

SALUTOGENIC DESIGN PRACTICE AT THE ODONTO-STOMATOLOGY DEPARTMENT OF THE CHU PZaGa ANDROVA MAHAJANGA HOSPITAL

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Abstract

With a view to a new request for improvement of the service and to introduce a salutogenic concept in the service, two studies were carried out in the odontostomatology service of the CHU PzaGA Androva Mahajanga. The first retrospective cross-sectional study focused on the analysis of the department's annual activity reports for three consecutive years, 2019 to 2021, with the objective of identifying the rate of frequentation during the years 2019 to 2021. During this period, no salutogenic design improvements were made. A second retrospective cross-sectional study focused on the analysis of the department's annual activity reports for three consecutive years, 2022 to 2024, with the objective of identifying the rate of frequentation during the years 2022 to 2024. During this period, salutogenic design improvements have been introduced in the service. For both studies, study variables focused on the year of attendance, the age group, and the oral therapeutic offered. During the period of 2019 to 2021, a staff of 690 new users and 1384 therapeutic procedures performed were noted. After analyzing the data, results showed an increase in the number of patients using the service in 2019 (42.18%) and a decrease in 2020 (22.32%). The age group most represented was over 25 years old (59.57%). Users are already familiar with conservative dental care (60.20%). During the period 2022 to 2024, results showed an increase in the number of patients using the service in 2022 (40.12%) and in 2023 (41.88%). The age group most represented was over 25 years old (57.84%). After fitting out the treatment rooms, users are motivated with conservative dental care (50.86%). The population of Mahajanga is already motivated by oral health care, so does generalizing the design salutogenic to the center oral care environment provide the performance of this motivation?

Key words: motivation, dental care, odontostomatology service, salutogenesis, design

1. Introduction

The main aim of salutogenic design is to create an environment and lifestyle that supports health and well-being. Researcher Aaron Antonovsky presented his intuition in the world of health sciences. He made healthcare professionals aware about 'salutogenic' philosophy.

According to this researcher, to establish health, we must first understand all those who generate health. In the field of health, motivating patients to visit a health center is based on the environment created there. The physical condition and technical quality of the health center have an impact on how well it is used. Public health and environmental issues are intimately linked. Preventive action against avoidable diseases is essential to reduce the impact on individuals and the environment [1]. In the face of economic development, hospital users are demanding an ethically favorable environment for their care. Needing a hospital to function properly, it needs high-quality material resources, a healthy and well-organized environment, welcoming and competent staff, and adequate finances. Renovation of premises and equipment using the 5S principle is essential [2]. This study will be a follow-up to our 2019 study on factors influencing the choice of oral health care center by the population of Mahajanga I, Madagascar. The results showed that the type of approach and motivation offered at oral health care plays an important role in motivating patients to choose an oral health care center [3].

The dentistry department at CHU PZaGa has two dental treatment rooms and two dental chairs dating from 1998, all of which are in a state of disrepair. Two retrospective cross-sectional studies were carried out in the odontostomatology service of the CHU PzaGA Androva Mahajanga. First objective of identifying the rate of frequentation during the years 2019 to 2021. During this period, no salutogenic design improvements were made. A second retrospective cross-sectional study focused on the analysis of the impact of the design salutogenic on the use of the service during the years 2022 to 2024. During this period, salutogenic design improvements have been introduced in the service. The aim of this study was to identify the motivation of the users of the odonto-stomatology service of the CHU PZaGa during the period pre-renovation (2019 to 2021) and after the service odontology renovation (2022 to 2024).

2. Material and methods

The study was carried out at the dental service of the PZaGa hospital in Mahajanga. The choice of study site was dictated firstly, by the needing improvement of the department's treatment rooms and equipment, secondly, to motivate popultaion of Mahajanga to visit dental center public. Two retrospective cross-sectional study was caried.

▪ **First retrospective cross-sectional study from 2019 to 2021**

First retrospective cross-sectional study was caried. Focusing on the examination of the annual activity report files of the odontostomatology department for three consecutive years from 2019 to 2021. During this period, the condition of the room and environement has not improved. All

activity report files for the years 2019, 2020, and 2021 available in the department were included in the study. The study focused on the number of users and the number of teeth treated during these three successive years. The sampling method was exhaustive. In total, we counted 690 new users and 1,384 treatments options offering. The study variables focused on the year of attendance, the age group, and the oral health care services offered. Data were collected by reading monthly activity reports. The subdivisions of the care services offered were recorded. These were surgical care, periodontal care, conservative care, complementary examinations, and prescriptions for medication or oral hygiene education. Users were divided according to the age range dictated by the Malagasy Ministry of Public Health. Data were entered using Microsoft Word. Data analysis was carried out using IBM SPSS 22.0 software. Data security was respected.

▪ **Second retrospective cross-sectional study from 2022 to 2024**

Second retrospective cross-sectional study was carried. Focusing on the examination of the annual activity report files of the odontostomatology department for three consecutive years from 2022 to 2024. During this period, the condition of the room and environment has already improved (cf figure 1 and figure 2). The salutogenic design consisted of improving the paintwork in the oral care rooms and renovating the equipment like dental chair and compressor. All activity report files for the years 2022, 2023, and 2024 available in the department were included in the study. The study focused on the number of new users and the number of therapeutic during these three successive years. The sampling method was exhaustive. In total, we counted 1084 new users and 1909 treatments options offering. The study variables focused on the year of attendance, the age group, and the oral health care services offered. Data were collected by reading monthly activity reports. The subdivisions of the care services offered were recorded. These were surgical care, periodontal care, conservative care, complementary examinations, and prescriptions for medication or oral hygiene education. Users were divided according to the age range dictated by the Malagasy Ministry of Public Health. Data were entered using Microsoft Word. Data analysis was carried out using IBM SPSS 22.0 software. Data security was respected.

3. Results

Results focused on different areas.

3.1 Results obtained by the first retrospective cross-sectional study from 2019 to 2021

▪ **Utilisation of the service odontology from 2019 to 2021**

Over three successive years, a total of 690 patients have used the service, and 1,384 therapeutic acts were elaborated in the service. The rate of use of the service in 2019 is increasing, with a proportion of 42.18 %. The number of service users was in decline in 2020, with a proportion of 22.32 % [Table 1].

**Table I : Distribution of dental service new users by year of attendance
view 2019 to 2021**

Year of attendance	n N=690	%
2019	291	42,18
2020	154	22,32
2021	245	35,5
Total	690	100,0

▪ **Age range of users from 2019 to 2021**

Users in the 0–11 months age range represented 0.44 % of our study population. Over the three years (2019 to 2021), only a proportion of 10.57 % were aged of 5 to 14 years. The majority of users were aged 25 years and over a proportion of 59.57% [Table II].

**Table 2 : Distribution of dental service new users by age range
view 2019 to 2021**

Age range	n N=690	%
0 to 11 months	3	0,44
1 to 4 ages	14	2,02
5 to 14 ages	73	10,57
15 to 24 ages	189	27,40
25 years upper	411	59,57
Total	690	100

▪ **Care provided from 2019 to 2021**

About the care allocated, conservative treatments were granted to 60.26% of service users. Surgical care was offered to 22.33% of users. Complementary examinations were required for

2.02% of users. Only a proportion of 0.87% of users have opportunity of parodontology thérapeutic [Table III].

Table III : Distribution of dental service new users by option therapeutic view 2019 to 2021

Therapeutic option	n N=1384	%
Prescription and Oral Hygiene teaching	201	14,52
Conservative Dental care	834	60,26
Surgical care	309	22,33
Periodontal care	12	0,87
Complementary examination	28	2,02
Total	1384	100

3.2 Design salutogène introduced in the odontology service

With the collaboration of Malagasy Ministry of Pyblic Health, the partners oh the University Hospital Profesora Zafisaona Gabriel Androva Mahajanga, the department’s team, the odontology service ha the opportunity of salutogenic paint quality of the room carerenovation and new dental equipment on 2022.



Figure 1 : initiale state of the dental equipement



Figure 2 : installation equipment and wall painting

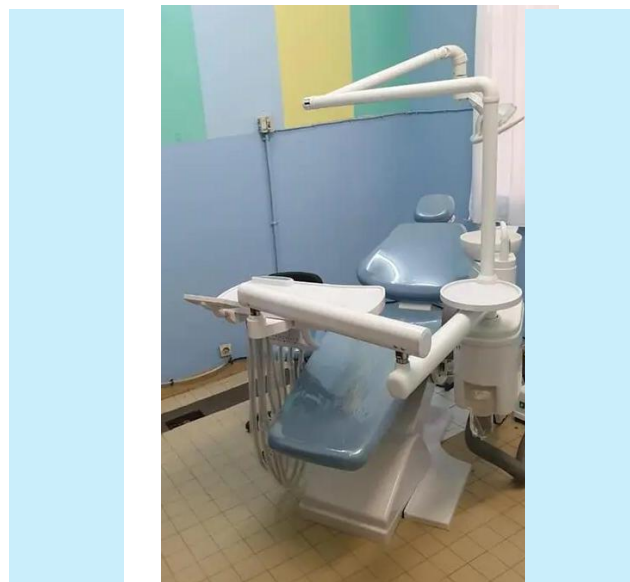


Figure 3 : state of the dental service after design salutogenic

3.3 Results obtained by the second retrospective cross-sectional study from 2022 to 2024

After the renovation, a second retrospective cross-sectional study was carried out from 2022 to 2024. The same study variables were analyzed. The impact of salutogenic renovation was noted. A staff of 1084 new users have been received in the service, and 1909 option therapeutics have been offered to users.

▪ Utilisation of the service odontology from 2022 to 2024

In the years 2022 and 2023, frequentation accrual was notified, with proportions of 40.03% and 41.98%. In 2023, frequentation decreased due to a shortage of anesthetic with suppliers of public dental products [Table IV].

**Table IV : Distribution of dental service new users by year of attendance
view 2022 to 2024**

Year of attendance	n N=1084	%
2022	434	40,03
2023	455	41,98
2024	195	17,99
Total	1084	100

▪ **Age range of users from 2022 to 2024**

Users in the 0–11 month age range represented 0.2 % of our study population. Over the three years (2022 to 2024), only a proportion of 10.23% were aged 5 to 14 years. The majority of users were aged 25 years and over (58.03%). In the years 2022 and 2023, frequentation accrual was notified, with proportions of 40.03% and 41.98%. In 2023, frequentation decreased due to a shortage of anesthetic with suppliers of public dental products [Table V].

**Table V : Distribution of dental service new users by age range
view 2022 to 2024**

Age range	n N=1084	%
0 to 11 months	1	0,1
1 to 4 ages	19	1,75
5 to 14 ages	111	10,23
15 to 24 ages	324	29,89
25 years upper	629	58,03
Total	1084	100

▪ Care provided from 2022 to 2024

About the care allocated, conservative treatments were granted to 50.86 % of service users. Surgical care was offered to 14.93% of users. Complementary examinations were required for 10.17% of users. Only a proportion of 0.1% of users have the opportunity for periodontological therapy [Table VI].

Table VI : Distribution of dental service new users by option therapeutic view 2022 to 2024

Therapeutic option	n N=1909	%
Prescription and Oral Hygiene teaching	457	23,94
Conservative dental care	971	50,86
Surgical care	285	14,93
Periodontal care	2	0,1
Complementary examination	194	10,17
Total	1909	100

4. Discussion

▪ Irregular attendance at the odontostomatology department view 2019 to 2021

The drop in user attendance in 2020 could be due to the COVID-19 pandemic that has been raging in the country. However, during this pandemic, during the periods of periodic restrictions, new users attended the odontostomatology department (22.32%). This explains why oral health is a priority for the population of Mahajanga and why the odontostomatology service has proved so useful. According to CareQuest, the Institute for Oral Health, the spread of COVID-19 and the resulting pandemic have caused major social and economic disruption in many sectors, including dental care [4]. During the epidemic period, the Madagascar Minister of Public Health drew up a plan of action. As soon as the first cases of COVID-19 appeared in Madagascar on 19 March 2020, the government put in place restrictive measures to prevent transmission of the disease in the country [5]. The study performed by Ratsiambakaina D and colleagues reported that access to health facilities during the early stages of the COVID-19 pandemic had an impact on health service users [6]. The number of users of

hospital services depends on its standard of equipment. At the time of our study, the odontostomatology unit at CHU PZAGa was equipped with outdated equipment dating from around 1998, twenty years after it had been in use. Based on the number of consultations in 2021, the average monthly attendance was 32.3 users, around 34 individuals per month ($388/12=32.8$). Visitor numbers can be increased by improving the quality of dental equipment . In terms of communication between patients, the intellectual level of the users and the standard of the equipment have been observed.

▪ **Impact of design salutogenic in the dental service from 2022 to 2024**

The year 2022 marked a milestone for the CHUPZAGa Androva odontostatology department. Since this date of renovation, the department has set out to achieve its objectives. It has managed to receive 1,084 patients [Table IV] over three years, compared with 690 patients over the previous three years. In 2023, frequentation decrease due to shortage anesthetic with suppliers of public dental products [Table IV]. The years 2022 and 2023, frequentation accroissement has notified, with the proportion of 40.03% and 41.98%. Selon les options thérapeutiques consommés par les patients, les soins conservateurs ont été les plus consentis par les usagers, avec une proportion de 50.86%. Par rapport aux trois années précédentes, on constate qu’après la rénovation de la salle et des équipements associée à l’humanisation des soins, les usagers ont été plus motivés des soins conservateurs par rapport à l’extraction dentaire qui a été de 14.93% [figure 4].

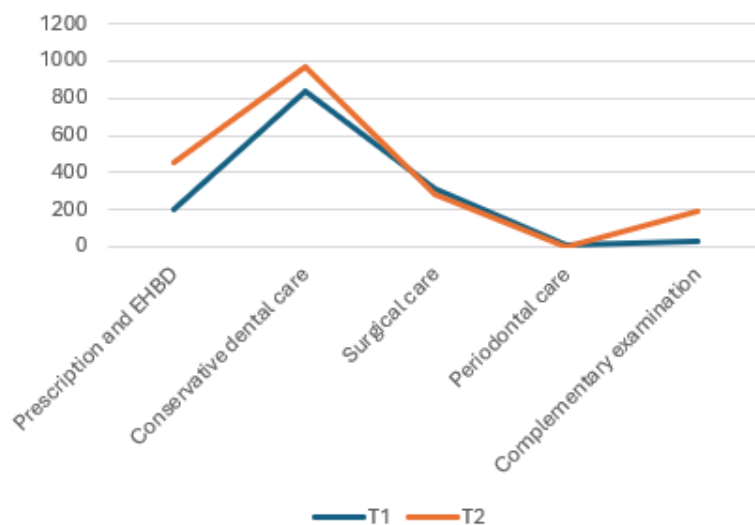


Figure 4 : Comparison of treatment options offered during two periods T1 (2019 to 2021) and T2 (2022 to 2024)

According to Buether A, in 2020, and several other authors, the effects of spatial factors such as color and light extend not only to the perception of architectural space but also to the perception of care. The impression of space in relaxation areas and patients' rooms, described as a 'pleasant atmosphere' by, is a guarantee of more effective care. The evaluation of care measures improved by 28% in patients after the renovation [7, 8, 9, 10, 11]. This concept of salutogenic design will therefore be a factor to be exploited for the motivation of the population for oral health care in Madagascar.

▪ **Age range of service users**

According to Buether A., in 2020, and several other authors, the effects of spatial factors such as color and light extend not only to the perception of architectural space but also to the perception of care. The impression of space in relaxation areas and patients' rooms, described as a 'pleasant atmosphere' by, is a guarantee of more effective care. The evaluation of care measures improved by 28% in patients after the renovation [7, 8, 9, 10, 11]. The majority of the population using the service was aged over 25, with a proportion of 58.03%. This study corroborates the study by Ratsiambakaina D and colleagues in 2016 in Mahajanga on the epidemiological profile of users. of public dentistry in Mahajanga I. In their study, they reported that the age group 25 and over was the most concerned, i.e., 43.2% [12]. In the Haitian context, the age group most frequently using an oral health service was between 26 and 45 years of age [13].

Conclusion

The aim of this study was to identify the motivation of the users of the odonto-stomatology service of the CHU PZaGa during the period pre-renovation (2019 to 2021) and after the service odontology renovation (2022 to 2024). Salutogenic design had an impact on patient motivation. The performance of the odonto-stomatology department of the PZAGa University Hospital is the result of the efforts of its staff working in the renovated physical and technical environment. In the future, it should maintain this performance, taking into account the standard of service, the regular maintenance of equipment and premises, and compliance with the manufacturers' technical specifications. Its staff should undergo continuous training throughout their career. More in-depth knowledge of odonto-stomatology and administration/management should be considered. Other salutogenic concepts should be explored.

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