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Perception of the need for prosthetic rehabilitation of edentulous patients in Yaoundé

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Abstract

General objective: The main objective of this study was to characterize the perception of the need for prosthetic dental rehabilitation among edentulous patients in Yaoundé.

Methodology: A descriptive Knowledge, Attitudes, and Practices (KAP) study was conducted over nine months in four healthcare facilities (private secular and religious, and public) in the city of Yaoundé. Data collection was carried out using a questionnaire administered to edentulous participants who had given their informed consent. Data processing was performed using IBM-SPSS version 25.0 statistical analysis software.

Results: A total of 235 participants were included, with a predominance of females (53.2%). The most represented age group was 18-28 years. Most participants were employed (48.9%), had a monthly income below the guaranteed minimum interprofessional wage (39.6%), and had more than two missing teeth (40.4%). The majority of participants (39.1%) had a low level of knowledge about dental prosthetics, almost all participants (88.1%) held incorrect attitudes, and their practices were predominantly harmful (46%).

Conclusion: The perception of edentulous patients is influenced by numerous factors, such as knowledge and the cost of prosthetics, which impact attitudes and practices.

Keywords: Perception; Prosthetic Rehabilitation; Edentulous Patients

1. Introduction

Prosthetic dental rehabilitation is a dental treatment aimed at restoring the function and aesthetics of the entire mouth through the use of dental prostheses. Tooth loss causes resorption of the remaining alveolar ridge, leading to a decrease in chewing capacity, consequently affecting food intake, nutritional status, and the resulting sense of aging, thus compromising overall health [1]. The need for dental prostheses varies from patient to patient depending on their age, sex, profession, financial situation, and level of education. An individual's acceptance or adaptation to a dental prosthesis depends on various factors, but above all on their attitude towards prosthetic treatment [2]. A 2018 study in India reports that of those surveyed, 55.7% had sufficient knowledge about dental prosthetics, while 44.3% had insufficient knowledge [3]. Similarly, a 2019 study conducted in Saudi Arabia reported that 42.7% of respondents held inaccurate knowledge, 39% held harmful attitudes, and 49% engaged in harmful practices regarding dentures. A significant link was established between knowledge and attitudes. A significant association was also found between attitudes and gender, practice and the number of teeth lost. Finally, a significant link was equally observed between age, gender, socioeconomic status, and knowledge [2]. In a 2011 study conducted in Senegal, researchers found that of the 81.8% of patients diagnosed with a need for dental prostheses, only 55.3% expressed a need to obtain them. Financial constraints remained the main obstacle to dental rehabilitation for these patients [4]. A prior study conducted in

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Cameroon reports that 50.8% of the population had a need for dental prostheses [5]. The problem related to the prevalence of edentulism has most often been addressed. However, despite the existence of dental prostheses to address this problem, this silent condition continues to have negative repercussions on the well-being of those who suffer from it within our population. We therefore carried out this study to characterize the perception of the need for dental prostheses among edentulous patients in Yaoundé.

2. Materials and methods

2.1. Study design and setting

We conducted a cross-sectional descriptive study of knowledge, attitudes, and practices (KAP) in four (public, private secular, and private faith-based) healthcare facilities in the city of Yaoundé. The study took place over a nine-month period, from November 2024 to July 2025. Sampling was consecutive and exhaustive. Our sample size was 235 patients. Included were male and female edentulous patients, with or without dentures, aged 18 years or older, who had given informed consent to participate in the study. We excluded patients with only wisdom teeth missing, those with contraindications to denture placement, and those who withdrew their informed consent. The data collection tool was developed based on a technical sheet already established in a study conducted in Saudi Arabia; we were able to create our own technical sheet using the same model and questions.

2.2. Data collection and statistical analysis

Data collection then took place in the dental departments of the study sites. Patients were approached in a waiting room after their initial consultation. At the end of each set of questions (knowledge, attitudes, and practices), an overall assessment of the level of knowledge, the quality of attitudes, and the quality of practices was established. The collected data were analysed using SPSS version 25.0. Associations between variables were assessed using Spearman's rank correlation coefficient, given that the data did not follow a normal distribution. For all these tests, a 95% confidence interval was used, allowing for a margin of error of 5%, and a p-value < 0.05 was considered statistically significant when analysing associations between variables. The results were presented as scores, in tabular and graphical formats. These graphs were created using Excel 2010.

3. Results

3.1. Socio-clinical characteristics

In our study, we included 235 edentulous patients (with or without dentures).

3.2. Age and gender

The majority of participants were female (53.2%) with a sex ratio (M/F) of 1.13. The most representative age group was [18-28 years[. (Table 1)

Table 1 Distribution according to gender and age

variables	Category	Number of employees (N=235)	Percentages (%)
Gender	Male	110	46.8
	Female	125	53.2
Age	[18-28 years old[	78	33.2
	[28-38 years old[	57	24.3
	[38-48 years old[	32	13.6
	[48-58 years old[	15	6.4
	>58 years old	55	23.4

3.3. Occupation, monthly income, number and group of teeth lost

Most of the participants were employed (48.9%), had a higher level of education (51.1%), a monthly income of less than 43,969Fcfa (39.6%) and more than two lost teeth (40.4%) mostly in the posterior teeth (59.1%). (Table 2).

Table 2 Distribution according to occupation, monthly income, number and group of teeth lost

variables	Category	Number of employees (N=235)	Percentages (%)
Occupation	Unemployed	65	27.7
	employee	115	48.9
	retirement	55	23.4
Monthly income (CFA francs)	<43,969	93	39.6
	43,969-100,000	78	33.2
	>100,000	64	27.2
Number of teeth lost	One	62	26.4
	Two	47	20
	More than two	95	40.4
	A hemi arcade	7	3
	An arcade	8	3.4
	The two arches	16	6.8
Group of teeth lost	Posterior	139	59.1
	Previous	48	20.4
	Intermediate	48	20.4

3.4. Knowledge, attitudes and practices

3.4.1. Knowledge of the different types of dental prostheses

More than half of the participants (57.4%) acknowledged dental prostheses as a medical resource. Removable dental prostheses were less unfamiliar (56.2%) compared to fixed prostheses (63%). Data relating to the types of dental prostheses are presented in table 3 below.

Table 3 Known types of dental prostheses

Variables	Category	Number of employees (N=235)	Percentages (%)
Fixed prosthesis	I don't know	148	63
	Hard pink dentures (made of resin)	24	10.2
	Transparent pink dentures (Valplast)	23	9.8
	Screw into the bone (implant)	40	17
Removable prosthesis	I don't know	132	56.2
	Multiple crown (Bridge)	8	3.4
	Unitary crown	8	3.4
	Hard pink dentures (made of resin)	87	37

3.4.2. Attitudes towards the need for dental prostheses

The majority (60.4%) agreed to replacing teeth with removable dentures, while only 43.8% preferred fixed prostheses (bridge). Implants, on the other hand, received 33.2% of patients' favourable opinions. These attitudes are illustrated in figure 1 below.

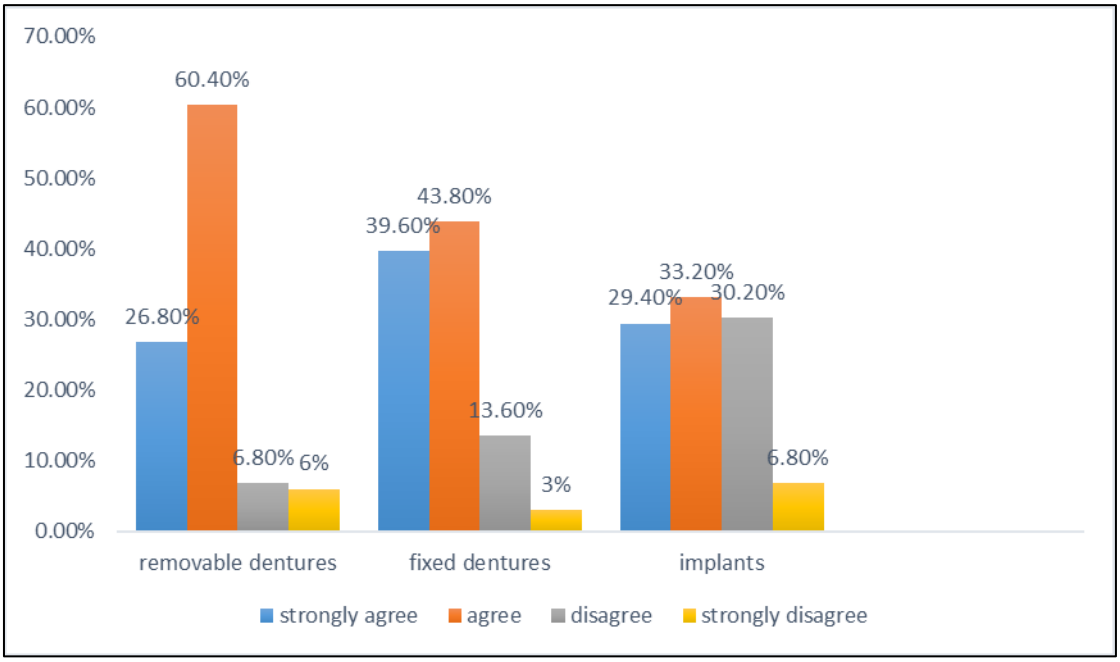

Figure 1 Attitudes towards the specific need for a type of prosthetic rehabilitation

3.5. Prosthetic rehabilitation practices

Our study shows that 76.4% of participants were rehabilitated with a removable denture. The following table illustrates this distribution. (Table 4)

Table 4 Type of prosthetic rehabilitation performed

Variable	Number (N=235)	Percentage (%)
No prosthesis	46	14.9
Removable dentures	124	76.4
Fixed dentures (tooth-supported)	34	5.5
Implant-supported	31	3.1

3.6. Overall analysis of scores related to knowledge, attitudes, and practices in prosthetic rehabilitation

Analysis of the overall level of knowledge, attitudes, and practices revealed that the majority of participants had a low level of knowledge about dental prosthetics (39.1%), erroneous attitudes among almost all participants (78%), and predominantly harmful practices (46%). (Table 5)

Table 5 Scores of knowledge, attitudes and practices on prosthetic rehabilitation

variables	Category	Number of employees (N=235)	Percentages (%)
Knowledge	Low (less than 25%)	92	39.1
	Insufficient (25%-50%)	40	17
	Average (50%-75%)	24	10.3
	Good (Over 75%)	79	33.6
Attitudes	Harmful (less than 25%)	9	4
	erroneous ([25%-50% [])	183	78
	approximate ([50%-75% [])	19	8
	Fair (Over 75%)	24	10
Practices	Harmful (less than 50%)	108	46
	Inadequate (50%-75%)	24	10.2
	Adequate (Over 75%)	103	43.8

3.7. Correlation between knowledge, attitudes, and practice regarding dental prosthetic needs using the spearman correlation test

In the present study, participants' knowledge of dental prosthetics had a significant correlation (P<0.001) with attitudes and practices. (Table 6)

Table 6 Spearman correlation of the influence of knowledge on attitudes and practices

variables	Knowledge		Attitudes		Practices	
	r	P	r	P	r	P
Knowledge	-	-	0.377	<0.001	0.33	<0.001
Attitudes	0.377	<0.001	-	-	0.344	0.113
Practices	0.333	<0.001	0.344	0.113	-	-

4. Discussion

4.1. Socio-clinical profile

We included a total of 235 edentulous participants, with or without dentures, in our study. The majority of participants were female (125, 53.2%), with a male-to-female ratio of 1.13. This result is similar to that found in a study conducted in Hail City in 2018, in Riyadh in 2019, in Senegal in 2010, and in Songadh and Amargadh in India in 2014 [2, 4, 6, 7], where most participants were women. In contrast, in Jazan in 2016 and Gurugram in 2021 [8, 9], males were more represented. This difference could be explained by the fact that women in our context were more concerned about their oral health and the consequences of edentulism.

The most represented age group was 18-28 years, at 33.2%, with a mean age of 35.17 ± 13.34 years. This result is similar to that found in a 2010 study in Senegal, which revealed a mean age of 37.7 ± 14.5 years [4]. However, in a 2021 study conducted in Gurugram, the highest percentage of subjects was in the 35-44 age group (35.06%) [10]. This could be explained by the fact that young adults are increasingly concerned about their oral health, especially its aesthetic and functional aspects.

Half of the participants had a higher education level (51.1%). This result is similar to a study conducted in Hail City in 2018 where most participants held a bachelor's degree (107, 58.5%) [11]. A 2014 study in India also found that most participants had a higher education level [12]. This could be explained by the fact that people with a higher level of education have a better understanding of the need for prosthetic rehabilitation and better health-seeking habits.

The average number of teeth lost was 2.57, predominantly in the posterior groups (59.1%). These results are similar to those of a 2016 study conducted in Jazan, with more posterior tooth loss 32.73% (144), compared to anterior tooth loss 21.59% (95) [8]. However, a 2014 study in India revealed that tooth loss was predominantly in both arches (61.4%), with 10.3% in the maxilla and 28.3% in the mandible [9]. This could be explained by the fact that patients are more concerned about aesthetics, and posterior teeth do not play this role.

4.2. Knowledge, attitudes and practices regarding the need for dental prosthetics

4.2.1. Knowledge of the different types of dental prostheses

Dental prostheses can be either fixed or removable. Most participants had more knowledge of removable prostheses (37%). Only 17% of participants were familiar with fixed prostheses. These results are similar to those of the study conducted in Jazan in 2016, which revealed that out of 467 individuals, 410 (87.79%) were familiar with complete dentures, 42.83% (200) with removable partial dentures, 36.40% (n=170) with fixed partial dentures, and 10.71% (n=50) with implants [8]. This could be explained by a strong recognition of traditional techniques, particularly partial and completely removable dentures, while solutions such as bridges and implants remain relatively unknown, possibly due to their higher cost and the specialization required for their placement. This results in the widespread distribution of these removable prostheses within the population, thus increasing their visibility.

4.2.2. Attitudes towards the need for dental prostheses

Regarding attitudes towards the specific need for a particular type of prosthetic rehabilitation, the majority of participants (60.4%) agreed with replacing teeth with removable dentures, while only 43.8% agreed with fixed prostheses (bridges) and just 33.2% agreed with implants. Similar results were found in a 2018 study conducted in India, where 20.2% of participants considered removable dentures the best method for replacing missing teeth. The same study also revealed that 42.5% of the study population had a positive attitude towards fixed prostheses and considered them a better method for replacing missing teeth, while 15.6% held a positive view of implants [9]. A 2014 study in Germany revealed that removable dentures are associated with a more negative perception, especially among the elderly [13]. Similarly, a study conducted in Kerala, India, found that all participants preferred fixed dentures [14]. In Jazan in 2016, 57.82% (270) of individuals were positive and planned to replace their missing teeth. Most of them were willing to replace missing teeth with a complete denture (62.44%, 123/272), compared to 50.25% (99/272) for a removable partial denture and 25.38% (50/272) for a fixed partial denture. Interestingly, no participant preferred to replace their missing teeth with implants [15]. This may be explained by the fact that removable dentures have been around for much longer, while the novelty and complexity of implant placement probably lead to mistrust among patients. In addition, studies conducted in Pakistan in 2014, 2015, and 2016 revealed that 58.35% of patients had a positive attitude towards fixed prostheses (bridges), followed by removable prostheses, and finally implants [16-19]. Furthermore, a 2018 study in India [9] showed that 58.35% of patients had a positive attitude towards replacing missing teeth, regardless of the type of dental prosthesis.

4.2.3. Prosthetic rehabilitation practices

Regarding the type of prosthetic rehabilitation performed, of the 54% who consulted an oral surgeon for prosthetic reasons, 76.4% received rehabilitation with removable dentures, 5.5% with fixed prostheses, and 3.1% with implants. 14.9% did not receive rehabilitation, with lack of money being the primary reason (89.5%). Fear of appliances was cited by the remaining 10.5%. A study conducted in Senegal revealed that the reasons for not getting dentures were financial in 27.7% of cases, phobia in 8.7%, lack of discomfort in 27.7%, lack of time in 21.2%, and neglect in 4.9% [4]. Another study conducted in Pune City, India, in 2022 revealed that the main reason for not getting dentures was the high cost of dental prostheses, cited by 56.2% [20]. Similarly, an earlier study conducted in Cameroon in 2016 equally found that the reasons for not getting dentures were financial in 27.7% of cases, phobia in 8.7%, lack of information in 17.4%, lack of discomfort in 27.7%, lack of time in 21.2%, and neglect in 4.9% [12]. Other studies conducted in India in 2010 and 2013 indicated that implants were not a viable solution [21-23].

4.2.4. Overall analysis of scores related to knowledge, attitudes, and practices in prosthetic rehabilitation

In this study, the analysis of the overall level of knowledge, attitudes, and practices reveals that a majority of participants had a low level of knowledge about dental prosthetics, erroneous attitudes among almost all participants, and predominantly harmful practices. These results are similar to those found by Mansour et al. [2], where their participants equally had low knowledge, attitudes, and practices. Similarly, Reddy et al. and Gupta et al. equally reached the same conclusion [3, 24].

4.2.5. Correlation between knowledge, attitudes and practices regarding the need for dental prosthetics

In our study, participants' knowledge of dental prosthetics had a significant correlation with attitudes and practices (P<0.001). This result is similar to that of the study carried out in 2019 in Riyadh (Saudi Arabia) [2] which revealed that participants' knowledge of dental prostheses had a significant correlation with attitudes and practices equally with a P<0.001. This can be explained by the fact that the better the knowledge of dental prostheses, the more likely patients are to decide to consult and thereof gain awareness of the need for dental prostheses.

5. Conclusion

The perception of the need for prosthetic rehabilitation can be influenced by factors such as knowledge, which in turn influences attitudes and practices. It can also be influenced by age, gender, economic status, education level, and the number of missing teeth. Therefore, it is necessary to further investigate these factors in order to raise awareness among edentulous individuals on the need for prosthetic rehabilitation.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of ethical approval

The study was approved by the Institutional Ethics Committee of the faculty of medicine and biomedical sciences, of the University of Yaoundé 1.

Contribution to the authors

All authors contributed to this study. Dr. Bessala Mbilongo Louis Rameaux conducted the fieldwork and wrote the article under the supervision of Professor Essi Marie-José as director and Dr. Mbede Nga Mvondo Rose as co-director. The authors also declare that they have read and approved the final version of the manuscript.

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