



Evaluation of Specialized Oral Health Procedures Performed in Brazil in the Period from 2008 to 2012

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Abstract

Objective: To analyze the correlations between the production of specialized dental procedures from 2008 to 2012 and factors related to the services and context of the Brazilian states. **Material and Methods:** A quantitative ecological-type study was developed, in which secondary data from Brazilian national databases were used. Procedures for outpatient production of specialized procedures throughout Brazil, from 2008 to 2012, were consolidated from the offering state, the state of the federation being the analysis unit. In order to collect data on coverage by oral health family teams in the Family Health Strategy, as well as the number of CEOs per state, the Strategic Support Management Room (SAGE) was accessed. The corresponding indicator mean proportion of specialized procedures in Brazil (Pmb) was used as dependent variable. Correlations were tested using Spearman's test. The software was Statistical Package for Social Sciences, v. 17.0, with a level of significance of 5%. **Results:** Pmb was 4.9% for the evaluated period. There was a negative correlation between indicator and the coverage of oral health teams in the family health strategy. **Conclusion:** The correlations analyzed were influenced by the organization and distribution of the professionals' workforce; revealing that the non-organization of the health care network may increase the performance of specialized procedures resulting from spontaneous demand due to the poor basic care coverage.

Keywords: Health Services; Secondary Care; Specialties, Dental; Oral Health.

Introduction

The Federal Constitution of 1988, born from the struggle for the country's redemocratization, brings in its Article 196 "health as a right of all and duty of the State", and in its Article 198 expresses the principles and guidelines of the new health system, the Unified Health System (SUS), among which are Universality, Equity and Integrality of health care [1].

The principle of Integrality understood within its polysemy as the guarantee of the continuity of care in the various levels of technological density of services underlies the need for a continuous construction of the health care network, including Oral Health [2-5]. In the scope of oral health, the insertion of the Dental Surgeon and consequently of oral health in the Family Health Strategy (ESF), which took place through Ordinance No. 1444 of 2000, marked the beginning of the restructuring of the oral health care model. This ordinance was the result of a long process of discussions between dental entities, health councils and professionals, which dates from the end of 1994 [6-7]. However, researches such as the 1998 National Household Sample Survey (PNAD) have been conducted, which pointed out the lack of access to oral health care as a serious problem.

In 2003, after 12 years of governments that adopted policies of neoliberal tendencies in the country, a new presidential administration emerged, which at that moment represented a break in the political-economic process developed in the previous period and a "hope" of advancement in the Sanitary Reform and, therefore, by the institution of a national oral health policy.

In fact, this happened, being recorded in a document [6], which was the expression that oral health had entered the political agenda of the country. Based on this policy, the Family Health Strategy in the scope of Primary Care was expanded and strengthened, and the creation of the Centers of Dental Specialties (CEO) was established as a strategy to expand the offer of specialized dental care. These should be established as a local-regional reference in dental specialties for primary oral health care [6]. Since then, efforts, investments and expansion of the oral health care network have increased significantly, either by the number of oral health teams, or by the number of CEOs deployed throughout the country, improving the access to the system and meeting the demands of the population for services [7,8].

The evaluation and monitoring of health services are important interpretative tools for the fulfillment of the functions of these services in the context in which they are inserted and how such context can positively or negatively interfere in the distribution, implantation, offer, quality and type of service provided, among others aspects. National studies on secondary oral health care services are in the phase of evidence construction [9]. An overview of the main researches shows studies on: analysis of the production of specialized procedures [10,11], with the persistent challenge to the achievement of production goals, understood as evaluation of CEO performance and related factors [12-17]; supply, coverage and use of these services [18-20]; degree of user satisfaction [21]; interface between attention levels [22-24], among others. It is also necessary to evaluate the effectiveness and impact of CEOs.

With the institutionalization of policies and strategies that guide the operationalization and organization of a care model and its expression in health services, the task of evaluating them also arises. In the last decades, initiatives have been growing in Brazil in the sense of institutionalizing health evaluation, as a result of the intention to give rationale to sectoral interventions, although this activity still presents itself in an incipient way, little incorporated into practices, almost always having a prescriptive and bureaucratic character [25].

As a recent initiative to carry out evaluation actions of specialized oral health care, it was implemented through the National Oral Health Policy and Ordinance No. 261 / GM / MS, of February 21, 2013, the Improving Access and Quality of Centers of Dental Specialties Program (PMAQ / CEO) and the Financial Incentive (PMAQ / CEO), called the Quality Component of Specialized Care in Oral Health. The PMAQ / CEO is organized into four phases that complement each other and form a continuous cycle to improve access and quality of services, established as follows: 1st phase - Adhesion and Contractualization; 2nd phase-Development; 3rd phase - External Evaluation and 4th phase - Recontratualization [26].

In this way, the present study aimed to verify and evaluate the correlations between specialized procedures (care) and structure factors, such as quantity of specialists, number of services, coverage by oral health family teams, as well as HDI and the GINI Index.

Material and Methods

Study Design

This is a quantitative ecological study, using secondary data from national systems from different sources. From the conceptual point of view, the registry of procedures considered as specialized in the Outpatient Information System (SIA-SUS) was used as reference, assuming as specialized the technical-scientific density for its achievement as the professional qualification and aggregate technologies.

Secondary data collection was directly performed from database of the Department of Informatics of SUS (DATASUS), information from SIA-SUS. Procedures for outpatient production of specialized procedures throughout Brazil, from 2008 to 2012, were consolidated from the offering state, the state of the federation being the analysis unit.

In order to collect data on coverage by oral health family teams in the Family Health Strategy, as well as the number of CEOs per state, the Strategic Support Management Room (SAGE) was accessed. The number of specialists per state was collected from the website of the Federal Council of Dentistry (CFO). To obtain Human Development Index data, the United Nations Development Program (UNDP) website has been accessed. The Gini Index was obtained through the webpage of the Brazilian Institute of Geography and Statistics (IBGE). These variables were used as proxy variables of the service structure; to contextual aspects related to the health care assistance network; and the states where the services that offer such procedures are located.

The number of specialized procedures was extracted from the outpatient production of the SUS Outpatient Information System (SIA-SUS), based on procedures described in Ministerial Order 1464/2011, for Periodontics, Endodontics and Minor Oral Surgery specialties. This production was taken from the DATASUS website and later, through the DATASUS tabulation software TabWin 3.6, where data of interest were captured.

In all, 54 procedures, five of Periodontics, eight of Endodontics and 41 of Minor Oral Surgery, the Basic Procedures present in the ordinance and that were exclusively intended for special patients were excluded from the sum of specialized procedures since such procedures could mask the real proportion of specialized procedures due to their high rate and impossibility of proving its full use by patients with special needs.

To obtain data regarding Specialized Dental Procedures, a tool was created within the Tabwin software, which made a previous selection and specifically tabulated data of interest. Three tools were used, one for Periodontic procedures, one for Endodontic procedures and the other for Oral Surgery procedures.

For the tabulation of Total Dental Procedures, a selection was made through the Brazilian Classification of Occupations (CBO), and all dental "CBOs" were selected, except those of Legal Dentistry and Audit, because it is known that these professionals do not perform clinical dental field procedures.

Therefore, "CBOs" used were General Clinical Dentist; Endodontist; Stomatologist; Implodontista; Geriatric Dentistry; Pediatric Dentistry; Orthopedist-Orthodontist; Oral Pathologist; Periodontist; Oral and Maxillofacial Protesiology; Protologist, Radiologist; Oral Rehabilitator; Oral and Maxillofacial Traumatologist; Collective Health; Work Dentistry; Dentistry; Dentistry for patients with special needs; and the Family Health Strategy.

The dependent variable of the study was the mean number of specialized dental procedures performed in Brazil from 2008 to 2012.

The Brazil's average proportion (Pmb) was implemented throughout the period from 2008 to 2012, which corresponded to the ratio between the number of specialized dental procedures (Poe) to the number of total dental procedures (Pot), multiplied by 100, performed in Brazil, throughout the study period. This operationalization sought to standardize data in order to minimize variation effects.

$$\text{Dependent variable: Brazil's average proportion (Pmb)} = \frac{\Sigma \text{Qnt of specialized procedures (Poe 2008-2012)}}{\Sigma \text{Qnt of Total Procedures (Pot 2008-2012)}} \times 100$$

Statistical Analysis

Statistical analyses were of descriptive exploratory type with proportions and tables. The correlation of Pmb with the other study variables was tested using the Spearman test, since there was no normality in the variable, and the nonparametric correlation type analysis (Sperman

coefficient) for the independent variables: Number of specialists, Number of CEOs, Population Coverage of Family Health and Oral Health Teams, HDI and GINI Index. For this analysis, 5% significance level, and the Statistical Package for Social Sciences - SPSS version 17.0 (SPSS Inc., Chicago, United States) were used.

Ethical Aspects

The project was approved by the Research Ethics Committee of the Center for Health Sciences of the Federal University of Pernambuco (Protocol No. 723.388) in compliance with the recommendations contained in Resolution No. 466/12 of the National Health Council (CNS).

Results

Data from this study showed that the average of specialized procedures (Pmb) in Brazil in relation to the total number of dental procedures remained around 4.9% in the study period. Table 1 shows the correlation between the constructed indicator (Pmb) and the exploratory variables. A significant and inverse correlation between mean number of specialized procedures and coverage of family health strategy teams ($p < 0.05$) was demonstrated. It could be observed that among the analyzed variables, positive correlations were found between number of specialists registered in the state and all study variables ($p < 0.05$). However, there was no correlation between indicator and number of CEOs, either with HDI and GINI index.

Table 1. Correlation between Mean Proportion of specialized procedures and exploratory variables.

Variables	Mean production of procedures (Pmb)	Number of specialists	Oral Health Coverage in FHS	No. CEO	IDH	GINI
Correlation coefficient p-value (2-tail) N						
Mean Production of Procedures (Pmb)	1	0.046 0.818 27	-0.409* 0.034 27	0.162 0.421 27	0.016 0.937 27	0.061 0.761 27
Number of Specialists		1	-0.475* 0.012 27	0.715** 0.000 27	0.668** 0.000 27	-0.469* 0.014 27
Oral Health Coverage in FHS			1	-0.022 0.913 27	-0.583** 0.001 27	0.205 0.304 27
No. CEOs				1	0.098 0.626 27	-0.258 0.195 27
IDH					1	-0.352 0.072 27
GINI						1

*Correlation is significant at 0.05 level; **Correlation is very significant at 0.01 level.

In the evaluation of the correlations among the other variables, it was possible to observe that the number of specialists (Periodontics, Endodontics, Oral and Maxillofacial Surgery and Traumatology and Patients with Special Needs) negatively correlated with the coverage by Oral

Health Teams (ESB), but positively with number of CEOs. There was a negative correlation between coverage by family health teams and the HDI of states, demonstrating that as the HDI increases, the coverage by oral health teams in the family health strategy decreases.

Discussion

The indicator constructed in this study may be a marker to be used in the monitoring and follow-up of the secondary care in Oral Health in Brazil. No national and international studies that used similar measure were found, or even studies that defined an ideal parameter regarding the proportion of specialized procedures in the amount of the total dental procedures of a region or country. It should be noted, however, that due to the nationally experienced epidemiological profile, there is a need to expand the offer of specialized oral health procedures.

The implantation of Centers of Dental Specialties was constituted as the main strategy of the PNSB in the SUS to guarantee this level of attention; currently the number of these health units exceeds the number of 1000 CEOs in Brazil. This advent also contributed to the expansion of national studies on Secondary Care in Oral Health aimed at these services [9-24,27].

In this study, the use of the indicator demonstrated that the only variable that correlated with the mean number of specialized procedures performed in the country was the coverage of oral health teams in the family health strategy, but it was an inverse relationship - negative correlation (-0.409), that is, in places where coverage was higher, the proportion of specialized procedures was lower.

Three explanations would be considered, the first would be that where the ESB / ESF coverage is smaller, there would be a greater repressed demand where people would seek to solve their problems directly at CEOs. Some studies analyzing the achievement of production goals [12,13] corroborate this idea, since they have demonstrated that in municipalities with ESB / ESF coverage greater than 50%, most CEOs showed poor performance, meeting only one goal stipulated by MS, preferably the Basic Attention goal. In contrast, in municipalities with coverage lower than 50%, the great majority of CEOs (percentages above 70%) achieved good to excellent performances, that is, they fulfilled 3 or all of stipulated goals.

The second explanation would be that in places where ESB / ESF coverage is higher, users would have most of their problems solved in basic care, thus reducing the performance of procedures at CEOs. The third would be that users, where there is more ESB / ESF coverage, would be more 'controlled', having to go through regulatory barriers and queues to access CEOs. These are hypotheses that need to be better studied in the future.

Differently from previous studies [12,13], it was observed in the study [19] that patients up to 35 years of age living in municipalities with FHS coverage greater than 50% were more likely to complete the treatment, in addition, the number of patients who reached secondary care referenced by primary care was high (86.9%), who presented 5.97 times more chances to complete basic

treatment than the others, which also demonstrates that access is facilitated for those who are referenced, and this finding can support the other explanatory ideas raised.

This relationship should transpose the analysis of the offer of specialized oral health procedures for the analysis of the interface between primary and secondary care in oral health. The ideal interface between primary and secondary care in oral health should be: equanimity, whereby correctly identified cases should be referenced without the interpellation of barriers; comprehensive, ensuring access to any level of care when necessary; and effective, ensuring adequate access and satisfactory resolution of problems [28]. Brazilian studies on oral health have been dedicated to studying this subject [22-24].

This is an important point and deserves attention, because primary care, with its wide range of activities offered, should be responsible for ensuring care at other levels of complexity [3-5]. However, it is well known that the great expansion of primary care was not accompanied by the expansion of other levels, and the secondary level of care is pointed out by managers as a major obstacle to SUS consolidation. A study on the medium complexity of health care in the State of São Paulo [29] pointed out as a difficult aspect of access to specialized assistance the increase in the number of return visits for follow-up, a fact that can also be found in specialized dental care [19,30], the lack of a protocol as in the case of endodontics, causes different technologies to be used in the resolution of cases, depending on them, the patient may need a larger number of consultations, which could represent a barrier to the resolution of health problems, as users would be more often 'exposed' to socio-economic-geographical obstacles. In addition, it would impair the access of new patients to the service, since it would keep the user in the specialized service for a longer time, in addition to not performing the service with agility the counter-reference, which is another problem already reported in studies about medium complexity in dentistry.

The results of the present study suggest that there is still an inconsistency between the primary care coverage and the production of specialized procedures, which leads to the belief that a deficient interaction between primary and secondary care remains, compromising the integrality of care as well as a greater and better use of available supply, as evidenced in other studies [18-20,30].

The non-correlation observed in Brazil's average proportion of specialized procedures and the number of CEOs was an intriguing finding (0.162). This may mean that the increase in the number of health units itself and their mere existence do not guarantee access to and the performance of the necessary procedures [6], demonstrating that there may be other components that guide the implementation of these services in addition to the need for structuring health care networks. It should be remembered that there is no possible completeness without the guarantee of access universality [5].

However, in another study when the analysis unit was the municipality, there was an association between the presence of CEO and increased production of specialized procedures (Endodontics, Periodontics and Minor Oral Surgery) [10]. CEOs appear to have a positive effect on

the municipal production of specialized procedures, particularly for the rate of endodontic procedures, and this effect is not explained by structural variables.

The importance of the CEO was also verified in a study carried out in Minas Gerais [11], showing that CEOs are more efficient than other health units ($p < 0.001$), but there is an important percentage that does not meet the goals of the Ministry of Health. Municipalities with CEOs have larger population, more ESB, lower potential coverage and higher HDI. A significant number of specialized procedures are performed, especially in primary care units. CEOs are more efficient than non-CEOs, considering the average number of procedures performed.

The registered amount of professionals in specialties considered essential to the operation of CEOs stands out. Although the work process in the CEO does not require the official registration of specialists, it must be evidenced that there is a complex of specialized training, with a wide range of specialization courses, therefore training and registration of specialists can be a driving force in the implantation of these centers and consequently in the production, and consequently, in the expansion of specialized procedures, even though the latter are not related.

A significant relationship was found between number of professionals in SUS and the production of specialized procedures, but it seems that they explain in part a potential supply of dental procedures, which may or may not be performed [10].

This context related to the issue of human resources opens the focus to possible problems related to the micro space of services and its consequent capacity to perform procedures. The influence that workers can exert on the performance of procedures in oral health services as well as some factors that may be influencing workers is observed.

In a study on CEO professionals and their relationships with work [27], it was demonstrated how changes in the world of labor, mainly represented by the rise of neoliberal ideology, which advocated, among other things, the flexibilization of economy and labor relations, affected the workers and consequently the quality and productivity of services provided. Analyzing flexibilization, the precariousness of conditions and labor relations and the work intensification are used to explain its object. Under the aegis of flexibilization, the required professional qualification is not accompanied by compatible remuneration, associated with unprotected and unstable occupations that shape the reality of the work of the interviewed Dental Surgeons, which may represent the situation of many other professionals, which leads them to seek other links (and / or dual militancy), in addition to causing professional dissatisfaction and disregard for the public service.

This reality undoubtedly contributes to the low quality and productivity of these services, and undermines the implementation, efficiency and effectiveness of CEOs, which are the places where almost all the specialized oral health procedures in the public health services are performed.

In addition, other factors related to the work process may be making it difficult to perform procedures at CEOs. A study that took into account the goals of Ministerial Ordinances 1101/02 and 1571/04 and compared them with the evaluation by experts showed that the goals of experts were above those proposed in ordinances regarding the production of specialized procedures, where the

goals to CEOs are the smallest [18]. It is noteworthy that there is no requirement for the CEO to have the specialist, which could be a limiting factor for a better and greater performance of procedures, also pointed out as one of the obstacles to the organization of health practices at the secondary care level [30].

Moreover, low percentage of the utilization of services in all CEOs was found, having as main barriers to this utilization: the organization of services; the lack of clarity in the proposed standards and targets for the service; constant lack of patients; not replacement of absents; different ways of conducting treatment within the same specialty; underutilization of equipment due to non-compliance with the stipulated workload; in addition to a dual militancy between public and private service [18].

It should be taken into account for the analysis of the results of this study the fact that it was conducted with secondary data and has an ecological design. However, data from the information system are used for the evaluation, monitoring and continuation of financial onlendings at the central level, which may interfere with data recording, either in the above or under reporting. Information systems are official data and have served to several studies that investigate the National Oral Health Policy, with results relevant to our society and for the evaluation, planning, monitoring and reformulation of public policies in the Oral Health area.

Conclusion

A negative correlation was found between the mean Brazilian proportion of specialized procedures and the population coverage by Oral Health Teams of the Family Health Strategy, suggesting that in places with greater coverage, there would be less specialized procedures, placing access to primary health care as one of the barriers for the increase of this production as well as for the fulfillment of the attention integrality.

There is need to adapt criteria and standards for implementation, evaluation and monitoring of existing CEOs as well as the adequate relationship between the demand for primary health care and specialized care, mitigating the barriers between these two levels of care. In this way, the political will, as well as the commitment of politicians, managers, professionals and professional entities is of paramount importance for the expected success of the health system, as well as the deepening in other studies on the issues mentioned here.

PNSB formulators and scholars should then devote themselves to producing evaluation models based not only on the records of procedures in health information systems, but also on the progressive incorporation of on-site evaluation of these health units incorporating the visions of professionals, managers and users.

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