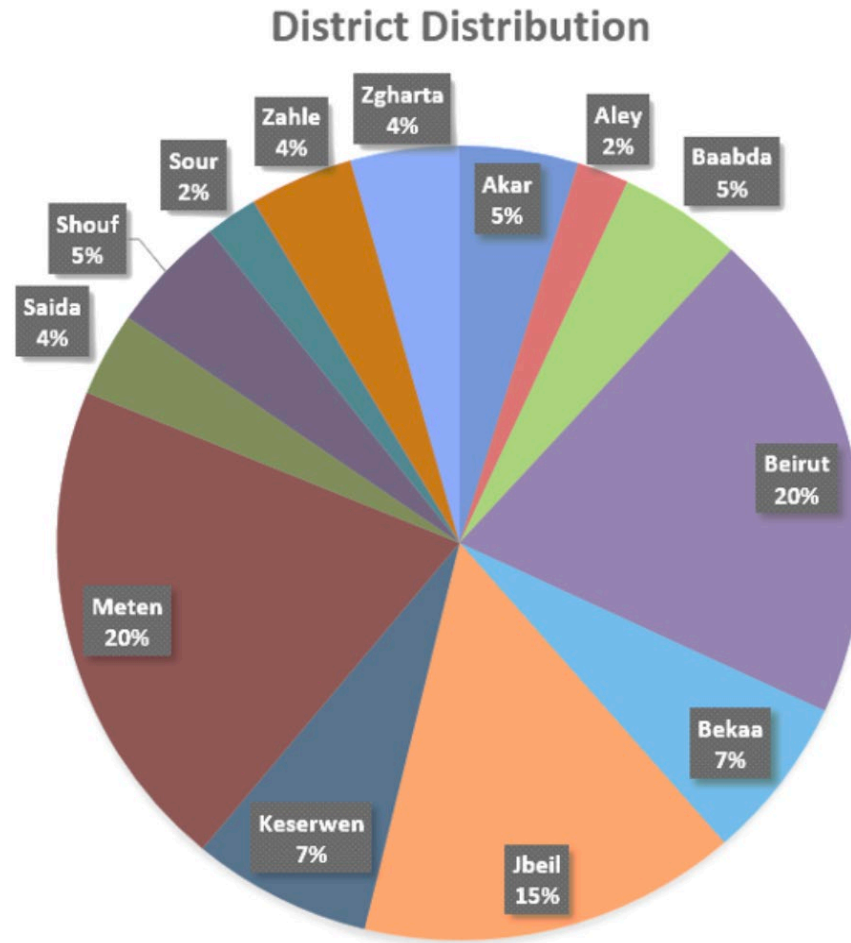
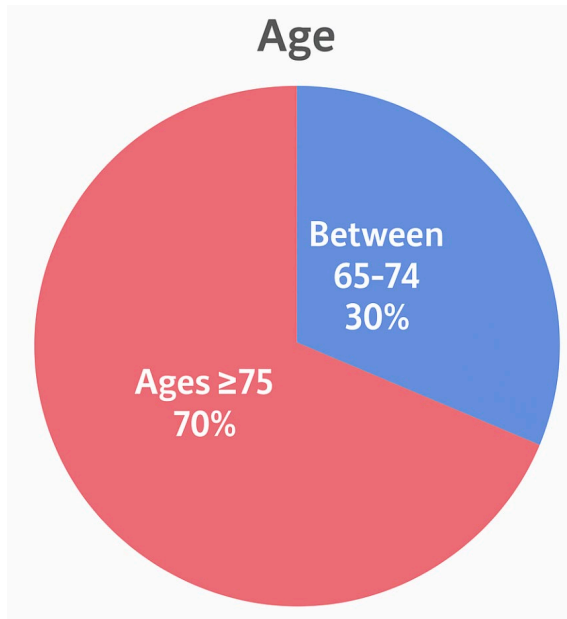
Midi oui , non , non renseigné .

Soir oui , non , non renseigné .

Examen des Prothèses amovibles:

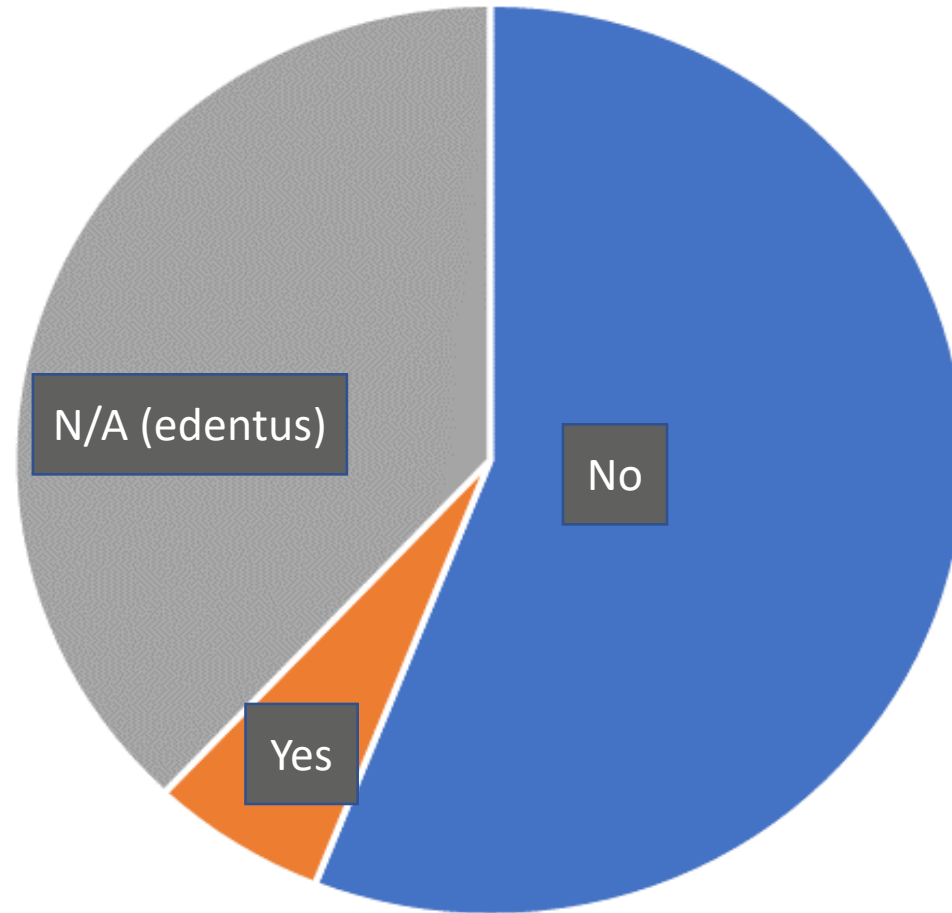
- Existence d'une prothèse amovible : Maxillaire totale , partielle , aucune .
- Mandibulaire totale , partielle , aucune .
- Si prothèse, prothèse maxillaire portée oui , non .
- Prothèse mandibulaire portée oui , non .
- Si prothèse portée, hygiène de la prothèse maxillaire :
- Hygiène de la prothèse mandibulaire :
- Pas de dépôts alimentaires : 0 dépôts alimentaires récents : 1 dépôts alimentaires anciens : 2 tartre : 3
- Racines résiduelles traitées et porteuses d'élément de stabilisation de la prothèse : oui , non .

Distribution of the institutionalized elderly according to age, gender and district (n = 526)



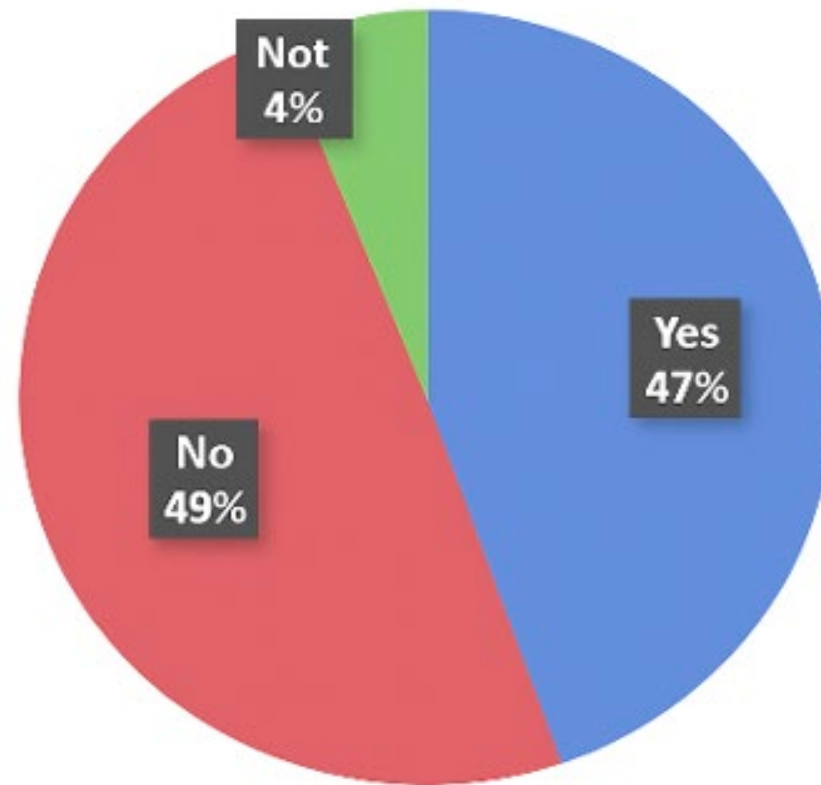
Brushing habits

Brushing Teeth at least 1/day



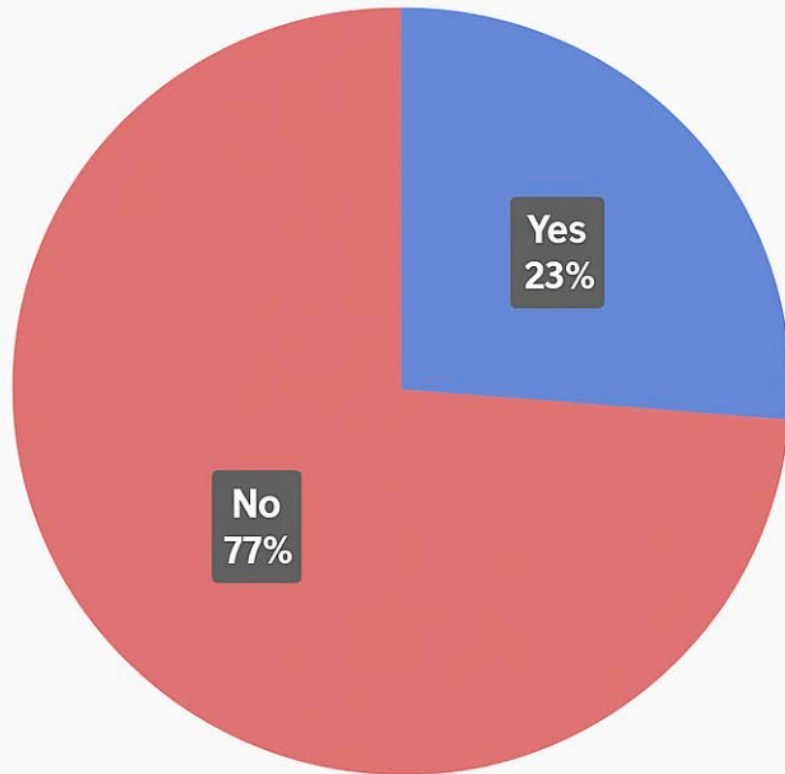
Dry mouth sensation

Dry mouth sensation

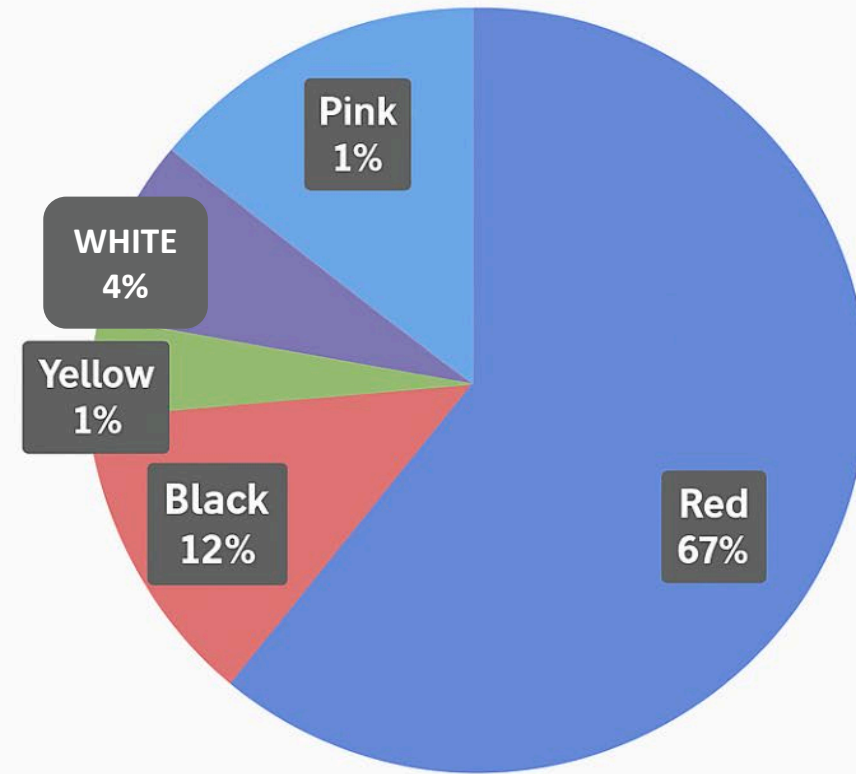


The color of the mucosal lesions

Mucosal lesions visible to the eye



Color

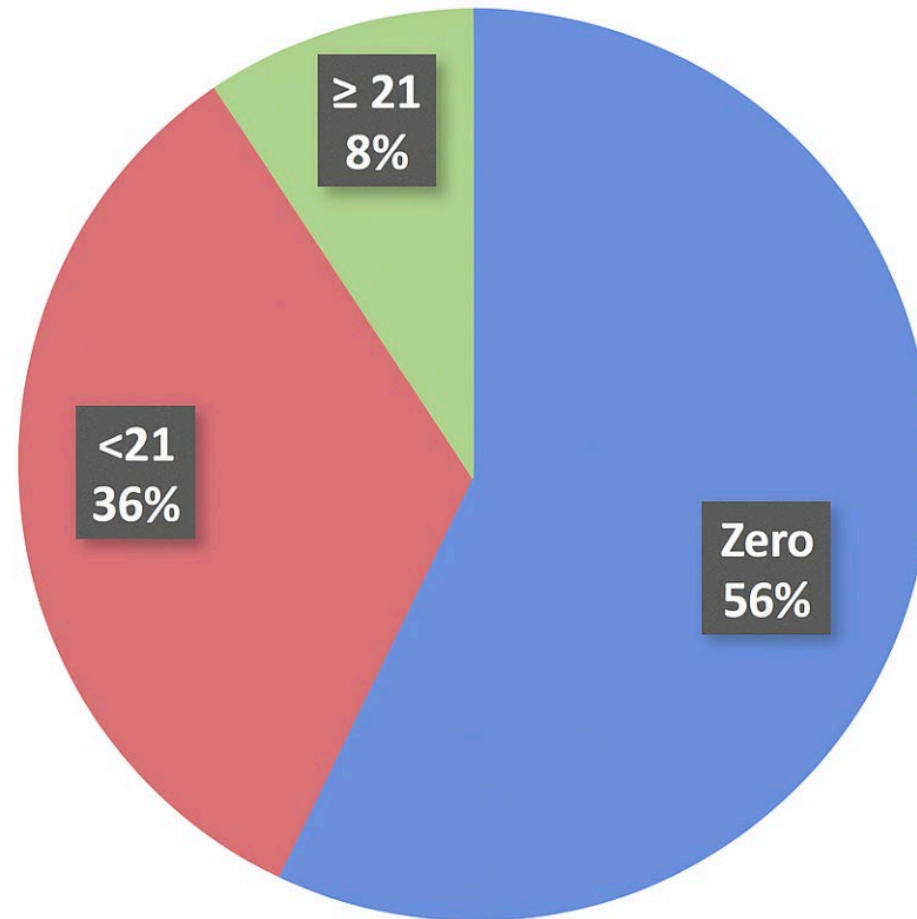


Remaining natural teeth

No. of Natural Teeth Remaining

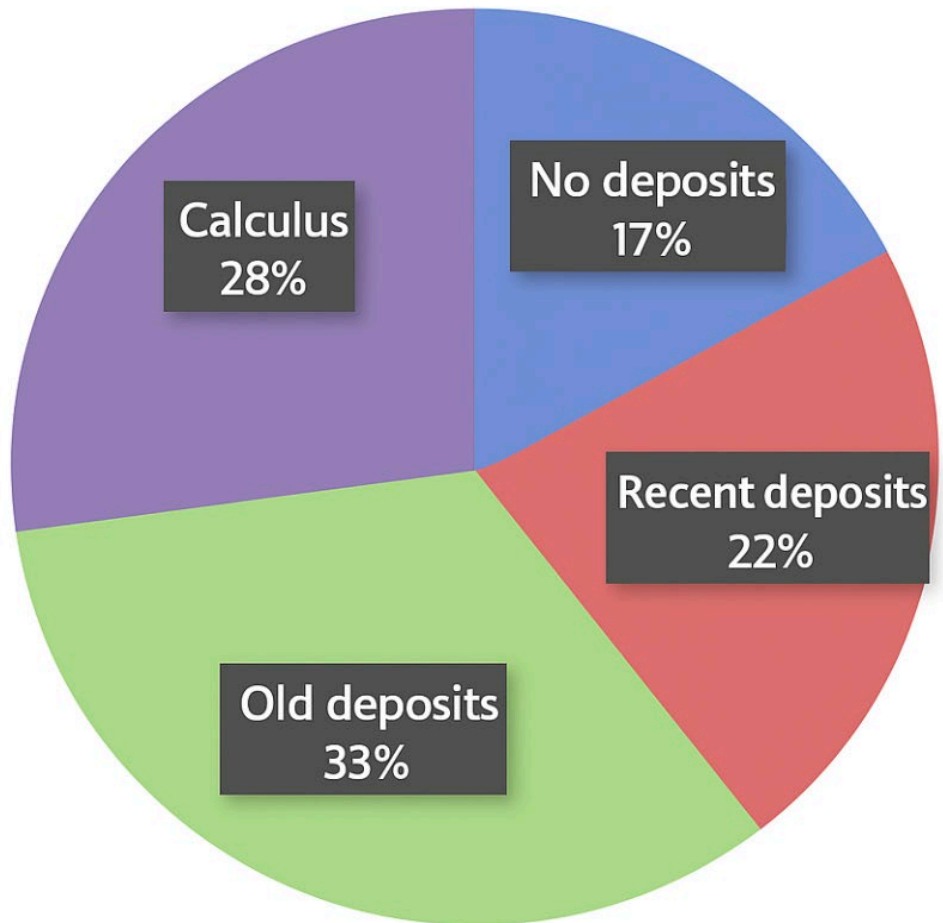
No. of Remaining
Natural Teeth

Zero	294
< 21	188
≥ 21	44

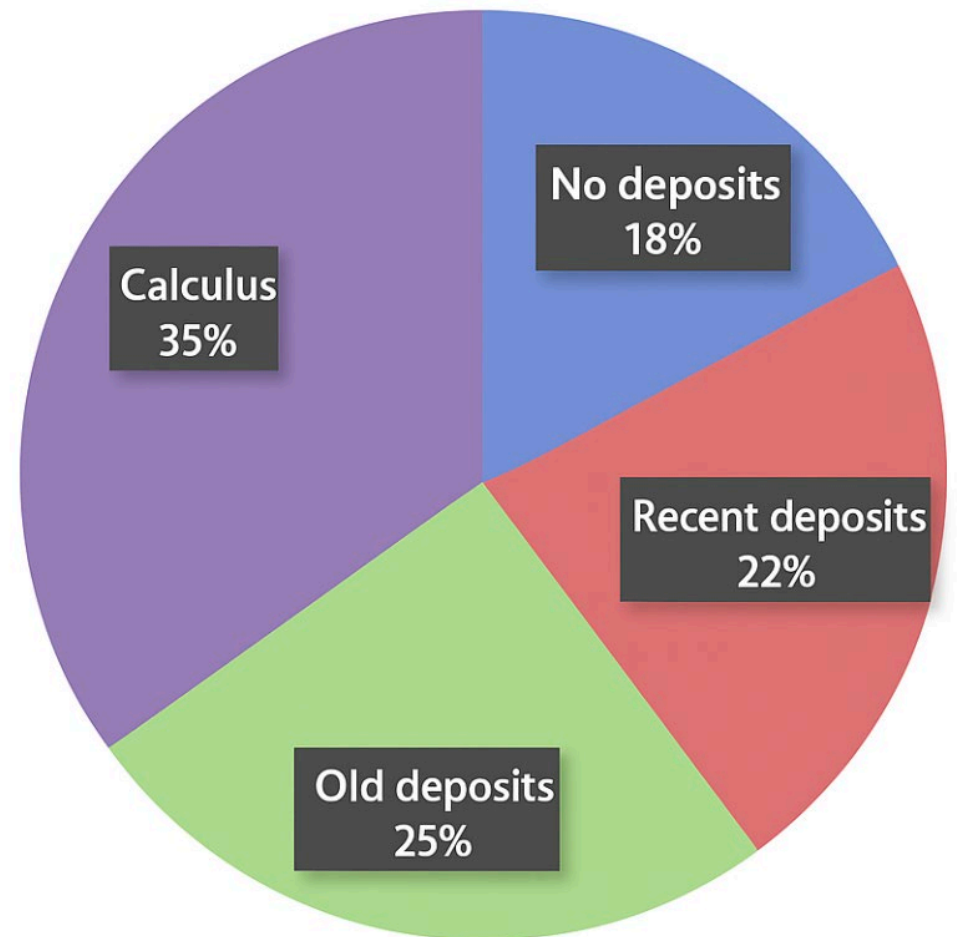


The level of prosthesis hygiene

Maxillary Denture Hygiene Level

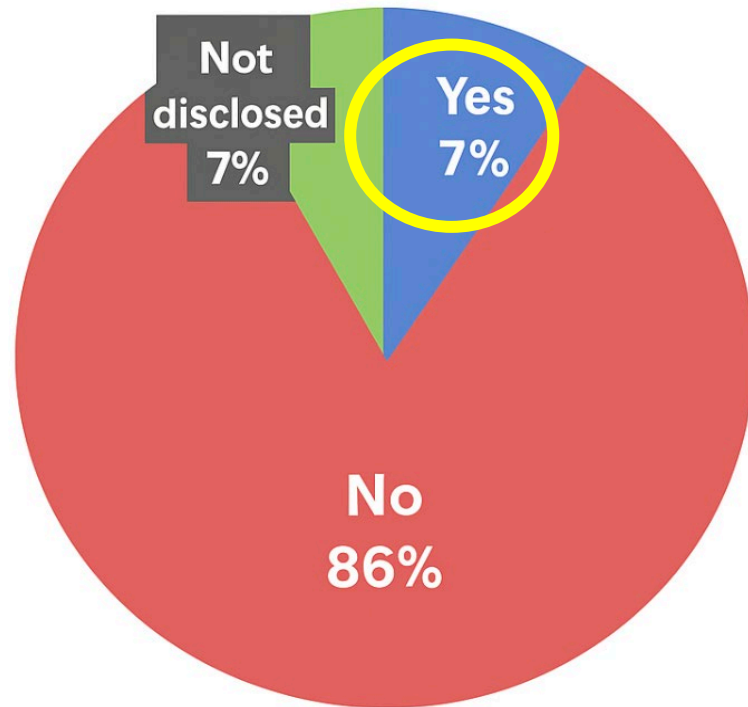


Mandibular Denture Hygiene Level

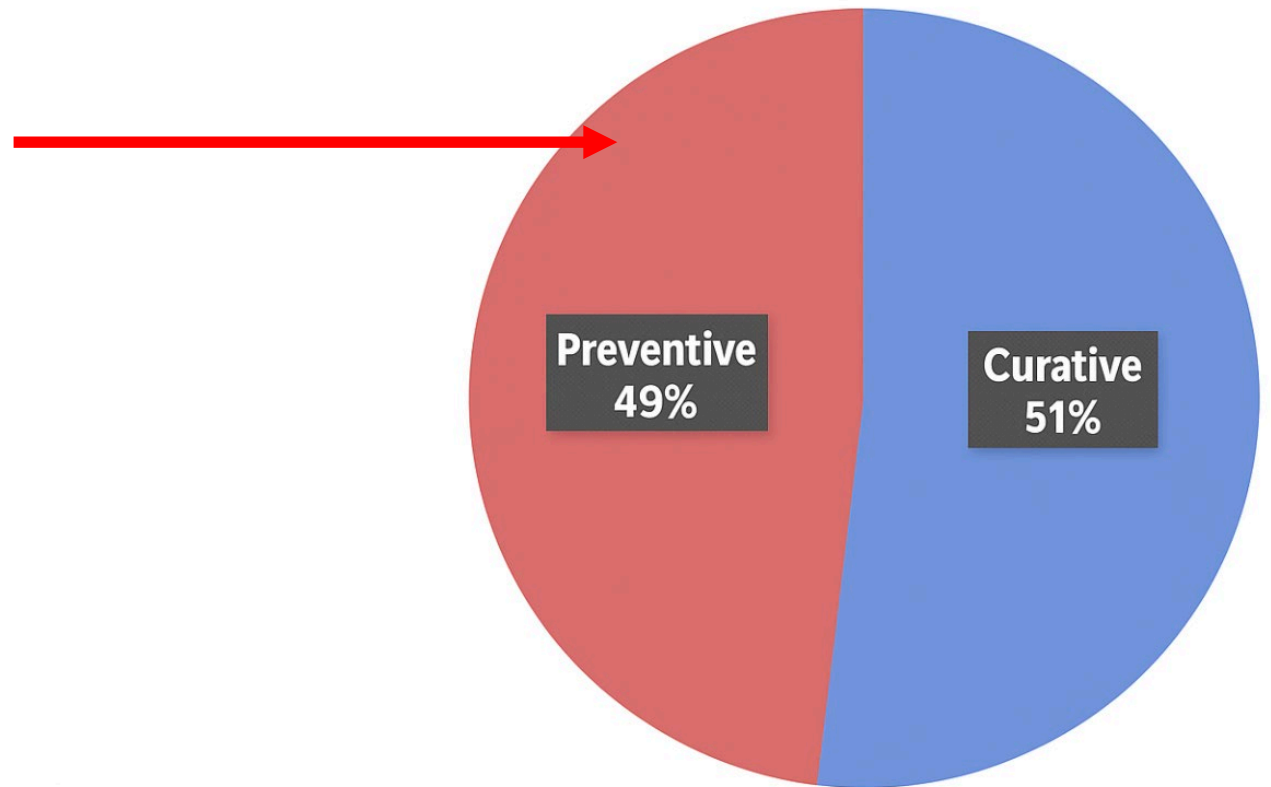


Dental visits

Visit to the dentist during the last year

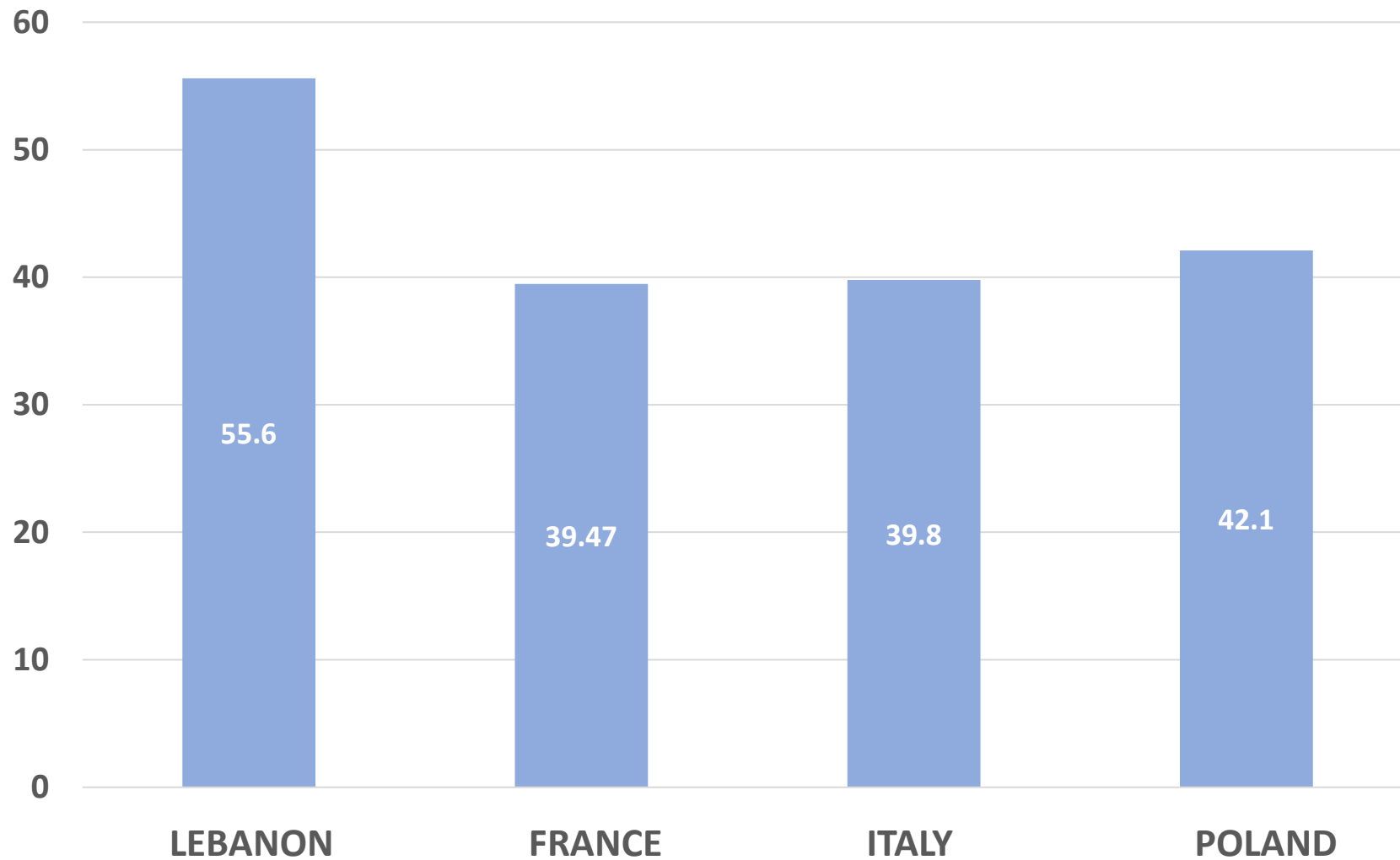


Reason for visit

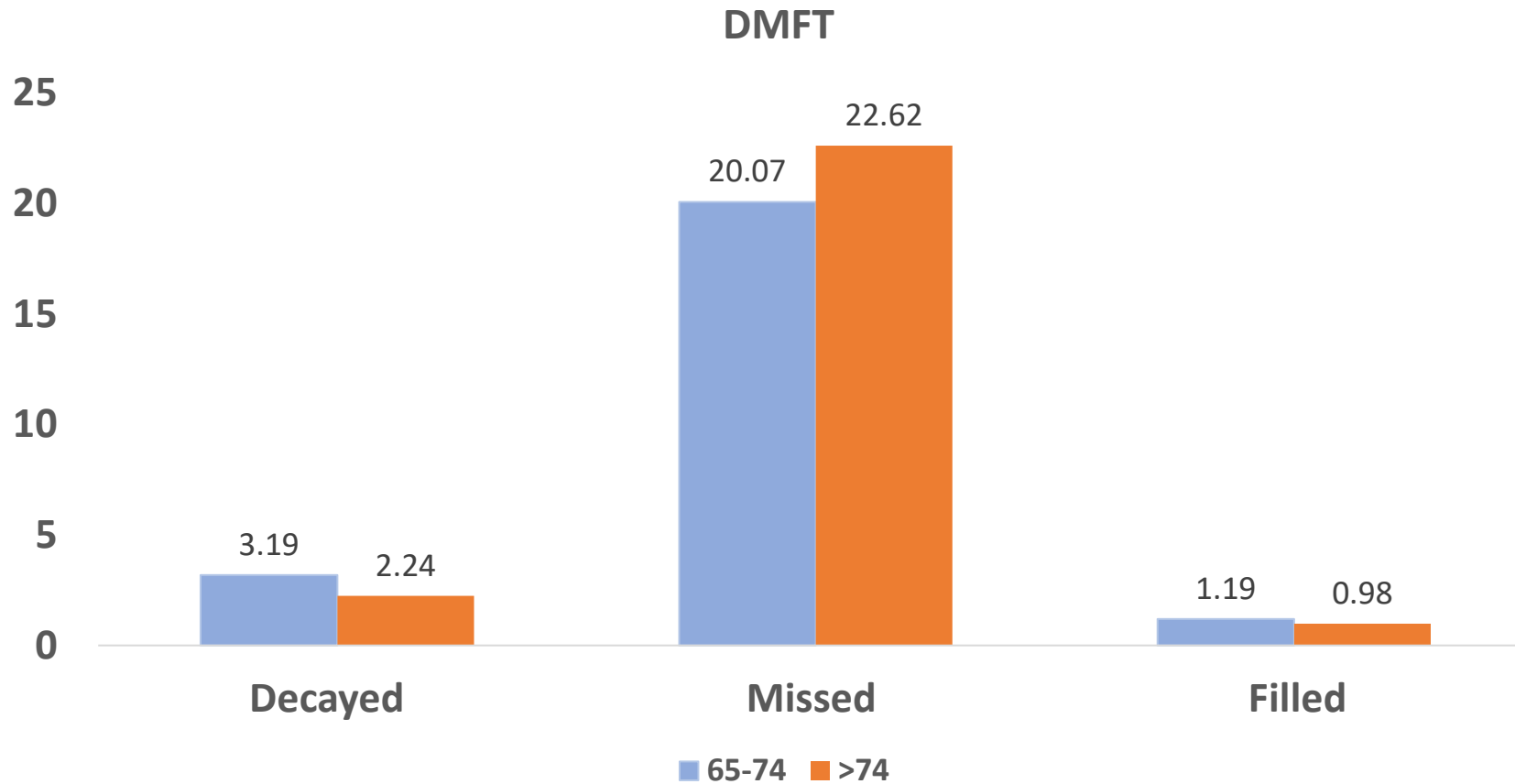


EDENTULOUS SUBJECTS

Percentage of edentulous subjects by country



DMFT INDEX



SMOKERS

LEBANON

15,8%

EUROPE

4%

**PS: HIGHER RATES OF CHRONIC
DISEASE**

**PS: SIMILAR PERCENTAGE OF
COGNITIVE IMPAIRMENT**

Vetrano, D. L., Collamati, A., Magnavita, N., Sowa, A., Topinkova, E., Finne-Soveri, H., van der Roest, H. G., Tobiasz-Adamczyk, B., Giovannini, S., Ricciardi, W., Bernabei, R., Onder, G., & Poscia, A. (2018). Health determinants and survival in nursing home residents in Europe: Results from the SHELTER study

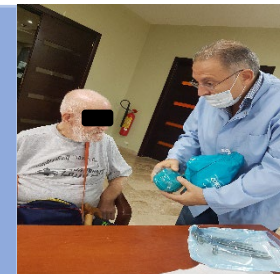
Dental care in institutions

The care provided in Lebanese geriatric institutions is mainly extractions, with a very low percentage of restorative or prosthetic treatments (filled teeth: 1.1 ± 3)



Unmet needs for dental and prosthetic treatment were detected in **57% of the sample**. **Only 7.0% of the population** reported having had a dental consultation in the **past twelve months** and **only one of the 23 establishments had a dental clinical service**.

The elderly living in Lebanese geriatric institutions suffer from poor oral health due to inadequate OHP practices.



National Action Plan

Staff Training	<ul style="list-style-type: none">• Teaching of gerontology and gerodontology in the curriculum of all health professionals: physicians, dental surgeons and nurses• Continuous training of all professionals to maintain updated knowledge
Education of residents and families	<ul style="list-style-type: none">• Motivation and education programmes for oral health using educational resources adapted to elderly people• Meetings with families to promote prevention and care approaches

National Action Plan

Creation of an oral health care coordinator as a main action

- Monitoring the application of hygiene protocols.
- Supporting care teams in this process (acquisition of materials, creation of educational documents, etc.).
- Communication with families.
- Fast appointment scheduling with a professional in case of emergency.
- Verification of care delivery by professionals.

National Action Plan

Regular assessment of care needs

- *Dental examination at entry to the establishment to know particular needs in terms of oral care (existence of dentures for example).*
- *Use of professionals for screening with also preventive care.*
- *Possibility of mobile cases for minor and emergency care*
- *Guidance to nearby dental practices.*
- *Guidance to hospital environment for care-under general anesthesia*

Use of new technologies

- *Teleconsultation or tele-expertise with via specialized applications on mobile phone, to monitor residents' oral health remotely with the help of specialists*

PUBLICATIONS

Article

Prevalence of Oral Mucosal Lesions Among the Institutionalized Elderly Population in Lebanon

Antoine Choufani, DDS, DES, DESS, DUCIA¹, Marysette Folliguet, PU-PH, HDR^{2,3}, Nathalie Chahine, PhD⁴, Sahar Rammal, DDS, DES, DESS, DU⁵, and Mounir Doumit, DCD, DSO, HDR¹

Abstract

This study aimed to determine the prevalence of oral mucosal lesions and risk factors among the institutionalized elderly Lebanese population. A representative sample of 526 individuals (49% males and 51% females) aged 65 years and above was examined. A questionnaire and clinical examination were administered. Bivariate and multivariate regressions were carried out. The frequency of oral mucosal lesions was 22.8% and it was associated to the use, integrity ($p < .002$), and hygiene level ($p < .047$) of removable mandibular and maxillary prosthesis. Multiple regression analysis also predicted the relationship between the mandibular prosthesis hygiene level and the occurrence of mucosal lesions. The factors controlling the occurrence of oral mucosal lesion were mainly related to the level of oral care given to the individuals. Therefore, a proper oral health care system should be implemented in the Lebanese residential homes to ensure the well-being of the residing population.

Keywords

denture hygiene, elderly, institutionalized population, oral mucosal lesion

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Introduction

The aged population has been increasing in number worldwide (United Nations, 2015). The same trend is observed in Lebanon, where the elderly population has increased from 4.9% in 1970 to 10% in 2007 (El Osta et al., 2015).

Chronic diseases, physical and mental disabilities, and other comorbidities are highly prevalent in the elderly population (Ararom et al., 2017). In this context, the oral health of this population has suffered a lot of attention in dentistry (Miyazaki et al., 2017). More specifically, the oral mucosal health is essential for the well-being of the elderly as a poor oral mucosa status increases permeability to chemicals, carcinogens, and pathogens. The oral mucosa becomes vulnerable to lesions with age because of the decrease in collagen synthesis and slow regenerative rate (Abu Eid et al., 2012). In addition, weakening of the immune defense against pathogens with age increases the risk of developing lesions in the oral cavity (Dundar & Ilhan Kal, 2007; Maruri et al., 2014). Various factors influence the oral mucosal health such as habits (smoking, alcohol drinking, etc.), prosthesis use, hygiene level, systematic diseases, and medication usage.

According to Wood and Goaz (1997), the normal oral mucosa in Caucasians ranges from dark to pale pink, and changes in color reflect an altered integrity. Mucosal lesions vary between white, red, yellow, brown, blue, and black; each color indicating a condition that could range from an insignificant anomaly to a life-threatening disease. For example, red mucosal lesions may be caused by mechanical, thermal, chemical trauma, infection, or auto-immune diseases. These conditions may cause the thinning of the epithelial and an increased vascularity, resulting in a red mucosal lesion. On the contrary, factors such as caustic chemicals, fungal infections, and malignant transformations may cause white oral lesions, because of accumulation of nonkeratinized material or to

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Original Research

Oral Health Status and Care of Institutionalized Elderly Individuals in Lebanon

Abstract

Background: Oral health of the elderly is a major public health challenge. Data on oral health and dental care of the institutionalized elderly is lacking in Lebanon. **Aims:** (1) Assess the oral health of Lebanese people aged 65 years and over living in residential facilities, and (2) identify factors associated with poor oral status. **Materials and Methods:** A sample of 526 nursing home residents aged 65 years and older was randomly selected from 46 residential facilities. Information collected were sociodemographic characteristics, degree of autonomy regarding toilet use and nutrition, presence of chronic diseases and medications, dry mouth sensation, dental brushing, access to oral health and reasons of dental visits. A structured oral examination was conducted to gather data on DMFT index, oral hygiene indices modified gingival index, and the unmet need for prosthesis. Statistical methods included bivariate and multivariate analyses. **Results:** 55.9% of the participants were elders, 41.4% used partial and/or complete dentures, and the minority used dentures with good hygiene. 15% of the dentate sample reported regular tooth brushing, 7% reported to have visited the dental office in the past 12 months, and 57% presented an unmet need for prosthesis. Oral health status was significantly related to age, smoking, daily tooth brushing, and autonomy ($P < 0.05$). Subjects with chronic diseases and consuming medications were more likely to have xerostomia. **Conclusion:** Oral health status is poor in the elderly institutionalized Lebanese population, which should promote a multidisciplinary team sharing responsibility for daily oral hygiene and access to dental treatment.

Keywords: Access to care, institution, Middle Eastern country, older people, oral health

Introduction

The world's population is aging; in Europe, more than 19% of the population is older than 65 years, compared to 16.3% in the United States and 27% in Japan.^[1] In Lebanon, the proportion of people aged 65 years and older is estimated to be more than 10%.^[2,3] In 2025, this population is expected to include more than 630 million of people worldwide, due to the decline in birth rate and the decrease in mortality rate.^[4,5]

Oral health of the elderly is a major public health challenge. They have important oral health problems with disparities related to socioeconomic conditions, mental impairments, and access to oral health services.^[6] A poor oral health status affects the quality of life and the ability to eat, communicate, and socialize. Moreover, pathological microorganisms present in

saliva, on denture and teeth may be inhaled and cause pneumonia, the most common cause of mortality in frail people.^[7,8]

Living at home or in long-term facilities can influence the use of care and the patients' perception of their oral health status.^[9] In developed countries, poor oral health of institutionalized older people has been attributed to the inability to achieve proper oral hygiene and to the lack of dental care consumption in comparison to those living at home.^[10] A great percentage of institutional residents do not have the functional or cognitive abilities to practice oral care independently and must rely on their nurses to help them maintain good oral health.^[11] They corroborate about the need to increase awareness of nursing staff and their responsibilities to assume the daily oral hygiene for patients unable to do so for themselves.^[12,13] This action could decrease the risk of infections, improve the quality of life, and in turn increase the life expectancy.^[14]

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