

Oral health self-perception in quilombola communities in Rio Grande do Sul: a cross-sectional exploratory study

Autopercepção de saúde bucal em comunidades quilombolas no Rio Grande do Sul: um estudo transversal exploratório

Augusto Bacelo Bidinotto^I, Otávio Pereira D'Ávila^{II}, Aline Blaya Martins^{III}, Fernando Neves Hugo^{IV}, Marilda Borges Neutzling^I, Fernanda de Souza Bairros^I, Juliana Balbinot Hilgert^I

ABSTRACT: *Objective:* There's a shortage of evidence on the oral health of *quilombolas*. This study aims to describe oral health self-perception, as well as to verify its associated factors in *quilombola* communities in the state of Rio Grande do Sul. *Methods:* The data for this cross-sectional health survey were collected by application of a questionnaire. Since this study was part of a survey on nutritional security, the probabilistic cluster sample was estimated for the outcome of nutritional insecurity, comprising 583 individuals across *quilombola* communities in Rio Grande do Sul. The association between the outcome of negative oral health self-perception and sociodemographic, general health, and oral health variables was measured by prevalence ratios obtained through Poisson regressions with robust variance and 95% confidence intervals. *Results:* Negative self-rated oral health was reported by 313 (53.1%) of the individuals. Satisfaction with chewing ability and satisfaction with oral appearance were associated with a higher prevalence of negative perception of oral health, while there was no association between the outcome and number of teeth. Use of alcohol had a borderline association with the outcome. *Conclusion:* Satisfaction with appearance and chewing ability are factors associated with oral-health self-perception of the *quilombolas* in Rio Grande do Sul.

Keywords: Vulnerable groups. African continental ancestry group. Self-assessment. Oral health. Rural population. Ethnicity and health.

^IPostgraduate Program in Epidemiology, *Universidade Federal do Rio Grande do Sul* – Porto Alegre (RS), Brazil.

^{II}Postgraduate Program in Dentistry, *Universidade Federal do Rio Grande do Sul* – Porto Alegre (RS), Brazil.

^{III}Preventive and Social Dentistry Department, School of Dentistry, *Universidade Federal do Rio Grande do Sul* – Porto Alegre (RS), Brazil.

^{IV}Social Dentistry Research Center, *Universidade Federal do Rio Grande do Sul* – Porto Alegre (RS), Brazil.

Corresponding author: Juliana Balbinot Hilgert. Faculdade de Odontologia da Universidade Federal do Rio Grande do Sul. Departamento de Odontologia Preventiva e Social, Rua Ramiro Barcelos, 2492, Santa Cecília, CEP: 90035-003, Porto Alegre, RS, Brasil. E-mail: jhilgert@gmail.com

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RESUMO: *Objetivo:* Há escassez de literatura sobre a saúde bucal dos quilombolas. O presente estudo procurou descrever a autopercepção de saúde bucal, bem como verificar fatores a ela associados em comunidades quilombolas no Estado do Rio Grande do Sul. *Métodos:* Os dados para este estudo transversal foram coletados por meio da aplicação de um questionário. Posto que o estudo fez parte de um levantamento sobre segurança alimentar, a amostra probabilística por conglomerado foi estimada para o desfecho de insegurança alimentar, consistindo de 583 indivíduos de comunidades quilombolas no Rio Grande do Sul. A associação entre o desfecho de autopercepção de saúde bucal negativa e variáveis sociodemográficas, de saúde geral e bucal foi aferida por intermédio de razões de prevalência obtidas por meio de regressão de Poisson com variância robusta, com intervalo de confiança de 95% (IC95%). *Resultados:* Autopercepção negativa de saúde bucal foi reportada por 313 (53,1%) indivíduos. Satisfação com mastigação e com aparência bucal esteve relacionada com maior prevalência de percepção negativa de saúde bucal, não havendo associação entre o número de dentes e o desfecho. Uso de álcool teve uma associação fraca com o desfecho. *Conclusão:* Satisfação com aparência e mastigação é fator associado com autopercepção de saúde bucal dos quilombolas no Rio Grande do Sul.

Palavras-chave: Comunidades vulneráveis. Grupo com ancestrais do continente africano. Autoavaliação. Saúde bucal. População rural. Origem étnica e saúde.

INTRODUCTION

The *quilombola* population has its identity defined by historical roots¹, which are linked to the communities organized for resistance against the slave regime over the eighteenth and nineteenth centuries. Due to their nature, closely related to large farms, colonies of escaped slaves were always located in remote rural areas. After the abolition of slavery, these communities have maintained their character of resistance; from that moment on, against a society that was unable to incorporate the former slaves. Throughout the twentieth century, the *quilombola* movement solidified, and its strengthening culminated in the regulation of *quilombola* communities in 2003, and in its characterization as a people or traditional community, as decreed in 2007².

Owing to their nature, these communities share aspects of vulnerability with populations established in rural areas and the black population of Brazil. Brazilian rural populations are in a fragile situation, and (compared to the inhabitants of urban areas) have less access to health services³, higher incidence of some diseases of infectious nature⁴, increased risk of poor oral health⁵, as well as worse self-perception of health, both general and oral⁶. Having black skin is related to significantly higher child mortality indicators⁷ than in the white population, and is also associated with a lower life expectancy⁸.

The self-perception of health is an indicator with acceptable validity in public health, given its relationship with indicators of mortality⁹, morbidity, and service use¹⁰, in addition to its increasingly widespread use. Regarding oral health, besides having a strong relationship with how individuals perceive their health as a whole, it is influenced by the subject's

beliefs, sociodemographic profile¹¹, and oral disease history¹². This perception is affected differently by different situations and oral diseases, such as number of teeth, use/type of prosthesis, and difficulties in chewing, considering that these relations are manifested differently between edentulous individuals and those with remaining teeth¹³.

Studies in *quilombola* communities show underutilization of health services and difficulty in their access, with only 57.1% of the population using health services¹⁴, lower frequency of medication use (41.9%, compared to a 49% frequency in the Brazilian population)¹⁵ and poor environmental and health conditions¹⁶. There is a lack of evidence regarding their oral health situation. Existing studies have reported difficulties in accessing dental care (with 37.9% of individuals having never consulted a dental surgeon) and rehabilitative treatment needs, with similar numbers to the Brazilian population in the 1980s.¹⁷ In addition, there is little indication of knowledge about oral health in similar communities¹⁸. There are no studies on oral health conducted in *quilombola* populations in the State of Rio Grande do Sul. Given this gap, this study aimed to describe the self-perception of oral health, as well as to identify factors associated with it, in *quilombola* communities in the State of Rio Grande do Sul.

METHODS

This is a cross-sectional population-based study, with a representative sample of *quilombola* families in Rio Grande do Sul, the result of a survey on food insecurity in *quilombola* communities. The population studied is composed of families living in 22 *quilombola* communities, located in rural and urban areas, in the southern and central regions of the State and the metropolitan area of Porto Alegre. The sample was estimated by taking into account the prevalence of moderate and severe food insecurity in the black population in Rio Grande do Sul, according to the National Household Sample Survey (PNAD)¹⁹.

The sample size was calculated by establishing an expected frequency of 10%, acceptable error rate of 3 percentage points, a design effect of 1.5, a 95% confidence interval (95%CI) and statistical power of 80%, totaling 576 families. Although the sample was calculated for an expected prevalence of 10%, when the calculation is performed for the prevalence of negative self-perceived oral health, with estimated error of 5% and 1.5 design effect, it results in a sample size of 576 families. Therefore, it remains representative of the outcome used in this study. Finally, 10% were added for losses and refusals. Thus, the sample calculated was of 634 families. The sampling process took place in two stages. First, for the selection of *quilombos*, probability-proportional-to-size sampling was used. The number of families in each *quilombo* in Rio Grande do Sul ranges between 4 and 275; in this sense, a weight (or probability) is assigned to each *quilombo*, proportional to the number of households. In the second stage, probability-proportional-to-size sampling was used again to calculate the number of households

to be interviewed in each *quilombo*. Later, in possession of the list of all households in each community, a random sampling was carried out, according to the calculation set out above, for selection of families, considering that only heads of household were eligible for the study.

Data collection for the original study on food insecurity occurred between the months of May and October 2011 through direct household interviews with the head of each household, using standardized instruments, pre-coded and tested in a pilot study. The questionnaire with 120 questions was built especially for the target population, while also incorporating questions from previous studies. The pilot study for testing of the instrument, the logistics, and the organization of the field work was carried out in a *quilombola* not included in the sample. The selected research team consisted of 11 interviewers, two field supervisors, and two coordinators. All received previous training lasting 40 hours, in which were addressed interview techniques and application of the questionnaire.

For the study, the sociodemographic variables on overall health and oral health obtained the original survey were used. All collected data refer to the head of household. The following sociodemographic variables were used: sex and area of residence (rural or urban), age, marital status, education, family income, receiver of the Family Grant program (yes or no), and skin color. The age variable was categorized by cutoff points of 10 years, from the age of 30 years, resulting in the following categories: “under 30”; “31 to 40”; “41 to 50”; “51 to 60”; and “60 and over”. Marital status was categorized dichotomously as “married/in a stable relationship” or “single/widowed/divorced”. The variable level of education was categorized as “never studied”; “incomplete primary education”; and “complete primary education”. The income was calculated per family unit, and categorized as “up to 1 minimum wage”; “between 1 and 2 minimum wages”; and “more than 2 minimum wages” – depending on the sample distribution, and its value on the data collection period was R\$ 545.00 (around US\$ 320.00, also the time of collection). For skin color, the criteria used were those of the Brazilian Institute of Geography and Statistics (IBGE), and the variable was collected in a stimulated way, that is, the alternatives were read to the participant, who should choose which one fit with their perception of their skin color. The results were categorized into “black” for the participants who reported having black skin, and “not black,” for participants who reported being white, yellow, brown, and indigenous.

The general health variables were self-reported. The presence of the following was questioned: diabetes mellitus (yes or no); depression (yes or no); alcohol use habits in the last year (yes or no); and use of tobacco. For smoking, each participant was classified as “smoker,” “former smoker,” and “never smoked”.

Regarding oral health, we analyzed the number of teeth present in the mouth, the use of dental prosthesis, the satisfaction with mastication, and the satisfaction with dental esthetics. The number of teeth was self-reported by respondents, and broken down into categories: “edentulous,” corresponding the absence of teeth; “1–19 teeth”; and “more than 20 teeth”. Use of dental prosthesis was categorized as self-reported use of any type of prosthesis in

either the maxillary or mandibular arch. Satisfaction with mastication and oral aesthetics were measured by the questions: “How pleased are you with your chewing?” and “How happy are you with the appearance of your teeth and/or dentures?” Respectively, the answers were structured originally as a Likert scale (from “very dissatisfied” to “very satisfied”); they were recoded in the categories “dissatisfied,” “indifferent,” and “satisfied.” The outcome self-perception of oral health was measured through the question “How do you evaluate the health of your mouth and your teeth?”, dichotomized into “positive” (including excellent and good self-perception) and “negative” (fair and poor self-perception).

Descriptive statistics were summarized by mean and standard deviation for quantitative variables and absolute and relative frequency for qualitative variables. Contingency tables were developed for preliminary analysis of the distributions. Multivariate analysis was conducted using Poisson regression with robust variance, and $p < 0.20$ was used as the cutoff point for progression to the multivariate model. In this final adjusted model, statistical significance was defined as $p < 0.05$. There was no need for adjustment for design effect through sample weights, since the strategy for accommodating it was increasing the sample “n” in the sample size calculation phase.

Statistical analyses were performed using the SPSS software for Windows, v.18 (SPSS Inc., Chicago, USA) and R 3.3.0 (R Core Team, Vienna, Austria).

The study was approved under protocol No. 20041 by the Research Ethics Committee of the Universidade Federal do Rio Grande do Sul. Written informed consent was obtained from all study participants. It is noteworthy that the study was subject to the specific guidelines and regulatory standards for traditional communities present in Resolution CNS 196/96 (current resolution at the time that the data collection was carried out), item IV.3, which calls for early agreement with communities through their own leaders. Work began only after presentation of the research and the consent of the leaders of each *quilombola* community.

RESULTS

The sample consisted of 583 subjects, after 7% of losses and refusals, with an average age of 45.04 (SD \pm 16.97) years, with 379 (65.0%) women. The average years of schooling was 4.70 (SD \pm 3.94), and the average income per household were R\$ 778.37 (SD \pm 649.22). Regarding oral health self-perception, 313 perceived it as negative, resulting in a ratio of 53.7% (95%CI 53.4 – 54.0), while 270 perceived it as positive, with a proportion of 46.3% (95%CI 45.9 – 46.7). Descriptive statistics of the study variables are shown in Table 1 and are stratified in “positive” and “negative” oral health self-perception.

In the crude analysis of distributions, as shown in Table 2, the statistical significance for the relationship between alcohol use in the last year and a higher prevalence of negative self-perception of oral health ($p = 0.03$) is clear; this scenario is repeated for satisfaction with chewing ($p < 0.01$), number of teeth ($p = 0.03$), and satisfaction with dental appearance ($p < 0.001$).

Table 1. Distribution of variables, according to oral health perception.

| | Negative self-perception | |
|---|--------------------------|---------|
| | % (95%CI) | p-value |
| Area of residence [n = 583] | | |
| Urban | 55.2 (45.2 – 64.8) | 0.75 |
| Rural | 53.3 (48.8 – 57.9) | |
| Sex [n = 583] | | |
| Female | 55.4 (50.2 – 60.5) | 0.26 |
| Male | 50.5 (43.4 – 57.5) | |
| Age (years) [n = 582] | | |
| Under 30 | 52.7 (43.8 – 61.4) | 0.65 |
| 31 – 40 | 55.9 (46.8 – 64.6) | |
| 41 – 50 | 57.9 (49.0 – 66.3) | |
| 51 – 60 | 49.4 (38.3 – 60.5) | |
| Over 60 | 50.0 (40.7 – 59.3) | |
| Education [n = 581] | | |
| Never studied | 51.4 (39.4 – 63.2) | 0.71 |
| Incomplete primary education | 54.7 (49.6 – 59.7) | |
| Complete primary education | 50.9 (41.4 – 60.2) | |
| Family income (minimal wages) [n = 583] | | |
| Up to 1 | 56.0 (49.8 – 62.0) | 0.45 |
| Between 1 and 2 | 53.3 (46.1 – 60.4) | |
| More than 2 | 49.2 (40.0 – 58.4) | |
| Family Grant [n = 572] | | |
| No | 52.8 (47.3 – 58.3) | 0.73 |
| Yes | 54.4 (47.9 – 60.9) | |
| Skin color [n = 583] | | |
| Black | 54.4 (49.2 – 59.4) | 0.66 |
| Non-black | 52.5 (45.4 – 59.4) | |
| Marital status [n = 583] | | |
| Married/in a stable relationship | 52.7 (46.6 – 57.5) | 0.40 |
| Single/widowed/divorced | 55.9 (49.4 – 62.2) | |

Continue...

Table 1. Continuation.

| | Negative self-perception | |
|---|--------------------------|---------|
| | % (95%CI) | p-value |
| Tobacco use [n = 583] | | |
| Never smoked | 52.1 (45.9 – 58.2) | 0.76 |
| Former smoker | 55.6 (47.1 – 63.8) | |
| Smoker | 54.6 (46.9 – 62.1) | |
| Alcohol use in the last year [n = 583] | | |
| No | 49.1 (43.2 – 55.1) | 0.03 |
| Yes | 58.1 (52.2 – 63.7) | |
| <i>Diabetes mellitus</i> | | |
| No | 53.5 (49.1 – 57.8) | 0.89 |
| Yes | 54.7 (40.6 – 68.2) | |
| Depression [n = 580] | | |
| No | 53.7 (49.2 – 58.2) | 1.00 |
| Yes | 53.1 (42.7 – 63.3) | |
| Satisfaction with mastication [n = 582] | | |
| Satisfied | 31.2 (26.3 – 36.4) | < 0.001 |
| Indifferent | 86.4 (76.6 – 92.7) | |
| Unsatisfied | 83.5 (76.8 – 88.7) | |
| Number of teeth [n = 576] | | |
| Edentulous | 38.2 (25.7 – 52.3) | 0.03 |
| 1 to 19 teeth | 59.2 (50.3 – 67.7) | |
| More than 20 teeth | 54.0 (48.9 – 59.0) | |
| Use of dental prosthesis [n = 547] | | |
| No | 56.6 (51.3 – 61.8) | 0.06 |
| Yes | 47.9 (40.7 – 55.2) | |
| Satisfaction with dental appearance [n = 578] | | |
| Satisfied | 23.4 (18.5 – 29.1) | < 0.001 |
| Indifferent | 68.6 (57.6 – 77.9) | |
| Unsatisfied | 83.7 (78.1 – 88.1) | |

95%CI: 95% confidence interval.

Table 2. Crude and adjusted prevalence ratio for the outcome negative perception of oral health.

| | Crude PR (95%CI) | p-value | Adjusted PR (IC95%) | p-value |
|---|---------------------|---------|------------------------|---------|
| Alcohol use in the last year (reference = no) | | | | |
| Yes | 1.06 (1.01 – 1.12) | 0.03 | 1.06 (1.01 – 1.11) | 0.01 |
| Satisfaction with mastication (reference = satisfied) | | | | |
| Unsatisfied | 1.40 (1.33 – 1.47) | < 0.001 | 1.23 (1.16 – 1.35) | < 0.001 |
| Indifferent | 1.42 (1.34 – 1.50) | < 0.001 | 1.25 (1.17 – 1.34) | < 0.001 |
| Number of teeth in the mouth (reference = edentulous) | | | | |
| 1 to 19 | 1.15 (1.03 – 1.28) | 0.01 | 1.02 (0.92 – 1.14) | 0.76 |
| 20 or more | 1.11 (1.01 – 1.23) | 0.03 | 1.01 (0.92 – 1.14) | 0.85 |
| Use of prosthesis (reference = yes) | | | | |
| No | 1.06 (1.00 – 1.12) | 0.05 | 0.99 (0.94-1.04) | 0.66 |
| Satisfaction with dental appearance (reference = satisfied) | | | | |
| Unsatisfied | 1.49 (1.42 – 1.56) | < 0.001 | 1.31 (1.23 – 1.40) | < 0.001 |
| Indifferent | 1.37 (1.27 – 1.47) | < 0.001 | 1.26 (1.16 – 1.36) | < 0.001 |

*Only the variables that reached $p < 0.20$ in the univariate analysis were included in the final model.

In multivariate analysis, satisfaction with mastication had its relation with the outcome attenuated after adjustment for both the category “indifferent,” PR = 1.25 (95%CI 1.17 – 1.34) and “dissatisfied,” PR = 1, 23 (95%CI 1.16 – 1.35), with the reference being the category “satisfied.” The relationship between satisfaction with dental appearance and oral health self-perception was the strongest after application of the adjusted model, for the “indifferent”, PR = 1.26 (95%CI 1.16 – 1.36) and “dissatisfied”, PR = 1.31 (95%CI 1.16 – 1.36) categories, with the reference being the category “satisfied”. Having used alcohol in the last year remained with a statistically significant relationship to oral health self-perception, PR = 1.06 (95%CI 1.01 – 1.11) compared to non-use.

At the final multivariate model, age did not obtain statistical significance, which was also the case of the following variables: marital status, use of prosthesis, and number of teeth in the mouth.

DISCUSSION

The results indicate that dissatisfaction with dental appearance and masticatory performance is associated with worse self-perception of oral health in *quilombolas* of the State of Rio Grande do Sul. On the other hand, the number of teeth was not associated with changes

in the perception of health oral. It is noteworthy that the representative sample at the state level is a unique feature of this study in relation to the published literature.

Self-reported tooth loss was related to negative self-perception of oral health in the univariate analysis, in agreement with other studies that carried out clinical examination involving elderly populations¹³, as well as the adult population of Brazil²⁰. After multivariate analysis, the number of teeth had no significant relationship with the outcome, also correlated with results of clinical studies involving elderly Brazilians²¹ and, more specifically, Rio Grande do Sul dwellers²². The lack of association can be explained by the lack of data on the location of these teeth in the dental arch, since the presence of functional occlusal pairs is important in the construction of oral health self-perception²³, or the perception of tooth loss as a solution to pain and as prevention for future problems and expenses with oral health²⁴. The absence of information on the state of the teeth present can also bring a justification, as an individual who has faced several dental problems can understand not having teeth as an effective improvement in oral health. Since individuals with some tooth loss (1–19 teeth) may have ongoing problems and be experiencing some level of pain or discomfort at the time of interview¹². Alternatively, this discrepancy can occur because of the different references used in health self-assessment, which eventually causes weak associations between clinical status and the subject's health perception²⁵.

Chewing is an influential factor in the individual's quality of life²⁶, and its low performance is related to decreased functional activities^{27,28}, depressive symptoms, deficit in cognitive function²⁷, food insufficiency^{27,29}, and mortality in the elderly^{30,31}. The association between dissatisfaction with masticatory performance and negative perception of oral health is often found in other populations^{13,21}. In the Brazilian population, oral health conditions related to mastication are the most mentioned as a source of impact on performing daily activities²⁰.

The findings of strong relationship between appearance and self-reported oral health are consistent with other studies^{21,32-35}. This appreciation of physical appearance may happen because it is one of the most easily perceived features during social interactions, and it is suggested that the stereotype that "what is beautiful is good," meaning that a person with good looks is also seen as the owner of desirable social characteristics³⁶. Internally to the individual, the perception of body image is a variable concept, floating over time and influenced by everyday events³⁷, and a negative perception of one's body is associated with mental health outcomes, such as eating disorders, depression, and low self-esteem³⁸.

Regarding oral health, the same stereotypical mechanism of beauty is suggested, which is related to social and professional aspects³⁹, and its perception is mediated more strongly by dental variables, such as color changes and absence of teeth⁴⁰, and their negative evaluation is related to the need for partial or complete prosthetic rehabilitation³². Changing this perception over time is related to the onset and recovery of oral health diseases such as staining, cracking of restorations, and dental elements⁴¹. In terms of population, there are similar findings of the relationship between oral health self-perception and self-perception of oral appearance in Brazilian elderly^{21,34}.

This study has a recognized limitation: the absence of dental examination at the moment of data collection, which gives a lower strength to oral health data beyond the limitations inherent in the study of self-perceived health, a concept based on variable²⁵ and transient^{25,42}, de forma transversal references, transversely. Additionally, this study is subject to a recognized limitation of cross-sectional studies, not being able to provide support for causal inferences, and being subject to reverse causality phenomena.

CONCLUSION

The self-perception of oral health of the *quilombolas* in Rio Grande do Sul presents similar correlates to other populations, and appearance and chewing are valuable factors in establishing the broad idea of oral health in the population studied. Although there is plenty to explore, especially with regard to the clinical situation of oral health in this population, this study provides a platform for discussion and direction of proposals for new studies and oral health policies for the *quilombola* communities.

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