Impact of oral health problems on the quality of life of women with breast cancer

Impacto dos problemas bucais na qualidade de vida em mulheres com câncer de mama

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ABSTRACT

Objective: To evaluate the impact of oral health on quality of life and to examine the association with sociodemographic, clinical staging and dental variables in women diagnosed with breast cancer. **Methods**: This is an observational cross-sectional study with sample composed of 89 women treated at a Reference Hospital in Vitória, Espírito Santo, Brazil, between January and December 2012. Two scripts in the form of interviews were used, one to record participants' information; and the Oral Health Impact Profile (OHIP-14), to evaluate the impacts produced by the oral condition on quality of life. Descriptive analysis of data was performed. The comparison of the percentage of the impact dimensions with independent variables was tested by the chi-square test or the Fisher exact test, when appropriate. To assess the strength of association between exposure and event, odds ratio was calculated. Significance level of 5% was adopted. **Results**: The impact was 28.1%, there was a statistically significant association with variables income (p = 0.039) and reason for the visit to the oral health professional (p = 0.012). **Conclusion**: Studies on quality of life of cancer patients are of fundamental importance for understanding the impact of oral health problems on quality of life.

Indexing terms: Oral health. Quality of life. Disease impact profile.

RESUMO

Objetivo: Avaliar o impacto produzido por problemas bucais na qualidade de vida; e examinar a associação com as variáveis sociodemográficas, odontológicas e de estadiamento clínico em mulheres com diagnóstico de câncer de mama. **Métodos**: Estudo observacional transversal. Amostra composta por 89 mulheres atendidas em um hospital de referência em Vitória, Espírito Santo, Brasil, entre janeiro e dezembro de 2012. Utilizaram-se dois roteiros na forma de entrevista, um para registro das informações das

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participantes; e o Oral Health Impact Profile (OHIP-14), para avaliar os impactos produzidos pela condição bucal sobre a qualidade de vida. Realizou-se análise descritiva dos dados. A comparação dos percentuais das dimensões do impacto com as variáveis independentes foi verificada pelo teste qui-quadrado ou pelo teste exato de Fisher, quando apropriado. Para avaliar a força da associação entre evento e exposição, calculou-se o odds ratio. Adotou-se o nível de significância de 5%. **Resultados**: O impacto foi de 28,1%, houve associação estatisticamente significante com as variáveis renda (p=0,039) e motivo da visita ao profissional de saúde bucal (p=0,012). **Conclusão**: Estudos sobre qualidade de vida em pacientes oncológicos são de fundamental importância na compreensão do impacto dos problemas bucais em sua vida.

Termos de indexação: Saúde bucal. Qualidade de vida. Perfil de impacto da doença.

INTRODUCTION

In Brazil, there is a process of population aging and a situation of transition of health conditions characterized by the relative fall of acute conditions and the increase of chronic conditions [1,2]. With the increase of chronic noncommunicable diseases (CND), cancer has stood out, becoming an evident public health problem worldwide.

Breast cancer continues to be the most prevalent type of cancer affecting women worldwide, both in developing and developed countries [3,4]. According to estimates by the National Cancer Institute (Inca) for Brazil, 59,700 new cases of breast cancer are estimated for each year of the 2018-2019 period, with an estimated risk of 56.33 cases per 100,000 women, and 1,030 new cases only for the state of Espírito Santo [3].

Due to the high incidence of the disease, these patients constitute a special category, requiring follow-up by a multi-professional team in order to prepare them for antineoplastic treatment. Treatment significantly influences the lives of patients and consists of inhibiting the excessive proliferation of neoplastic cells, which may include surgery, chemotherapy, radiotherapy and hormone therapy. In addition, it is inversely correlated with quality of life [5].

Chemotherapy acts in all tissues and can cause various side effects [6]. Of these, oral manifestations are among the most devastating in the short and long term, as they affect the most basic human activities, such as feeding and communication [7].

Studies have reported that 40% of patients with cancer who undergo chemotherapy during treatment will develop oral complications [6,8,9], which may reach 90% of patients [10]. As a consequence, these alterations can lead to important systemic complications, which can increase hospitalization time and treatment costs, directly affecting patients' quality of life and causing severe sequelae [7,10,11].

In this regard, it is important to evaluate the initial oral condition and the possible impact of this condition on the quality of life of cancer patients. Thus, the inclusion of the dentist in the multi-professional team for the early diagnosis of oral manifestations and follow-up in the oncological treatment period is essential, positively increasing the quality of life of cancer patients [10].

Current studies have shown that there is a precarious condition in oral health conditions of the adult and elderly population in Brazil [12,13]. Among the various health aspects, oral health deserves special attention because, historically, dental services do not prioritize attention to this population group, which has high prevalence of caries, periodontal diseases, oral mucosal pathologies and prosthesis needs [3,12].

Quality of life indicators are designed to measure health in a holistic approach, that is, including psychological and sociological aspects that are expressed by subjective feelings. Despite the increasing number of scientific articles focusing on quality of life, how oral conditions affect the quality of life of people is still relatively little known [14]. With the aim of complementing these indicators, Slade and Spencer (15) developed and tested the Oral Health Impact Profile (OHIP) subjective indicator to assess the social impact of oral diseases.

OHIP was originally developed using the conceptual model adapted by Locker [16] and assumes that the quality of life content related to oral health presents seven conceptual dimensions: functional limitation, physical pain, psychological discomfort, physical incapacity, psychological incapacity, social incapacity and disability. It has been the instrument most widely used to evaluate the impact caused by oral conditions on people's well-being and quality of life [17].

The aims of this study were to evaluate the impact of oral problems on quality of life and to examine the possible association with socio-demographic, dental and clinical staging variables in women diagnosed with breast cancer.

METHODS

This is an observational cross-sectional study, with sample consisting of women with histopathological diagnosis of breast cancer treated at the "Santa Rita de Cássia" Hospital (HSRC), Vitória, Espírito Santo, Brazil. HSRC is a general hospital, philanthropic and private, recognized throughout the state as a reference in cancer treatment, but also offers general specialties. HSRC has an oncological center that offers chemotherapy and radiotherapeutic treatment and has complementary therapies, attending patients from the Unified Health System (SUS) and healthcare plans.

The following inclusion criteria were used: women with histopathological diagnosis of breast cancer treated at HSRC aged 18 years or older and who had not undergone previous cancer treatment to avoid interferences in the initial oral clinical measurements.

Independent variables were: socio-demographic characteristics (age, marital status, schooling, race / skin color, socioeconomic condition and income); DMFT index (Decayed Missing Filled Teeth), gingivitis, need for dental prosthesis; use of dental services; and clinical staging.

Socioeconomic condition was classified according to the possession of consumer goods and schooling of the family head into classes A, B, C, D and E, through the Brazilian Economic Classification Criterion [18]. This type of categorization allows comparisons with several national studies. Regarding race / skin color, it was decided to group women into white and non-white. The initial clinical staging followed the American Joint Committee on Cancer classification [19], and clinical stages 0, I and II (initial) and clinical stages III and IV (late) were grouped.

Clinical examination was performed to collect clinical variables dental caries and gingivitis. Dental caries was recorded using the World Health Organization (WHO) methodology.

Gingivitis was diagnosed by the Gingival Index of Löe-Silness, being classified as: Absence of inflammation (Level 0); Mild Inflammation (Level 1); Moderate inflammation, bleeding on exploration (Level 2); Severe inflammation, spontaneous bleeding and ulceration (Level 3).

The dependent variable was the oral health impact profile, measured by OHIP-14, considering its seven dimensions. The instrument has, in its original version, 49 items and a reduced version with 14 items, which are effective in determining the same associations with clinical and sociodemographic factors of the original instrument [20]. Originally developed in the English language and in a different sociocultural context, it has been translated into several languages [17], including transcultural translation and validation for the Portuguese language of Brazil [21].

The researcher herself collected data, using the interview technique with form registration and signing of the Informed Consent Form (TCLE). Information about the clinical staging was collected from patients' medical records. Patients with objective need for treatment were referred to the dental service of HSRC or for care in Health Units.

Two scripts were used: one to record participants' information regarding independent variables; and OHIP-14, to evaluate participants' perception about the impacts produced by the oral condition on quality of life.

For coding the OHIP-14 responses, a Likert-type frequency scale with five options on the frequency of each problem in a given period of time was used. The scale consists of the following options: always, often, sometimes, rarely and never / does not apply. Responses were evaluated in a dichotomous way. Responses "always" and "often" indicate impact on quality of life, and responses "sometimes", "rarely" and "never" indicate no impact on quality of life.

Descriptive analysis of data was carried out using frequency tables and number and percentage for each of the items of the research instrument. DMFT was calculated by mean and percentage of components. The association of dimensions of the impact of oral health and sociodemographic factors and use of dental services was tested by the Chi-square or Fisher's exact test. Significance level was set at 5%. To assess the strength of this association, odds ratios (ORs) were calculated with 95% confidence interval. The Mantel-Haenzsel method was used, which provided combined OR, allowing knowing the frequency of impacts for all combined dimensions. Data were organized in the Microsoft Office Excel 2007 for Windows software and analyzed by the Statistical Package for Social Sciences (SPSS), version 20.0.

The project was approved by the Research Ethics Committee of the Federal University of Espírito Santo (Ufes) under No. 274/11 and authorized by HSRC.

RESULTS

Eighty-nine women who met the inclusion criteria of the study period were evaluated. Table 1 shows the sociodemographic characteristics of participants: the majority aged 50 or more (68.5%), married / stable union (59.6%), schooling up to the 3rd grade of elementary school (36%), and white (64%). Regarding socioeconomic condition, the predominance was class C (57.3%). In relation to income, 61.8% declared income of up to two minimum wages.

About the use of dental services, 44.9% of women sought oral health professionals in the last 12 months, and the reason for consultation was routine care / prevention (65.9%). In the majority of women, prosthesis was needed (60.7%) and 10.1% presented gingivitis to some level. The initial staging was predominant in 71.9% of the sample and there was no data completeness due to the lack of staging information in the medical records of some patients (12.4%) (Table 2).

Table 3 shows that the study participants had more missing teeth (mean of 17.9) than filled and decayed teeth,

Table 1. Sociodemographic characteristics of women with breast cancer, Vitória (ES).

Characteristic	Number	%
Age group		
Until 49 years	28	31,5
50 – 59 years	23	25,8
60 – 69 years	21	23,6
70 years or more	17	19,1
Marital status		
Single	9	10,1
Married / stable union	53	59,6
Separate	7	7,9
Widow	20	22,4
Degree of instruction		
Up to 3rd grade elementary school	32	36,0
Grades 4 through 7 elementary school	20	22,4
Complete primary education	14	15,7
Complete high school	15	16,9
Higher Education	8	9,0
Race / Color		
White	57	64,0
Not White	32	36,0
Socioeconomic condition		
B	17	19,2
C	51	57,3
D	19	21,3
E	2	2,2
Family income		
Up to 1 minimum wage	21	23,6
More than 1-2 minimum wages	34	38,2
2 to 3 minimum wages	10	11,2
3 to 4 minimum wages	10	11,2
More than 4 to 5 minimum wages	8	9,0
6 minimum wages or more	6	6,8
Total	89	100,0

Table 2. General health information of women with breast cancer, Vitória (ES).

Characteristic	Number	%
Looking for professional last 12 months		
CD	40	44,9
Fake professional	1	1,1
Not searched	48	54,0
Reason for professional search		
Urgency	14	34,1
Routine / prevention	27	65,9
Need to use prosthesis		
Need	54	60,7
Don`t need	35	39,3
Gingivitis		
Grade I	7	7,9
Grade II	1	1,1
Grade III	1	1,1
Not	80	89,9
Staging		
0	10	11,2
I	16	18,0
II	38	42,7
III	13	14,6
IV	1	1,1
Ignored	11	12,4

Table 3. Average of the DMFT index components according to demographic data of women with breast cancer, Vitória (ES).

Variable	CPOD				
	Healthy	Carious	Restored	Extracted	Absent
Age group					
Until 49 years	15,6	0,4	5,6	9,2	1,3
50 – 59 years	8,9	0,2	4,2	18,0	0,7
60 – 69 years	5,7	0,1	3,7	21,8	0,8
70 years or more	4,1	0,1	0,3	27,2	0,4
Race / Color					
White	8,3	0,2	4,0	18,5	1,0
Black	11,0	0,6	3,9	16,4	0,1
Brown	11,2	0,1	3,3	16,8	0,6
Socioeconomic condition					
B	9,2	0,1	7,9	13,2	1,6
C	9,9	0,2	2,6	18,7	0,5
D	8,1	0,3	3,3	19,2	1,1
E	6,5	0,5	2,5	22,5	0,0
Family income					
Up to 1 minimum wage	10,5	0,4	2,8	17,4	0,9
More than 1-2 minimum wages	9,3	0,1	2,1	20,1	0,3
2 to 3 minimum wages	6,0	0,0	4,4	20,7	0,9
3 to 4 minimum wages	7,3	0,2	3,6	19,5	1,4
More than 4 to 5 minimum wages	11,1	0,3	7,3	11,3	2,1
6 minimum wages or more	11,8	0,0	11,3	7,8	1,0
Total	9,3	0,2	3,8	17,9	0,8

and that the older the age group, the higher the average number of missing teeth.

The percentage of impact on the quality of life produced by oral problems was 28.1% (General Score). When impact by dimension was evaluated, the results were 5.6% in the functional limitation dimension; 12.4% in the physical pain dimension; 20.2% in the psychological discomfort dimension; 3.4% in the physical disability dimension; 15.7% in the psychological incapacity dimension; 4.5% in the social incapacity dimension; and 6.7% in the disability dimension.

When the OHIP dimensions were analyzed according to income, the results showed a statistically significant difference in the psychological incapacity dimension (p = 0.039) (Table 4).

When dimensions according to the reason for the visit to the oral health professional were studied (Table 5), a statistically significant result was observed in the physical pain dimension for women who sought the dentist for emergency reasons (p = 0.012). Calculating OR for this dimension, women were 9.37 times more likely of having impact when compared to women who sought the dentist for routine / prevention reasons.

The associations between OHIP dimensions and variables age, social class, race / skin color, need for prosthesis and clinical staging were not statistically significant in the present study (p> 0.05).

Table 4. Frequency of impact, by dimension, according to the income of women with breast cancer, Vitória (ES).

Dimension	Until 2 MW		Up to 2 MW		p-valor	Odds Ratio
	nº	%	nº	%		
Functional Limitation						
With impact	3	5,5	2	5,9	0,637	1,083
No impact	52	94,5	32	94,1		0,172 – 6,849
Physical pain						
With impact	6	10,9	5	14,7	0,415	1,408
No impact	49	89,1	29	85,3		0,394 – 5,025
Psychological discomfort						
With impact	10	18,2	8	23,5	0,363	1,385
No impact	45	81,8	26	76,5		0,486 – 3,953
Physical disability						
With impact	3	5,5	0	0,0	0,231	*
No impact	52	94,5	34	100,0		
Psychological disability						
With impact	12	21,8	2	5,9	**0,039**	4,465
No impact	43	78,2	32	94,1		0,933 – 21,360
Social disability						
With impact	3	5,5	1	2,9	0,505	1,904
No impact	52	94,5	33	97,1		0,190 – 19,081
Deficiency						
With impact	3	5,5	3	8,8	0,417	1,678
No impact	52	94,5	31	91,2		0,319 – 8,850
Mantel-Haenszel					**0,494**	**1,140**
						0,437 – 2,972

*Not calculated because it has zero squares.

Table 5. Frequency of impact, by dimension, according to the visit to the oral health professional in the last 12 months by women with breast cancer, Vitória (ES).

Dimension	Routine / prevention		Urgency		p-valor	Odds Ratio
	n°	%	n°	%		
Functional Limitation						
With impact	0	0,0	1	3,7	0,659	*
No impact	14	100,0	26	96,3		
Physical pain						
With impact	6	42,9	2	7,4	**0,012**	**9,375**
No impact	8	57,1	25	92,6		**1,569 – 56,006**
Psychological discomfort						
With impact	6	42,9	5	18,5	0,099	3,300
No impact	8	57,1	22	81,5		0,785 – 13,879
Physical disability						
With impact	2	14,3	1	3,7	0,265	4,333
No impact	12	85,7	26	96,3		0,357 - 52,581
Psychological disability						
With impact	5	35,7	4	14,8	0,129	3,194
No impact	9	64,3	23	85,2		0,696 - 14,664
Social disability						
With impact	0	0,0	2	7,4	0,428	*
No impact	14	100,0	25	92,6		
Deficiency						
With impact	2	14,3	2	7,4	0,422	2,083
No impact	12	85,7	25	92,6		0,261 – 16,631
Mantel-Haenszel					0,117	2,857 0,736 - 11,086

*Not calculated because it has zero squares.

DISCUSSION

This study was developed in a sample of women diagnosed with breast cancer at HSRC. These women face important and difficult situations, such as detecting the breast problem, diagnosis confirmation, pre-treatment period, surgery, subsequent treatment with radiotherapy, chemotherapy and other procedures [22].

Most patients aged 50 years or more. Age remains the main risk factor for breast cancer. Incidence rates increase rapidly up to the age of 50, and later this increase occurs more slowly [3].

Regarding the socioeconomic status, the prevalence was in class C. According to information from Inca [3], the occurrence of breast cancer is related to the process of urbanization of society, evidencing higher risk among women with high socioeconomic status, contrary to what is observed for cervix cancer. This is not confirmed in the present study; however, it must be considered that HSRC is a philanthropic entity, and that about 60% of its demand is SUS patients. In this particular study, all patients were from SUS. This may explain the fact that there is no class A patient, but reinforces the fragility of social class indicators that use the purchasing power of the individual as a criterion.

Most women have not sought oral health professionals in the past 12 months. Data from the last National Oral Health Survey (PNSB), conducted in Brazil in 2010, showed that in the Southeast Region, 6.7% of individuals aged 35-44 years and 14.1% of those aged 65-74 years had never visited a dentist [23]. This information is an alert, since several studies have reinforced that regular users of dental services declare to be more satisfied with

their oral conditions, which shows the positive impact of visits to the dentist on quality of life [24,25,26].

This study shows the great dental loss (average of 17.9) in the adult and elderly population, as well as the great need for prostheses (60.7%), corroborating reports that in Brazil, the limitation of oral health actions for adult and elderly populations, groups that have historically been little prioritized by care models, causes their treatment needs to accumulate, leading to premature dental loss and great demand for specialized treatments, particularly prosthetic treatments [27,28]. This fact can be observed in adult and elderly individuals who present high percentage of periodontal problems and loss of dental elements, especially after the age of 40 years [28]. In addition, these results are homogeneous to those found in the last PNSB. In 68.8% of adults, some type of prosthesis is needed. The majority (41.3%) is related to the partial prosthesis and in 1.3% of cases, there is need for total prosthesis. When individuals aged 65-74 years were analyzed, this percentage reaches 23.9%, requiring total prosthesis in at least one jaw [23].

In approximately 72% of patients, diagnosis occurred in the early stages. It is known that mortality rates for breast cancer remain high in Brazil, most likely because the disease is still diagnosed at advanced stages [3]. In the present study, the diagnosis is being made at the expected moment; however, new studies need to be performed to assess whether the onset of treatment follows the same pattern. It is important to emphasize that breast cancer only has a good prognosis if diagnosed and treated in a timely manner [3].

Also in relation to staging, in 12.4% of the sample, this information was not found in the patients' medical records. This reinforces the need for further analysis on the importance of fully completing the tumor record form.

Health-related quality of life (HRQoL) refers to the individual's perception of his/her life situation in relation to a disease beyond its consequences and treatments, i.e., how the disease affects his/her life condition [29].

The frequency of impact of oral problems on quality of life was 28.1%, a result similar to other studies performed in distinct adult and elderly populations in Brazil [24,25,26,30,31]; however, different from studies in developed countries or in specific populations, such as chemical dependents (32). Countries such as Australia and the United States have generally lower impact frequency, around 15% [17].

It should be considered that there is already a high impact before the start of the antineoplastic treatment and that this situation may be exacerbated by the adverse effects caused by chemotherapy, reinforcing the necessity of dental evaluation at all stages of the disease [33]. The patient's oral health should be previously evaluated, with consequent treatment of any existing alteration, preparing the oral cavity for the beginning of the therapy, softening or even preventing its possible oral manifestations [6,33].

Approximately 62% of patients declared income of up to two minimum wages. In the analysis of this variable, women with income of up to two minimum wages are more likely of suffering impact on the psychological incapacity dimension. This result is similar to that found in a study carried out in Bauru / SP [31]; however, due to the disease, there may have been a confusion of reasons.

It is known that the frequency of oral diseases reflects biological, behavioral and socioeconomic factors, as well as factors of access to consumer goods and health services. Thus, individuals with pronounced income differences are also at disadvantage in relation to the occurrence of oral health problems [13,24,34].

It is important to point out that, in the psychological incapacity dimension, there is difficulty in relaxing and feeling of shame in relation to his/her oral condition, making evident, with the result presented, the social impact of the disease.

In 34.1% of the women, dental services were used in the last 12 months for emergency reasons. These patients had more impact on the physical pain dimension. Similar results were previously reported in other studies [24,26,30].

The need for prosthesis did not present statistically significant result of impact on quality of life. These results are heterogeneous for most national studies [25,31,34]. Regarding the clinical staging of the disease, there was also no statistically significant result of impact on quality of life. Comparison with international studies was not possible due to the low use of this variable for analysis.

In general, these variables suggest that the social component is intrinsically related to the great impact of oral problems on the quality of life of patients evaluated. It is possible to improve their quality of life through effective intervention strategies, preventing or attenuating the signs

and symptoms of the antineoplastic treatments with a multidisciplinary team to follow the needs of each patient [33,35].

As study limitations, it is pointed out that the comparison with other studies was impaired due to the different cutoff points of variables (income, age group, clinical staging). Further longitudinal studies are suggested to verify the impact variation when oral manifestations arising from the antineoplastic treatment appear.

Health-related quality of life is an important measure that complements clinical indicators in assessing the individual's health [32]. The relevance of studies that use subjective indicators is due to the commitment of developing new ways of measuring perceptions, feelings and behaviors, giving a growing importance to the individual's subjective experiences and their interpretations of health and disease [34].

OHIP is a subjective indicator that was developed to provide a comprehensive measure of dysfunctions, discomfort and self-evaluated incapacity attributed to the oral condition [20,24]. Results found in literature on the use and performance of OHIP concluded that the instrument is sensitive to capture changes on the impact of oral conditions [14,24].

Studies on quality of life in cancer patients are of fundamental importance in understanding the impact of oral problems in their lives. The use of subjective indicators together with normative indicators enables the planning of appropriate care strategies, guaranteeing improvements in the quality of life of the population.

Acknowledgments and conflicts of interest

Collaborators

MV CALMON, worked on the conception, design, collection, analysis and interpretation of data and writing of the article. MAA MUSSO, worked in the conception, analysis and interpretation of the data. LDA PEREIRA, worked in the conception, analysis and interpretation of the data. E ZANDONADE, worked on the conception, design, methodology, analysis and interpretation of data and critical review of the article. MHC AMORIM, worked on the conception and critical review of the article. MHMB MIOTTO, worked on the conception, design, methodology, analysis and interpretation of data and critical review of the article.

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