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O Impacto do Gênero na Ciência e na Academia

Marina Christ Franco

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“Foi o tempo que dedicaste à tua rosa que fez
a tua rosa tão importante.”
(O Pequeno Príncipe)

Resumo

FRANCO, Marina Christ. **O Impacto do Gênero na Ciência e na Academia.** Orientadores: David Moher e Maximiliano Cenci. 2021. 219f. Tese (Doutorado em Clínica Odontológica com ênfase em Dentística e Cariologia) – Faculdade de Odontologia, Universidade Federal de Pelotas, Pelotas, 2021.

O objetivo da presente tese foi avaliar o impacto do gênero na pesquisa biomédica por meio de três estudos observacionais, um estudo controlado randomizado e um capítulo de livro. O estudo 1 possuiu um delineamento transversal e teve o objetivo de avaliar se o padrão de escrita em resumos de submissões de financiamento das áreas biomédicas da FAPERGS diferia entre homens e mulheres. Também foram avaliadas a relação do estágio de carreira e do currículo do pesquisador com o sucesso da proposta. Para isso, foi utilizado um software de análise de linguagem (LIWC) em que as seguintes variáveis foram coletadas: Uso de palavras positivas, uso de palavras negativas, pensamento analítico, imposição, autenticidade e tom emocional. Não foram observadas diferenças estatísticas no padrão de escrita de acordo com o gênero dos pesquisadores, entretanto, aplicantes de propostas bem sucedidas tinham um número significativamente maior de artigos publicados. Concluindo-se que o viés de gênero nas propostas de financiamento parece ser um problema mais complexo que apenas o padrão de linguagem utilizado. O estudo 2, também de delineamento transversal, teve o objetivo de investigar se a pandemia por COVID-19 impactou de forma diferente as pesquisadoras de odontologia em comparação com os pesquisadores ao redor do mundo. Para isso, foram coletados todos os artigos publicados entre 30 de janeiro à 31 de julho de 2019 e do mesmo período de 2020 em periódicos de odontologia indexados no MedLine que contivessem um fator de impacto e que o primeiro autor possuísse um ORCID. Nos 3394 artigos incluídos na análise foi observada a manutenção do padrão existente antes da pandemia (homens publicando mais do que mulheres) tanto de acordo com o estágio de carreira do primeiro autor, como com a subárea. Considerando apenas publicações sobre a COVID-19 em comparação com as publicações do ano anterior, a proporção de homens na primeira autoria aumentou em 67%. Portanto, podemos concluir com esse estudo que a discrepância entre os gêneros foi mantida (e até exacerbada) com a COVID-19 nas publicações de odontologia ao redor do mundo. O estudo 3 foi um estudo observacional com o objetivo de avaliar se a COVID-19 impactou nas submissões das três principais revistas de odontologia do Brasil de acordo com o gênero dos autores. Para isso, foram analisados todos os artigos submetidos à publicação nos três principais periódicos de odontologia do Brasil nos anos de 2019 e 2020. Das 4778 submissões analisadas, se observou uma manutenção no padrão existente antes da pandemia (homens submetendo mais artigos) para última autoria e autor correspondente. Quando considerado o gênero do primeiro autor essa discrepância entre homens e mulheres foi aumentada durante a pandemia. O estudo 4 foi um estudo controlado randomizado com o objetivo de avaliar se pesquisadores de Odontologia do Brasil favoreceriam currículos identificados como de estudantes

homens em uma falsa seleção de pós doutorado. Para isso, os bolsistas CNPQ do ano de 2020 de todo o Brasil foram convidados a participar, como avaliadores, de uma seleção de pós-doutorado. Para os pesquisadores que aceitaram participar foi enviado um currículo randomizado de acordo com o gênero e o estágio de carreira do estudante e foi solicitado aos pesquisadores para darem notas de 0 a 10 nos seguintes quesitos: contribuição científica, potencial de liderança, habilidade de trabalhar em grupos e experiência internacional. Para todas as categorias avaliadas, os currículos identificados como de alunos homens receberam notas mais altas, independente do estágio de carreira. Evidenciando o viés de gênero presente na academia. O capítulo de livro intitulado "*Masculinidad hegemónica*", publicado no livro *"Glosario de Patologias Sociales"*, teve como objetivo discorrer (e tentar entender) sobre a origem do machismo na sociedade, as suas manifestações sociais (tanto nas mulheres como nos homens), possíveis mutações ao longo do tempo e prognósticos e alternativas para o futuro.

Palavras-chave: Viés. Gênero. Machismo. Odontologia.

Abstract

FRANCO, Marina Christ. **The Impact of Gender on Science and Academy.** Advisors: David Moher and Maximiliano Cenci. 2021. 219f. Thesis (PhD in Dental Clinic - emphasis in Dentistry and Cariology) – Graduate Program in Dentistry. Federal University of Pelotas, Pelotas, 2021.

The aim of this thesis was to assess the impact of gender on biomedical research through three observational studies, a randomized controlled trial and a book chapter. Study 1 had a cross-sectional design and aimed to assess whether the writing pattern in abstracts of funding submissions from the biomedical areas of FAPERGS differed between men and women. The relationship between the researcher's career stage and curriculum was also evaluated. For this, a language analysis software (LIWC) was used, in which the following variables were collected: Use of positive words, use of negative words, analytical thinking, clout, authenticity and emotional tone. There were no statistical differences in the writing pattern according to the gender of the researchers, however, applicants of successful proposals had a significantly higher number of published articles. In conclusion, gender bias in funding proposals seems to be a more complex problem than the language pattern used. Study 2, also cross-sectional, aimed to investigate whether COVID-19 had a different impact on dentistry female researchers compared to male researchers. For this, all articles published between January 30 and July 31, 2019 and from the same period of 2020 in dentistry journals indexed in MedLine that contained an impact factor and that the first author had an ORCID profile were collected. In the 3,394 articles included in the analysis, the maintenance of the pattern existing before the pandemic (men publishing more than women) was observed, both according to the first author's career stage and the area. Considering only publications about COVID-19 compared to publications in the previous year, the proportion of men in first authorship increased by 67%. Therefore, we can conclude from this study that the discrepancy between genders was maintained (and even exacerbated) with COVID-19 in dental publications around the world. Study 3 was an observational study with the aim of evaluating whether COVID-19 had an impact on the submissions of the three main dental journals according to the gender of the authors. For this, all articles submitted for publication in the three main dental journals in Brazil in the years 2019 and 2020 were analyzed. Of the 4778 submissions analyzed, there was a maintenance of the existing pattern before the pandemic (men submitting more articles) for last authorship and corresponding author. When considering the gender of the first author, this discrepancy between men and women was increased during the pandemic. Study 4 was a randomized controlled study with the aim of evaluating whether Brazilian dentistry researchers would favor a CVs identified as male students in a false post-doctoral selection. For this, all CNPQ scholarship holders of the year 2020 were invited to participate, as evaluators, in a postdoctoral selection. Researchers who agreed to participate were sent a curriculum randomized according to the student's gender and career stage, and researchers were asked to give grades from 0 to 10 in the following items: scientific contribution, leadership potential, ability to work in groups and international experience. For all categories evaluated, CVs from male students received higher grades, regardless of career stage. Evidencing the gender bias present in the academy. The book chapter entitled "Masculinidad hegemónica" aimed to discuss (and try to understand) the origin

of machismo in society, its social manifestations (both in women and men), possible mutations over time and prognoses and alternatives for the future.

Key-words: Bias. Gender. Sexism. Dentistry.

Sumário

1 Introdução

As mulheres permanecem sub representadas na pesquisa dentro da Odontologia, e essa lacuna é ampliada sempre que cada etapa da carreira é progredida (ALLAGNAT et al., 2017; LI et al., 2019; TIWARI et al., 2019). Evidências recentes mostraram que nos Estados Unidos, por exemplo, quase metade dos alunos de faculdades de Odontologia eram mulheres, enquanto que, apenas 22% do corpo docente era composto por professoras do gênero feminino. Esse estudo apresentou a mesma tendência para todos os outros países avaliados, incluindo Reino Unido, França, Alemanha e Japão (onde mais de 40% dos alunos de odontologia eram mulheres, porém quando considerando a docência esse número caiu para um percentual de 4% de professoras (TIWARI et al., 2019). O efeito do teto de vidro é uma metáfora utilizada para descrever essa barreira invisível que as mulheres enfrentam para avançar suas carreiras para níveis mais altos (LI et al., 2019).

A diferença de gênero na pesquisa, segundo a literatura, pode estar relacionada a três fatores principais: 1 – Um desempenho inferior por parte das mulheres, que pode estar relacionado a diversos desafios impostos a elas de forma uma desigual em comparação com seus pares masculinos. Como a responsabilidade com os filhos e os idosos da família, cuidados com a casa, pressão familiar e social, entre outros (JEAN; PAYNE; THOMPSON, 2015; JOLLY et al., 2014). 2- Um viés sistêmico, que se refere à maneira como os sistemas são organizados desde a sua concepção para favorecer o homem. O sistema de financiamento de pesquisas, por exemplo, favorece aplicantes que possuam um maior número de artigos publicados em seus currículos, considerando que há uma prevalência maior de primeiros e últimos autores do gênero masculino em artigos publicados, os homens tem mais propostas de financiamento bem sucedidas, o que permitirá um maior desenvolvimento de novos estudos e, consequentemente, novos artigos publicados e, assim, mais financiamentos bem sucedidos (CHATTERJEE; WERNER, 2021a; FILARDO et al., 2016; HENGEL, 2017; REGINA; SARTORI; HENZEL, 2021). O uso inconsciente de uma posição mais submissa por parte das mulheres, ocasionado pelo estigma social de que as mulheres não devem ser incisivas ou

firmes em suas colocações é um outro exemplo de viés sistêmico. O uso de palavras mais modestas poderia levar a uma chance reduzida de ter um artigo escrito por uma mulher ser aceito do que um artigo escrito por um homem, por exemplo (LERCHENMUELLER; SORENSON; JENA, 2019; PRITLOVE et al., 2019; URQUHART-CRONISH; OTTO, 2019). 3- Um viés individual, que pode estar relacionado com o preconceito de gênero consciente ou inconsciente de pessoas que tomam decisões importantes dentro da academia, como editores, revisores de periódicos, professores, comitês, etc (PRITLOVE et al., 2019). O viés individual ocorre porque os seres humanos não são seres neutros. Sua tomada de decisão, bem como o seu comportamento são baseados em associações decorrentes de experiências anteriores que levam a certas preferências ou aversões. Viés implícito ou inconsciente é o termo por trás de comportamentos socialmente discriminatórios sem que a ação seja realizada de forma consciente (MOSS-RACUSIN et al., 2012; PRITLOVE et al., 2019).

A presente tese teve como objetivo investigar o viés de gênero dentro da academia nas suas mais variadas formas. O estudo 1 teve o objetivo de avaliar, por meio de um estudo observacional retrospectivo, se o padrão de escrita utilizado em resumos de submissões de financiamento da FAPERGS (Fundação de Amparo à pesquisa do Estado do RS) das áreas biomédicas difere entre homens e mulheres. O estudo 2 e o estudo 3 tiveram como o objetivo investigar, por meio de estudos observacionais retrospectivos, se a COVID-19 impactou de forma desigual as pesquisadoras da Odontologia em comparação com os pesquisadores. Sendo que no estudo 2 foram avaliados todos os artigos publicados em periódicos de Odontologia indexados no MedLine entre entre 30 de janeiro à 31 de julho de 2019 e do mesmo período de 2020. Enquanto que no estudo 3 foram avaliados todos os artigos submetidos à publicação nos anos de 2019 e 2020 nos três principais periódicos de Odontologia com base no Brasil. O estudo 4 teve como objetivo avaliar, por meio de um ensaio controlado randomizado, se pesquisadores de Odontologia do Brasil favoreceriam currículos identificados como de estudantes do gênero masculino em uma simulada seleção de pós doutorado. E, por fim, o capítulo de livro teve como objetivo discorrer (e tentar entender) a origem do machismo na sociedade, suas principais manifestações sociais (tanto nas

mulheres como nos homens), possíveis mutações ao longo do tempo e prognósticos e alternativas para o futuro.

2 Projeto de Pesquisa[1]

Os projetos de pesquisa referentes a cada estudo serão apresentados em formato de artigos no qual o protocolo de cada um foi descrito e disponibilizado em sua totalidade e de forma aberta na plataforma Open Science Framework (www.osf.io).

Estudo 1 - OSF link: https://osf.io/7knwu/

The Impact of Gender on Scientific Writing: An Observational Study of Grant Proposals

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Background

Women remain underrepresented in the biomedical field within academia, and this gap is widened even more with each career step, including promotion to full professorship.[1] Studies have shown that in the academic field, men's competencies, productivity, leadership potential, and quality of work are consistently considered to be superior than women on the basis of gender identification alone.[2,3,4,5] Women also earn lower salaries and receive fewer research grants.[6,7]

Given that funding is one of the main drivers of scientific activities in the world, playing a significant role in defining new scientific projects, and that financial aid in research can also influence the performance of the funded scientist, the occurrence of gender bias in the grant process can be an important problem.[8,9] The literature indicates that the gender differences in funding success could be related to three main factors.[10] The first factor is individual bias, which can be related to conscious or unconscious gender bias from reviewers' evaluations. The second factor is systemic bias, which refers to grant program design, such as review criteria that unfairly favors male principal investigators because of cumulative advantage, such as a higher research output (more published paper in higher impact factor journals), a larger prevalence for male authors to figure as the main author or the last author in published papers, and the fact that men may present a higher rate of successful grant applications in their profile. The third and final factor is lower performance, which can be related with the unconscious use of modest, less compelling language by the female applicants.[10]

A recent study reported that articles in which the first and last author were women were significantly less likely to use positive terms to describe research findings compared with articles in which the first and/or last author was a man, and this difference was larger in high impact journals.[11] On the other hand, another recent study did not identify differences in language choice between male and female applicants for a Canadian funder.[12]

Our objective with this study is to determine if there are differences in the language used by female and male applicants' proposals for grant applications submitted to a Southern Brazil Research Support Foundation (SBRSF). We believe that if a language pattern is detected and is related to funding differences between male and female applicants, steps can be taken to empower applicants, to instruct reviewers and for the funder to consider more active policy to promote gender equity. Alternatively, if no differences are found in the language used, the gap in grant success between female and male applicants may be occurring due to another reason, such as reviewers' bias and/or systemic bias.

Primary Objective

To determine if there are differences in the language used by different gender applicants in summaries of research proposals in the biomedical field for a SBRSF during the years of 2013 and 2014 as demonstrated based on the presence of Language Inquiry and Word Count (LIWC) variables (i.e., Positive emotions, Negative emotions, Analytic thinking, Clout, Authenticity, and Emotional tone).

Secondary Objectives

- To determine if there are differences in the language used by gender considering the LIWC variables comparing successful proposals with a sample of unsuccessful proposals.
- To determine if there are differences in the language used by gender considering the LIWC variables according to the career stage.
- To determine if there are differences in the language used by gender considering the LIWC variables according to the research productivity.

Methods

Trial Registration and Ethical Approval

The study protocol was approved by the local Brazilian ethics committee (Comitê de Ética em Pesquisa da Faculdade de Odontologia, Federal University of Pelotas, Brazil/ number 29343320.0.0000.5318) and the full protocol will be available online on the Open Science Framework platform, both before the conduct of the study begins.

Study Design

This will be designed as a cross-sectional study to evaluate patterns of language between female and male applicants in summaries of research proposals in the biomedical field for a SBRSF during the years of 2013 and 2014.

Eligibility criteria

Our inclusion criteria are FAPERGS (Fundação de Amparo à Pesquisa do Rio Grande do Sul) grant applications in the biomedical field during the years of 2013 to 2014. Our exclusion criteria are grant applications in fields other than biomedicine. Two team members will independently review all successful and unsuccessful grant applications categorizing them as include or exclude based on the eligibility criteria, discrepancies will be discussed between the two members. The included grants will be further categorized.

Control group

We will seek to match (1:1 ratio) the included successful applications with a control group of unsuccessful applications. The sample will be made by a randomized computer-generated list (www.sealedenvelope.com) and we will match by year of funding competition, call for application and content area. This will allow the research team to calculate the pattern of language of applicants as a comparator to funded applicants.

Data extraction

The data extraction will be independently entered by one member of the team and verified by a second individual. From each application we will extract the name and gender of the nominated principal applicant (NPA), year of the grant and title and summary of application. All summaries will be translated from Portuguese to English using an automatic translator software. After the translation, the summaries will be entered in the LIWC and the primary outcome will be automatically extracted by the software.

Assignment of applicant gender

The gender of the applicants will be determined by associating the first names with the probability of the name being held by a man versus by a woman, using the Genderize database (https://api.genderize.io/?name=), in cases where researcher gender was not strongly inferred (probability threshold of 90%) we will check applicants' online CV (http://lattes.cnpq.br).

Assignment of applicant career stage

The career stage of the applicants will be classified according to the year of the PhD completion. If the PhD completion were obtained from 0 to 4 years before

the grant process the applicant will be classified as early stage, from 5 to 14 years before, the applicant will be classified as mid stage and for over 15 years the applicant will be classified as late stage. The year of PhD completion will be collected on the applicants' online CV on Lattes platform (http://lattes.cnpq.br).

Assignment of applicant research productivity

The research productivity of the applicants will be determined by the absolute number of published papers. The number of published papers will be collected on the applicants' online CV on Lattes platform (http://lattes.cnpq.br).

Outcomes

To determine whether men and women differed in patterns of language applied in their research proposal we will use the LIWC software to analyze the summaries and generate language variables. LIWC is comprised of a large dictionary of words and compares inputted written text to its dictionary to generate scores for 92 language variables including word count, words per sentence, 86 traditional variables and four summary variables. The variables to be evaluated in this study will be Positive emotions, Negative emotions, Analytic thinking, Clout, Authenticity, and Emotional tone. Positive and negative emotions are related with the way that the researcher presents their research with more positive or negative words. Analytic thinking refers to the degree of formal, logical, or hierarchical thinking patterns in text. Clout scores writing that are authoritative, confident, and exhibits leadership. Authenticity refers to writing that is personal and honest. Finally, Emotional tone is scored such that higher numbers are more positive and lower numbers are more negative. These four summary variables are researchbased composites that have been converted to 100-point scales, where 0 = very low along the dimension and 100 = very high.[14]

The LIWC dictionary is made up for the English language and the summaries of the grant proposals are in the Portuguese language, therefore, all summaries will be submitted to an automatic translation from Portuguese to English prior to the language pattern evaluation. The software used for the translation of the abstracts will be the DeepL (https://www.deepl.com/home), for producing a more natural and fluent output when compared to other automatic translators available.[15]

Data Management and Confidentiality

The confidentiality of the applicants will be maintained and at no time will their names or information that may lead to their identification be revealed. All local databases will be secured with password-protected access systems, and all investigators will be given access to the cleaned data sets blinded of any identifying participant information.

Statistical Methods

Descriptive analyzes will be used to summarize the data. For the primary outcome the statistical method will be a multivariate analysis of variance using distance matrices to examine whether gender explains differences in multivariate LIWC six variables considered in this study (Positive emotions, Negative emotions, Analytic thinking, Clout, Authenticity, and Emotional tone). To determine if successful versus unsuccessful proposals depended on gender, we will perform a Pearson's Chi-squared test. Multivariate analysis will be performed to determine if the differences in LIWC variables differ between successful versus unsuccessful proposals. Another multivariate analysis will be performed to determine if the LIWC variables differ between gender when considering career stages and number of publications.

Trial Results and Data Sharing Statement

The results of the present study will be published in a widely circulated peerreview scientific journal and will be presented at meetings on the topic. The results will be published in a pre-print format on the Open Science Framework platform in order to support the timely dissemination of findings.

Besides that, no later than 3 years after the beginning of the study, we will deliver a completely deidentified data set to an appropriate data archive for sharing purposes.

Amendments

This is the first version of the protocol. Whenever amended, we will deposit the updated versions at OSF with the rationale for modifications, and the date of each amendment.

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Estudo 2 - OSF link: https://osf.io/wnfhb/

The impact of covid-19 on gender gap in dental scientists

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Concept the Study: MCF, MSC, DM.
Draft the Protocol: MCF, MSC, DM.
Data extraction: MCF, APD, TM.
Data analysis: HSS.
Draft the Article: MCF, APD, TM, HSS, MSC, DM.

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DM is supported by a University Research Chair, University of Ottawa (Ottawa, Canada)

Sponsor

The Centre for Journalology is the operational sponsor of the project, as the holders of human and facilities resources, and all of the related data for the project. The sponsor will manage the plan, conduct, analysis, reporting, and the data associated with the study.

Background

Since the COVID-19 pandemic was declared by the World Health Organization, social distance measures have been implemented worldwide to flatten the curve of infected people. Actions such as closing schools and the need to work from home required considerable adaption to the usual daily routine for most families.[1]

Although fathers are not immune to the impacts of confinement, it is traditionally mothers who provide the majority of support to raising children.[2] Several studies have already shown that there is a much larger number of women as sole caregivers compared to men, even in situations where the mother does not have the sole responsibility for the child, she still spends far more time on activities related to the child's care, than the father.[3,4]

A significant gender gap already exists in academia, and it is widely reported in the literature. Men have a higher number of papers published as principal authors compared to women across different disciplines, besides that, papers with men as main authors have a higher number of citations when compared to papers with women as main authors.[5]

Therefore, it is expected that the recent restrictions in access to childcare might reasonably have a disproportionate impact on women's productivity when compared to men an increase, even more, the current gender gap present in academia.[6]

Therefore, the main objective of this study is to determine if the COVID-19 situation impacts the gender gap in dental scientists.

Primary Objective

Evaluate the proportion of women as first and last author in dentistry papers during the COVID-19 pandemic compared with the same period of the previous year.

Secondary Objective

-Evaluate the proportion of women as first and last author in dentistry papers before and during the COVID-19 pandemic considering the career stage of the main authors.

-Evaluate the proportion of women as first and last author in dentistry papers before and during the COVID-19 pandemic considering the JIF of the journal.

-Evaluate the proportion of women as first and last author in dentistry papers before and during the COVID-19 pandemic considering subdisciplines (e.g., orthodontics, endodontics, pediatrics).

-Evaluate the proportion of women as first and last author in dentistry papers during the COVID-19 pandemic on papers about COVID-19 (eg.diagnosis, treatment, prognosis).

Methods

Trial Registration and Ethical Approval

The full protocol will be available online on the Open Science Framework platform before the conduct of the study begins. No ethical approval is required for this study since all data used is publicly accessible.

Study Design

This will be designed as an observational case control study to evaluate the proportion of women as the leading authors in dentistry papers during the COVID-19 pandemic compared with the same period of the last year.

Eligibility criteria

Will be considered eligible for this study papers published between January 30th to July 31th from 2019 and between January 30th to July 31th from 2020 in journals within the area of dentistry indexed in MedLine that have a Journal Impact Factor (JIF) with a first author that have an ORCID account.

Data extraction

From each one of the journals included, we will collect the absolute number of papers published from Januray 30th of 2020 (when the World Health Organization (WHO) declared a Public Health Emergency of International Concern (PHEIC)) from the next six months (July 31th). And the absolute number of papers during the same period in 2019 (march 11th of 2019 to July 31th from 2019). We will also collect the journals' subdiscipline (e.g., orthodontics, endodontics, pediatrics) and the JIF. Paper reporting on COVID19 will also be registered as such, to fulfill the third secondary outcome. From each one of the papers published, it will be collected the name of the first and last author, the career stage of the first author and the receipt of funding. Data will be in an excel sheet collected by two researchers (MCF and APD).

Assignment of the author's gender

The gender of the first and last author will be determined by associating the first names with the probability of the name being held by a man versus by a woman, using the Genderize database (https://api.genderize.io/?name=). In cases where researcher gender was not strongly inferred (probability threshold of 90%) we will check researchers' online ORCID (www.orcid.org).

Assignment of the author's career stage

The authors' career stage will be assessed by ORCID (www.orcid.org), from the time of the authors' highest degree as: early-career (less than 5 years from highest degree), mid-career (5 to 10 years from the highest degree), or senior-career (more than 10 years).

Assignment of receipt of funding

The receipt of funding will be collected from the funding session of each paper. Cases where no information is found, funding will be considered as not reported.

Data analysis

Descriptive analyzes will be used to summarize the data. The primary data analysis will calculate the proportion of women as first and last author in dentistry papers during the COVID-19 pandemic compared with the same period of the previous year thought a two-way ANOVA. The secondary data analysis will calculate the proportion of women as first and last author in dentistry papers during the COVID-19 pandemic compared with the same period of the previous year thought a logistic regression adjusted for the JIF and the subdiscipline of the journal, the career stage of the first author and the receipt of funding. For all analyzes, an α of 0.05 will be used to determine statistical significance.

Trial Results and Data Sharing Statement

The results of the present study will be published in a widely circulated peer-review scientific journal and will be presented at meetings on the topic. The results will be published in a pre-print format on the Open Science Framework platform to support the timely dissemination of findings.

Besides that, no later than three years after the beginning of the study, we will deliver the full data set to an appropriate data archive for sharing purposes.

Amendments

This is the first version of the protocol. Whenever amended, we will deposit the updated versions on the Open Science Framework platform with the rationale for modifications, and the date of each amendment.

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Estudo 3 - OSF link: https://osf.io/nxb8r/

Is Covid-19 increasing the gender gap among Brazilian dental journals? A case control study of papers' submissions

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Funding

This study will not receive any external financial support directed to its development, aside from the author's support and human and facilities resource.

Background

COVID-19 pandemic completely changed life as we were used to, forced us to exercise physical (social) distance as the most effective way of controlling the spread of the disease.[1] Our lives were redirected towards the home-office, with the need to develop virtual teaching and socializing, however, the period of the day that was once exclusively dedicated to work and scientific research, is now mixed and confused with the care of the home, supervision of children's and remote education.[1]

Several studies showed that the housework and childcare burden is not equally divided among family members and, in most cases, women end up overburdened, what impacts directly on women's scientific production capacity in the academic field.[2,3] A recent article from Science estimated that the consequences from COVID-19 can negatively impact an entire generation of female researchers.[4]

Brazilian Dentistry has grown a lot during the last years, being nowadays the second country with the largest number of scientific publications in the world.[5] In addition, Brazil has the largest number of dentists in the world and, it is important to note: women are the majority among Brazilian dentists.[6]

Although women are more likely to follow academic careers,[7,8] female participation in high impact dental research remains low.[9] Thus, the main objective of the present study is to evaluate the impact of COVID-19 on gender gap among Brazilian dental journals, through a case control study of papers' submissions.

Primary Objective

Evaluate the proportion of women as first, last and corresponding authors (CA) of all articles submitted in the year of 2020 (during the COVID-19 pandemic) compared with the previous and the next year in the three main Brazilian dental journals.

Secondary Objectives

- To evaluate the absolute number of women as first, last and corresponding authors in articles submitted during the years of 2019, 2020 and 2021 in the three main Brazilian dental journals.
- To evaluate the proportion of women as the first, the last and the corresponding author before, during and after the COVID-19 pandemic in articles submitted in the three main Brazilian dental journals.
- To evaluate the acceptance percentage of papers submitted to publication according to corresponding authors' gender.
- To evaluate the relation of author's gender and career stage in articles submitted and accepted for publication in the three main Brazilian dental journals before, during and after the COVID-19 pandemic.
- To evaluate time gap between papers' submission and final decision (acceptance or rejection) will be collected aiming to assess a possible association with gender bias.

Methods

<u>Trial Registration and Ethical Approval</u>

The protocol of the present study will be submitted for appreciation by the local ethics committee. The full protocol will be available online in a public format on the Open Science Framework platform before the conduction of the study begins.

Study Design

This is an observational case control study designed to evaluate the impact of COVID-19 on gender gap among Brazilian dental journals' submissions.

Eligibility criteria

All papers submitted during the years of 2019, 2020 and 2021 in the three main Brazilian dental journals (Journal of Applied Oral Science, Brazilian Dental Journal, Brazilian Oral Research) will be considered eligible for this study. Papers submitted in other years and different journals will be excluded. Papers identified as retractions will also be excluded.

Data extraction

The editors from Journal of Applied Oral Science, Brazilian Dental Journal and Brazilian Oral Research will provide access to the data for this research. From each one of the included journals, the absolute number of papers submitted in the years of 2019, 2020 and 2021 will be collected. From each one of the submitted papers, the names and affiliations of all authors and the name and career stage of corresponding author will be collected. The position authorship order in the submission and gender for each author will be recorded. The submission, acceptance and publication or rejection dates from each paper will be collected. Data will be extracted in an Excel sheet by two researchers.

Assignment of the author's gender

The gender of authors will be determined by associating the first names with the probability of the name being held by a man or a woman, using the Genderize database (https://api.genderize.io/?name=). In cases where researcher gender was not strongly inferred (probability threshold of 90%) we will check researchers' online ORCID (www.orcid.org).

Assignment of the author's career stage

The corresponding authors' career stage will be assessed by ORCID (www.orcid.org), from the time of the CAs' highest degree as: early-career (less than 5 years from highest degree), mid-career (5 to 10 years from the highest degree), or senior-career (more than 10 years). For authors who do not have career stage information on ORCID will be sought in other online CVs (e.g. Lattes Plataform, ResearchGate, LinkedIn, Institutional website)

Assignment of the author's country and region

The collection of the geographic region and state (Brazil) and country of origin of the researchers will be evaluated based on the institutional affiliation of all authors.

Submission period

Before COVID-19 pandemic (articles submitted in 2019), during COVID-19 pandemic (articles submitted in 2020), and after the pandemic (articles submitted in 2021).

Variables

In this research, the gender of the researchers of studies submitted and accepted in the three main Brazilian dental journals will be the independent variable. The dependent variables will be the number of articles submitted and accepted for publication and the time gap between papers' submission and final decision. Additionally, the covariates of interest will be the position of authorship, career stage, submission period, journal and authors' country and region.

Data analysis

Descriptive analyzes will be used to summarize the data. The primary data analysis will calculate the proportion of women as CA in submissions during the COVID-19 pandemic compared with the same period of the previous year through a two-way ANOVA. The absolute number of women in authorship of submitted papers before and during the pandemic will be calculated by a two-way ANOVA. In order to assess the association between independent variables and covariates (number of articles submitted and accepted for publication and the time gap between papers'

submission and final decision, position of authorship, career stage, submission period, journal and authors' country and region) and dependent variables (authors' gender) will be performed using the chi-square test. For all analyzes, an α of 0.05 will be used to determine statistical significance.

Conflicts of interest

The authors declare a possible conflict of interests since the analyzed journals' editors take place in this project's authorship positions.

Amendments

This is the first version of the protocol. Whenever amended, we will deposit the updated versions on the Open Science Framework platform with the rationale for modifications, and the date of each amendment.

References

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Estudo 4 - OSF link: https://osf.io/2ut5v/

The Impact of Gender on Researchers' Assessment: A Randomized Controlled Trial

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Concept the Study: MCF, LH, MSC, DM.
Draft the Protocol: MCF, LH, MSC, DM.

Funding:

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Authors Support:
MCF is supported by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001.
LH is supported by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001.
MSC is supported partly by UFPel, Coordenação de Aperfeiçoamento de Pessoal de Ensino Superior (CAPES), Brazilian Ministry of Health, and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).
DM is supported a University Research Chair, University of Ottawa (Ottawa, Canada)

Sponsor

This project is not financially supported. The Centre for Journalology is the operational sponsor of the project, as the holders of human and facilities resources, and all of the related data for the project. The sponsor will manage the conception, conduction, analysis, reporting and the data of the study.

Background

Women remain underrepresented in the dentistry field within academia, and this gap is widened even more with each career step.[1,2] A recent study showed that in United States, for example, almost half of the graduates from dental schools were women, whereas only 22% of professors where women.[1] This study showed the same trend for all the other countries evaluated, including United Kingdom, France, Germany and Japan (where more than 40% of graduate students were women but only 4% of the professors where women).[1] The glass ceiling effect is a metaphor used to describe this invisible barrier to be faced by women in order to advance at higher levels in their careers.[3]

The literature indicates that this gender gap in research could be related to three main factors: lower performance, systemic bias and individual bias.[4] A lower performance reached by women can be related with a plethora of underlying challenges faced by them, such as family and societal pressures, child care among

others.[1,4] Another reason for lower performance can be the unconscious use of a modest language by women, which can lead to a lesser chance of having an article written by women accepted, for example.[4,5] The systemic bias refers to the way that the systems are organized to favors men.[4] In the grant program design for example, the review criteria unfairly favors male principal investigators because of cumulative advantage, such as a higher research output (more published paper in higher impact factor journals), a larger prevalence for male authors to figure as the main author or the last author in published papers, and the fact that men may present a higher rate of successful grant applications in their profile.[4] The third factor that can contribute for this gap is the individual bias, which can be related to conscious or unconscious gender bias from persons who take decisions, as journals reviewers' evaluations for example.[4]

The individual bias occurs because human beings are not neutral.[5] Their judgement and behavior are based on associations arising from previous experiences that lead to certain preferences or aversions.[5] Implicit or unconscious bias is the term behind discriminatory behaviors without conscious intent that happens with basis on internalized schemas shaped by society.[6]

Due to the lack of evidence about gender bias in academic dentistry and the utmost importance of a greater knowledge and discussing on the subject, the aim of this study is to evaluate the impact of the gender on researchers' assessment for a postdoctoral dentistry scholarship through a randomized controlled trial.

Primary Objective

To evaluate whether, given an equally qualified male and female student Curriculum Vitae (CV), researchers would present preferential chose for the male student to receive a postdoctoral scholarship.

Secondary Objectives

- To calculate the mean/median of scientific contributions' score according to students' gender and career stage.
- To calculate the mean/median of leadership potentials' score according to students' gender and career stage.

- To calculate the mean/median of ability to work in teams' score according to students' gender and career stage.
- To calculate the mean/median of international experiences' score according to students' gender and career stage.

Methods

Trial Registration and Ethical Approval

The study protocol was approved by the local Brazilian ethics committee (Comitê de Ética em Pesquisa da Faculdade de Medicina, Federal University of Pelotas, Brazil/ number 10227419.2.0000.5318) and will be registered on www.clinicaltrials.gov. The complete protocol will be online available on the Open Science Framework platform. All of these procedures will be done before implementation and recruitment.

Trial Design

This study will be designed as randomized, parallel group, blinded for assessors and controlled trial, comparing the researchers' assessment for the same CV with a male or female gender for a postdoctoral dentistry scholarship using a southern Brazilian University as a proxy.

Eligibility criteria

Eligible participants (i.e., assessors) will be research productivity fellows from a Brazilian Funding agency (Conselho Nacional de Desenvolvimento Científico e Tecnológico-CNPq) of the year of 2020 in the field of dentistry.

Sample size

The sample size calculation was based on the results of a previous study.[5] Using a significance level of 0.05, a power of 0.90, the mean outcome in control group of 4.2, the mean outcome in experimental group of 3.39 (-0.81 of expected effect size) and the standard deviation of outcome of 1.1 we obtain a sample size

of 78 researchers. Considering that the response rate for emailing surveys is around 10%[7], with a loss rate of 90%, 194 researchers will be required.

Randomization and blinding

Researchers will be randomly assigned to receive a female or male CV with a 1:1 allocation per a computer-generated randomization schedule stratified by career stage (early career or non-early career) using permuted blocks of random sizes. The list of random numbers will be made on a site (www.sealedenvelope.com) and the allocation sequence will be concealed by a researcher not involved in the study and another researcher will allocate each participant following the allocation sequence.

Researchers will be randomly assigned to one of two applicant gender conditions (male or female) and applicant career stage (early or not early). Thus, each researcher will receive only one CV. The researchers will be not aware about the study, and will be invited to act as external peer reviewers in a selection process for a post-doctoral position at a southern Brazilian university.

Interventions

Each of the researchers selected according to the eligibility criteria will receive an email (Appendix 1) with the invitation to act like an external reviewer in a supposed postdoctoral fellowship. In case of acceptance each researcher will receive a second e-mail (Appendix 2) containing information about the process, which he/she is being invited to be part of the evaluation process. Along with the information from the process, this e-mail will contain one of the four CV possibilities to evaluate. The possibilities are: early career female (Appendix 3), early career male (Appendix 4), non-early career female (Appendix 5), non-early career male (Appendix 6). This e-mail will also contain a document with a fake call for application (Appendix 7) in order to give credibility to the process.

The CV considered as “early career” will contain information by an applicant who just conclude his PhD and have, relatively, few papers published (12), and the CV considered as “non early career applicant”, will contain information about an applicant who will have a previous post doctorate and more than 20 papers

published. The idea of different degrees of CVs is to assess if the gender bias occurs more in the beginning of the career or when the career is more consolidated.

All e-mails with the invite for evaluation will be sent by the same researcher (MCF), as well as, the e-mails containing the explanation of the study and the Free Prior Informed consent (FPIC).

Outcomes

The researcher will receive a CV of an applicant (gender and career stage selected according to the randomization) and will be required to rate each topic from 0 to 10 on a visual analogue scale. The topics will be: scientific contribution, leadership potential, ability to work in teams and international experience. Each researcher will receive only one CV to evaluate. To allow the blinding of the evaluators and the equivalence of the male and female CVs and profiles, information on the full name, and on the publication list will be blinded, as well as any external reference that could be cross-checked online, such as Researcher ID, ORCID ID, social media profiles, grant numbers, etc. The researchers will also not be aware that there are participating in a study, however the moment they send the CV assessment they will receive an email with a questionnaire (Appendix 8) containing information about the study and requesting authorization to use the previously submitted data, researchers will also be asked whether, at any time, they have ever suspected the veracity of the process. Data will only be used in the research if the researcher signs the FPIC.

Data Management and Confidentiality

The evaluations, received via email, will be double entered in an Excel spreadsheet and the following information will be collected: gender and career stage of the applicant, gender of the evaluator and grade for each topic.

The confidentiality of the participants will be maintained and at no time will their names or information that may lead to their identification be revealed. On data sheet every participant will be identified by a number and all records that contain names or other personal identifiers, such as the e-mails and the informed consent forms, will be stored separately from study records identified by code number. All local databases will be secured with password-protected access systems. All

investigators will be given access to the cleaned data sets blinded of any identifying participant information.

Statistical Methods

Descriptive analyzes will be used to summarize the data. A regression model will be used to compare the averages of the scores given by the researchers in each item (scientific contribution, leadership potential, ability to work with teams and international insertion) considering the influence of the gender of the applicants, the career stage of the applicants and the gender of the evaluators.

Trial Results and Data Sharing Statement

The results of the present study will be published in a widely circulated peerreview scientific journal and will be presented at meetings on the topic. The results will be published in a pre-printed format on the Open Science Framework platform in order to disseminate the findings in the best possible way.

Besides that, no later than 3 years after the begin of the trial, we will deliver a completely deidentified data set to an appropriate data archive for sharing purposes.

Amendments

This is the first version of the protocol. Whenever amended, we will deposit the updated versions with the rationale for modifications, and the date of each amendment.

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Appendix 1: Invitation e-mail

"Prezado(a), (nome do pesquisador);
Considerando o contexto atual, iremos realizar a seleção para bolsista de pósdoutorado do projeto "**Observatório Global de Cuidados Odontológicos – Global Observatory for Dental Care – GODEC"** de forma online e gostaríamos de convidálo para atual como um revisor externo. Caso concorde em participar deverá ser feita a avaliação de um Currículo Vittae em formato reduzido (máximo de 2 páginas) segundo 4 critérios pré-estabelecidos e o processo total de avaliação não levará mais do que 30 minutos. O projeto GODEC está sendo desenvolvido pela Universidade Federal de Pelotas em parceria com a Fundação Delfim Mendes Silveiras e tem o objetivo de desenvolver guidelines para práticas odontológicas.

Caso concorde em participar, enviaremos um e-mail com o edital completo referente ao processo, assim como o currículo a ser avaliado.

Qualquer dúvida referente ao processo, por favor, contate-me através desse e-mail. Ressalto que a sua participação será de extrema importância.

Atenciosamente,
Prof. Dr. Maximiliano Sérgio Cenci

*The original document will be sent in Portuguese, for translation visit DeepL

Appendix 2: Instruction e-mail*

“Prezado(a), (nome do pesquisador);

De antemão agradeço imensamente por aceitar atuar como revisor externo em nossa seleção. Em anexo, nesse e-mail, estão o edital completo do processo de seleção e o Currículo Vittae resumido e desidentificado de um dos aplicantes para bolsa que o senhor(a) deve avaliar. Os quesitos a serem avaliados são:

- Contribuição científica;
- Potencial de liderança;
- Habilidade de trabalhar em grupo; - Experiência internacional.

Para cada um dos quatro quesitos deverá ser dada uma nota de 0 (nota mínima) a 10 (nota máxima). Responda esse e-mail com a sua nota para cada um dos quesitos.

Por favor, caso haja qualquer dúvida não hesite em me contatar por esse e-mail.

Atenciosamente,

Prof. Dr. Maximiliano Sérgio Cenci

*The original document will be sent in Portuguese, for translation visit DeepL.

Appendix 3: Early Career Female CV*

Candidata 03

Sexo Feminino 30 anos

Cirurgiã-dentista, mestre e doutora em Clínica Odontológica com ênfase em Dentística e Cariologia, com período de co-tutela em Universidade Internacional. É membro de um grupo de pesquisa sobre síntese de evidência em odontologia, tendo desenvolvido, co-orientado e publicado diversos estudos na área. Dentre as atividades desenvolvidas pelo grupo de pesquisa estão a realização de diversas ações de translação de conhecimento, como rodas de discussão de artigos, aulas práticas e aulas interativas em plataformas digitais. Possui cooperação internacional com grupos consolidados de pesquisa em universidades internacionais. Atualmente é orientadora de dois trabalhos de conclusão de curso e co-orientadora de uma dissertação de mestrado. Já participou de 5 bancas, entre trabalhos de conclusão de curso e defesas de mestrado e doutorado. Produziu 12 artigos científicos, e possui índice h 3 na base SCOPUS com um total de 23 citações.

FORMAÇÃO ACADÊMICA:
2017-2020: Doutorado em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil (Conceito CAPES 6), com período de co-tutela em Radboud University Medical Center.
Bolsista do(a): Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brasil.

2015-2017: Mestrado em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil (Conceito CAPES 6).
Bolsista do(a): Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brasil.

2010-2015: Graduação em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil.

REVISOR DE PERIÓDICO:

2018-Atual: Photomedicine and Laser Surgery (Online)
2019-Atual: Dentistry: Oral Health & Cosmetics

PRÊMIOS E TÍTULOS:

2018: 1º lugar Sessão de apresentação de trabalhos científicos na modalidade Painel Dialogado, 2º Congresso Cariobra.
2017: Menção Honrosa - 23º CIORJ - Categoria Iniciação científica- área de pesquisa, Congresso Internacional de Odontologia do Rio de Janeiro.

2015: 1º Lugar no Concurso de Aulas para Graduação (Materiais Dentários), Disciplina de Materiais Dentários (PPGO-UFPel).

2014: Trabalho destaque Congresso de Iniciação Científica 2014, UFPel.

ARTIGOS COMPLETOS PUBLICADOS EM PERIÓDICOS
2019, Caries Research, 1º autora.
2019, Odontology, 5º autora.
2019, Journal of Adhesive Dentistry, 2º autora.
2018, Journal of the Mechanical Bevahiour of Biomedical Materials, 5º autora.
2018, Caries Research, 3º autora.
2018, Journal of Dentistry, 1º autora.
2017, Journal of Orthodontics and Dentofacial Orthopedics, 3º autora.
2017, Caries Research, 1º autora.
2017, BIOFOULING, 1º autora.
2016, Journal of Adhesion and Adhesives, 2º autora.
2016, BIOFOULING, 1º autora.
2015, Revista Odonto Ciência, 1º autora.

Appendix 4: Early Career Male CV*

Candidato 03

Sexo Masculino 30 anos

Cirurgião-dentista, mestre e doutor em Clínica Odontológica com ênfase em Dentística e Cariologia, com período de co-tutela em Universidade Internacional. É membro de um grupo de pesquisa sobre síntese de evidência em odontologia, tendo desenvolvido, co-orientado e publicado diversos estudos na área. Dentre as atividades desenvolvidas pelo grupo de pesquisa estão a realização de diversas ações de translação de conhecimento, como rodas de discussão de artigos, aulas práticas e aulas interativas em plataformas digitais. Possui cooperação internacional com grupos consolidados de pesquisa em universidades internacionais. Atualmente é orientador de dois trabalhos de conclusão de curso e co-orientador de uma dissertação de mestrado. Já participou de 5 bancas, entre trabalhos de conclusão de curso e defesas de mestrado e doutorado. Produziu 12 artigos científicos, e possui índice h 3 na base SCOPUS com um total de 23 citações.
FORMAÇÃO ACADÊMICA:
2017-2020: Doutorado em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil (Conceito CAPES 6), com período de co-tutela em Radboud University Medical Center.
Bolsista do(a): Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brasil.

2015-2017: Mestrado em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil (Conceito CAPES 6).
Bolsista do(a): Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brasil.

2010-2015: Graduação em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil.

REVISOR DE PERIÓDICO:

2018-Atual: Photomedicine and Laser Surgery (Online)
2019-Atual: Dentistry: Oral Health & Cosmetics

PRÊMIOS E TÍTULOS:

2018: 1º lugar Sessão de apresentação de trabalhos científicos na modalidade Painel Dialogado, 2º Congresso Cariobra.
2017: Menção Honrosa - 23º CIORJ - Categoria Iniciação científica- área de pesquisa, Congresso Internacional de Odontologia do Rio de Janeiro.

2015: 1º Lugar no Concurso de Aulas para Graduação (Materiais Dentários), Disciplina de Materiais Dentários (PPGO-UFPel).

2014: Trabalho destaque Congresso de Iniciação Científica 2014, UFPel.

ARTIGOS COMPLETOS PUBLICADOS EM PERIÓDICOS
2019, Caries Research, 1º autor.
2019, Odontology, 5º autor.
2019, Journal of Adhesive Dentistry, 2º autor.
2018, Journal of the Mechanical Bevahiour of Biomedical Materials, 5º autor.
2018, Caries Research, 3º autor.
2018, Journal of Dentistry, 1º autor.
2017, Journal of Orthodontics and Dentofacial Orthopedics, 3º autor.
2017, Caries Research, 1º autor.
2017, BIOFOULING, 1º autor.
2016, Journal of Adhesion and Adhesives, 2º autor.
2016, BIOFOULING, 1º autor.
2015, Revista Odonto Ciência, 1º autor.

*The original document will be sent in Portuguese, for translation visit DeepL.

Appendix 5: Non-early Career Female CV*

Candidata 04

Sexo Feminino
38 anos

A candidata é cirurgiã-dentista, mestre e doutora em Clínica Odontológica com ênfase em Dentística e Cariologia, com período de co-tutela em Universidade Internacional. Foi bolsista de pós-doutorado de 2018 a 2019. É responsável por um grupo de pesquisa sobre síntese de evidência em odontologia, tendo desenvolvido, orientado e publicado diversos estudos na área. Dentre as atividades desenvolvidas pelo grupo de pesquisa estão a realização de diversas ações de translação de conhecimento, como rodas de discussão de artigos, aulas práticas e aulas interativas em plataformas digitais. Possui cooperação internacional com grupos consolidados de pesquisa em universidades internacionais. Participa ativamente da International Association for Dental Research, da European Organization for Caries Research, e da Associação Brasileira de Cariologia. Atualmente é orientadora de três trabalhos de conclusão de curso, uma dissertação de mestrado e co-orientadora de duas dissertações de mestrado. Já participou de mais de 10 bancas, entre teses de conclusão de curso e defesas de mestrado e doutorado. Produziu mais de 25 artigos científicos, e possui índice h 7 na base SCOPUS com mais de 100 citações. Possui 12 premiações em eventos científicos, e atua como revisora de 5 periódicos com circulação internacional.

FORMAÇÃO ACADÊMICA:
2014-2017: Doutorado em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil (Conceito CAPES 6), com período de co-tutela em Radboud University Medical Center.
Bolsista do(a): Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brasil.

2012-2014: Mestrado em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil (Conceito CAPES 6).
Bolsista do(a): Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brasil.

2007-2012: Graduação em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil.

PÓS DOUTORADO

2018-2019: Pós-doutorado na Universidade Federal de Pelotas, UFPEL, Brasil.
REVISOR DE PERIÓDICO:

2019-Atual: BMC Oral Health
2018-Atual: CARIES RESEARCH

2016-Atual: Photomedicine and Laser Surgery (Online)
2016-Atual: Brazilian oral research
2015-Atual: Dentistry: Oral Health & Cosmetics

PRÊMIOS E TÍTULOS:

2018: 1º lugar Sessão de apresentação de trabalhos científicos na modalidade Painel Dialogado, 2º Congresso Cariobra.

2017: 1º Lugar na Categoria Tema Livre - Projeto de Extensão, 56a Semana Acadêmica da Faculdade de Odontologia da UFPel

2017: Menção Honrosa - 23º CIORJ - Categoria Iniciação científica- área de pesquisa, Congresso Internacional de Odontologia do Rio de Janeiro.

2015: 1º Lugar no Concurso de Aulas para Graduação (Materiais Dentários), Disciplina de Materiais Dentários (PPGO-UFPel).

2014: Trabalho destaque Congresso de Iniciação Científica 2014, UFPel.

2013: Menção Honrosa - Painés Área 3- SBPqO, Sociedade Brasileira de Pesquisa em Odontologia-SBPqO.

2013: 1º lugar Área 1- Dentistica e Materiais dentários- XVSNNPqO, Sociedade Nordeste-Norte de Pesquisa Odontológica.

2013: PRÊMIO DRA. LÉLIA BATISTA DE SOUZA, Sociedade Nordeste-Norte de Pesquisa Odontológica.
2013: Premiação SBPqO - Pós Graduação, Sociedade Nordeste-Norte de Pesquisa Odontológica.
2013: Trabalho destaque Congresso de Iniciação Científica, UFPel.
2011: Prêmio M. Isaao, 28° Reunião anual da Sociedade Brasileira de Pesquisa Odontológica.
2011: Aluno Destaque na área da Ciências da Saúde, Universidade Federal de Pelotas - XX Congresso de Iniciação Científica.
ARTIGOS COMPLETOS PUBLICADOS EM PERIÓDICOS
2019, Journal of Dentistry, 2º autora.
2019, Caries Research, 1º autora.
2019, Odontology, 5º autora.
2019, Operative Dentistry, 2º autora.
2019, Journal of Adhesive Dentistry, 2º autora.
2018, Journal of the Mechanical Bevahiour of Biomedical Materials, 4º autora.
2018, Journal of Prosthetic Dentistry, 2º autora.
2018, Caries Research, 3º autora.
2018, Revista de Odontologia UNESP, 2º autora.
2018, Journal of Dentistry, 1º autora.
2018, Journal of Dentistry, 1º autora.
2017, Journal of Orthodontics and Dentofacial Orthopedics, 3º autora.
2017, Caries Research, 1º autora.

2017, Biofouling, 1º autora.
2017, Dental Materials, 4º autora.
2016, Brazilian Oral Research, 3º autora.
2016, Journal of Dentistry, 2º autora.
2016, Journal of Adhesion and Adhesives, 2º autora.
2016, Caries Research, 3º autora.
2016, Biofouling, 1º autora.
2015, Operative Dentistry, 4º autora.
2015, Revista Odonto Ciência, 1º autora.
2015, Brazilian Oral Research, 2º autora.
2014, Biofouling, 3º autora.
2014, Clinical Oral Investigations, 1º autora.
2013, Biofouling, 3º autora.

*The original document will be sent in Portuguese, for translation visit DeepL.

Appendix 6: Non-early Career Male CV*

Candidato 04

Sexo Masculino 38 anos

O candidato é cirurgião-dentista, mestre e doutora em Clínica Odontológica com ênfase em Dentística e Cariologia, com período de co-tutela em Universidade Internacional. Foi bolsista de pós-doutorado de 2018 a 2019. É responsável por um grupo de pesquisa sobre síntese de evidência em odontologia, tendo desenvolvido, orientado e publicado diversos estudos na área. Dentre as atividades desenvolvidas pelo grupo de pesquisa estão a realização de diversas ações de translação de conhecimento, como rodas de discussão de artigos, aulas práticas e aulas interativas em plataformas digitais. Possui cooperação internacional com grupos consolidados de pesquisa em universidades internacionais. Participa ativamente da International Association for Dental Research, da European Organization for Caries Research, e da Associação Brasileira de Cariologia. Atualmente é orientador de três trabalhos de conclusão de curso, uma dissertação de mestrado e co-orientador de duas dissertações de mestrado. Já participou de mais de 10 bancas, entre teses de conclusão de curso e defesas de mestrado e doutorado. Produziu mais de 25 artigos científicos, e possui índice h 7 na base SCOPUS com mais de 100 citações. Possui 12 premiações em eventos científicos, e atua como revisor de 5 periódicos com circulação internacional.

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Bolsista do(a): Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brasil.

2007-2012: Graduação em Odontologia pela Universidade Federal de Pelotas, UFPEL, Brasil.

PÓS DOUTORADO

2018-2019: Pós-doutorado na Universidade Federal de Pelotas, UFPEL, Brasil.

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2015: 1º Lugar no Concurso de Aulas para Graduação (Materiais Dentários), Disciplina de Materiais Dentários (PPGO-UFPel).

2014: Trabalho destaque Congresso de Iniciação Científica 2014, UFPel.

2013: Menção Honrosa - Painés Área 3- SBPqO, Sociedade Brasileira de Pesquisa em Odontologia-SBPqO.

2013: 1º lugar Área 1- Dentistica e Materiais dentários- XVSNNPqO, Sociedade Nordeste-Norte de Pesquisa Odontológica.

2013: PRÊMIO DRA. LÉLIA BATISTA DE SOUZA, Sociedade Nordeste-Norte de Pesquisa Odontológica.
2013: Premiação SBPqO - Pós Graduação, Sociedade Nordeste-Norte de Pesquisa Odontológica.
2013: Trabalho destaque Congresso de Iniciação Científica, UFPel.
2011: Prêmio M. Isaao, 28° Reunião anual da Sociedade Brasileira de Pesquisa Odontológica.
2011: Aluno Destaque na área da Ciências da Saúde, Universidade Federal de Pelotas - XX Congresso de Iniciação Científica.
ARTIGOS COMPLETOS PUBLICADOS EM PERIÓDICOS
2019, Journal of Dentistry, 2º autor.
2019, Caries Research, 1º autor.
2019, Odontology, 5º autor.
2019, Operative Dentistry, 2º autor.
2019, Journal of Adhesive Dentistry, 2º autor.
2018, Journal of the Mechanical Bevahiour of Biomedical Materials, 4º autor.
2018, Journal of Prosthetic Dentistry, 2º autor.
2018, Caries Research, 3º autor.
2018, Revista de Odontologia UNESP, 2º autor.
2018, Journal of Dentistry, 1º autor.
2018, Journal of Dentistry, 1º autor.
2017, Journal of Orthodontics and Dentofacial Orthopedics, 3º autor.
2017, Caries Research, 1º autor.

2017, Biofouling, 1º autor.
2017, Dental Materials, 4º autor.
2016, Brazilian Oral Research, 3º autor.
2016, Journal of Dentistry, 2º autor.
2016, Journal of Adhesion and Adhesives, 2º autor.
2016, Caries Research, 3º autor.
2016, Biofouling, 1º autor.
2015, Operative Dentistry, 4º autor.
2015, Revista Odonto Ciência, 1º autor.
2015, Brazilian Oral Research, 2º autor.
2014, Biofouling, 3º autor.
2014, Clinical Oral Investigations, 1º autor.
2013, Biofouling, 3º autor.

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Appendix 7: Call for application*

EDITAL Nº 03, DE 31 DE MAIO DE 2020

PROCESSO SELETIVO SIMPLIFICADO PARA CONTRATAÇÃO DE BOLSISTAS DE PESQUISA

CONTRATO 04/2019, SINCONV 888291/2019, PROJETO "OBSERVATÓRIO GLOBAL DE CUIDADOS ODONTOLÓGICOS – GLOBAL OBSERVATORY FOR DENTAL CARE – GODEC"

O Diretor Presidente da Fundação Delfim Mendes Silveiras, Prof. Marco Aurélio Romeu Fernandes, no uso de suas atribuições estatutárias, torna pública a abertura de inscrições para o Processo Seletivo Simplificado para contratação de bolsistas de pesquisa: 03 (três) bolsistas e classificar 06 (seis) suplentes, pelo período de 12 (doze) meses, nos termos da Lei 8.958/1994, Lei 10.973/2014, Decreto 7.423/2014, Lei 13.243/2016 e Resolução CONSUN/UFPel nº 02/2015, com vistas ao cumprimento do contido no Contrato nº 04/2019, projeto "**Observatório Global de Cuidados Odontológicos – Global Observatory for Dental Care – GODEC**", celebrado pela Universidade Federal de Pelotas (UFPel).

1 DAS DISPOSIÇÕES PRELIMINARES, VAGAS E ETAPAS

1.1 O objetivo geral do projeto "**Observatório Global de Cuidados Odontológicos Global Observatory for Dental Care – GODEC**" é estabelecer uma iniciativa brasileira para elaboração e difusão de Protocolos e Diretrizes para a Prática Clínical (Clinical Practice Guidelines), com foco na Saúde Bucal, com base em rigor metodológico e com a utilização de ferramentas de avaliação internacionalmente referenciadas.

1.2 O presente edital tem como objetivo selecionar:
02 (dois) bolsistas de graduação e 01 (um) bolsita de Pós-Doutorado, classificar 03 (três) suplentes de graduação e 03 (três) suplentes de Pós-Doutorado com as seguintes especificações:

Nº Vagas	Nº Suplentes	Função	Requisitos

2	3	Apoio a projeto de pesquisa	Estar regularmente matriculado em curso de graduação da UFPel em áreas no escopo do projeto: Odontologia, Medicina ou Relações Internacionais; disponibilidade de 20 horas semanais em horários alternados compreendidos entre 8h e 18h, de segunda à sexta-feira.
1	3	Apoio a projeto de pesquisa	Ter disponibilidade de 40h semanais; Apresentar no momento da contratação título de Doutor em áreas no escopo do projeto: Odontologia, Medicina, Ciências da Saúde; Apresentar vínculo de Pós-doutorado

1.3 O processo seletivo simplificado se dará por meio de duas etapas, sendo a primeira de **caráter eliminatório**, composta por avaliação curricular e a segunda de **caráter classificatório** que corresponde à entrevista com os selecionados da primeira etapa.

2 DA REMUNERAÇÃO

2.1 Os bolsistas de graduação e de Pós-Doutorado serão selecionados para atuar junto ao projeto "**Observatório Global de Cuidados Odontológicos – Global Observatory for Dental Care – GODEC**" e serão remunerados como **bolsistas** em conformidade com o Plano de Trabalho do contrato firmado com a Universidade Federal de Pelotas, aprovado no COCEPE/UFPel, pelo tempo de execução das atribuições no período de **12 (doze) meses, podendo ser suspenso ou rescindido a qualquer tempo** se for exigência do projeto.
2.2 O valor da bolsa que trata o subitem 2.1 obedece ao seguinte parâmetro de distribuição da carga horária semanal dedicada ao Projeto e respectivo valor:

Vaga	Carga Horária Semanal	Valor da Bolsa Mensal	Período
Bolsista de Graduação	20 horas	500,00	12 (doze) meses
Bolsista de PósDoutorado	40 horas	4.500,00	12 (doze) meses

*Podendo ser prorrogado, suspenso ou rescindido a qualquer tempo se for exigência do projeto.

2.3 Os bolsistas terão as seguintes atribuições:
2.3.1 Apoio a projeto de pesquisa (Bolsista de Graduação) – Apoio aos pesquisadores, colaborando desde a formulação dos protocolos de pesquisa, realização de buscas bibliográficas, organização da síntese de evidências, e

construção das diretrizes para a prática clínica. Os bolsistas também auxiliarão nos processos de comunação externa e de coleta e interpretação de dados oriundos da consulta pública das diretrizes que serão elaboradas a partir desse projeto.

2.3.2 Apoio a projeto de pesquisa (Bolsista de Pós-Doutorado) – Apoio aos pesquisadores, colaborando desde a formulação dos protocolos de pesquisa, realização de buscas bibliográficas, organização da síntese das evidências, e construção das diretrizes para a prática clínica. O bolsista também auxiliará nos processos de comunicação interna e externa, de coleta e interpretação de dados oriundos da consulta pública das diretrizes que serão elaboradas a partir desse projeto, e na revisão final das diretrizes a serem enviadas ao Ministério.

2.4 Os bolsistas selecionados deverão ter disponibilidade das horas mencionadas neste Edital para o exercício das tarefas pertinentes à função, sendo formalizado contrato específico de bolsista.

2.5 Os bolsistas receberão o acompanhamento geral da Coordenação do Projeto nas tarefas a serem desempenhadas detalhadas no item 2.3.

3 DAS INSCRIÇÕES E DA DOCUMENTAÇÃO EXIGIDA

3.1 Publicação do edital: 31 de maio de 2020. O edital será divulgado no endereço eletrônico: www2.fundacoesufpel.com.br.

3.2 Período de inscrições: **02 a 14 de junho de 2020**.

3.2.1 Caso não haja candidatos inscritos no período supracitado, o prazo de inscrição ficará automaticamente prorrogado por igual período no próximo dia útil.

3.3 Para as inscrições, os candidatos deverão entregar os documentos listados no item em envelope lacrado, na sede das Fundações da UFPel (setor de RH), conforme o endereço abaixo indicado:

Local: Sede das Fundações de Apoio à UFPel, setor de Recursos Humanos, Rua Lobo da Costa nº 447, Bairro Centro, Pelotas/RS.

Horário: das 8h às 14h.

3.4 Na inscrição os candidatos deverão protocolar no departamento de Recursos Humanos das Fundações, envelope lacrado com os seguintes documentos: a) Requerimento de inscrição (Anexo I);

b) Cédula de Identidade e CPF;

c) Passaporte (em caso de candidato(a) estrangeiro(a));

d) Currículo Lattes comprovado; (acompanhado de comprovação acadêmica, titulação e de experiência profissional);

e) Documento comprobatório de vínculo da instituição de ensino (para alunos: atestado de matrícula);

f) Declaração de vínculo/não vínculo com o serviço público;

g) Cópia do comprovante de residência;

h) Dados bancários “A conta não pode ser conta poupança. Não é permitida para convênios administrados da Plataforma Brasil (Sinconv)”; i) Disponibilidade de horário.

3.5 Todos os campos da Ficha de Inscrição devem ser preenchidos.

3.6 São de inteira responsabilidade dos candidatos as informações prestadas no Requerimento de Inscrição (Anexo I), em observância às normas e condições estabelecidas neste edital, sobre as quais não poderá alegar desconhecimento.

3.7 Com a inscrição, os candidatos firmarão o compromisso declarando conhecer os termos deste edital e a regulamentação pertinente ao Processo Seletivo, não podendo, portanto, alegar desconhecimento.

3.8 A equipe responsável pela seleção não se responsabilizará por inscrições recebidas em desacordo com os termos desse Edital. **4 DA SELEÇÃO E CLASSIFICAÇÃO**

4.1 O processo de seleção será constituído por duas etapas. A **primeira etapa será eliminatória** e consiste na análise do Currículo Lattes. A **segunda etapa será classificatória**, composta de entrevista.

4.2 A primeira etapa de **caráter eliminatório** da seleção, será a análise dos currículos entregues dentro do prazo de inscrição. Os currículos lattes entregues na inscrição passarão por uma formatação para desidentificação do concorrente e serão submetidos à avaliação por avaliadores externos. Nesta etapa, os candidatos que não atingirem a pontuação mínima de 25 (vinte e cinco) pontos serão automaticamente eliminados. Para a próxima etapa serão selecionados no máximo 10 (dez) candidatos, conforme pontuação.

4.3 Os currículos serão avaliados segundo a adequação com os requisitos essenciais e desejáveis para o respectivo Projeto, com valorização de pontuação conforme tabela abaixo.

4.3.1 Da avaliação dos requisitos no currículo

a) Para a seleção de Graduação

Experiência/qualificação	**Pontuação**
Contribuição Científica	De 0 a 10 pontos
Capacidade de Liderança	De 0 a 10 pontos
Capacidade de Trabalhar em Grupos	De 0 a 10 pontos
Experiência Internacional	De 0 a 10 pontos
TOTAL	**40 pontos**

b) Para a seleção de Pós-Doutorado:

Experiência/qualificação	**Pontuação**
Contribuição Científica	De 0 a 10 pontos
Capacidade de Liderança	De 0 a 10 pontos
Capacidade de Trabalhar em Grupos	De 0 a 10 pontos

Experiência Internacional	De 0 a 10 pontos
TOTAL	**40 pontos**

4.4 A lista com os candidatos classificados na análise de currículo aptos para a entrevista será divulgada no endereço eletrônico www2.fundacoesufpel.com.br no dia **31 de julho de 2020**.

4.5 Prazo para interposição de recurso será no dia 01 de agosto de 2020. Os recursos serão julgados no dia 02 de agosto de 2020.

4.6 As entrevistas serão realizadas de forma online e os horários serão divulgados no endereço eletrônico (www2.fundacoesufpel.com.br) no dia 03 de agosto de 2020.

4.6.1 As entrevistas serão no dia 08 de abril de 2020.

4.7 A segunda etapa (entrevista) será realizada por comissão designada pelo Projeto com os candidatos selecionados na Primeira Etapa.

4.8 O candidato será avaliado durante a entrevista segundo a adequação com os requisitos essenciais e desejáveis para o respectivo Projeto. **4.8.1** Da avaliação dos requisitos na entrevista

a) Para a seleção de Graduação:

Experiência/qualificação	**Pontuação**
Habilidade de Comunicação	Máximo 10 pontos
Conhecimento sobre diretrizes para a prática clínica	Máximo 25 pontos
Conhecimento sobre síntese de evidências	Máximo 25 pontos
Disponibilidade de horário e deslocamento	Máximo 25 pontos
Conhecimento sobre avaliação crítica de ciência e guias de reporte no escopo do projeto	Máximo 7,5 pontos
Nível de suficiência/proficiência no idioma inglês	Máximo 7,5 pontos
TOTAL	**100 pontos**

b) Para a seleção de Pós-Doutorado:

Experiência/qualificação	Pontuação
Habilidade de Comunicação	Máximo 10 pontos
Conhecimento sobre diretrizes para a prática clínica	Máximo 25 pontos
Conhecimento sobre síntese de evidências	Máximo 25 pontos
Disponibilidade de horário e deslocamento	Máximo 25 pontos
Conhecimento sobre avaliação crítica de ciência e guias de reporte no escopo do projeto	Máximo 7,5 pontos
Nível de suficiência/proficiência no idioma inglês	Máximo 7,5 pontos
TOTAL	**100 pontos**

5 DAS DATAS DO PROCESSO SELETIVO

Data	Etapas
02/06/2020 a 14/06/2020	Inscrições
15/06/2020 a 31/07/2020	PRIMEIRA ETAPA – Avaliação dos currículos
01/08/2020	Publicação de aprovados na primeira etapa
02/08/2020	Período de interposição de recursos à primeira etapa

03/08/2020	Julgamento do Recurso da primeira etapa
08/08/2020	SEGUNDA ETAPA - Entrevistas
20/08/2020	Publicação de aprovados na segunda etapa
21/08/2020	Período de interposição de recurso à segunda etapa
22/08/2020	Julgamento dos recursos e publicação final dos aprovados

*Todas as publicações referentes ao edital serão realizadas no endereço eletrônico: www2.fundacoesufpel.com.br/

6 DO RECURSO

6.1 A comissão avaliadora é soberana nas suas decisões. Cade recurso fundamentado contra suas decisões, nos prazos indicados acima.

6.2 O recurso deverá ser impetrado pela parte interessada no prazo acima indicado através de requerimento dirigido à Comissão Avaliadora, devendo o requerente protocolá-lo na Sede das Fundações de Apoio à UFPel, Rua Lobo da Costa nº 447, Bairro Centro, Pelotas/RS.

6.3 Compete à Comissão Avaliadora receber o recurso interporto e julgá-lo nas datas acima indicadas.

6.4 O recurso e o resultado de seu julgamento pela Comissão Avaliadora serão publicados no site das Fundações de Apoio à UFPel (www2.fundacoesufpel.com.br/).

6.5 Serão indeferidos os recursos interpostos fora do prazo definido neste Edital.

6.6 Os casos omissos serão resolvidos pela Direção Geral e membros da Comissão Avaliadora e, em última instância, pelo Dirigente Máximo da Fundação Delfim Mendes Silveira.

7 DA CONTRATAÇÃO

7.1 Os candidatos no momento da contratação da bolsa deverão comprovar vínculo com a Instituição de Ensino.

7.2 Os candidatos aprovados serão vinculados através de um **contrato de concessão de bolsa**.

7.3 Os candidatos a que se refere o subitem 7.2 serão pelo período de até 12 (doze) meses, podendo ser rescindido ou suspenso a qualquer tempo de acordo com os interesses do projeto.

7.4 O valor e a forma de pagamento mensal se darão conforme as diretrizes do Plano de Trabalho.

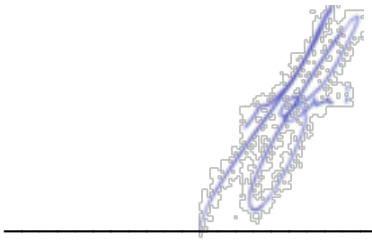
7.5 A convocação seguirá a ordem de classificação constante do resultado de seleção do presente edital, tendo preferência os candidatos classificados dentro do limite de vagas e posteriormente os demais classificados seguindo rigorosamente a ordem de classificação.

8 DAS DISPOSIÇÕES FINAIS

8.1 O presente Edital de Seleção Simplificada será publicado no endereço eletrônico: www2.fundacoesufpel.com.br.

8.2 Não se admitirá, sob nenhuma hipótese, complemento documental fora do prazo de inscrição.
8.3 Dúvidas decorrentes deste Edital de Seleção Simplificada poderão ser direcionadas para o e-mail: maximiliano.cenci@ufpel.edu.br

Pelotas, 29 de fevereiro de 2020.



Prof. Dr. Maximiliano Sérgio Cenci

*The original document will be sent in Portuguese, for translation visit DeepL.

Appendix 8: Final Questionnaire*

Termo de Consentimento Livre e Esclarecido

Universidade Federal de Pelotas

Projeto: O Impacto do Gênero na Avaliação dos Pesquisadores: Um Ensaio Clínico Randomizado
Pesquisador responsável: Prof. Dr. Maximiliano Sérgio Cenci

Prezado(a):
Você está sendo convidado(a) a participar de uma pesquisa que irá avaliar o impacto do gênero na avaliação dos pesquisadores. O presente estudo tem por objetivo avaliar o impacto do gênero na avaliação de pesquisadores para uma bolsa de pós-doutorado em Odontologia. A seleção para a bolsa de pós-doutorado da qual o senhor(a) participou como avaliador externo não era verídica e seu único objetiv era conceder dados para essa pesquisa. O presente estudo é um ensaio experimental randomizado com o objetivo de avaliar o impacto do gênero na avaliação dos pesquisadores, comparando a avaliação de bolsistas de produtividade CNPq da área de Odontologia para um mesmo currículo identificado com o gênero masculino ou feminino para concorrer a uma bolsa de pós-doutorado em uma universidade do sul do Brasil. O desfecho primário desse estudo será a média de notas dadas para currículos identificados com o gênero feminino em comparação a média de notas dadas para currículos do identificados com o gênero masculino. Os riscos relacionados com a sua participação nessa pesquisa são mínimos e estão associados com algum possível desconforto em seus dados serem utilizados para a pesquisa (mesmo tendo sua identidade preservada). Dentre os benefícios estão um maior entendimento de como os pesquisadores avaliam os seus alunos e um maior conhecimento sobre o viés de gênero inconsciente dentro da Academia brasileira na área da Odontologia.
O aceite para a participação na pesquisa é importante, pois irá ajudar a melhorar o entendimento do viés de gênero na academia dentro do contexto da Odontologia brasileira. Porém, a decisão de participar é VOLUNTÁRIA, o que significa que o(a) Sr.(a) tem o direito de decidir se quer participar ou não, bem como deixar de participar a qualquer momento, sem ter que dar qualquer justificativa para tal.
Por este instrumento de autorização assinado, dar-se pleno consentimento ao pesquisador utilizar os dados disponíveis unicamente para seu uso na pesquisa sem identificá-lo de qualquer forma.
A pesquisa não envolve nenhum gasto ou despesa, nem qualquer outra responsabilidade material.
Asseguramos que será mantida a confidencialidade e o anonimato, ou seja, o seu nome não será mencionado em qualquer hipótese ou circunstância, mesmo em publicações científicas.
Em caso de dúvidas, entre em contato:

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Comitê de Ética em pesquisa da Faculdade de Medicina da Universidade Federal de Pelotas
Endereço: Av. Duque de Caxias, 250 – Fragata, Pelotas – RS, 96030-000, Brasil.
Telefone: +55 (53) 3221.3554
E-mail: cep.famed@gmail.com
*Obrigatório

1. Endereço de e-mail *

2. Nome completo

3. Após ler atentamente o Termo de Consentimento Livre e Esclarecido, você concorda em participar dessa pesquisa? *

Marcar apenas uma oval.

- ◯ Sim
- ◯ Não

4. Em algum momento você desconfiou da veracidade do processo como uma seleção para bolsista de pós-doutorado?

Marcar apenas uma oval.

- ◯ Sim, desconfiei que o processo não fosse verídico ou se tratasse de algum tipo de pesquisa.
- ◯ Não, acreditei que de fato fosse uma seleção para bolsista de pós doutorado.

3 Relatório do Trabalho de Campo

O presente relatório de campo apresenta um breve resumo do desenvolvimento desta tese. A presente tese foi desenvolvida parcialmente no Ottawa Hospital Research Institute, em Ottawa no Canadá e parcialmente na Universidade Federal de Pelotas.

A qualificação da presente tese ocorreu no dia 12/02/2019 e baseou-se no projeto Benefícios da avaliação de risco de cárie individual e detalhada em adultos: Estudo Clínico Randomizado – CaCIA 02" (Apêndice A). O objetivo era realizar um ensaio clínico randomizado em Unidades Básicas de Saúde (UBS) da cidade de Pelotas para comparar o controle e acompanhamento da doença cárie baseado numa avaliação elaborada e individualizada do risco de cárie, a uma estratégia mais simples de avaliação de risco.

Após a qualificação do projeto e, posterior submissão e aceite do projeto pelo comitê de ética em pesquisa local (Anexo A) e os detalhes para implementação eram estabelecidos junto aos gestores de saúde do município e demais participantes da pesquisa, surgiu a oportunidade de uma bolsa de doutorado sanduíche. Após aprovação na seleção e contemplação com a bolsa e, consequente período de sanduíche de um ano no Ottawa Hospital Research Institute, no Canadá optou-se por adequar a tese a um tema que fosse de interesse da Universidade de destino, na qual meu orientador já trabalhava com journalogia. Desse modo, a implementação do ensaio clínico nas UBSs foi postergada para 2020, com a participação de outros colegas do PPGO-UFPel, e acabou sendo inviabilizada pela pandemia de Covid-19.

Dessa forma, após decisão em conjunto minha do meu orientador brasileiro e do meu orientador estrangeiro optamos por fazer uma tese baseada no viés de gênero da pesquisa. Em dezembro de 2019 iniciei o período de doutorado sanduíche no Ottawa Hospital Research Institute e foi dado inicio ao desenvolvimento da presente tese.

Após as primeiras reuniões de delineamento da tese, entramos em contato com o presidente da Fundação de Amparo à pesquisa do Estado do RS (FAPERGS) para conversar sobre a possibilidade de realizar um estudo com dados provenientes da fundação. O projeto foi, então, submetido e aprovado pelo comitê de ética em pesquisa local (Anexo B), seu projeto foi disponibilizado de forma online no Open Science Framework (OSF) e o estudo começou a ser desenvolvido. Durante o desenvolvimento desse estudo, contamos com a ajuda e co-autoria de uma psicóloga do grupo do Ottawa Hospital Research Institute que contribuiu de forma significativa para a análise qualitativa dos dados. Em 2021 o resultado final desse estudo foi publicado na forma de artigo sob o título “The impact of gender on scientific writing: An observational study of grant proposals”no periódico Journal of Clinical Epidemiology.

Paralelo ao desenvolvimento do primeiro estudo, no início de 2020 foi delineado um estudo clínico randomizado com o objetivo de avaliar se pesquisadores de Odontologia dariam preferência para currículos identificados como masculinos. Esse estudo foi delineado, teve sua aprovação pelo comitê de ética em pesquisa (Anexo C), protocolo publicado no OSF e foi, então, implementado durante o período em Ottawa. No início de 2021, esse estudo teve a sua versão final publicada em formato de artigo sob o título “The impact of gender on researchers’assessment: A randomized controlled trial” também no periódico Journal of Clinical Epidemiology.

Em março de 2020, quando os dois primeiros estudos da tese a serem desenvolvidos ainda estavam em andamento, foi decretada a pandemia por COVID-19, e retornei ao Brasil antes do período esperado. Com o advento da pandemia surgiram novas ideias para o desenvolvimento da tese e foi pensado em um estudo para avaliar o impacto da pandemia nas publicações de acordo com o gênero, acreditando que, as súbitas medidas de distanciamento social pudessem afetar de maneira desproporcional as mulheres em relação aos homens. Assim, foi desenvolvido o terceiro estudo da tese, com a análise de publicações em períodos de odontologia antes e durante a pandemia por COVID-19. O presente estudo foi delineado, teve seu protocolo publicado no osf e sua implementação já em meu período de volta ao Brasil. Esse estudo teve a sua versão final submetida em formato de artigo sob o título “*The impact of COVID-19 on gender gap in dental scientists*” no periódico *Clinical Oral Investigations* e encontra-se sob revisão.
Após o desenvolvimento do terceiro estudo e, ao não encontrarmos diferenças

significativas entre os gêneros na publicação de artigos nos primeiros meses de pandemia, percebemos a necessidade de avaliar as submissões, a fim de encontrar um resultado mais fiel. Dessa forma, surgiu a ideia do quarto estudo observacional, que foi desenvolvido com o auxílio de professores e alunos da UFPel, bem como, com o auxílio dos editores dos três principais periódicos de Odontologia baseados no Brasil, que nos cederam os dados para a realização desse estudo. Após aprovação do comitê de ética (Anexo D), o protocolo foi publicado no OSF e o estudo foi desenvolvido. O presente estudo teve seu resultado final submetido ao periódico Brazilian Oral Research e encontra-se sob revisão.

Com o desenvolvimento da tese e repercussão dos seus resultados. Surgiu o convite para, junto com meu orientador brasileiro, escrevermos um capítulo no livro intitulado *"Glosario de Patologías Sociales"*. O capítulo foi intitulado *"Masculinidad Hegemonica"* e teve o objetivo de analisar o viés de gênero de uma forma mais empírica e mais qualitativa, tentando entender os porquês através dos números que já havíamos descoberto, em conjunto com o que a literatura nos mostra. O livro foi publicado no formato de e-book pela editora UFPel, é de livre acesso, e teve mais de 1700 downloads até o presente momento.

4 Artigo 1[2]

The Impact of Gender on Scientific Writing: An Observational Study of Grant Proposals

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[2] Artigo intitulado “The Impact of Gender on Scientific Writing: An Observational Study of Grant Proposals” formatado de acordo com as normas do periódico Journal of Clinical Epidemiology

Declarations of interest: none

Authors' Contribution:

Concept the Study: MCF, DR, MSC, DM.

Draft the Protocol: MCF, DR, MSC, DM.

Data analysis: HSS.

Draft the Article: MCF, HSS, DR, OAD, MSC, DM.

The Impact of Gender on Scientific Writing: An Observational Study of Grant Proposals

Abstract

Objectives: This study aimed to determine whether there are differences in the language used in grant applications submitted to a Southern Brazil Research Support Foundation (FAPERGS) according to the gender, career stage, and the number of publications of applicants.

Study Design and Setting: This observational study also evaluated the relationship between gender, career stage, curriculum, and writing characteristics. Summaries of all research proposals in the biomedical field of FAPERGS during the years of 2013 and 2014 were evaluated according to six language patterns (Positive emotions, Negative emotions, Analytic thinking, Clout, Authenticity, and Emotional tone) defined by the LIWC software. Applicant's gender, career stage, and the number of publications were also collected.

Results: Three hundred and forty-four (344) grant proposals met the inclusion criteria and were included in the analysis. No statistical differences were observed in the language pattern used by different gender applicants. In the language used by successful and unsuccessful applicants, we only found a small difference for clout (score 54.5 for not funded and 56.5 for funded grants). However, the principal investigators of successful applications had a significantly higher number of papers published (mean number of papers: 104 versus 58.5).

Conclusions: Gender bias appears to be a more complex problem than just the type of language used; the way society is organized causes several gender biases that may be reflected throughout the women's career.

Keywords: gender bias, observational, scientific writing, grant

Running title: The Impact of Gender on Scientific Writing

Word count: 2603

What is new?

Key Findings

There are no differences in language used by men and women in grant proposals among our sample applicants.

The number of publications can more substantively affect the results of grant applications than the language patterns used in the application.

What this adds to what was known?

If women do not use different language patterns, gender bias in grant applications seems to be a much deeper problem.

The way society is organized causes several gender biases that may be reflected throughout the women's career.

What is the implication and what should change now?

Funding agencies, universities, and society need to take steps to consider the systemic bias that women experience throughout their careers.

1. Introduction

Women have been underrepresented in the biomedical field within academia, and this gap widens at each career step, including promotion to full professor.(LAUTENBERGER et al., 2014) Studies have shown that in academia, men's competencies, productivity, leadership potential, and work quality are consistently evaluated to be superior to women based on gender identification alone.(GIROD et al., 2016; MACNELL; DRISCOLL; HUNT, 2015; MOSS-RACUSIN et al., 2012a; PRITLOVE et al., 2019) There is also evidence that women earn lower salaries and receive fewer research grants.(JAGSI et al., 2012; LEY; HAMILTON, 2008)

Considering that funding is one of the main drivers of scientific activities globally, playing a significant role in defining new scientific projects and that financial aid in research can also influence the performance of the funded scientist, gender bias in the grant application process can be a fundamental problem.(EBADI; SCHIFFAUEROVA, 2015; JACOB; FORD, 2012) The literature indicates that gender inequalities in academia could be related to three main factors.(WITTEMAN et al., 2019) The first factor is individual bias, which can be connected to conscious or unconscious gender bias from reviewers' evaluations of grants. The second one is systemic bias related to how systems – or society in general – are organized. An example in funding agencies is the review criteria, which favor male applicants due to cumulative advantages: if men have more resources and opportunities, they will have more papers published. If they have a higher number of published papers, they will receive more funding what will facilitate the development of further studies and publication of papers, which is a cycle. The third and final factor is lower performance, which can be related to the unconscious use of modest, less compelling language by female applicants, which can also be related to how society represents gender identities.(WITTEMAN et al., 2019)

A recent study reported that articles in which the first and last authors were women were less likely to use positive terms to describe research findings than articles in which a man had a leading position. This difference was more remarkable in higher impact journals.(LERCHENMUELLER; SORENSON; JENA, 2019) On the other hand, another recent study did not identify differences in language choices between men and women applying to a Canadian funding agency.(URQUHART-CRONISH; OTTO, 2019)

Considering the need for more evidence on gender bias within academia, especially in the context of less developed countries, this study aimed to determine whether there are differences in the language used by female and male applicants' proposals for grant applications submitted to a Southern Brazil Research Support Foundation (FAPERGS). Another objective was to evaluate the relationship between gender, career stage, curriculum, and writing characteristics in accepting these grant applications.

2. Methods

2.1 Trial Registration and Ethical Approval

The Local Ethics Committee (Federal University of Pelotas) approved the study protocol of the present study (protocol # 29343320.0.0000.5318), and the full protocol is available online on the Open Science Framework platform.(FRANCO; RICE; CENCI, [s.d.]) The consent term was signed by the funding agency president, who gave access to the data. Only one researcher (MCF) had access to original data and codified it before send it to other authors. Only the authors had access to the dataset. This study was reported according to STROBE (The Strengthening the Reporting of Observational Studies in Epidemiology) Statement, a reporting guideline for cross-sectional and case-control studies.(VON ELM et al., 2009)

2.2 Study Design

This study was an observational study partly designed as cross-sectional and partly as case-control, designed to evaluate language patterns between female and male applicants in summaries of research proposals in the biomedical field for a Southern Brazil Research Support Foundation during the years of 2013 and 2014, the most recent years available for research purposes with ethical approval to use from the granting agency. We used a case-control approach to examine language pattern differences between funded and unfunded grant applicants.

2.3 Eligibility criteria

Our inclusion criteria were FAPERGS (Fundação de Amparo à Pesquisa do Rio Grande do Sul, Brazil) grant applications in the biomedical field during 2013 and 2014. Our exclusion

criteria were grant applications in fields other than biomedicine. Two team members (MCF, DR) independently reviewed all successful and unsuccessful grant applications, categorizing them as being included or excluded based on the eligibility criteria. Discrepancies were discussed between the two members to achieve consensus.

2.4 Control group

We matched (1:1 ratio) the included successful applications with a control group of unsuccessful applications. The sample was made by a randomized computer-generated list (www.sealedenvelope.com), and applications were matched by year of funding competition, call for application and content area. This allowed calculation of the pattern of the language of unsuccessful applicants in comparison to funded applicants.

2.5 Data extraction

The data extraction was independently entered by one team member (MCF) and verified by a second individual (DR). The name and gender of the nominated principal applicant (NPA), year and modality of grant and title and summary of the application were extracted from each application. All abstracts were translated from Portuguese to English using an automatic translator software (DeepL, Köln, Germany). After the translation, the summaries were entered in the LIWC 2015 (Linguistic Inquiry and Word Count / Pennebaker Conglomerates, Austin, Texas, USA), and the software automatically extracted the primary outcome. Before beginning data extraction, a pilot exercise was completed using a separate set of applications.

2.6 Assignment of applicant gender, career stage, and research productivity

The gender of applicants was determined by associating the first names with the probability of the name being held by a man versus a woman, using the Genderize database (https://api.genderize.io/?name=). In cases where researcher gender was not strongly inferred (probability threshold of 90%), we checked how the applicant describes themselves in the applicants' CVs from an online platform widely used in Brazil (Lattes - http://lattes.cnpq.br).

The career stage of the applicants was classified according to the year of the Ph.D. completion. If the Ph.D. was obtained from 0 to 4 years before the grant process, the

applicant was classified as early-stage, from 5 to 14 years, the applicant was classified as mid-stage, and for over 15 years, the applicant was classified as established stage. The year of Ph.D. completion was collected on the applicants' online CV on the Lattes platform.

The absolute number of published papers was our measure of the research productivity of the applicants. The number of published papers was collected from the applicants' online CV on the Lattes platform. This online and open access CV platform is available at a National Database, which contains all Brazilian researchers' data. The CV analysis carried out in all regional and national grant application processes in Brazil uses this online platform for researchers' assessment.

2.7 Outcomes

To assess whether men and women diverged in language patterns applied in their research proposal, we used the LIWC software to analyze the summaries and generate language patterns. LIWC is comprised of an extensive dictionary of words and compares inputted written text to its dictionary to generate scores for 92 language variables, including word count, words per sentence, 86 traditional variables, and four summary variables. The variables evaluated in this study were Positive emotions, Negative emotions, Analytic thinking, Clout, Authenticity, and Emotional tone (See Appendix 1 for more details). These six variables are research-based composites that have been converted to 100-point scales, where 0 = very low along the dimension and 100 = very high.(PENNEBAKER et al., 2015)

The LIWC dictionary is available for English language analyses, and the summaries of the grant proposals were in Portuguese. Therefore, all summaries were submitted to an automatic translation from Portuguese to English before the language pattern evaluation. The software used to translate the abstracts was DeepL (https://www.deepl.com/home), for producing a more natural and fluent output compared to other automatic translators available.(MACKETANZ; BURCHARDT; USZKOREIT, [s.d.])

2.8 Statistical methods

A descriptive analysis was used to summarize data. Chi-squared test for linear trend was performed to determine the proportion of gender in every career stage. Student's T-test was used to determine the number of papers by gender and career stage. T-tests were also

used to examine whether gender explains differences in the LIWC variables considered in this study (Positive emotions, Negative emotions, Analytic thinking, Clout, Authenticity, and Emotional tone). T-test was also performed to determine whether there were differences in language patterns between successful and unsuccessful proposals. A logistic regression model was performed to estimate the impact of the number of published papers on grant funding and assess a potential confounding bias by gender and career stage. For all the analyses, a $P<0.05$ was considered as statistically significant.

3. Results

Three hundred and forty-four (344) grant proposals met the inclusion criteria and were included in the analysis (172 funded grants and 172 controls – unsuccessful applicants). Table 1 shows the gender distribution of all grants submitted in the biomedical area and the distribution of funded grants. Females were the majority in both the total number of applications and grants funded, with 59.3% of funded applications led by women. Descriptive analysis of the distribution of funded grants according to career stage of the applicants showed that the majority of funded grants were from applicants in the middle stages of their careers (41.9%), followed by early stages (34.9%) and established stages (23.2%) (data not shown).

Table 1. Total applications and funded applications per gender

Gender	Total applications	Funded applications
p=0.46		
Men	376 (37.67%)	70 (40.7%)
Women	621 (62.23%)	102 (59.3%)
Total	998 (100%)	172 (100%)

Table 2. Proportion of Gender per Career Stage.

	Gender				Total	
	Male		Female			
	n	row%	n	row%	n	row%
Career stage					*P*=0.172	
Early	45	37.2	76	62.8	121	100.0
Middle	59	38.6	94	61.4	153	100.0
Established	34	48.6	36	51.4	70	100.0
Total	138	40.1	206	59.9	344	100.0

The proportion of gender per career stage is presented in table 2. There were a higher number of women in the early career stage, and that number decreases at every career stage. However, the differences between gender per career stage were not significant.

Table 3. Mean of the number of papers (confidence interval) published by gender and career stage.

	Gender		
Career stage	Men	Women	*P*-value
Early	51.7 (40.4; 62.9)	45.1 (38.6; 51.5)	0.311
Middle	88.4 (69.8; 106.9)	66.6 (56.0; 77.2)	0.045
Established	183.9 (127.9; 240.0)	124.0 (93.1; 154.9)	0.063

Table 3 presents results from a T-test with the number of papers published per gender in every career stage. Men have a higher number of publications in all career stages, and this gap is significant for middle career researchers.

Table 4. Mean of number of papers, word count, and LIWC variables by gender (unequal distribution) with confidence intervals

	Men	Women	*P*-value
Number of papers	99.9 (82.0; 117.9)	68.7 (60.4; 77.0)	0.002
Word Count	320.9 (300.8; 341.0)	341.1 (325.1; 357.1)	0.121
Analytic Thinking	98.0 (97.7; 98.3)	98.0 (97.7; 98.2)	0.767
Clout	55.7 (54.4; 57.0)	55.4 (54.2; 56.6)	0.740
Authenticity	17.3 (15.2; 19.3)	17.5 (15.6; 19.4)	0.877
Emotional Tone	33.4 (30.1; 36.8)	35.9 (33.0; 38.7)	0.280
Positive Emotions	1.55 (1.40; 1.69)	1.56 (1.42; 1.70)	0.885
Negative Emotions	1.34 (1.11; 1.56)	1.22 (1.02; 1.26)	0.107

Table 4 presents a T-test for the number of papers published, word count of the grant proposal abstract, and the six LIWC variables according to the gender of the applicant. No statistically significant differences were observed for any of the LIWC variables and the application's word count. When evaluating gender differences, men had a higher number of papers published than women (*P*=0.002).

Table 5. Mean of number of papers published, word counts of the grant proposals, and LIWC variables by grants' outcome (unequal distribution) with confidence intervals

	Grants not funded	Grants funded	*P*-value
Number of papers	58.5 (51.3; 65.6)	104.0 (88.4; 119.6)	<0.001

Word Count	321.6 (303.2; 340.0)	344.4 (327.5; 361.3)	0.073
Analytic Thinking	98.0 (97.7; 98.3)	98.0 (97.8; 98.2)	0.799
Clout	54.5 (53.3; 55.8)	56.5 (55.3; 57.7)	0.025
Authenticity	17.8 (15.6; 19.9)	17.0 (15.2; 18.8)	0.598
Emotional Tone	34.2 (31.1; 37.3)	35.6 (32.5; 38.7)	0.525
Positive Emotions	1.50 (1.35; 1.66)	1.61 (1.47; 1.74)	0.312
Negative Emotions	1.23 (1.04; 1.42)	1.19 (1.04; 1.35)	0.777

Table 5 presents the mean number of papers published, word count of the grant proposal abstract, and the score on the six LIWC variables according to the grant application outcome (funded or not). No differences were identified for word count and any of the LIWC variables but clout. However, funded grants had applicants with a higher number of papers published (*P*<0.001).

Table 6: Career stage of applicants and mean of number of papers, word count, and LIWC variables by grant application outcome and gender (unequal distribution) with confidence intervals

	Grants not funded[a]			**Grants funded**		
	Men	**Women**	***P*-value**	**Men**	**Women**	***P*-value**
Career stage[b]			0.62			0.39
Early	22 (36.1)	39 (63.9)		23 (38.3)	37 (61.7)	
Middle	32 (39.5)	49 (60.5)		27 (37.5)	45 (62.5)	
Established	14 (46.7)	16 (53.3)		20 (50.0)	20 (50.0)	
Number of papers[c]	65.5 (51.9;79;1)	53.9 (46.1;61.7)	0.14	133.5 (102.1;164;8)	83.8 (69.4;98.1)	
Word Count[c]	312.1 (280.2;343.9)	327.8 (305.2;350.4)	0.42	329.5 (304.0; 354.9)	354.7 (332.0;377.3)	0.14
Analytic Thinking[c]	98.1 (97.6;98.5)	97;9 (97.5;98.2)	0.52	98.0 (97.6;98.4)	98.0 (97.7;98.3)	0.75
Clout[c]	54.9 (53.0;56.8)	54.3 (52.6;56.0)	0.66	56.5 (54.7;58.3)	56.5 (54.9;58.2)	0.98
Authenticity[c]	18.2 (15.0;21.3)	17.5 (14.6;20.5)	0.77	16.4 (13.6;19.2)	17.5 (15.0;19.9)	0.57
Emotional Tone[c]	31.4 (26.9;35.9)	36.0 (31.8;40.3)	0.14	35.4 (30.4;40.5)	35.7 (31.8;39.6)	0.93
Positive Emotions[c]	1.46 (1.25;1.67)	1.53 (1.32;1.74)	0.64	1.63 (1.42;1.83)	1.59 (1.41;1.78)	0.79
Negative Emotions[c]	1.44 (1.06;1.82)	1.09 (0.89; 1.28)	0.10	1.24 (0.99;1.49)	1.16 (0.96;1.36)	0.62

[a]Random sample of not funded grants, used as controls in this study.
[b]n(%)

[c]Mean (95% Confidence Interval)

Table 6 shows the mean number of papers published and writing pattern characteristics stratified by both grant application outcome and gender of the principal investigator. When stratified by both variables, a gender difference was observed in the number of publications among funded grants, with men having, on average, almost 50 extra published papers in comparison to women (133.5 versus 83.8 published papers).

Estimates from a logistic regression model show that the number of papers influences grant funding, independently of the principal investigator's career stage and gender (Table 7). For every extra published paper, the odds of having a successful outcome increases 1% (Odds Ratio 1.01, 95% Confidence Interval 1.01;1.02, p<0.001).

Table 7. Association between the number of papers and grant outcome, adjusted for career stage and gender estimated using Logistic regression.

	Odds Ratio	95% Confidence Interval	*P*-value
Number of papers	1.01	1.01; 1.02	0.002
Career stage	0.68	0.48; 0.96	0.030
Gender	1.23	0.77; 1.96	0.379

4. Discussion

As far as we know, this is the first study to assess possible differences in language pattern used for grant applications according to the researcher's gender in South America. Overall, no differences were observed in the language pattern used by different gender applicants in summaries of biomedical research grant proposals. These results are in line with a previously published study that evaluated gender differences in language in Canadian NSERC (Natural Sciences and Engineering Research Council) summaries and also found that language between male and female applicants did not differ substantially.(URQUHART-CRONISH; OTTO, 2019) The present findings can be explained because when writing becomes more technical, language differences between gender can decrease significantly, as already presented in linguistics studies.(YAVARI; KASHANI, 2013)

Besides no differences in the language used by men and women in the language used by successful and unsuccessful applicants, we only found a small difference for clout - successful applications used a greater number of words that refer to clout. Still, the mean differences in the clout score were very small. However, the principal investigators of

successful applications have a significantly higher number of papers published. These results show that the grant proposal's language is not determinant for being awarded. What seems to be more important is the applicant's CV, illustrated here by the number of published papers. This finding may represent systemic bias as men have a higher number of papers published when compared to women.(FILARDO et al., 2016; LUNDINE et al., 2019)

It is essential to point out that previous studies have shown that the number of women in academia decreases at each career step. While women are the majority among undergraduate students in various biomedical courses, they are a small minority in leadership positions such as full professorships.(ALLAGNAT et al., 2017; LAUTENBERGER et al., 2014) This suggests that gender bias occurs in the earliest stages of a researcher's career (e.g., during graduation) and remains during the whole career course. Only women who had already been successful through this biased process get to the stage of submitting a grant proposal as a Principal Investigator (PI), so, probably, at these higher career levels, gender bias may not be as apparent.

The findings also demonstrated a trend of gender disparity according to the career stage. A higher proportion of female researchers applying for grants are observed at all career stages than male researchers. However, the proportion of females decreases at the late stages. From our findings, we can observe that in the early career phase, men and women are not far apart in terms of the number of published papers, but this changes substantially during the middle career years. Perhaps that is when women are starting families and taking on more home responsibilities, which may lead to their productivity falling behind in comparison to men. In addition to social pressure, which makes women have greater personal responsibilities compared to men (which is already a way of systemic bias), several other reasons make almost impossible for women have the same number of published papers as men, such as being assigned to more teaching and service responsibilities, receiving harsher peer review and having fewer invitations to write commentaries or articles.(HENGEL, 2017; LUNDINE et al., 2019; TAMBLYN et al., 2018) During the established stages of careers, women's number of publications tends to increase slightly. However, the gap is already established and still plentiful.

Our findings demonstrate that applicants' number of publications is far more critical to be successful in a grant application than the language used in the proposal (that do not differ between men and women). It can suggest that the gap between men and women in

grant proposals follows a cycle: men have more papers published (which may be due to not having the same domestic responsibilities as women in raising children, for example), a higher number of papers published will, in turn, result in men receiving a higher number of grants. A higher number of grants will lead to men being able to produce more papers and remain in the field, and in the future, be more successful in new grant applications.(LUNDINE et al., 2019)

This study's limitations include the automatic analysis of the language pattern, which can be limited according to the program's sensitivity. Besides that, the sample was composed of applicants' proposals for grant applications submitted to a Southern Brazil Research Support Foundation, which means that one has to be cautious in extrapolating these results to other contexts. Another relevant limitation of the present study is that, since we used an automatic tool to determine the applicant's gender, we considered gender as a binary variable, without considering gender diversity. Another critical point is that we used data from 2013 and 2014 since we only had access to this specific data. Future studies can be done with more recent data to compare findings among the years.

5. Conclusions

We can conclude from this study's findings that there are no differences in the language used by men and women in grant proposals among applicants in Southern Brazil. Therefore, factors such as the number of publications can more substantively affect the results of grant applications as compared to the language patterns used in the application. Gender bias seems to be a much deeper problem than just the type of language used; the way society is organized causes several gender biases that may be reflected throughout the women's career.

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5 Artigo 2[3]

The Impact of COVID-19 on Gender Gap in Dental Scientists

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Introduction

Since the World Health Organization (WHO) declared COVID-19 a pandemic in March 2020(BROOKS et al., 2020b; GHEBREYESUS, 2020; PAN AMERICAN HEALTH ORGANIZATION, 2020), social distance measures have been implemented worldwide to flatten the curve of infected people. Actions such as closing schools and working from home required considerable adaptation to the usual daily routine for most families.(ALFAGEME, 2020a; LAI et al., 2020)

Although fathers are not immune to the impacts of confinement, traditionally mothers provide the most support to raising children.(SHOCKLEY, 2016) Several studies have already shown a much larger number of women as sole caregivers than men. Even in situations where the mother does not have the sole responsibility for the child, she still spends far more time on activities related to the child's care than the father.(JOLLY et al., 2014b; WOITOWICH et al., 2021a)

A significant gender gap already exists in academia, and it is widely reported in the literature.(HUANG et al.; TIWARI et al., 2019) Men have more papers published as principal authors than women across different disciplines. (CHATTERJEE; WERNER, 2021b) Besides that, papers with men as first and last authors have a higher number of citations when compared to papers with women as main authors(CHATTERJEE; WERNER, 2021c).

Therefore, it is expected that the pandemic-induced restrictions, such as in access to childcare, might reasonably have a disproportionate impact on women's productivity when compared to men and increase, even more, the current gender gap present in academia.(MINELLO, 2020; PHILIPPE VINCENT-LAMARRE, CASSIDY R. SUGIMOTO, 2020; WOITOWICH et al., 2021) Thus, the main objective of this study was to determine if the COVID-19 pandemic impacts the gender gap in dental scientists.

Materials and Methods

Study Registration and Ethical Approval

The protocol is available online on the Open Science Framework platform (https://osf.io/wnfhb/). No ethical approval is required for this study since all data used is publicly accessible.

Study Design

This was designed as an observational prospective cohort study to evaluate the proportion of women as first authors in dentistry papers during the COVID-19 pandemic compared with the same period in the year immediately before the pandemic.

Eligibility criteria

Were considered eligible for this study, papers published between January 30th to July 31st from 2019 and between January 30th to July 31st from 2020 in journals within the area of dentistry indexed in MedLine having a Journal Impact Factor (JIF) with a first author having an ORCID account.

Data extraction

From each one of the journals included, we collected the number of papers published from March 11th of 2019 to July 31st of 2019 and the numbers of papers published in the same period of 2020 (January 30th of 2020: when the WHO declared a Public Health Emergency of International Concern and for the next six months). We also collect the journals' subfields (e.g., orthodontics, endodontics, pediatrics; extracted from PubMed) and the JIF (extracted from the Journal Citation Reports: www.webofknowledge.com/JCR). Papers reporting on COVID-19 were also registered. From each of the papers published, we collected the name of the first and last author, the first author's career stage, and the receipt of funding. Data were entered in an excel sheet collected by three researchers (MCF, APD, TM).

Assignment of the author's gender

The gender of the first and last author was determined by associating the first names with the probability of the name being held by a man versus by a woman, using the Genderize database (https://api.genderize.io/?name=). In cases where researcher gender was not strongly inferred (probability threshold of 90%), we checked researchers' online ORCID (www.orcid.org).

Assignment of the author's career stage

The authors' career stage was assessed by ORCID (www.orcid.org), from the time of the authors' highest degree as: early-career (less than 5 years from highest degree), mid-career (5 to 10 years from the highest degree), or senior-career (more than 10 years).

Data analysis

Descriptive analysis was used to summarize the data. Absolute and relative frequencies were calculated, and Pearson's chi-square test was used. The primary data analysis calculated the proportion of women as first and the last author in dentistry papers during the COVID-19 pandemic compared to the previous year. The secondary data analysis calculated the proportion of women as first and last author in dentistry papers during the COVID-19 pandemic compared with the same period of the previous year.

Results

No deviations from the study protocol were made.

From the 139 dentistry journals indexed in Medline, 56 were excluded from the sample (52 for not having a JIF and four for not having any paper published between January 30th to July 31st from 2019 and between January 30th to July 31st from 2020). Thus, from the 83 journals that met the inclusion criteria, we extracted and included in the analysis 3394 articles (1346 published in the "before COVID-19" period and 2048 published in the "during COVID-19" period). More details are presented in the flow diagram (Figure 1).

From the 83 included journals, the majority were from the United States, followed by England, and more than 90% of them publish articles in English. Considering the subspecialties, 31.3% of included journals were regarded as general. Regarding the JIF, the majority of journals have an impact factor between 1 and 2. More detailed characteristics of the included journals can be found in Table 1.

Table 1: Number of included journals according to country, subdiscipline, language and JIF

Country (n)	**Subdiscipline (n)**	**Language (n)**	**JIF (n)**
United States (28)	Cariology (1)	English (75)	<1 (10)
England (24)	Education (2)	French (1)	1>2 (45)
Denmark (8)	Endodontics (3)	German (2)	2>3 (18)
Australia (3)	General (26)	Italian (2)	3< (10)
Brazil (2)	Gerontology (1)	Japanese (1)	
Germany (6)	Implantology (5)	Portuguese (1)	
Japan (4)	Materials (3)	Spanish (1)	
France (2)	Microbiology (1)		
India (1)	Orthodontics (6)		
Italy (1)	Orthopedics (1)		
Korea (2)	Pediatrics (4)		
Netherlands (2)	Periodontics (5)		
Spain (1)	Prosthodontics (5)		
Switzerland (1)	Public Health (3)		
	Radiology (2)		
	Stomatology (7)		
	Surgery (7)		
	Traumatology (1)		

The total number of studies at each time period can be seen in table 2. While nearly three times the higher number of papers were published in the most recent period, no statistical differences were identified regarding the first author's gender. The analysis of the last authorship, which yields similar findings, are presented in table 3. Taken together, Tables 2 and 3 suggest that the proportion of papers last authored by women is smaller than as first-authored (36.0% versus 42.5%), and this trend did not change during the COVID-19 pandemic.

Table 2. Proportion of first authors per gender before and during the COVID-19

Gender	Before COVID-19			During COVID-19			Total	
	N	%	95% CI	N	%	95% CI	N	%
Men	762	56.6	53.9, 59.2	1,190	58.1	55.9, 60.2	1,950	57.5
Women	584	43.4	40.7, 46.0	858	41.9	39.8, 44.0	1,442	42.5
Total	1,346	100.0		2,048	100.0		3,394	100.0

P-value= 0.389

Table 3. Proportion of last authors per gender before and during the COVID-19

Gender	Before COVID-19			During COVID-19			Total	
	N	%	95% CI	N	%	95% CI	N	%
Men	817	63.4	60.7, 65.9	1,255	64.5	62.3, 66.5	2,072	64.0
Women	472	36.6	34.0, 39.3	692	35.5	33.4, 37.7	1,164	36.0
Total	1,289	100.0		1,947	100.0		3,236	100.0

P-value= 0.532

When papers before and during the pandemic were stratified by career stage, the proportion of papers with women as first authors decrease at each career stage, as shown in table 4. However, it can also be observed that no over-time differences in the first author's gender were identified within the same career stage.

Table 4. Distribution of first authors' gender in each career stage before and during the COVID-19

Career Stage		Before COVID			During COVID			P-value
		N	%	95% CI	N	%	95% CI	
Early	Men	360	51.7	48.0, 55.4	530	52.2	49.0, 55.2	
	Women	336	48.3	44.6, 52.0	486	47.8	44.8, 50.1	
Total		696	100.0		1,016	100.0		0.858
Mid	Men	257	57.7	53.1, 62.2	348	59.1	55.0, 62.9	
	Women	188	42.3	37.7, 46.9	241	40.9	37.0, 44.9	
Total		351	100.0		610	100.0		0.667
Senior	Men	145	70.7	64.1, 55.2	199	74.5	68.9, 79.4	
	Women	60	29.3	23.4, 35.9	68	25.5	20.6, 31.0	
Total		205	100.0		267	100.0		0.357

Table 5 presents information on the first authorship by journal field. Similar proportions of papers first-authored by women were identified in all fields but periodontics, which presented an increase of papers published by women before and during the COVID-19 pandemic. Before covid, women represented less than one-quarter of the first authors of papers published in the Periodontics field. In contrast, during the pandemic, almost half papers in these journals were first-authored by women.

Table 5. Frequency of first authors according to gender before and during the COVID-19 per journal field.

Field	Gender	Before COVID-19			During COVID-19			P-value
		N	%	95% CI	N	%	95% CI	
General	Men	208	49.2	44.4, 53.9	307	50.5	46.5, 54.5	0.677
	Women	215	50.8	46.1, 55.6	301	49.5	45.5, 53.5	
Surgery	Men	98	77.8	69.7, 84.2	163	81.9	75.9, 86.7	0.361
	Women	28	22.2	15.8, 30.3	36	18.1	13.3, 24.1	
Endodontics	Men	41	60.3	48.3, 71.2	53	64.6	53.7, 74.2	0.584
	Women	27	39.7	28.8, 51.7	29	35.4	25.8, 46.2	
Stomatology	Men	97	56.7	49.2, 63.9	222	59.3	54.3, 64.2	0.563
	Women	74	43.3	36.0, 50.8	152	40.6	35.8, 45.7	
Implantology	Men	31	60.8	46.9, 73.1	60	70.6	60.1, 79.3	0.239
	Women	20	39.2	26.9, 53.1	25	29.4	20.7, 39.9	
Dental materials	Men	27	46.5	34.2, 59.3	35	53.8	41.7, 65.5	0.419
	Women	31	53.4	40.6, 65.8	30	46.1	34.5, 58.3	
Orthodontics	Men	43	63.2	51.2, 73.8	63	56.2	46.9, 65.1	0.356
	Women	25	36.8	26.2, 48.8	49	43.7	34.9, 53.0	
Periodontics	Men	45	76.3	63.8, 85.4	50	55.6	45.2, 65.4	0.010
	Women	14	23.7	14.6, 36.2	40	44.4	34.5, 54.8	
Prosthodontics	Men	73	62.4	53.2, 70.7	55	60.4	50.1, 69.9	0.774
	Women	44	37.6	29.3, 46.7	36	39.6	30.1, 49.9	
Other*	Men	99	48.3	41.5, 55.1	181	53.1	47.8, 58.3	0.279
	Women	106	51.7	44.9, 58.5	169	46.9	41.7, 52.2	

*Fields with less than 100 articles were included in this category: cariology, education, gerontology, microbiology, pediatrics, radiology and public health.

Data on the last authorship over time by the field of the journal is described in table 6. A marked decrease was identified in papers last authored by women in general (37.9% before COVID-19 and 13.5% during the pandemic), endodontics (25.8% before COVID-19 and none during the pandemic), and periodontics journals (37.9% before COVID-19 and 7.8% during the pandemic). In contrast, there was an increase in the frequency of papers last authored by women in the stomatology and surgery fields.

Table 6. Frequency of last authors according to gender before and during the COVID-19 per field

*Fields with less than 100 articles were included in this category: cariology, education, gerontology, microbiology, pediatrics, radiology and public health.

Table 7 compares the first authorship gender of all studies before the pandemic (all research subjects) with studies during the second period, in which the subject of research was the pandemic. While women led about 43% of all studies published between January and July 2019, this proportion drops to just under one-third among studies regarding covid.

Field	Gender	Before COVID-19			During COVID-19			P-value
		N	%	95% CI	N	%	95% CI	
General	Men	251	62.1	57.3, 66.7	515	86.5	83.6, 89.1	0.000
	Women	153	37.9	33.3, 42.7	80	13.5	10.9, 16.4	
Surgery	Men	85	72.0	63.3, 79.4	104	52.0	45.1, 58.8	0.000
	Women	33	28.0	20.6, 36.7	96	48.0	41.1, 54.9	
Endodontics	Men	49	74.2	62.4, 83.3	84	100.0	-	0.000
	Women	17	25.8	16.6, 37.6	0	-	-	
Stomatology	Men	96	57.5	49.9, 64.8	75	20.2	16.4, 24.6	0.000
	Women	71	42.5	35.2, 50.1	296	79.8	75.3,83.6	
Implantology	Men	31	64.6	50.2, 76.7	40	67.8	54.9, 78.4	0.726
	Women	17	35.4	23.3, 49.8	19	32.2	21.6, 45.1	
Dental materials	Men	39	70.9	57.7, 81.3	45	68.2	56.1, 78.2	0.746
	Women	16	29.1	18.6, 42.3	21	31.8	21.6, 43.9	
Orthodontics	Men	36	57.1	44.7, 68.7	65	58.0	48.7, 66.8	0.909
	Women	27	42.8	31.3, 55.3	47	42.0	33.2, 51.3	
Periodontics	Men	36	62.1	49.0, 73.5	83	92.2	84.6, 96.2	0.000
	Women	22	37.9	26.4, 50.9	7	7.8	3.7, 15.4	
Prosthodontics	Men	77	66.4	57.3, 74.4	14	51.8	33.6, 69.6	0.158
	Women	39	33.6	25.6, 427	13	48.1	30.4, 66.4	
Other*	Men	117	60.3	53.3, 66.9	229	67.0	61.8, 71.4	0.122
	Women	77	39.7	33.0, 46.7	113	33.0	28.2, 38.2	

Table 7. Proportion of first authors per gender before COVID-19 compared with studies about COVID-19

Gender	Before COVID-19			About COVID-19			Total	
	N	%	95% CI	N	%	95% CI	N	%
Men	762	56.6	53.9, 59.2	179	67.0	61.2, 72.4	941	58.3
Women	584	43.4	40.8, 46.0	88	33.0	27.6, 38.8	672	41.7
Total	1,346	100.0		267	100.0		1,613	100.0

P-value= 0.002

Discussion

Our study sought to highlight the impact of the pandemic on women's academic production in dentistry. As it is known, in most settings, women are the ones who face a double workload, taking care

of academic activities, household chores, and childcare. In addition, existing gender inequalities in professional visibility, networking, and collaboration can be exacerbated as activities move from face-to-face to virtual environments and create new barriers to advancement (JOFFE, 2021). Therefore, from the analysis of 3394 articles, there was an increase in the overall number of publications during the pandemic period. Thus, the pattern observed before the pandemic, in which men published more than women, was maintained in most of the different categories stratified in the analyses: career stage and subfields.

Contrary to the main hypothesis, we did not observe significant differences between publications first or last authored by men before covid-19 relative to publications during the first months of the pandemic. We also did not find important differences when considering the journal's subdisciplines. Regarding the first author's gender, differences were identified only in periodontics journals, where publications led by women increased during the pandemic. Regarding the last author's gender, for general, endodontics and periodontology journals, the prevalence of women as last author decrease (during the pandemic, 100% of last authors in endodontics journals were men), however in surgery and stomatology journals, the prevalence of women as the last author increased.

We believe that the results obtained could be explained by the time interval between submitting the article and its publication; many of the studies published at the beginning of the pandemic were finished (or at the last stages of completion) and only their publication occurred during this period. Another hypothesis to justify the findings is that during the initial period of the pandemic, with the social isolation and the possibility of home office, articles that needed only textual finalization could have been completed. The authors suggest that a new evaluation should be done in the following semesters, to assess the impact of gender on projects that were started and/or developed during the pandemic period.

When we analyze publications related to COVID-19 in comparison with the total of publications regardless of the subject, it was observed that before COVID-19, men published 56.6% of the papers. However, during the pandemic, the proportion of men as first authors increase to 67.0%. Data about COVID-19 studies are relevant because it represents, necessarily, studies whose data were collected during the pandemic when most researchers work remotely. Therefore, this finding can be suggestive regarding the hypothesis that in the remote work context, the historical discrepancy in the divisions of domestic tasks and the previous social difficulties faced by women favor gender academic inequality.

In addition, although the number of women graduates in dentistry is higher than men globally, there is still a gap between this number and the number of women working in research on the field (TIWARI et al., 2019b). This can be seen in the number of publications in journals at all career levels, when both first and last authorships are higher for men. This may also impact on the disproportionate presence of women compared to men at the highest levels of dental research, since limitations to career progression begin at the early stages of training and perpetuate during the whole academic trajectory. Many causes could be listed to understand the lack of women in science. These include underestimation

(MOSS-RACUSIN et al., 2012b), fewer opportunities (FRANCO et al., 2021a) funding (LEY; HAMILTON, 2008), and the lack of a suitable environment that inspires and guides careers (BARFIELD; PLANK-BAZINET; AUSTIN CLAYTON, 2016)

Some limitations of this study need to be noted, such as the period between article submission and publication, which was not collected since is not available in most part of the journals evaluated. Those could represent publications submitted before COVID-19 and not express the production during the pandemic, overestimating these numbers. Another point is observing gender through researchers' names, which could imply some uncertainty or misclassification, even when controlled using tools to reduce this bias (LERCHENMÜLLER et al., 2021a). Another significant limitation is that, since we used an automatic tool to determine the author's gender, we considered gender a binary variable without considering gender diversity.

In order to collect the career stage of authors and increase the generalizability of results, we decided to include only manuscripts in which the first authors had an Open Researcher and Contributor ID (ORCID) account. This should not be considered as a limitation since, in 2019, almost 6 million researchers were registered in ORCID and 1600 journals required an ORCID at the point of submission. (CRESS, 2019)

This study compares publications in dentistry in journals before and during the COVID-19 pandemic, making it possible to highlight the potential impact of the pandemic on gender bias. As already shown in some previous studies, women are often at a disadvantage compared to men, even when both have the same professional experience (FRANCO et al., 2021b) and the COVID-19 pandemic can also raise this disparity (LERCHENMÜLLER et al., 2021b).

Conclusions

During the first few months of the pandemic, the existing gender gap seems to have been maintained concerning first or last order authors and even exacerbated considering only the publications about the COVID-19 pandemic.

It is likely essential to repeat the experiment examining a later pandemic period to fully understand the potential impacts for the gender academic inequalities.

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6 Artigo 3[4]

Impact of COVID-19 on the gender gap in dental publications: A retrospective cohort with three Brazilian journals

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Impact of COVID-19 on gender gap in dental publications: A retrospective cohort with three Brazilian journals

Abstract

This study evaluated the impact of COVID-19 on the gender gap and female participation in articles submitted to three international dental journals based in Brazil. With a retrospective cohort design, this study assessed submissions performed to Brazilian Dental Journal, Brazilian Oral Research, and Journal of Applied Oral Science before (2019) and during COVID-19 (2020). Gender of the first, last, and corresponding authors were collected on eligible articles. Other variables included were journal, first author's continent and career stage, and final article decision. Absolute and relative frequencies with 95% confidence intervals, Pearson's Chi-square tests, and Fisher's Exact test were used (α=0.05). In total, 4,726 unique submissions were analyzed. A higher proportion of early-career authors was observed during the pandemic. Most articles were rejected but no association with gender and manuscript decision was present, irrespective of the authorship position. Considering the authors' gender, increased proportion of male first authors from before to during the pandemic was observed. Women in their early- or mid-career stages had a drop in the proportion of articles as first authors. Considering the first author's continent, reduction of women as first author was observed in Latin America during the pandemic. Reductions in women as first authors were also observed when the last author was a female or the corresponding author was a male. In conclusion, a disproportionate impact on female dental researchers in article submissions from before to during the pandemic was observed, suggesting that the COVID-19 may have increased the gender inequality in dental science.

Keywords: gender equity; publications; peer review.

Introduction

Precisely on March 13, 2020, the World Health Organization declared that the world was under a pandemic promoted by an emerging coronavirus (SARS-CoV-2) with a high rate of contagion and the potential to collapse health systems(PAN AMERICAN HEALTH ORGANIZATION). The Coronavirus Disease 2019 (COVID-19) had a profound impact on people's lives, whether due to quarantine or social distancing measures, family and friends' deaths, or impacted work, family relationships, and socioeconomic issues(BROOKS et al., 2020a; MATTOS; PORDEUS, 2020; PEIXOTO et al., 2021). Like other work environments, the COVID-19 directly affected academia(ALFAGEME, 2020b) as social distance forced moving toward working from home and engaging in virtualized teaching. The period of the day that was once exclusive to working was then mixed and confused with household chores, care of elderlies, and supervision of children in remote education and leisure activities(ALFAGEME, 2020b; NADANOVSKY; DOS SANTOS, 2020; POWER, 2020).

The pandemic may have led to a more precise distinction between gender roles and increased women's overburden(POWER, 2020; UNITED NATIONS WOMAN, 2020). For example, female healthcare workers continued their workdays, often adding the exhausting work on the front line of the COVID-19 response with double or triple shifts at home(UNITED NATIONS WOMAN, 2020; YERKES et al., 2020). In the same way, the pandemic impacts on women's routine affected researchers(JEAN; PAYNE; THOMPSON, 2015b; JOLLY et al., 2014c). A recent editorial suggested that the consequences from COVID-19 could negatively impact an entire generation of female researchers(COLLINS, 2020). Among possible academic impacts, lower productivity could be exemplified by fewer articles submitted to peer-reviewed journals or preprint platforms(COLLINS, 2020; P; C; LARIVIERE, 2020; WOITOWICH et al., 2021c). In the first six months of the pandemic, a study observed a significant reduction in the position of female scientists as first authors in transfusion medicine journals(IPE et al., 2021). Low application of COVID-19 grant proposals by female investigators also was reported(WITTEMAN; HAVERFIELD; TANNENBAUM, 2021).

Two studies with high-impact dental journals observed that Latin American publications had higher proportions of women as first or last authors than North America and Europe(SARTORI et al., 2021; TIWARI et al., 2019c). A potential cause is the high number of women as oral health workers in Latin American countries, including Brazil(TIWARI et al., 2019c). In 2020, Brazil was considered one of the pandemic epicenters(HALLAL; VICTORA, 2021). Other nations, including low- and lower-middle-income countries in Latin America, Asia, and Africa, also suffered from major COVID-19 outbreaks(CHACKALACKAL et al., 2021). In addition, these countries have a social environment and, sometimes, legislation that is unfriendly to women and their fundamental human rights, such as

gender and racial violence, different work payment, division of household chores, maternal and reproductive rights(UNITED NATIONS WOMEN, 2018). This sum of circumstances may have significantly affected women researchers' scientific production in those regions.

Previous publications have addressed the influence of the pandemic on the gender gap in medical and health sciences journals(IPE et al., 2021; WOITOWICH et al., 2021c). However, to the best of our knowledge, the impact on articles submitted or published by women in dental journals has not been investigated. Since 2006, Brazil has been the second country with most articles published in international dental journals(GONÇALVES et al., 2019). Thus, it is a relevant scientific environment to investigate the possible impacts of the pandemic on gender inequality in authorship. Therefore, this study aimed to evaluate the impact of the COVID-19 pandemic on the gender gap and female participation in the authorship of articles submitted to or published in three international dental journals based in Brazil before and during the pandemic.

Methodology

This study was reported following The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement(VON ELM et al., 2008).

Study Design, Setting, and Ethical Aspects

This was an observational, retrospective cohort designed to evaluate the impact of COVID-19 on the gender gap and female participation among articles submitted to three international dental journals based in Brazil: Brazilian Dental Journal (Braz Dent J), Brazilian Oral Research (Braz Oral Res), and Journal of Applied Oral Science (J Appl Oral Sci). In Scimago Journal Rank 2020, Braz Dent J is classified as Q2, Braz Oral Res and J Appl Oral Sci are classified as Q1 in the top quartiles of impact in dentistry(SCIMAGO LAB, 2021). According to Scopus data(ELSEVIER, 2021), these journals in 2017–2020 published 1,226 articles, gathered 3,822 citations, and reached 2021 CiteScores between 2.4 and 3.5. As a characteristic, a smaller part of the articles published in these journals has authorship from high-income countries(SCIELO ANALYTICS, 2021a, 2021b, 2021c). The study protocol was submitted and approved by the Research Ethics Committee of the Universidade Federal de Pelotas, Brazil (protocol #42177020.0.0000.5318). Submission data were provided by the journal editors, who signed a consent form for sharing the data with the research team, and only one researcher (MCF), who signed a confidentiality form, had access to the complete data. An unidentifiable dataset was available to the other authors. All data management was made according to the Helsinki declaration.

Eligibility Criteria

All papers submitted during the years 2019 and 2020 to the three journals were eligible for this study. To be included, articles had to have been submitted between January 1, 2019, and December 31, 2020. Articles were included in the sample regardless of the submission stage (e.g., original or revised resubmission). Papers identified as retractions were excluded from the sample. Records that did not have the date of submission and/or authors' names were excluded. Articles with more than one entry in the journals' editorial system, such as articles resubmitted after a major/minor review decision, had only the most recent entry considered. The study was carried out using what could be considered a convenience sample.

Variables

Exposure and outcomes variables

The COVID-19 pandemic was considered the outcome and the gender (male or female) of the main authors (first, last, and corresponding) were considered the outcomes. The gender of main authors for each article was determined by associating their first names with the probability of the name being held by a man or a woman using genderize.io (https://api.genderize.io/?name=). In cases where the researcher's gender was inferred with a probability below 90%, we also checked researchers' online CVs available in ORCID (https://orcid.org), ResearchGate (https://www.researchgate.net/), LinkedIn (https://www.linkedin.com/home/), or institutional websites. For Brazilian authors, we also checked the Brazilian Lattes CV Platform (https://lattes.cnpq.br/). Date of the submission was also collected. This variable was then categorized into periods: 'before the COVID-19 pandemic', encompassing studies submitted in 2019, and 'during the COVID-19 pandemic', which included studies submitted in 2020.

Covariates

For each article, the following information was collected: journal; first authors' country, which was categorized by continent (Africa, North America, Latin America, Asia, Europe, or Oceania); and first authors' career stage, which classified in early, mid, or senior categories. The career stage was assessed by checking the ORCID profiles and using data of authors' highest degree: early career (<5 years from obtaining the highest degree), mid-career (5–10 years) or senior-career (>10 years). For authors who did not have career stage information on ORCID, the information was searched in other platforms: Lattes CV Platform, ResearchGate, LinkedIn, or institutional websites. When data on the career stage was not found, it was treated as missing data. The final decision of each submission was also collected: immediate rejected, rejected after peer review, accepted, minor review, major review, inappropriate, or resubmit. For statistical analysis, the categories resubmit, inappropriate, and

rejected were grouped in "Rejected". A diagram of data extraction and sources of information is presented in Figure 1.

The protocol for searching the authors' information was previously developed in other publications and adapted to the data extraction from the present study(FRANCO et al., 2021c; SARTORI et al., 2021). All data were extracted in Microsoft Excel 2016 (Microsoft, Redmond, Washington, USA) spreadsheet by three independent researchers (MCF, ABLQ, LRMS) who were previously trained in data collection.

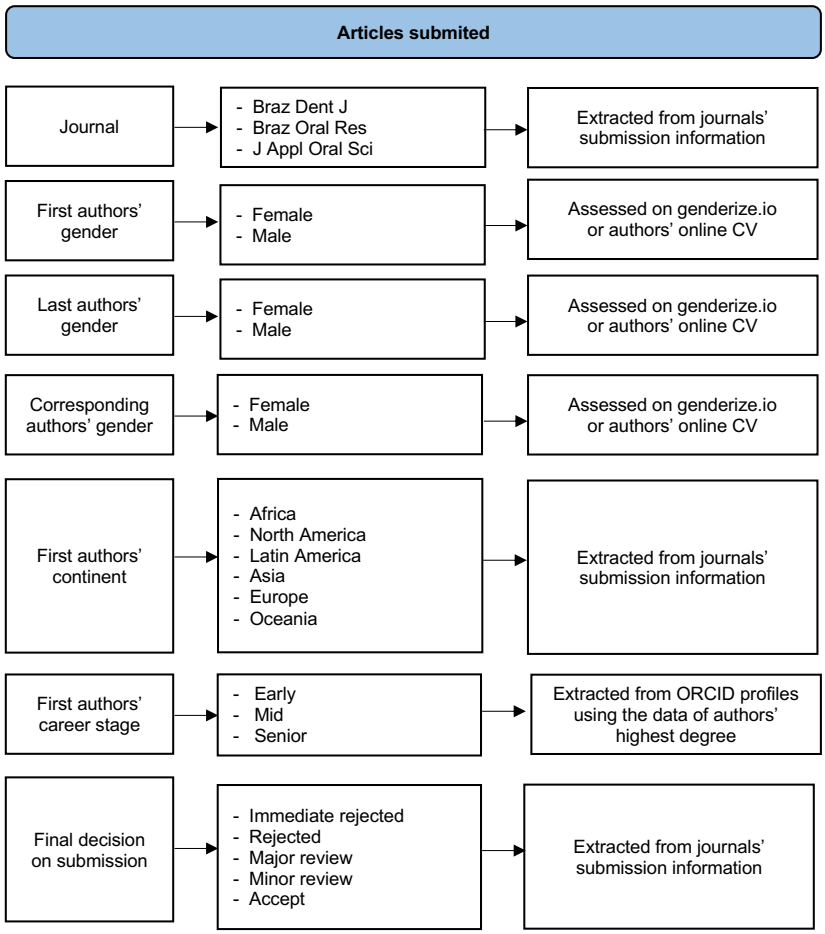

Figure 1. Diagram of data extraction and sources of information.

Statistical Methods

The statistical software RStudio 1.3 (R Core Team, RStudio, Inc., Boston, USA)(R CORE TEAM (R FOUNDATION FOR STATISTICAL COMPUTING), 2020) was used in all analyzes, in addition to statistical packages dplyr(WICKHAM et al., 2021), Hmisc(HARRELL JR; WITH CONTRIBUTIONS FROM CHARLES DUPONT AND MANY OTHERS, 2021), psych(REVELLE, 2021) and

DescTools(SIGNORELL; ET MULT. AL., 2021). Missing data were deleted in all tests. Initially, descriptive analysis of variables was performed using absolute and relative frequencies with their respective 95% confidence intervals, considering the submission period. Then, Pearson's Chi-square test, Pearson's Chi-square test with Yate's continuity correction, and Fisher's Exact Test were used to evaluate changes according to the submission period. Afterward, if significant associations were identified between the author's gender and the submission period, we performed stratified analyses considering the author's gender as the outcome and the submission period as the exposure. In addition, stratification was performed for confounders as first author career stage, first author continent, last author gender, and corresponding author gender. No sensitivity analysis was carried out. All tests were performed considering a significance level of α=0.05.

Results

From the total number of 5,163 submissions (Figure 2), 385 submissions were excluded due to missing information about the author's gender and career stage, and 52 were duplicates, thus 4,726 individual submissions were analyzed. Considering the initial analyses presented in Table 1, there was a higher proportion of submissions in the Braz Oral Res when comparing the periods before and during the COVID-19 pandemic. Most articles were immediately rejected or rejected & resubmitted after peer review. A significantly higher proportion of authors in their early career stages was observed in the submissions during the pandemic. Although most of the submissions came from Latin America, no significant differences were identified between the periods considering the first authors' continent. Considering the authors' gender, a significant difference was identified only for the first author, with an increased proportion of male first authors during the COVID-19 pandemic compared with the pre-pandemic period (an increase of 3.1%).

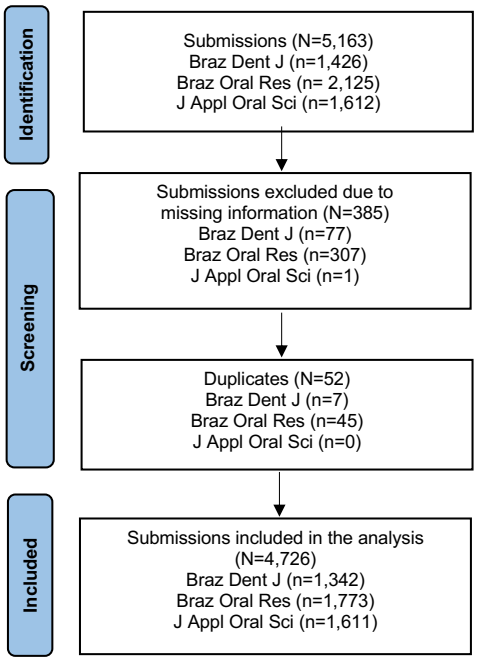

Figure 2. Flow diagram of article submissions included in the sample.

Table 1. Number of submissions according to journals, author variables, and period (before or during the pandemic), N = 4,726

Variable/Categories[a]	**n (%) [95% CI]**		**p-value**
	Submissions before COVID-19	**Submissions during COVID-19**	
Journal (4,726)			<0.001*
Braz Dent J	747 (32.9) [31.0-34.9]	595 (24.2) [22.5-25.9]	
Braz Oral Res	723 (31.9) [30.0-33.8]	1,050 (42.7) [40.7-44.7]	
J Appl Oral Sci	798 (35.2) [33.2-37.2]	813 (33.1) [31.2-34.9]	
Manuscript decision (4,726)			<0.001*
Immediate rejected	913 (40.3) [38.5-42.3]	1,160 (47.2) [45.2-49.2]	
Rejected	1,073 (47.3) [45.3-49.4]	1,044 (42.5) [40.5-44.4]	
Major review	70 (3.1) [2.4-3.8]	73 (3.0) [2.4-3.7]	
Minor review	22 (0.9) [0.6-1.4]	8 (0.3) [0.16-0.6]	
Accept	190 (8.4) [7.3-9.6]	173 (7,0) [6.1-8.1]	
First author continent (4,489)			0.737*
Africa	54 (2.4) [1.9-3.2]	58 (2.5) [1.9-3.2]	
North America	51 (2.3) [1.8-3.1]	49 (2.1) [1.6-2.8]	
Latin America	1,132 (51.9) [49.8-54.0]	1,178 (51.0) [48.9-53.0]	

Asia	824 (37.8) [35.8-39.8]	888 (38.4) [36.5-40.5]	
Europe	110 (5.0) [4.2-6.0]	131 (5.6) [4.8-6.75]	
Oceania	9 (0.4) [0.2-0.7]	5 (0.2) [0.09-0.5]	
First author career stage (3,625)			
Early	785 (44.8) [42.5-47.1]	923 (49.3) [47.0-51.5]	0.021*
Mid	590 (33.7) [31.5-35.9]	593 (31.7) [29.6-33.8]	
Senior	377 (21.5) [19.6-23.5]	357 (19.1) [17.3-20.9]	
First author gender (4,622)			0.034**
Female	1,355 (61.0) [58.9-62.9]	1,389 (57.9) [55.8-59.8]	
Male	867 (39.0) [37,0-41.1]	1,011 (42.1) [40.2-44.1]	
Last author gender (4,303)			0.709**
Female	1,036 (47.4) [45.3-49.5]	1,145 (48.0) [46.0-50.0]	
Male	1,149 (52.6) [50.5-54.6]	1,240 (52.0) [49.9-53.9]	
Corresponding author gender (4,612)			0.487**
Female	1,237 (56.0) [53.9-58.1]	1,319 (54.9) [52.9-56.9]	
Male	973 (44.0) [41.9-46.1]	1,083 (45.1) [43.1-47.1]	

[a]Number of entries varies from N due to missing data. *Pearson's Chi-square test. **Pearson's Chi-square test with Yates' continuity correction.

According to the stratified analysis performed to explore differences observed for first author gender (Table 2), women in their early-stage career had a significant drop in the proportion of article submissions as first authors during the pandemic (66% vs. 59%). This drop was also significant for women in their mid-career stage: 63% and 56% as first authors before and during the pandemic, respectively. In contrast, no differences were observed in the senior stage. Considering the first authors' continent in the stratification, a significant reduction for women in the first authorship position was observed in Latin America from before to during the pandemic. Significant reductions in women as first authors were also observed when the last author was a female (70% before, 64% during the pandemic). A reduction in the proportion of women as first authors was observed when a male was the corresponding author. Finally, an additional stratified analysis explored whether differences in gender and manuscript decisions were present from before to during the pandemic but no significant differences were observed, irrespective of the authorship position (data not shown here).

Table 2. Stratified analysis by covariates between the period of submission and gender of the first author, N = 4,726

	First author gender, n (%)[a]		
	Female	**Male**	**p-value**
First author career stage (3,625)			
Early			*0.002**
Before COVID-19	515 (65.9%)	266 (34.1%)	
During COVID-19	535 (58.8%)	375 (41.2%)	
Mid			*0.014**
Before COVID-19	365 (63.0%)	214 (37.0%)	

During COVID-19	329 (55.8%)	260 (44.2%)	
Senior			*0.253**
Before COVID-19	186 (50.1%)	185 (49.9%)	
During COVID-19	194 (54.6%)	161 (45.4%)	
First author continent (4,489)			
Africa			*0.293**
Before COVID-19	36 (66.7%)	18 (33.3%)	
During COVID-19	32 (55.2%)	26 (44.8%)	
Asia			*0.860**
Before COVID-19	443 (56.1%)	346 (43.9%)	
During COVID-19	447 (54.0%)	381 (46.0%)	
Europe			*0.247**
Before COVID-19	53 (48.6%)	56 (51.4%)	
During COVID-19	52 (40.3%)	77 (59.7%)	
North America			*0.898**
Before COVID-19	20 (40.0%)	30 (60.0%)	
During COVID-19	18 (36.7%)	31 (63.3%)	
Latin America			*0.010**
Before COVID-19	755 (66.7%)	376 (33.3%)	
During COVID-19	722 (61.5%)	451 (38.5%)	
Oceania			*0.300***
Before COVID-19	4 (44.4%)	5 (55.6%)	
During COVID-19	4 (80.0%)	1 (20.0%)	
Last author gender (4,303)			
Female			*0.008**
Before COVID-19	711 (69.5%)	312 (30.5%)	
During COVID-19	715 (64.0%)	402 (36.0%)	
Male			*0.693**
Before COVID-19	599 (53.2%)	526 (46.8%)	
During COVID-19	636 (52.4%)	579 (47.6%)	
Corresponding author gender (4,612)			
Female			*0.544**
Before COVID-19	1,058 (85.7%)	176 (14.3%)	
During COVID-19	1,105 (84.8%)	198 (15.2%)	
Male			*0.028**
Before COVID-19	288 (29.8%)	677 (70.2%)	
During COVID-19	273 (25.5%)	801 (74.5%)	

[a]Number of entries varies from N due to missing data. *Pearson's Chi-square test with Yates' continuity correction. **Fischer's Exact Test.

Discussion

This study shows that the COVID-19 pandemic was associated with a reduction in the

submission of articles led by female researchers in three international dental journals based in Brazil. In the first authorship position, a decrease in submissions by female researchers in their early- and mid-career stages was observed during the pandemic, noticeably from Latin America. Considering that the COVID-19 pandemic may have a disproportionate effect according to the gender, a current concern is that the already existing gender gap could be increased(COLLINS, 2020). Unfortunately, findings of the present study seem to provide evidence that the COVID-19 pandemic may be increasing gender inequality in dental science.

The gender gap is present in dentistry. An observatory study has shown that the vast majority of dental students are women, however this number decreases at each career step. In the European Union, for example, more than 70% of graduate students are women, whereas the number decreases to 33% of women as dental researchers[18]. Gender inequality is correlated with higher academic ranking and leadership positions in several countries, in addition to other gender disparities in the dental research sector(TIWARI et al., 2019c). For example, in a recent randomized controlled study with Brazilian dental scientists, male and female applicants for a scholarship had the exact same CV, but men received higher scores in all curriculum categories, namely scientific contribution, leadership potential, ability to workgroup, and international experience(FRANCO et al., 2021d). This result was observed irrespective of the gender of the assessor evaluating the candidates. Additionally, underrepresentation of women in different academic environments has been shown, including undergraduate dentistry courses, leadership positions(TIWARI et al., 2019c), and as first or last authors in top-tier dental journals(SARTORI et al., 2021; YUAN et al., 2010). In this study, researchers in their early and mid-career stages were more affected than senior researchers. This is a relevant observation because it has been shown that the proportion of female workforce in dentistry is drastically reduced in senior career stages(TIWARI et al., 2019c). A possible hypothesis for this observation is that pregnancy and raising children is more common in earlier career stages and may impact later career development. In addition, further challenges may be imposed to early-career researchers by a critical workload and potential developments of master or doctoral courses in the meantime, for example.

An additional load for female researchers that needs to be considered in a pandemic scenario(JEAN; PAYNE; THOMPSON, 2015b; JOLLY et al., 2014c) is that women are usually the primary responsible for taking care of children and the elderly in families. With the closing of daycares and schools, associated with online classes and working from home, many women had to take care of their children meanwhile teaching and doing administrative work in a completely new and challenging condition(ALFAGEME, 2020b; NADANOVSKY; DOS SANTOS, 2020; POWER, 2020). Besides taking care of the family, women are also the main responsible for household chores, doubling (or tripling) their usual working day. If we add all of this extra work to the burden usually imposed on women to

the entire sexist and patriarchal context in which we are socially inserted, where the gender bias – implicit or not – interferes in the most daily actions of women's lives, this race becomes extremely disproportionate[18,35,36]. Another point is that studies have shown that women may be more psychologically affected by the pandemic effects and have more anxiety and depression than men(WADE et al., 2021). Mental problems may also derive from a greater burden of responsibilities imposed on women during the pandemic(WADE et al., 2021). This may establish a cycle that favors an increase in the gender gap as psychological illnesses may impact ones' work output[38].

Submissions by Latin American female researchers as first authors were reduced in the pandemic, whereas the same effect was not observed for other continents. It should be highlighted that Latin America, as compared with the other continents, had the higher proportion of female authors in the present sample. As the majority of submissions were from Latin America, the present sample did not have the power to detect differences in other continents, such as Africa. The result in Latin America could be related to differences in the proportions of men and women in dental research workforce across the globe. In Brazil and South America, a higher proportion of female dental researchers has been reported compared to countries in North America and Asia(SARTORI et al., 2021; TIWARI et al., 2019c), a finding that could be partly explained by a high proportion of women in healthcare professions in Latin America. The higher impact on Latin American researchers could also be related to differences in the pandemic developments across continents. In Brazil, a general lack of COVID-19 control measures by the federal government has been observed(HALLAL; VICTORA, 2021)(PEDRO CURY HALLAL, 2021), and the spread of the virus has not been controlled so far. In such a chaotic scenario that failed to follow science advices, the motivation for engaging in research and publications could be lower, especially when associated with an overburden of household activities. The pandemic crisis may have long-term consequences in the Latin American science, including discouragement for following a scientific carrier. This could be even more stressed in careers that involve working in a high-risk setting for COVID-19 contraction, such as dentistry. Further investigation on the long-term pandemic impacts on the scientific careers of dental researchers is warranted.

To the authors' best knowledge, this is the first study to evaluate the effect of the pandemic on article submissions to dental journals and the participation of female researchers. The evaluation of all submissions to the three dental journals is a strong aspect of the study because it considered a broader environment of authorship than published articles alone. The evaluation of only articles that have been published could be affected by publication bias and timeliness between submission, peer review process, and publication. Despite the differences in gender authorship reported herein, there were no differences in the decisions of the manuscripts between male and female authors. A limitation of the present study is that we considered the entire years of 2019 as 'before' and 2020 as

'during' COVID-19, and some overlapping between the periods may have been in place because the pandemic was declared in March, 2020. Another limitation was the evaluation of gender by an application programming interface. A study observed differences across name-to-gender inference services(SANTAMARÍA; MIHALJEVIĆ, 2018), but also reported that genderize.io achieved less than 2% error for misclassifications. Future studies should also consider aspects related to the ethnicity, socioeconomic status, and family structure of the researchers as these may additionally affect the patterns of article submissions.

The COVID-19 pandemic disproportionately affecting female dental researchers raises reflections that should be done by stakeholders. Journal editors and publishers need to be aware of the gender gap to avoid reducing female participation in the dissemination of science. Universities and research funding agencies should be on the lookout to support female researchers and perhaps encourage gender equity practices. Finally, researchers could investigate ways of mitigating the problems related to the gender gap in science and academia now and after the pandemic is over.

Conclusion

This study addresses a disproportionate impact on female dental researchers in articles submitted to three international dental journals based in Brazil from before to during the COVID-19 pandemic. A reduction in the submission of articles led by female researchers during the pandemic was observed, suggesting that the COVID-19 may have increased the gender inequality in dental science.

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Conflict of interest

The authors declare no conflicts of interest associated with this manuscript.

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7 Artigo 4[5]

The Impact of Gender on Researchers' Assessment: A Randomized Controlled Trial

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The Impact of Gender on Researchers' Assessment: A Randomized Controlled Trial

Abstract

Objectives: This randomized controlled trial aimed to test whether women or men would be preferred with identical curriculum vitae (CV); and the impact of the career stage in the evaluators' choice.

Study Design and Setting: A simulated post-doctoral process was carried forward to be assessed for judgment. Level 1 and 2 Brazilian fellow researchers in the field of Dentistry were invited to act as external reviewers in a post-doctoral process and were randomly assigned to receive a CV from a woman or a man. They were required to rate the CV from 0 to 10 in scientific contribution, leadership potential, ability to work in groups, and international experience.

Results: For all categories of CVs evaluated, CVs from men received higher scores compared to the CVs from women. Robust variance Poisson regressions demonstrated that men were more likely to receive higher scores in all categories, despite applicants' career stage. For example, CVs from men were nearly three quarters more likely to be seen as having leadership potential than equivalent CVs from women.

Conclusions: Gender bias is powerfully prevalent in academia in the dentistry field, despite researchers' career stage. Actions like implicit bias training must be urgently implemented to avoid (or at least decrease) that more women are harmed.

Keywords: gender bias, randomized controlled trial, meta-research

Running title: The Impact of Gender on Researchers'Assessment

Word count: 2885

What is new?

Key Findings

CVs from men applicants received higher scores for all categories evaluated (scientific contribution, leadership potential, ability to work in groups, and international experience) compared to CVs from women despite applicant's career stage.

CVs from men had nearly three quarters more likely to be seen as having leadership potential than equivalent CVs from women, even though the CVs were exactly the same (except for the applicant's gender identification).

What this adds to what was known?

This study demonstrated in a practical and simple way what we empirically suspected: individual gender bias (conscious or not) is present in academia.

What is the implication and what should change now?

Implicit bias training for all actors involved in the academia (e.g., professors, decision makers, students) must be urgently implemented.

1. Introduction

Women remain underrepresented in Dentistry in academia, and this gap is widened whenever each career step is progressed.(MOSS-RACUSIN et al., 2012a; TIWARI et al., 2019a) Recent evidence showed that in the United States, for example, almost half of the graduates from dental schools were women, whereas only 22% of the faculty were women.(TIWARI et al., 2019a) This study suggested the same trend for all the other countries evaluated, including the United Kingdom, France, Germany, and Japan (the country with the largest gap, where more than 40% of dental students were women but only 4% of the professors were women).(TIWARI et al., 2019a) The glass ceiling effect is a metaphor used to describe this invisible barrier women face to advance their career to higher levels.(LI et al., 2019)

The gender gap in research might be related to three main factors: lower professional performance, systemic bias, and individual bias.(WITTEMAN et al., 2019) Women's lower performance can be connected to many underlying challenges they face, such as family and societal pressures, childcare responsibilities, among others.(TIWARI et al., 2019a; WITTEMAN et al., 2019) Another potential reason for lower professional performance can be the unconscious use of more modest speech by women, leading to a diminished chance of having an article written by women accepted in a peer-reviewed journal.(LERCHENMUELLER; SORENSON; JENA, 2019; WITTEMAN et al., 2019)

The systemic bias refers to the way that ecosystems are organized to favor men.(WITTEMAN et al., 2019) In the grant ecosystem, the review criteria unfairly favor male principal investigators because of the cumulative advantage, which is highly prevalent for the research output. For example, there is a larger prevalence of first and last male authors in published papers, and men may present a higher rate of successful grant applications in their profile.(WITTEMAN et al., 2019)

The third factor contributing to this gap is individual bias, which can be related to conscious or unconscious gender bias from persons who make decisions, as any stakeholder with a decision-making power such as editors, grants ad-hoc reviewers, committees, journals reviewers, and so on.(WITTEMAN et al., 2019) Individual bias occurs because human beings are not neutral.(LERCHENMUELLER; SORENSON; JENA, 2019) Their judgment and behavior are based on associations arising from previous experiences that lead to certain preferences or aversions.(LERCHENMUELLER; SORENSON; JENA, 2019) Implicit or unconscious bias is the term behind discriminatory behaviors without conscious discriminatory actions in society.(PRITLOVE et al., 2019)

It is of utmost importance to investigate underlying associated factors to predict researchers' assessment of their gender in Dentistry and the overall STEM (Science, Technology, Engineering, and Mathematics) fields. Thus, we developed a randomized controlled trial to test whether women or men would be preferred with identical curriculum vitae (CV); and the impact of the career stage in the evaluators' choice. To this, a simulated post-doctoral process was carried forward to be assessed for judgment.

2. Methods

2.1 Protocol Availability and Ethical Approval

The study protocol was approved by the local Brazilian Institutional Review Board (IRB) (Comitê de Ética em Pesquisa da Faculdade de Medicina, Universidade Federal de Pelotas, Brazil/number 10227419.2.0000.5318), and the full research protocol is available on the Open Science Framework platform (https://osf.io/2ut5v/).

2.2 Study Design

This study was designed as a randomized, 1:1, superiority, parallel-group, blinded (for assessors) and controlled by gender and career stage trial, comparing the researchers' assessment for the same CV with a male or female gender, using a selection process for a post-doctoral position in Dentistry at a southern Brazilian University as a

proxy. The study's expositions were the gender of the applicant at two levels (male and female) and the career stage of the applicant at two levels (early-stage or later stage careers). The primary outcome was evaluators' assessments in each of the four categories evaluated (scientific contribution, leadership potential, ability to work in groups, and international experience) according to CV's gender and career stage.

This study was reported based on the CONSORT 2010 Statement and its extension for multi-arm randomized trials.(SCHULZ; ALTMAN; MOHER, 2010)(JUSZCZAK et al., 2019)

2.3 Eligibility criteria

Eligible participants (i.e., ad-hoc assessors) were level 1 and 2 research fellows from the Brazilian National Council for Scientific and Technological Development of the year 2020 in dentistry. Level 1 and 2 research fellows can be considered the highest research positions in the country, represents the researchers with the highest academic production in the country (e.g. publication of articles). Because of our university community's potential knowledge about our trial, we decided to exclude our research fellows from the sample to avoid possible contamination bias.

2.4 Sample size

The sample size estimation was based on the results of a previous study.(MOSS-RACUSIN et al., 2012a) and measures of clinical relevance. We assumed a maximum type 1 error of 0.05, a power of 0.90, and an effect size of -0.81 (mean difference between groups at the final grade) with a standard deviation of 1.1. We obtained a sample size of 78 researchers. Considering the average response rate of 10% in questionnaires(HARDIGAN; POPOVICI; CARVAJAL, 2016), and a non-response rate of 90%, we assessed eligibility for all 211 research fellows in dentistry. We randomized all 117 researchers who met the inclusion criteria and agreed to participate.

2.5 Randomization and blinding

Researchers were randomly assigned to receive a female or male CV with a 1:1 allocation per a computer-generated randomization system stratified by career stage (early-career or non-early career) using permuted blocks of random sizes. The list of random numbers was made on a website (www.sealedenvelope.com). The concealment of participants' allocation was warranted by a researcher not involved in the study, and another researcher allocated each participant following the allocation sequence. Each researcher received only one CV.

The researchers were not aware of the study. They were invited to act as external peer reviewers in a selection process for a supposed post-doctoral position at a southern Brazilian university.

2.6 Interventions

Each of the researchers selected according to the eligibility criteria received an e-mail (Appendix 1) with an invitation to act as an ad-hoc reviewer in a supposed post-doctoral fellowship. In case of acceptance, each researcher received a second e-mail (Appendix 2) containing information about the process, which s/he was invited to be part of the evaluation process. Along with the information process, this e-mail had one of the four CV possibilities to be evaluated. The options were: early-career female (Appendix 3), early-career male (Appendix 4), non-early career female (Appendix 5), non-early career male (Appendix 6). For more information, see Table 1. This e-mail also contained a document with a simulated call for application (Appendix 7) to give credibility to the process.

Table 1. CV possibilities to be evaluated

Gender	:*	
	Early	Not Early
Male	**Male + Early Career**	**Male + Not Early Career**
Female	**Female + Early Career**	**Female + Not Early Career**

*CVs from the same career stage were strictly the same, except for gender identification

The CV considered as “early career” contained information by an applicant who just concluded his Ph.D. and has 12 papers published, compared to the CV considered as “non-early career applicant.” It contained information about an applicant who will have a previous post-doctorate and more than 20 papers published. The idea of different CVs degrees was to assess if gender bias occurs more at the beginning of the career or when the career is more consolidated.

Each researcher received a CV of an applicant (gender and career stage selected according to the randomization) and was required to rate each topic from 0 to 10 (0 being insufficient and 10 very sufficient) on a visual analog scale. The topics were scientific contribution, leadership potential, ability to work in groups, and international experience. To allow the blinding of the evaluators and the equivalence of the male and female CVs and profiles, information on the full name and the publication list was blinded, as well as any external reference that could be cross-checked online, such as Researcher ID, ORCID ID, social media profiles, grant numbers, etc. The researchers were also not aware that they were participating in a study. However, when they sent the CV assessment, they received an e-mail with a questionnaire (Appendix 8) containing information about the study and requesting authorization to use the previously submitted data. Researchers were also asked whether, at any time, they have ever suspected the veracity of the process for selection of a fellow post-doctoral researcher.

The same researcher (MCF) sent all e-mails containing invites, the explanation of the study, and the Free Prior Informed consent (FPIC) from an institutional e-mail created for this purpose.

2.7 Outcomes

The primary outcome was the final grade given by evaluators according to CV’s gender and career stage. As a secondary outcome, we evaluate the each one of the four categories evaluated (scientific contribution, leadership potential, ability to work in groups, and international experience) and the grades in each category according to the

gender of CVs' and evaluators' gender. Each category could receive grades from 0 (lowest score) to 10 (excellent score), being the final grade an arithmetic mean of the four grades given in each item. Grades could also contain decimal numbers (e.g., 9,6).

2.8 Statistical Methods

Descriptive analyzes were used to summarize evaluators' characteristics. Continuous variables were described as mean and standard deviation or interquartile range (IQR). Categorical variables were expressed as point estimates and 95% confidence intervals. Gross binary associations between exposures and outcomes were conducted by X^2 tests within an alpha of 0.05 for significance. Step forward robust variances Poisson regressions with log links were undertaken to estimate associations of exposure variables of interest (gender and career stage) to dependent variables - scientific contribution, leadership potential, ability to work in groups, and international insertion), both adjusted for CV gender and career stage and non-adjusted. All analyzes were performed using the software SPSS statistics 25 (IBM, Nova York, USA), and an alpha level of 0.05 was set for inferential analyzes.

3. Results

The RCT was conducted between June and September 2020. From the 211 researchers assessed for eligibility, 117 met inclusion criteria, agreed to their participation, and were randomized. After discovering that the evaluation process was a study on gender bias, 56 participants signed the FPIC and had their evaluations included in the analysis. More details are presented in Figure 1.

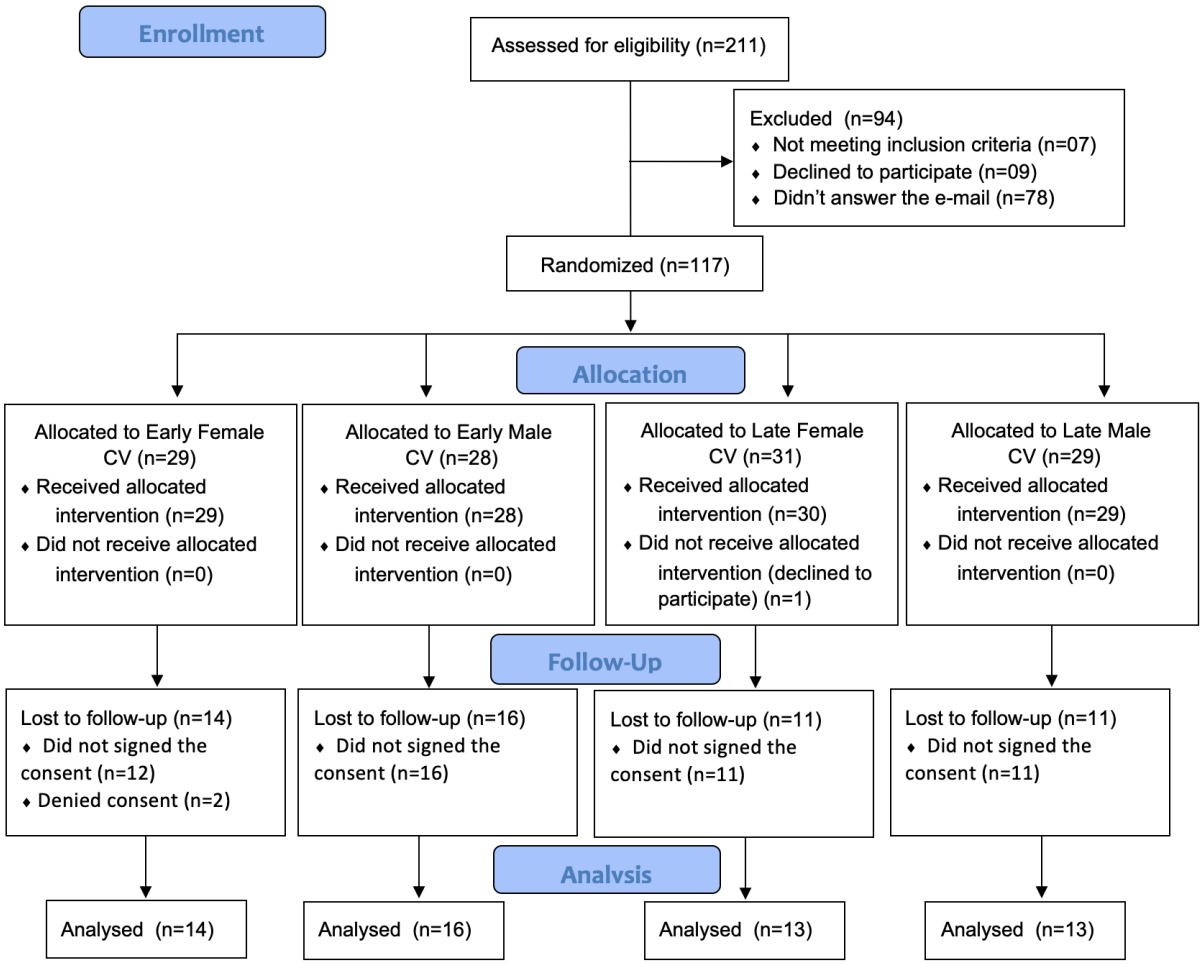

Figure 1. Flow diagram of participants

Table 2 presents the characteristics of the reviewers invited to make the evaluation and those who completed it. The participants who completed the evaluation are also divided into those who signed the FPIC or not, and those who did not answer. The majority of invited participants were men (62.2%). 68.4% of women and 56.1% of men who did the evaluation signed the FPIC. No women signed the term with "no", and 31.6% of women didn't answer the FPIC, while 4.5% of men signed the term with "no" and 39.4% didn't answer.

Table 2. Characteristics of reviewers invited and reviewers who did the CVs' evaluation*

Invited			
Women	79 (37.8%)		
Men	130 (62.2%)		
Total	209 (100%)		
Did the evaluation	**Signed the FPIC****		
Women	**Yes**	**No**	**NA*****
Middle career stage	7 (18.4%)	0 (0.0%)	2 (5.3%)
Senior career stage	19 (50.0)	0 (0.0%)	10 (26.3%)
Total	26 (68.4%)	0 (0.0%)	12 (31.6%)
Men			
Middle career stage	8 (12.1%)	1 (1.5%)	8 (12.1%)
Senior career stage	28 (42.4%)	2 (3.0%)	18 (27.3%)
Total	37 (56.1%)	3 (4.5%)	26 (39.4%)

*Gender and career stage presented in this table are from evaluators

**FPIC: Free, Prior and Informed Consent. ***NA: Not answer.

For the early career stage CVs, men received higher scores than women in all four categories, for a difference of at least half a point for working in groups and one point for the other ones. For not early career stage CVs, men received higher scores than women in all four categories but the ability to work in groups, with a difference of half-point for scientific contribution, 0.8 for international experience, and 1.2 for leadership potential (Figures 1 and 2).

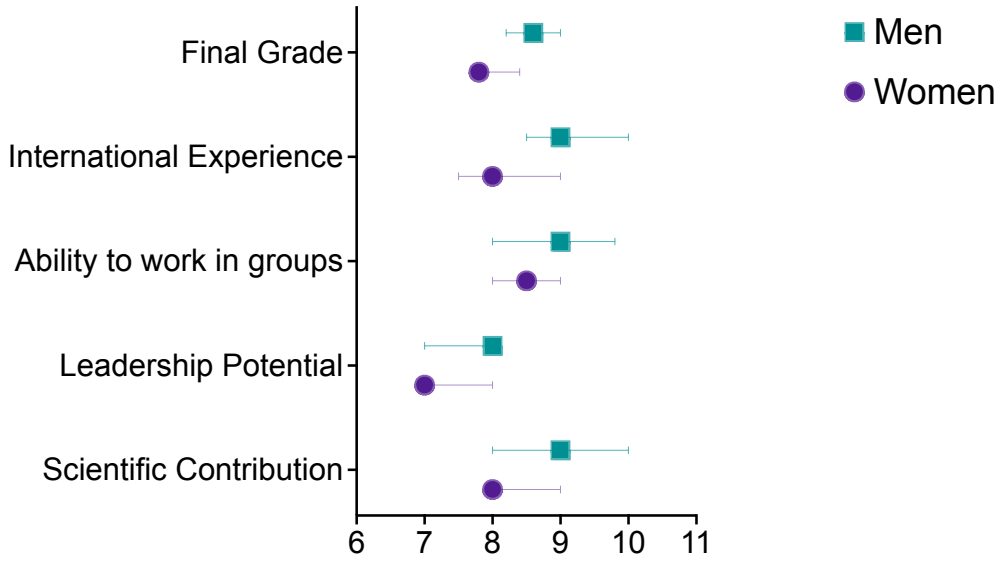

Figure 2. Interquartile range (25% - 75%) for all categories evaluated by CV's gender in early career CVs

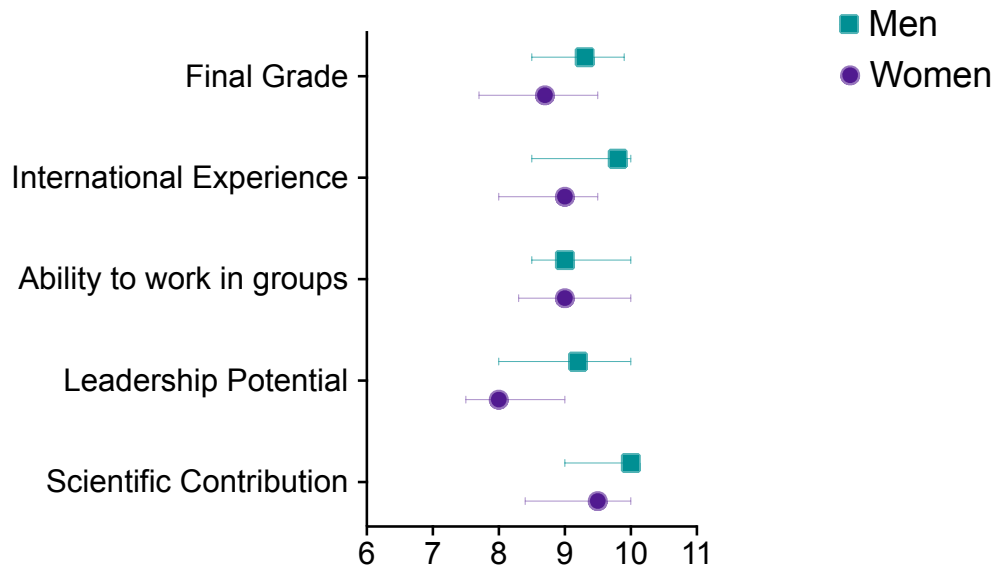

Figure 3. Interquartile range (25% - 75%) for all categories evaluated by CV's gender in later stage CVs

For all categories evaluated, men and researchers at the late-career stage receiving higher grades (Table 3).

Table 3. Poisson regressions by CVs' gender and career stage for each grade category

	Scientific Contribution	Leadership Potential	Ability to work in groups	International Experience	Final Grade
Women as reviewer					
Men CV	9,5 (8,0-10)	8,0 (7,0-9,2)	9,0 (8,0-9,7)	9,0 (8,0-10)	8,7 (7,7-9,4)
Women CV	9,0 (8,0-10)	8,0 (7,0-8,7)	9,0 (8,0-9,9)	9,0 (8,0-10)	8,5 (7,8-9,5)
Men as reviewer					
Men CV	9,5 (9,0-10)	9,0 (7,5-10)	9,0 (8,2-10)	9,0 (8,2-10)	9,0 (8,1-10)
Women CV	9,0 (8,0-9,0)	8,0 (7,0-9,0)	9,0 (8,0-10)	9,0 (8,0-10)	8,6 (8,2-9,4)

*each one of the grade categories was included in a separate model containing gender and career stage.

Women gave higher grades for male CVs' for scientific contribution and final grade. Men gave higher grades for male CV's for scientific contribution, leadership potential, and final grade (Table 4).

Table 4. Interquartile range (25%-75%) for each grade category according to reviewers' gender and CV's gender

		Scientific Contribution	Leadership Potential	Ability to work in groups	International Experience	Final Grade
Gender	PR (CI)	1.28	1.72	1.53	1.49	1.47
Women		(1.62-2.07)	(1.47-2.02)	(1.26-1.85)	(1.22-1.82)	(1.29-1.66)
	P-value	<0,001	<0.001	<0.001	<0.001	<0.001
Career Stage	PR (CI)	1.16	1.31	1.27	1.29	1.50
Ref=Early		(1.04-1.30)	(1.13-1.52)	(1.12-1.46)	(1.11-1.50)	(1.31-1.72)
	P-value	0.008	<0.001	<0.001	0.001	<0.001

4. Discussion

As far as we know, this was the first randomized controlled trial to evaluate the impact of gender on researchers' assessment for a post-doctoral Dentistry scholarship. For all categories of CVs evaluated, men received higher scores compared to the CVs

from women. Even though interquartile ranges were likely interpolated for all variables, the robust variance Poisson regressions presented statistical differences for all variables. Poisson regressions demonstrated that men were more likely to receiving higher scores in all categories, despite applicants' career stage. For example, CVs from men had nearly three quarters more likely to be seen as having leadership potential compared to CVs from women. These results demonstrate the individual gender bias that women face in academia.

Considering applicants' career stage, the not early career stage CV received higher scores for all categories evaluated when compared to early career stage, what was already expected, since the not early career stage CV had a more significant number of publications, participation in events, receipt of awards, etc. Our main objective in creating two types of CV was to assess whether gender bias would be more present at some career stage. However, in our study, gender bias occurred similarly in both CVs' types. Overall, it is worth noting that gender affected more the scores for all evaluated aspects in the CVs than the career stage, which is quite remarkable considering the significant differences in the CVs profiles represented by the career stages in the present study.

A descriptive analysis was carried out to see whether the gender of the evaluators could influence the scores given. Both male and female evaluators gave lower grades for women's CVs scientific contribution and final grade. Male evaluators gave lower grades for women's CVs also for leadership potential. This means that gender bias is potentially not committed exclusively by men and, contrariwise, by both genders.

Gender norms are not natural. They are constructed, learned, and reproduced socially with the intervention of different institutions such as the State, the family, religion, and the media.(HEISE et al., 2019) This whole social context shapes the way we represent our idea of gender. Often the norms of gender are so tied to our imagination that gender bias occurs unconsciously. It is the so-called implicit bias.(HEISE et al., 2019; PRITLOVE et al., 2019)

Whether consciously or not, gender bias is a severe problem that affects women's careers at different levels and can be decisive in academic success.(HEISE et al., 2019) If we consider, in addition to the individual bias - demonstrated in the present study - the systemic bias and so many other disadvantages suffered by women, such as being solely responsible for the care of children and family, for example, this seems like a battle already lost.(JOLLY et al., 2014d; SHANNON et al., 2019)

As previously mentioned, the human being is not neutral, and our decisions are made according to the context in which we are inserted and with previous experiences.(HEISE et al., 2019) We all have biases, and they need to be discussed and clarified. It is essential to have implicit (not just gender) bias training for all academy people.(HEISE et al., 2019; PRITLOVE et al., 2019) Decision-makers need to make their choices based solely on competence; teachers also need to be trained to teach people who will make decisions in the fairest possible way in the future.

Despite the strengths of the design, the present study has some limitations. The evaluators needed to agree with the use of the data previously sent. Unfortunately, a large number of evaluations could not be used due to the non-signature of the FPIC by the evaluators. From the 104 researchers who made the assessment, only 63 signed the form, 43.9% men and 31.6% women who made the evaluation did not authorize the use of their data. Even though the results of this study showed a statistical difference in the evaluation of men and women within the academia (with a power of 0,99), due to this high number of researchers who have not signed the FPIC we could not fullfill the sample size, and the difference presented in the results could be even bigger if more researchers had agreed to use their data. Another limitation is that in this study, gender was considered as a binary variable, and information on gender bias may have been lost by not considering gender diverse people.

5. Conclusions

We can conclude from the study findings that individual gender bias is prevalent in academia, even indexed by the Dentistry field, despite researchers' career stage. Actions like implicit bias training must be urgently implemented to avoid (or at least decrease) that more women are harmed.

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WOITOWICH, N. C. et al. COVID-19 threatens progress toward gender equity within academic medicine. **Academic Medicine**, v. 96, n. 6, p. 813–816, 2021c.
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Appendix 1: Invitation e-mail*

"Dear (researcher's name);

Considering the current context, we will carry out the selection for postdoctoral fellow of the project "Global Observatory for Dental Care - GODEC" online and we would like to invite you to be an external reviewer. If you agree to participate, a short CV (maximum 2 pages) will be evaluated according to 4 pre-established criteria and the total evaluation process will not take more than 30 minutes. The GODEC project is being developed by the Federal University of Pelotas in partnership with the Delfim Mendes Silveiras Foundation and aims to develop guidelines for dental practices.

If you agree to participate, we will send you an e-mail with the full call for application, as well as the curriculum to be evaluated.

Any questions regarding the process, please contact me through this e-mail. I emphasize that your participation will be extremely important.

Yours sincerely,

Prof. Dr. Maximiliano Sérgio Cenci

*The original document was sent in Portuguese and has been translated for dissemination proposes.

Appendix 2: Instruction e-mail*

"Dear (Researcher's name);

Thank you very much for accepting to act as an external reviewer in our selection process. Attached to this e-mail are the full call for application and the summarized and de-identified curriculum of one of the applicants for the grant that you must evaluate. The criteria to be evaluated are

- Scientific contribution;

- Leadership potential;

- Ability to work in groups;

- International experience.

For each of the four items a score between 0 (minimum score) and 10 (maximum score) should be given. Please reply to this e-mail with your score for each question.

Please, if you have any questions, do not hesitate to contact me through this e-mail.

Yours sincerely,

Prof. Dr. Maximiliano Sérgio Cenci

*The original document was sent in Portuguese and has been translated for dissemination proposes.

Appendix 3: Early Career Female CV*

Candidate 03

Female, 30 years old

Dental surgeon, MSc and PhD in Clinical Dentistry with emphasis in Dentistry and Cariology, with co-tutorship at an International University. She is a member of a research group on evidence synthesis in dentistry, having developed, co-supervised and published several studies in the area. Among the activities developed by the research group are the realization of several actions of knowledge translation, such as discussion groups of articles, practical classes and interactive classes on digital platforms. She has international cooperation with consolidated research groups in international universities. Currently she is the supervisor of two end of course works and co-supervisor of a master's thesis. She has already participated in 5 examinations, among graduation, master's and doctoral conclusion. She has produced 12 scientific articles, and has a h 3 index in the SCOPUS database with a total of 23 citations.

ACADEMIC EDUCATION:

2017-2020: PhD in Dentistry from the Federal University of Pelotas, UFPEL, Brazil (CAPES Concept 6), with a co-tutelle period at Radboud University Medical Center.
Fellowship: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2015-2017: MSc in Dentistry from the Federal University of Pelotas, UFPEL, Brazil (Concept CAPES 6).
Fellowshio: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2010-2015: Graduation in Dentistry, Federal University of Pelotas, UFPEL, Brazil.

JOURNAL REVIEWER:

2018-Present: Photomedicine and Laser Surgery (Online).
2019-Present: Dentistry: Oral Health & Cosmetics

AWARDS AND TITLES:

2018: 1st place Scientific paper presentation session in Dialogued Panel modality, 2nd Cariobra Congress.
2017: Honorable Mention - 23rd CIORJ - Scientific Initiation Category- research area, International Congress of Dentistry of Rio de Janeiro.

2015: 1st Place in the Undergraduate Lecture Competition (Dental Materials), Dental Materials Discipline (PPGO-UFPel).

2014: Outstanding paper Scientific Initiation Congress 2014, UFPel.

FULL PAPERS PUBLISHED IN JOURNALS
2019, Caries Research, 1st author.
2019, Odontology, 5th author.
2019, Journal of Adhesive Dentistry, 2nd author.
2018, Journal of the Mechanical Bevahiour of Biomedical Materials, 5th author.
2018, Caries Research, 3rd author.
2018, Journal of Dentistry, 1st author.
2017, Journal of Orthodontics and Dentofacial Orthopedics, 3rd author.
2017, Caries Research, 1st author.
2017, BIOFOULING, 1st author.
2016, Journal of Adhesion and Adhesives, 2nd author.
2016, BIOFOULING, 1st author.
2015, Odonto Ciência Magazine, 1st author.

*The original document was sent in Portuguese and has been translated for dissemination proposes.

Appendix 4: Early Career Male CV*

Candidate 03

Male, 30 years old

Dental surgeon, MSc and PhD in Clinical Dentistry with emphasis in Dentistry and Cariology, with co-tutorship at an International University. He is a member of a research group on evidence synthesis in dentistry, having developed, co-supervised and published several studies in the area. Among the activities developed by the research group are the realization of several actions of knowledge translation, such as discussion groups of articles, practical classes and interactive classes on digital platforms. He has international cooperation with consolidated research groups in international universities. Currently he is the supervisor of two end of course works and co-supervisor of a master's thesis. She has already participated in 5 examinations, among graduation, master's and doctoral conclusion. He has produced 12 scientific articles, and has a h 3 index in the SCOPUS database with a total of 23 citations.

ACADEMIC EDUCATION:

2017-2020: PhD in Dentistry from the Federal University of Pelotas, UFPEL, Brazil (CAPES Concept 6), with a co-tutelle period at Radboud University Medical Center.
Fellowship: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2015-2017: MSc in Dentistry from the Federal University of Pelotas, UFPEL, Brazil (Concept CAPES 6).
Fellowshio: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2010-2015: Graduation in Dentistry, Federal University of Pelotas, UFPEL, Brazil.

JOURNAL REVIEWER:

2018-Present: Photomedicine and Laser Surgery (Online).
2019-Present: Dentistry: Oral Health & Cosmetics

AWARDS AND TITLES:

2018: 1st place Scientific paper presentation session in Dialogued Panel modality, 2nd Cariobra Congress.
2017: Honorable Mention - 23rd CIORJ - Scientific Initiation Category- research area, International Congress of Dentistry of Rio de Janeiro.

2015: 1st Place in the Undergraduate Lecture Competition (Dental Materials), Dental Materials Discipline (PPGO-UFPel).

2014: Outstanding paper Scientific Initiation Congress 2014, UFPel.

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2018, Caries Research, 3rd author.
2018, Journal of Dentistry, 1st author.
2017, Journal of Orthodontics and Dentofacial Orthopedics, 3rd author.
2017, Caries Research, 1st author.
2017, BIOFOULING, 1st author.
2016, Journal of Adhesion and Adhesives, 2nd author.
2016, BIOFOULING, 1st author.
2015, Odonto Ciência Magazine, 1st author.

*The original document was sent in Portuguese and has been translated for dissemination proposes.

Appendix 5: Non-early Career Female CV*

Candidate 04

Female, 38 years old

The candidate is a dental surgeon, Master and PhD in Clinical Dentistry with emphasis on Dentistry and Cariology, with a co-tutorship period at an International University. She was a post-doctoral fellow from 2018 to 2019. She is responsible for a research group on evidence synthesis in dentistry, having developed, oriented and published several studies in the area. Among the activities developed by the research group are the realization of several actions of knowledge translation, such as discussion of articles, practical classes and interactive classes on digital platforms. She has international cooperation with consolidated research groups in international universities. She actively participates in the International Association for Dental Research, the European Organization for Caries Research, and the Brazilian Association of Cariology. Currently she is the supervisor of three graduation term papers, one master's thesis and co-supervisor of two master's theses. She has participated in more than 10 examinations, including graduation's, master's and doctoral conclusion. She has produced more than 25 scientific articles, and has a h 7 index in the SCOPUS database with more than 100 citations. She has 12 awards in scientific events, and acts as a reviewer of 5 journals with international circulation.

ACADEMIC BACKGROUND:

2014-2017: PhD in Dentistry from the Federal University of Pelotas, UFPEL, Brazil (CAPES Concept 6), with co-tutelle period in Radboud University Medical Center.

Fellowship: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2012-2014: Master of Science in Dentistry, Federal University of Pelotas, UFPEL, Brazil (Concept CAPES 6).

Fellowship: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2007-2012: Graduated in Dentistry, Federal University of Pelotas, UFPEL, Brazil.

POST-DOCTORATE

2018-2019: Postdoctoral fellowship at the Federal University of Pelotas, UFPEL, Brazil.

JOURNAL REVIEWER:

2019-Present: BMC Oral Health

2018-Present: CARIES RESEARCH

2016-Present: Photomedicine and Laser Surgery (Online)

2016-Present: Brazilian oral research

2015-Present: Dentistry: Oral Health & Cosmetics

AWARDS AND TITLES:

2018: 1st Place Scientific Paper Presentation Session in Dialogued Panel modality, 2nd Cariobra Congress.

2017: 1st Place in the Free Theme Category - Extension Project, 56th Academic Week of the Faculty of Dentistry.

2017: Honorable Mention - 23rd CIORJ - Scientific Initiation Category- research area, International Congress of Dentistry of Rio de Janeiro.

2015: 1st Place in the Undergraduate Lecture Competition (Dental Materials), Dental Materials Discipline (PPGO-UFPel).

2014: Outstanding paper Scientific Initiation Congress 2014, UFPel.

2013: Honorable Mention - Panels Area 3- SBPqO, Sociedade Brasileira de Pesquisa em Odontologia-SBPqO.

2013: 1st place Area 1- Dentistry and Dental Materials- XVSNNPqO, Northeast-North Society of Dental Research.

2013: AWARD DRA. LÉLIA BATISTA DE SOUZA, Northeast-North Society of Dental Research.

2013: SBPqO Award - Postgraduate, Northeast-North Society of Dental Research.

2013: Outstanding work Congress of Scientific Initiation, UFPel.

2011: M. Isaao Award, 28th Annual Meeting of the Brazilian Society of Dental Research.

2011: Outstanding Student in Health Sciences area, Federal University of Pelotas - XX Scientific Initiation Congress.

FULL PAPERS PUBLISHED IN JOURNALS

2019, Journal of Dentistry, 2nd author.

2019, Caries Research, 1st author.

2019, Odontology, 5th author.

2019, Operative Dentistry, 2nd author.

2019, Journal of Adhesive Dentistry, 2nd author.

2018, Journal of the Mechanical Bevahiour of Biomedical Materials, 4th author.

2018, Journal of Prosthetic Dentistry, 2nd author.

2018, Caries Research, 3rd author.

2018, Journal of Dentistry UNESP, 2nd author.

2018, Journal of Dentistry, 1st author.

2018, Journal of Dentistry, 1st author.

2017, Journal of Orthodontics and Dentofacial Orthopedics, 3rd author.

2017, Caries Research, 1st author.

2017, Biofouling, 1st author.

2017, Dental Materials, 4th author.

2016, Brazilian Oral Research, 3rd author.

2016, Journal of Dentistry, 2nd author.

2016, Journal of Adhesion and Adhesives, 2nd author.

2016, Caries Research, 3rd author.

2016, Biofouling, 1st author.

2015, Operative Dentistry, 4th author.

2015, Odonto Ciência Magazine, 1st author.

2015, Brazilian Oral Research, 2nd author.

2014, Biofouling, 3rd author.

2014, Clinical Oral Investigations, 1st author.

2013, Biofouling, 3rd author.

*The original document was sent in Portuguese and has been translated for dissemination proposes.

Appendix 6: Non-early Career Male CV*

Candidate 04

Male, 38 years old

The candidate is a dental surgeon, Master and PhD in Clinical Dentistry with emphasis on Dentistry and Cariology, with a co-tutorship period at an International University. He was a post-doctoral fellow from 2018 to 2019. He is responsible for a research group on evidence synthesis in dentistry, having developed, oriented and published several studies in the area. Among the activities developed by the research group are the realization of several actions of knowledge translation, such as discussion of articles, practical classes and interactive classes on digital platforms. He has international cooperation with consolidated research groups in international universities. He actively participates in the International Association for Dental Research, the European Organization for Caries Research, and the Brazilian Association of Cariology. Currently he is the supervisor of three graduation term papers, one master's thesis and co-supervisor of two master's theses. He has participated in more than 10 examinations, including graduation's, master's and doctoral conclusion. He has produced more than 25 scientific articles, and has a h 7 index in the SCOPUS database with more than 100 citations. He has 12 awards in scientific events, and acts as a reviewer of 5 journals with international circulation.

ACADEMIC BACKGROUND:

2014-2017: PhD in Dentistry from the Federal University of Pelotas, UFPEL, Brazil (CAPES Concept 6), with co-tutelle period in Radboud University Medical Center.

Fellowship: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2012-2014: Master of Science in Dentistry, Federal University of Pelotas, UFPEL, Brazil (Concept CAPES 6).

Fellowship: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq, Brazil.

2007-2012: Graduated in Dentistry, Federal University of Pelotas, UFPEL, Brazil.

POST-DOCTORATE

2018-2019: Postdoctoral fellowship at the Federal University of Pelotas, UFPEL, Brazil.

JOURNAL REVIEWER:

2019-Present: BMC Oral Health

2018-Present: CARIES RESEARCH

2016-Present: Photomedicine and Laser Surgery (Online)

2016-Present: Brazilian oral research

2015-Present: Dentistry: Oral Health & Cosmetics

AWARDS AND TITLES:

2018: 1st Place Scientific Paper Presentation Session in Dialogued Panel modality, 2nd Cariobra Congress.

2017: 1st Place in the Free Theme Category - Extension Project, 56th Academic Week of the Faculty of Dentistry.

2017: Honorable Mention - 23rd CIORJ - Scientific Initiation Category- research area, International Congress of Dentistry of Rio de Janeiro.

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2013: SBPqO Award - Postgraduate, Northeast-North Society of Dental Research.

2013: Outstanding work Congress of Scientific Initiation, UFPel.

2011: M. Isaao Award, 28th Annual Meeting of the Brazilian Society of Dental Research.

2011: Outstanding Student in Health Sciences area, Federal University of Pelotas - XX Scientific Initiation Congress.

FULL PAPERS PUBLISHED IN JOURNALS

2019, Journal of Dentistry, 2nd author.

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2019, Odontology, 5th author.

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2019, Journal of Adhesive Dentistry, 2nd author.

2018, Journal of the Mechanical Bevahiour of Biomedical Materials, 4th author.

2018, Journal of Prosthetic Dentistry, 2nd author.

2018, Caries Research, 3rd author.

2018, Journal of Dentistry UNESP, 2nd author.

2018, Journal of Dentistry, 1st author.

2018, Journal of Dentistry, 1st author.

2017, Journal of Orthodontics and Dentofacial Orthopedics, 3rd author.

2017, Caries Research, 1st author.

2017, Biofouling, 1st author.

2017, Dental Materials, 4th author.

2016, Brazilian Oral Research, 3rd author.

2016, Journal of Dentistry, 2nd author.

2016, Journal of Adhesion and Adhesives, 2nd author.

2016, Caries Research, 3rd author.

2016, Biofouling, 1st author.

2015, Operative Dentistry, 4th author.

2015, Odonto Ciência Magazine, 1st author.

2015, Brazilian Oral Research, 2nd author.

2014, Biofouling, 3rd author.

2014, Clinical Oral Investigations, 1st author.

2013, Biofouling, 3rd author.

*The original document was sent in Portuguese and has been translated for dissemination proposes.

Appendix 7: Call for application*

ANNOUCEMENT Nº 03, MAY 31th , 2020

SIMPLIFIED SELECTION PROCESS FOR THE HIRING OF RESEARCH FELLOWS

CONTRACT 04/2019, SINCONV 888291/2019, PROJECT "GLOBAL OBSERVATORY FOR DENTAL CARE – GODEC"

The President Director of the Delfim Mendes Silveiras Foundation, Prof. Marco Aurélio Romeu Fernandes, in the use of its statutory powers, makes public the opening of registration for the Simplified Selective Process for hiring research fellows: 03 (three) fellows and classify 06 (six) alternates, for the period of 12 (twelve) months, under Law 8. 958/1994, Law 10.973/2014, Decree 7.423/2014, Law 13.243/2016 and CONSUN/UFPel Resolution No. 02/2015, in order to comply with the content contained in Contract No. 04/2019, project "Global Observatory for Dental Care - Global Observatory for Dental Care - GODEC", entered into by the Federal University of Pelotas (UFPel).

1 PRELIMINARY PROVISIONS, VACANCIES AND STAGES

1.1 The general objective of the project "Global Observatory for Dental Care - Global Observatory for Dental Care - GODEC" is to establish a Brazilian initiative for the development and dissemination of Protocols and Guidelines for Clinical Practice (Clinical Practice Guidelines), focused on Oral Health, based on methodological rigor and the use of internationally referenced assessment tools.

1.2 The present announcement aims at selecting:
02 (two) undergraduate scholars and 01 (one) post-doctoral fellow, classify 03 (three) undergraduate alternates and 03 (three) post-doctoral alternates with the following specifications:

Nº Vacancies	Nº Alternates	Function	Requirements
2	3	Research Project support	To be regularly enrolled in an undergraduate course at UFPel in areas within the scope of the project: Dentistry, Medicine or International Relations; availability of 20 hours per week on alternate schedules between 8am and 6pm, from Monday to Friday.
1	3	Research Project support	Have availability of 40 hours weekly; Present at the time of hiring PhD in areas in the scope of the project: Dentistry, Medicine, Health Sciences;

1.3 The simplified selection process will be carried out in two stages, the first of which will be eliminatory, consisting of a curriculum evaluation and the second will be classified, corresponding to an interview with those selected in the first stage.

2 REMUNERATION

2.1 Undergraduate fellows and post-doctoral fellows will be selected to work on the project "Global Observatory for Dental Care - GODEC" and will be remunerated as fellows in in accordance with the Work Plan of the contract signed with the Federal University of Pelotas, approved by COCEPE/UFPel, for the period of 12 (twelve) months, and may be suspended or terminated at any time if required by the project.

2.2 The value of the scholarship referred to in sub-item 2.1 obeys the following parameter of distribution of weekly workload dedicated to the Project and its respective value:

Vacancy	Weekly Workload Amount	Amount of the Monthly Scholarship (R$)	Period
Undergraduate Fellowship	20 hours	500,00	12 (twelve) months

Post-doctoral Fellowship	40 hours	4.500,00	12 (twelve) months

*May be extended, suspended or terminated at any time if required by the project.

2.3 Fellows will have the following duties:

2.3.1 Research Project Support (Undergraduate Fellow) - Supporting researchers by collaborating from formulating research protocols, conducting literature searches, organizing evidence synthesis, and constructing clinical practice guidelines. The fellows will also assist in the processes of external communication and collection and interpretation of data from the public consultation of the guidelines that will be developed from this project.

2.3.2 Support for research project (Post-Doctoral Fellow) - Supporting researchers, collaborating from the formulation of research protocols, conducting literature searches, organizing the synthesis of evidence, and building the guidelines for clinical practice. The fellow will also assist in the processes of internal and external communication, data collection and interpretation from the public consultation of the guidelines that will be developed from this project, and in the final review of the guidelines to be sent to the Ministry.

2.4 The selected fellows shall be available for the hours mentioned in this Announcement to perform tasks related to the function, and a specific fellowship contract will be formalized.

2.5 Fellows will receive general supervision from the Project Coordination Office in the tasks to be performed as detailed in item 2.3.

3 APPLICATIONS AND REQUIRED DOCUMENTATION

3.1 Publication of the announcement: May 31, 2020. The announcement will be published on the electronic address: www2.fundacoesufpel.com.br.

3.2 Registration period: June 2 to 14, 2020.

3.2.1 If there are no candidates registered in the aforementioned period, the registration period will be automatically extended for the same period on the next working day.

3.3 For the registrations, candidates must deliver the documents listed in the item in a sealed envelope, at the UFPel Foundations Headquarters (HR sector), according to the address below:

Location: Headquarters of the UFPel Support Foundations, Human Resources sector, Rua Lobo da Costa nº 447, Bairro Centro, Pelotas/RS.

Hours: 8am to 2pm.

3.4 For the registration, the candidates must protocol in the department of Human Resources of the Foundations, a sealed envelope with the following documents: a) Application for registration (Annex I);

b) Identity Card and CPF;
c) Passport (in case of foreign candidate);
d) Proof of Curriculum Lattes (accompanied by proof of academic, academic and professional experience);
e) Document proving the link to the teaching institution (for students
certificate of enrolment);
f) Declaration of linkage/non-linkage with the public service;
g) Copy of the proof of residence;
h) Bank details "The account cannot be a savings account. It is not permitted for agreements managed by Plataforma Brasil (Sinconv)"; i) Time availability.
3.5 All fields on the Registration Form must be completed.
3.6 The candidates are fully responsible for the information provided in the Application Form, in compliance with the rules and conditions established in this announcement, about which may not allege ignorance.
3.7 With the registration, candidates will sign the commitment declaring to know the terms of this Tender Protocol and the regulations relevant to the Selection Process, and therefore may not allege ignorance.
3.8 The team responsible for the selection will not be responsible for applications received in disagreement with the terms of this Tender Protocol.

4 SELECTION AND RANKING

4.1 The selection process will consist of two stages. The first stage will be eliminatory and consists of an analysis of the Lattes résumé. The second stage will be classifying, consisting of an interview.
4.2 The first eliminatory stage of the selection process will be the analysis of the résumés submitted by the application deadline. The Lattes résumés submitted during registration will be formatted to disidentify the applicant and will be evaluated by external evaluators. At this stage, the candidates who do not reach the minimum score of 25 (twenty-five) points will be automatically eliminated. A maximum of 10 (ten) candidates will be selected for the next stage, according to their score.
4.3 Résumés will be evaluated according to their compliance with the essential and desirable requirements for the respective project, with the scores being evaluated according to the table below.

4.3.1 Curriculum requirements evaluation

a) For undergraduate selection:

Experience/qualification	**Score**
Scientific Contribution	0 to 10 points

Leadership Potention	0 to 10 points
Ability to Work in Groups	0 to 10 points
International Insertion	0 to 10 points
TOTAL	**40 points**

b) for post-doctoral selection:

Experience/qualification	**Score**
Scientific Contribution	0 to 10 points
Leadership Potention	0 to 10 points
Ability to Work in Groups	0 to 10 points
International Insertion	0 to 10 points
TOTAL	**40 points**

4.4 The list with the candidates classified in the analysis of curriculum suitable for the interview will be published on the electronic address www2.fundacoesufpel.com.br on July 31, 2020.
4.5 The deadline for appeals will be August 1, 2020. Appeals will be judged on August 2, 2020.
4.6 The interviews will be conducted online and the schedules will be announced on the website (www2.fundacoesufpel.com.br) on August 3, 2020. 4.6.1 The interviews will be held on 08 April 2020.

4.7 The second stage (interview) will be held by a committee appointed by the Project with the candidates selected in the First Stage.
4.8 The candidate will be evaluated during the interview according to the adequacy with the essential and desirable requirements for the respective Project. 4.8.1 Assessment of requirements during interview

a) For undergraduate selection:

Experience/qualification	**Score**
Communication Skills	Maximun 10 points
Knowledge of clinical practice guidelines	Maximun 25 points
Knowledge of evidence synthesis	Maximun 25 points
Availability of time and travel	Maximun 25 points
Knowledge of critical appraisal of science and reporting guidelines in the scope of the project	Maximun 7,5 points
Level of English language proficiency/sufficiency	Maximun 7,5 points
TOTAL	**100 points**

b) For post-doctoral selection:

Experience/qualification	**Score**
Communication Skills	Maximun 10 points
Knowledge of clinical practice guidelines	Maximun 25 points

Knowledge of evidence synthesis	Maximun 25 points
Availability of time and travel	Maximun 25 points
Knowledge of critical appraisal of science and reporting guidelines in the scope of the project	Maximun 7,5 points
Level of English language proficiency/sufficiency	Maximun 7,5 points
TOTAL	**100 points**

5 DATES OF THE SELECTION PROCESS

Data	**Etapas**
06/02/2020 to 06/14/2020	Registration
06/15/2020 to 07/31/2020	FIRST STAGE – Evaluation of CVs
08/01/2020	Publication of those approved in the first stage
08/02/2020	Period for appeals to the first stage
08/03/2020	First stage for appeals to the first phase
08/08/2020	SECOND STAGE – Interviews
08/20/2020	Publication for approval for the second phase
08/21/2020	Period for appeals to the second stage
08/22/2020	Judgement of appeals and final publication of the approved candidates

*All publications regarding the announcement will be made at the electronic address: www2.fundacoesufpel.com.br/

6 APPEALS

6.1 The evaluation commission is sovereign in its decisions. It may appeal against its decisions within the time limits indicated above.

6.2 The appeal must be filed by the interested party within the above mentioned period by means of a request addressed to the Evaluation Commission. The applicant must file it at the UFPel Support Foundations Headquarters, Rua Lobo da Costa nº 447, Bairro Centro, Pelotas/RS.

6.3 It is up to the Evaluation Commission to receive the interposed appeal and judge it on the dates indicated above.

6.4 The appeal and the result of its judgment by the Evaluation Commission will be published on the UFPel Support Foundations website (www2.fundacoesufpel.com.br/).

6.5 Any appeals submitted after the deadline established in this Announcement will be rejected.

6.6 Omission cases will be resolved by the General Management and members of the Evaluation Commission and, as a last resort, by the Maximum Director of the Delfim Mendes Silveira Foundation.

7 CONTRACTING

7.1 The candidates must, at the time of contracting the scholarship, prove a link with the Educational Institution.

7.2 The approved candidates will be bound by a scholarship contract.

7.3 The applicants referred to in 7.2 will be awarded scholarships for a period of up to 12 (twelve) months, which may be terminated or suspended at any time in accordance with the interests of the project.

7.4 The amount and form of monthly payment will be in accordance with the guidelines in the Work Plan.

7.5 The call will follow the ranking order contained in the selection results of this call, with preference given to candidates classified within the vacancy limit and then to others classified strictly following the ranking order.

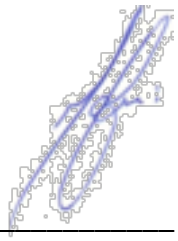
8 FINAL PROVISIONS

8.1 The present Notice of Simplified Selection will be published on the electronic address: www2.fundacoesufpel.com.br.

8.2 Under no circumstances will complement documents after the application deadline.

8.3 Questions arising from this Simplified Selection Notice may be directed to the e-mail: maximiliano.cenci@ufpel.edu.br

Pelotas, February 29, 2020.



Prof. Dr. Maximiliano Sérgio Cenci

*The original document was sent in Portuguese and has been translated for dissemination proposes.

Appendix 8: Final Questionnaire*

Free and Informed Consent Form

Federal University of Pelotas

Project: The Impact of Gender on Researcher Evaluation: A Randomized Clinical Trial
Responsible Researcher: Prof. Dr. Maximiliano Sérgio Cenci

Dear,
You are being invited to participate in a research study that will evaluate the impact of gender on the evaluation of researchers. This study aims to evaluate the impact of gender on the evaluation of researchers for a postdoctoral fellowship in Dentistry. The selection for the postdoctoral fellowship in which you participated as an external evaluator was not truthful and its sole purpose was to provide data for this research. The risks related to your participation in this research are minimal and are associated with any possible discomfort in your data being used for research (even though your identity will be preserved). Among the benefits are a greater understanding of how researchers evaluate their students and a greater knowledge about unconscious gender bias within the Brazilian Academy in the area of Dentistry.
The present study was approved by the local Research Ethics Committee and is part of a PhD thesis. Acceptance for participation in the research is important as it will help to improve the understanding of gender bias in academia within the context of Brazilian Dentistry. However, the decision to participate is VOLUNTARY, which means that you have the right to decide whether to participate or not, as well as to stop participating at any time, without having to give any justification for this.
By this signed authorization instrument, you give full consent to the researcher to use the available data solely for your use in the research without identifying you in any way.
The research does not involve any expense or expenditure or any other material liability. We assure you that confidentiality and anonymity will be maintained, that is, your name will not be mentioned in any hypothesis or circumstance, even in scientific publications.
In case of any question, please contact us:

Prof. Dr. Maximiliano Sérgio Cenci
Address: R. Gonçalves Chaves, 457 - Centro, Pelotas - RS, 96015-560, Brazil.
Phone: +55 (53)99155.6494
E-mail: maximiliano.cenci@ufpel.edu.br

CD Marina Christ Franco
Phone: +1 (613) 447.9286 / +55 (53) 997072679
Address: 1053 Carling Ave, Ottawa, ON K1Y4E9, Canada / R. Gonçalves Chaves, 457 - Centro, Pelotas - RS, 96015-560, Brazil.
E-mail: mchrist@ohri.ca

Research Ethics Committee, Faculty of Medicine, Federal University of Pelotas
Address: Duque de Caxias, 250 - Fragata, Pelotas - RS, 96030-000, Brazil.
Telephone: +55 (53) 3221.3554
E-mail: cep.famed@gmail.com

*Obrigatório

1. Name *

2. After carefully reading the Informed Consent Form, do you agree to participate in this research?

   Marcar apenas uma oval.

   - Yes
   - No

3. What gender do you consider yourself to be?

   Marcar apenas uma oval.

   - Male
   - Female

4. At any point did you mistrust the veracity of the process as a selection for a postdoctoral fellow?

   Marcar apenas uma oval.

   - Yes
   - No

8 Capítulo de livro[6]

MASCULINIDAD HEGEMÓNICA

Maximiliano Sérgio Cenci | Marina Christ Franco

ETIMOLOGÍA

En su definición más literal, desde la teoría de la hegemonía cultural del filósofo marxista Antonio Gramsci, la hegemonía significa la asimetría de una clase social sobre la otra. Se considera situación hegemónica aquella en la cual existe una asimetría a favor de un pueblo o Estado con relación al otro. La masculinidad, por otro lado, puede ser definida como un conjunto de atributos, comportamientos y roles típicamente asociados con los varones. En este sentido, la sociedad tiene un papel importante en la construcción de estereotipos de masculinidad.

Para los estudios de género, la masculinidad hegemónica se define como la configuración de una sociedad que sostiene la legitimidad y la disposición dominante de los varones y justifica la posición de subordinación de las mujeres. El concepto de masculinidad hegemónica pertenece a la teoría del orden de género del sociólogo Raewyn Connell, que involucra la evidencia empírica de múltiples jerarquías de género y clase que, entrelazadas, construyen la sociedad.

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[6]Capítulo retirado do livro Glosario de Patologias Sociales, publicado pela Editora UFPel. Pode ser acessado na íntegra pelo link: [http://guaiaca.ufpel.edu.br:8080/handle/prefix/7723]

La masculinidad hegemónica puede entenderse como un patrón de prácticas que hizo posible la dominación masculina sobre las mujeres de modo a perpetuarse y siguiera a lo largo de los siglos. La masculinidad hegemónica no significa solamente violencia, aunque esté apoyada en la fuerza; ella significa predominio logrado a través de la cultura, de las instituciones y de la persuasión.

Es posible que el origen de la masculinidad hegemónica haya ocurrido quizá alrededor del cuarto milenio antes de Cristo, cuando la sociedad haya pasado de la caza y la recolección a la agricultura, poniendo gradualmente fin a un sistema de importante igualdad entre varones y mujeres. Mientras que en la caza y la recolección los dos sexos contribuyeron, de manera relativamente significativa, con el paso a la agricultura los varones se hicieron responsables por la siembra y las mujeres comenzaron con el cuidado de los niños (Connel et al, 2013). Así fue el inicio del escenario del sistema patriarcal de dominio de varones y padres, algo que se perpetúa hasta hoy día, aunque las grandes diferencias sufridas a lo largo de los siglos.

TOPOLOGÍA

¿Cómo podemos mensurar la prevalencia de la masculinidad hegemónica en la sociedad actual? ¿Ha sido por la cantidad de madres solas? ¿O sería el número de varones en puestos de liderazgo? ¿O entonces frente a los casos de violencia en contra la mujer? En efecto, estos son algunos de los ejemplos de consecuencias de la masculinidad hegemónica que se pueden cuantificar, pero habría tantos otros. Todavía hay muchas situaciones que no son susceptibles de mensuración, como sería el trato preferencial de los padres a su hijo u otras a las que estamos quizás acostumbrados y que se hayan convertido en una parte cotidiana de la sociedad.

Sin dudas, la lucha por la igualdad de derechos entre varones y mujeres ha conseguido grandes logros a lo largo de los últimos años, como es el caso del derecho de la mujer al voto, el empleo formal y el divorcio. Muchos varones han venido (con mucho esfuerzo) rebajando su condición privilegiada y han ido reconstruyendo su posición de superioridad, lo que supondrá la formación de una generación más igualitaria. Sin embargo, los pasos aún son pequeños.

Desafortunadamente, si hablamos de números, la situación es aterradora. Una de cada tres mujeres experimenta al menos un caso de violencia acometida por un varón durante su vida. Cada año, alrededor de 5.000 mujeres son asesinadas por sus compañeros por “proteger el honor de la familia”. Las mujeres y las niñas son obligadas a contraer matrimonio contra su voluntad, principalmente en países de Asia y África, y más de 60 millones de niñas en el mundo se casan antes de la mayoría de edad. En el mundo, a cada año, 2,5 millones de personas son víctimas de tráfico, sea para la prostitución, el trabajo esclavo, de entre otras prácticas. Las mujeres y las niñas constituyen un promedio del 80 % de ese número. Los datos preliminares muestran que incluso en la investigación, la masculinidad hegemónica tiene graves consecuencias para las mujeres.

Un estudio de nuestro grupo mostró que los investigadores otorgaron calificaciones más altas a currículos idénticos que fueron identificados como estudiantes varones en comparación con los currículos identificados como mujeres.

SÍNTOMAS Y MANIFESTACIONES SOCIALES

A finales de la década de 1980 y principios de los años 1990, la investigación sobre masculinidad comenzó a consolidarse. En los últimos años, la crítica al patriarcado ha ganado fuerza en las discusiones reflexivas, principalmente a través de movimientos feministas, impulsados por la llegada de Internet.

Las manifestaciones sociales de la masculinidad hegemónica se pueden percibir en las actividades más cotidianas e incluso en situaciones menos evidentes. De hecho, hay un número mucho mayor de varones que ocupan puestos de liderazgo, en las grandes empresas, en comparación con las mujeres, en contraposición hay un número significativo de mujeres como madres solas o, entonces, responsables para atender sus hijos, incluso cuando estén casadas con varones. Existen incluso distintos comportamientos en clases según el género de estudiantes y profesores, con alta incidencia de *bullying* por parte de los niños. Otro ejemplo poco perceptivo está relacionado con el llamado "impuesto rosa", donde los productos elaborados con un atractivo femenino (tonos de rosa y publicidad dirigida a mujeres, por ejemplo) tienen un equivalente mucho más alto que el mismo producto cuando sea elaborado con un atractivo considerado como masculino.

Las manifestaciones también pueden ser observadas en el área de la criminología, considerando la alta incidencia de delitos acometidos por varones, los más graves de ellos acometidos en contra las mujeres. Frente a ello, el concepto de masculinidad hegemónica contribuyó a la teorización de la relación entre masculinidad y una diversidad de delitos, poniendo énfasis al concepto de feminicidio, por ejemplo, una acción ejecutada de forma no irracional, sino precisamente con la intención de mantener esta condición de poder. También es posible observar el efecto de la masculinidad hegemónica en las representaciones masculinas en los *mass media*. El uso de la imagen masculina en deportes de contacto y enfrentamiento (como el fútbol y las MMA - mixed martial arts), por ejemplo, funciona como una renovación continua del símbolo de masculinidad, a menudo asociado con la violencia y la homofobia. Si bien la imagen de las mujeres parece estar más asociada a productos para limpiar el hogar, de higiene y de cuidado de los niños en los mensajes publicitarios de medicamentos pediátricos o, en otro contexto, sus cuerpos aparecen cosificados y extremadamente sexualizados, con escenas de desnudos y con el único propósito de, otra vez, "servir a los varones".

Estos ejemplos construyen (y afirman) un imaginario social de que los varones deben asumir posiciones de liderazgo y superioridad en el trabajo y en la familia, mientras que las mujeres deben quedarse en posiciones de subordinación.

Las consecuencias de esta masculinidad hegemónica se hicieron aún más claras con la llegada de Internet y la lucha de las mujeres por una posición de igualdad. La carga

psicológica de que las mujeres deben ser las principales o únicas responsables del cuidado de los hijos, así como los cobros más bajos que ellas perciben para desempeñar el mismo rol que los varones son apenas algunos ejemplos de las consecuencias de esta masculinidad sobre las mujeres. La violencia contra la mujer, la alta tasa de violaciones a niñas y mujeres, que en la mayoría de los casos son cometidos por familiares cercanos a la víctima y además la alta tasa de feminicidio, que en la mayoría de los casos involucra la pareja misma (o expareja) de la víctima, son las consecuencias más aterradoras de esta masculinidad malsana y hegemónica.

Aunque las graves e invaluables consecuencias de la masculinidad hegemónica sobre las mujeres, también se hace necesario discutir las consecuencias de esta hegemonía en los varones mismos. Esta presión por puestos de superioridad, que reproducen una jerarquía exagerada, tiene costes emocionales e incluso físicos hasta para los varones. La sociedad impone que los varones deben ser los principales proveedores económicos de sus familias y, por eso, no pueden asumir una actitud de vulnerabilidad, de forma que eso afecta a los varones que no se sienten a gusto en esta posición de opresores, afectando particularmente a los homosexuales. Los niños que crecen con la cultura del patriarcado pueden desarrollar varios problemas psicológicos a lo largo de su vida, como es el caso mayor inseguridad y la baja autoestima, que pueden derivar en casos más severos de ansiedad y depresión. Otra gran consecuencia es que estos niños, que han crecido en el patriarcado, pasan a convertirse en adultos opresivos que perpetuarán el ciclo patriarcal en sus familias por otra generación más.

Entonces ¿por qué sucede todo esto? La forma en que la civilización se ha organizado desde sus inicios, como se ha subrayado anteriormente, ha creado un imaginario social en donde los varones deben ser los proveedores y las mujeres deben permanecer en segundo plano. Esta organización patriarcal no solo formó la sociedad en la que vivimos hoy, sino que se ha perpetuado durante tantos siglos a punto de convertirse en una parte corriente de la organización social. De esta forma, los varones eran los encargados de crear leyes y dictar lo que era correcto y lo que no, de forma que durante muchos años se creyó que las mujeres eran seres inferiores a los varones. La sociedad que vivimos hoy es el resultado de una formación lenta y paulatina que se ha producido desde los tiempos más remotos.

La masculinidad, como la feminidad, no es un hecho natural. Se construyen, se aprenden y se reproducen socialmente con la intervención de distintas instituciones, como el Estado, la familia, la religión, la escuela y los medios de comunicación. Todas estas instituciones están dando forma al modelo en el cual todos sienten, piensan, actúan y representan su género. Muchos niños crecen escuchando frases como “los varones no lloran”, y son educados y entrenados para ejercer un tipo de masculinidad violenta y dominante. Asimismo, la mayoría de las niñas son animadas, desde muy temprana edad, a cuidar a sus hijos y saber hacer sus deberes específicos.

POSIBLES MUTACIONES

La civilización, a lo largo de los años, profundizó el patriarcado, de modo a definir particularidades que se han combinado con creencias e instituciones más amplias, es decir, cada civilización ha conjugado cuestiones de género con aspectos de su propia estructura cultural e institucional a lo largo del tiempo. El código Hamurabi de Mesopotamia, por ejemplo, establecía que las mujeres que no habían sido "buenas amas de casa" o, entonces, que habían descuidado a sus cónyuges, deberían ser arrojadas al agua. No hubo contraparte a este respecto para los varones. Otro ejemplo es que muchas sociedades permiten que los varones tengan varias esposas y otras castigan el adulterio femenino con mucha más severidad que el masculino. En el Medio Oriente, la obligación de llevar velo cuando la mujer está en público era un signo de su inferioridad y de su pertenencia a padres y maridos.

En definitiva, existe una variación en la masculinidad hegemónica según las características culturales de cada sociedad y el período de tiempo. Estas diferencias afectan los roles masculino y femenino en la sociedad, estando cada sociedad en un contexto de patriarcado más evidente o no en un momento determinado de la historia.

PRONÓSTICO Y ALTERNATIVAS

La lucha por la igualdad de género y por una sociedad más justa para varones y mujeres no es reciente. Uno de los primeros logros de los derechos de las mujeres fue el derecho al voto, que resultó de la lucha de las sufragistas a principios del siglo XX. Otro gran logro de la mujer fue el derecho a seguir una carrera, ya que por ley las mujeres no podían ejercer una profesión sin antes pedir permiso a sus maridos.

Entre tantos logros ya alcanzados, aún queda un largo camino por recorrer para una sociedad igualitaria con relación a varones y mujeres. La sociedad en su conjunto tiene un papel fundamental en los cambios que aún deben realizarse. Todos y cada uno de los varones tienen el poder (y el deber) de dejar su condición de masculinidad hegemónica y luchar por una sociedad más justa, incluso con actitudes cotidianas. Así, respetar a las mujeres, prestar atención a las actitudes que resultan del patriarcado en el que están inseridas y, además, permitirse ser más sensibles y vulnerables, son actitudes extremadamente prácticas y pequeños pasos hacia una sociedad mejor.

Las escuelas deben hablar sobre la igualdad de género y capacitar a niños y niñas para que puedan ser lo que quieran y jamás estar limitados por su identidad de género. Al igual, las familias, en sus diversos modelos, deben criar niños que respeten su propia personalidad y que respeten y valoren el rol mujeres y niñas autónomas que pueden decidir ser amas de casa, grandes ejecutivas o lo que desean ser. El papel de la familia en la crianza de los hijos es uno de los vínculos más importantes en la ruptura del patriarcado y la masculinidad hegemónica en las generaciones futuras.

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9 Considerações finais

A presente tese se propôs a avaliar, em linhas gerais, o impacto do gênero na pesquisa, especialmente na área da Odontologia.

Através do primeiro estudo, observou-se não haver diferença no padrão de linguagem utilizado por pesquisadores homens e mulheres em resumos de submissões para uma importante agência de fomento brasileira. Caracterizando que o viés de gênero em concessões de financiamento não esteja relacionado com a escrita do projeto em si, e sim com outros fatores, como o peso do currículo, por exemplo.

No segundo e terceiro estudo observamos que a pandemia por COVID-19 impactou de forma diferente pesquisadores homens e mulheres da área da odontologia, principalmente se considerarmos os estágios mais iniciais da carreira e os países menos desenvolvidos.

No quarto estudo podemos observar claramente o viés individual de gênero já que os avaliadores (independente do gênero) deram notas mais altas para os currículos identificados como masculinos em todos os quesitos, sendo a maior diferença de pontuação no quesito “potencial de liderança”.

No capítulo de livro podemos discorrer sobre a origem da masculinidade e as suas consequências na sociedade tanto para as mulheres quanto para os próprios homens.

Por meio de um conjunto de estudos, essa tese evidenciou em números o que as mulheres vivem diariamente ao longo de suas carreiras: o viés de gênero nas suas variadas facetas. Mostrando que a inequidade entre homens e mulheres ocorre de forma implícita, devido à conformação dos sistemas, mas também de forma individual.

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Apêndices

Apêndice A – Projeto de pesquisa qualificado anteriormente

UNIVERSIDADE FEDERAL DE PELOTAS
Faculdade de Odontologia
Programa de Pós-Graduação em Odontologia

Projeto de Tese

Benefícios da avaliação de risco de cárie individual e detalhada em adultos: Estudo Clínico Randomizado – CaCIA 02

Marina Christ Franco

Pelotas, 2019

Marina Christ Franco

Benefícios da avaliação de risco de cárie individual e detalhada em adultos: Estudo Clínico Randomizado – CaCIA 02

Projeto de Pesquisa apresentado ao Programa de Pós-graduação em Odontologia da Faculdade de Odontologia, da Universidade Federal de Pelotas, como requisito parcial à obtenção do título de Doutor em Clínica Odontológica, área de concentração Cariologia/Dentística.

Orientador: Prof. Dr. Maximiliano Sérgio Cenci

Co-Orientador: Prof. Dr. Fausto Medeiros Mendes

Pelotas, 2019

Marina Christ Franco

Benefícios da avaliação de risco de cárie individual e detalhada em adultos: Estudo Clínico Randomizado – CACIA 02

Projeto de pesquisa de Tese apresentado, como requisito parcial, para obtenção do grau de Doutor em Clínica Odontológica, Programa de Pós-Graduação em Odontologia, Faculdade de Odontologia de Pelotas, Universidade Federal de Pelotas.

Data da qualificação: 12/02/2019

Banca examinadora:

Prof. Dr. Maximiliano Sérgio Cenci
Doutor em Odontologia (Cariologia) pela Universidade Estadual de Campinas

Prof. Dr. Marcos Britto Correa
Doutor em Odontologia (Dentística) pela Universidade Federal de Pelotas.

Prof. Dr. Kauê Farias Collares
Doutor em Odontologia (Dentística) pela Universidade Federal de Pelotas.

Prof. Dra. Françoise Hélène van de Sande Leite (Suplente)
Doutora em Odontologia (Dentística) pela Universidade Federal de Pelotas **Sumário**

RESUMO

FRANCO, Marina. **Benefícios da avaliação de risco de cárie individual e detalhada em adultos: Estudo Clínico Randomizado – CaCIA 02**. 2019. 33p. Projeto de Tese - Qualificação (Doutorado em Clínica Odontológica). Programa de Pós-Graduação em Odontologia. Universidade Federal de Pelotas, Pelotas, 2019.

Segundo especialistas, a avaliação do risco de cárie é um componente essencial para o correto manejo e controle da doença cárie; entretanto as estratégias atuais para avaliação de risco tendem a ser muito complexas, havendo, ainda, uma carência de evidências mais robustas que demonstrem essa real necessidade. O objetivo desse estudo será comparar o controle e acompanhamento da doença cárie baseado numa avaliação elaborada e individualizada do risco de cárie, a uma estratégia mais simples de avaliação de risco, por meio de um estudo clínico randomizado com dois anos de acompanhamento. Os participantes serão adultos entre 18 e 59 anos que buscarem atendimento odontológico em Unidades Básicas de Saúde da cidade de Pelotas-RS, e preencherem os critérios de inclusão. Uma amostra aleatória, com randomização estratificada de, aproximadamente, 160 indivíduos irão compor o *grupo ICCMS*: indivíduos submetidos a controle e manutenção relacionada à cárie dentária direcionada por uma avaliação de risco individualizada e multivariada; e, aproximadamente, 160 indivíduos irão compor o *grupo avaliação de risco simplificada*: indivíduos tratados baseando-se apenas na experiência atual de cárie por meio de lesões cavitadas. O recrutamento terá início no ano de 2019 e os participantes serão acompanhamos por 24 meses. Após o recrutamento, os participantes responderão uma anamnese e um questionário para avaliar o impacto da saúde bucal na qualidade de vida (Oral Health Impact Profile -14), e passarão por um exame clínico para avaliação de cárie, de acordo com o International Caries Detection and Assessment System na sua forma simplificada. Os tratamentos dentários e os intervalos de retorno serão designados de acordo com o risco individual do paciente detectado na abordagem inicial de acordo com o grupo alocado. As avaliações de desfecho consistem em início *(baseline)*, 12 meses e 24 meses, os dados serão transferidos para planilhas após as diferentes fases do estudo. O desfecho primário será o número de superfícies dentárias que necessitam de intervenção operatória nas reconsultas de acordo com os tratamentos empregados baseados nas avaliações de risco e os desfechos secundários serão a avaliação da qualidade de vida relacionada à saúde bucal dos indivíduos antes e após o tratamento odontológico e o custo-efetividade dos tratamentos baseados em cada avaliação de risco.

Palavras-chave: Cárie dentária. Risco de cárie. Prevenção e controle. Ensaio clínico randomizado.

ABSTRACT

FRANCO, Marina. Benefits of individual and detailed caries risk assessment in adults: A Randomized Clinical Trial **– CaCIA 02**. 2019. 33p. Thesis Project - Qualification (PhD in Dentistry). Graduate Program in Dentistry. Federal University of Pelotas, Pelotas, 2019.

According to experts, the assessment of caries risk is an essential component for the correct management and control of caries disease; however, current strategies for risk assessment tend to be very complex, and there is a shortage of robust evidence to demonstrate this real need. The objective of this study will be to compare the control and follow-up of caries disease based on a complex and individualized assessment of caries risk, to a simpler risk assessment strategy, through a randomized clinical trial with two years of follow-up. Participants will be adults between 18 and 59 years of age who seek dental care in Basic Health Units of the city of Pelotas-RS and meet the inclusion criteria. A randomized sample of approximately 160 individuals will be included in the *ICCMS group:* individuals undergoing dental caries-related control and maintenance directed by an individualized and multivariate risk assessment; and approximately 160 individuals will be included in the *simplified risk assessment group:* individuals treated based only on the current experience of caries by means of cavitated lesions. Recruitment will start at the beginning of 2019 and the participants will be followed for 24 months. Following recruitment, participants will respond to an anamnesis and a questionnaire to assess the impact of oral health on the quality of life (Oral Health Impact Profile -14), and will undergo a clinical examination for evaluation of caries, according to the International Caries Detection and Assessment System in its simplified form. Dental treatments and return intervals will be designated according to the patient's individual risk detected in the initial approach according to the allocated group. Outcome evaluations consist of baseline, 12 months and 24 months, data will be transferred to spreadsheets after the different phases of the study. The primary outcome will be the number of dental surfaces that require surgical intervention in the reassessments according to the treatments based on the risk assessments and the secondary outcomes will be the evaluation of the quality of life related to oral health before and after the dental treatments and the cost-effectiveness of treatments based on each risk assessment.

Keywords: Dental caries. Caries risk assessment. Prevention and control. Randomized clinical trial.

1 ANTECEDENTES E JUSTIFICATIVA

Apesar do declínio na sua prevalência nos últimos anos, a cárie dentária continua sendo uma das doenças mais comumente encontrada em humanos, tendo

um impacto substancial na saúde populacional e na economia global (VOS et al., 2013; LISTL et al., 2015). Além disso, o campo de detecção, diagnóstico e manejo da doença cárie ainda enfrenta o problema da falta de tradução das melhores evidências científicas para a prática clínica (SELWITZ et al., 2007). Diante desse cenário, bem como do avanço no conhecimento sobre a doença, os autores têm considerado a avaliação de risco como um componente essencial para um correto manejo e prevenção da doença cárie, bem como para o estabelecimento de um tempo adequado para as consultas de retorno (TWETMAN et al., 2013; TWETMAN et al., 2013).

A avaliação do risco de cárie tem como objetivos principais determinar a probabilidade de um paciente desenvolver novas lesões de cárie em um determinado período de tempo, bem como, determinar o risco da progressão para estágios mais severos de lesões já existentes. Devido à natureza multifatorial do processo da doença cárie e ao fato de ser uma doença muito dinâmica, mas não necessariamente contínua, os estudos sobre avaliação de risco tendem a ser muito complexos, com inúmeras variáveis desafiadoras (TWETMAN et al., 2013; MEJARE et al., 2014; SENNEBY et al., 2015; TELLEZ et al., 2013; CAGETTI et al., 2018).

O International Caries Classification and Management System (ICCMS) é um método de avaliação de risco e de manejo de cárie individualizado e multivariado que contempla uma série de protocolos clínicos relacionados ao diagnóstico e decisões de tratamento que visam a manutenção da saúde e

preservação da estrutura dentária. A avaliação individual do risco de cárie por meio do ICCMS considera uma classificação do risco geral do paciente por meio de uma série de perguntas e características intraorais específicas, como sinais de hipossalivação e presença de placa nos incisivos centrais superiores, e o diagnóstico de lesões de cárie desde seus estágios mais iniciais por meio do International Caries Detection and Assessment System (ICDAS), levando a uma classificação em baixo, moderado ou alto risco de cárie (ISMAIL et al., 2015; PITTS et al., 2013).

Estudos foram conduzidos para determinar fatores que apresentam um poder preditivo aceitável para o desenvolvimento de novas lesões cariosas, a experiência de cárie é um dos preditores únicos mais poderosos no desenvolvimento futuro de cárie em praticamente todas as idades (TWETMAN et al., 2014; SENNEBY et al., 2015; TELLEZ et al., 2013; CAGETTI et al., 2018). No entanto, a maioria dessas pesquisas são estudos de coorte que se preocupam em avaliar os fatores preditores para novas lesões de cárie dentária. A importância da avaliação do risco individualizado de cárie para os pacientes é definida por opinião de experts (TWETMAN et al., 2013; MEJARE et al., 2014); evidências mais robustas seriam necessárias para avaliar a real importância da avaliação de risco no contexto da prática clínica diária.

Nesse sentido, ainda, se torna necessário o desenvolvimento de uma estratégia de avaliação de risco de cárie mais objetiva, que seja adequada, precisa e que tenha uma melhor relação de custo efetividade. Uma avaliação de risco simplificada pode facilitar a implementação por parte do profissional, otimizar as etapas de diagnóstico, submetendo os pacientes a um menor tempo clínico e um tratamento mais custo efetivo. Num sentido mais amplo, uma avaliação de risco de cárie simplificada permite otimizar os atendimentos em saúde bucal na atenção básica e aumentar a cobertura populacional.

Portanto, o objetivo desse estudo será avaliar, por meio de um ensaio clínico randomizado, se uma estratégia mais elaborada e individualizada do risco de cárie, considerando inúmeras variáveis, traz benefícios para o paciente comparado a uma estratégia mais simples, que considera apenas a experiência atual de cárie do paciente por meio da presença de lesões cavitadas.

2 PROPOSIÇÃO

2.1 Objetivo Geral

O objetivo geral do presente estudo será comparar o controle da doença cárie baseado em uma avaliação elaborada e individualizada do risco de cárie a uma avaliação de risco simplificada em usuários em busca de tratamento odontológico em Unidades Básicas de Saúde (UBSs) da cidade de Pelotas-RS, por meio de um ensaio clínico randomizado com dois anos de acompanhamento.

2.2 Objetivos específicos

1) Avaliar o número de superfícies dentárias que necessitam de intervenção operatória nas reconsultas de acordo com os tratamentos empregados baseados nas avaliações de risco.

2) Avaliar a qualidade de vida relacionada à saúde bucal dos indivíduos antes do tratamento odontológico *(baseline)* e após o tratamento concluído de acordo com as avaliações de risco.

3) Analisar o custo-efetividade dos tratamentos baseados em cada avaliação de risco.

2.3 Hipóteses

Os indivíduos tratados com o plano baseado em uma avaliação de risco simplificada serão submetidos a um menor tempo clínico, terão um tratamento mais custo efetivo e apresentarão necessidade de intervenção operatória similar aos indivíduos tratados com o plano baseado na avaliação de risco detalhada num período de dois anos de acompanhamento.

3 MATERIAIS E MÉTODOS

3.1 Aspectos éticos

O projeto será submetido ao Comitê de Ética em Pesquisa da Faculdade de Odontologia da Universidade Federal de Pelotas e protocolado em uma base de dados para registro de ensaios clínicos *(ClinicalTrials.gov).* Após aceitação no Comitê de Ética em Pesquisa, o projeto será submetido à autorização da Secretaria Municipal de Saúde de Pelotas. Os indivíduos serão informados sobre os objetivos da pesquisa, tratamentos realizados e acompanhamentos, podendo ou não consentir com a pesquisa, e serão incluídos no estudo somente após a assinatura do Termo de Consentimento Livre e Esclarecido (Apêndice A). O protocolo do estudo foi redigido seguindo as orientações do guia "Standard Protocol Items: Recommendations for Interventional Trials" (SPIRIT).

3.2 Pergunta clínica estruturada e desenho do estudo

A pergunta clínica estruturada do estudo é: Indivíduos adultos em busca de atendimento odontológico em UBSs da cidade de Pelotas (Participantes) submetidos a tratamento e manutenção relacionada à cárie dentária direcionada por uma avaliação de risco individualizada e multivariada (Intervenção) comparada a um grupo de indivíduos tratados baseando-se em uma avaliação de risco simplificada (Comparador) apresentarão menor necessidade de intervenções operatórias futuras num período de dois anos de acompanhamento (Desfecho)?

3.3 Elegibilidade, critérios de inclusão e exclusão

Adultos entre 18 e 59 anos de idade que buscarem atendimento odontológico em UBSs de Pelotas – RS escolhidas por conveniência, e consentirem com a participação na pesquisa serão considerados elegíveis para o presente estudo. Os critérios de exclusão serão indivíduos menores de 18 anos de idade, indivíduos acima de 59 anos de idade e indivíduos que não concordarem com a sua participação no estudo.

3.4 Intervenções

O presente ensaio clínico randomizado testará duas formas de avaliação do risco de cárie: um método individualizado e detalhado, considerando diversos fatores preditores de risco e um método de avaliação de risco simplificado, considerando apenas a presença de lesões cavitadas. O plano de tratamento e

as consultas de retorno serão estabelecidos de acordo com essas avaliações de risco.

A avaliação de risco pelo método individualizado e multivariado será baseada nas diretrizes do International Caries Classification and Management System (ICCMS), que considera fatores gerais de risco (por meio de perguntas e exame visual) e fatores locais de risco por meio da presença de lesões de cárie (examinadas através do ICDAS) (ISMAIL et al., 2015; PITTS et al., 2013). Por outro lado, no outro grupo será realizada uma avaliação de risco simplificada, baseada apenas na presença ou não de lesões de cárie cavitadas no momento do exame, assim, os indivíduos serão classificados conforme o risco de cárie em baixo (ausência de lesões de cárie cavitadas) e alto

(presença de lesões de cárie cavitadas), e receberão condutas de tratamento e acompanhamento baseados nessa divisão.

Dessa forma, os grupos de intervenção do presente estudo serão:

- Grupo ICCMS: Indivíduos classificados e tratados seguindo as diretrizes do manual do ICCMS.

- Grupo avaliação de risco simplificada: Indivíduos classificados e tratados baseando-se apenas na experiência atual de cárie.

3.5 Procedimentos de exame e tratamentos dos participantes

O indivíduo que chegará à Unidade Básica de Saúde (UBS) será avaliado, pelo cirurgião-dentista (CD) da UBS, quanto aos critérios de elegibilidade. Sendo ele elegível, a pesquisa será apresentada e, caso o indivíduo concorde com a sua participação, o termo de consentimento livre e esclarecido (Apêndice A) será assinado. Caso o indivíduo não aceite participar da pesquisa ou não preencha os critérios de inclusão, receberá os tratamentos necessários da mesma forma. Após o preenchimento dos critérios de inclusão, o CD da UBS, previamente treinado, aplicará a anamnese e realizará os exames clínicos, mas não elaborará o plano de tratamento (Apêndice B). Inicialmente será avaliada a presença de placa visível nos incisivos superiores e sinais clínicos de hipossalivação (PITTS et al., 2013), posteriormente, os dentes serão limpos por meio de uma profilaxia com escova de Robinson e dentifrício fluoretado. Em seguida, o CD avaliará a presença de superfícies radiculares expostas (PITTS et al., 2013) e realizará o International Caries Detection and Assessment System (ICDAS) na sua forma simplificada (PITTS et al., 2009) (Apêndice B). Ao término da consulta a auxiliar de saúde bucal (ASB) da UBS aplicará um questionário para avaliar o impacto da saúde bucal na qualidade de vida do paciente. O instrumento utilizado será a versão em português do Oral Health Impact Profile - 14 (OHIP-14) (OLIVEIRA; NADANOVSKY, 2005), descrito no Anexo A.

Com base no exame clínico realizado pelo CD da UBS, um pesquisador realizará a avaliação de risco de cárie utilizando os critérios do ICCMS. Os critérios e as condutas clínicas subsequentes propostos pelo ICCMS estão apresentadas nas figuras 1 a 3.

FATORES DE RISCO A NÍVEL DO PACIENTE	• **Radioterapia de cabeça e pescoço** • Sensação de boca seca • Exposição deficiente de flúor • Alta frequência de açúcar entre refeições
FATORES DE RISCO INTRAORAIS	• **Hipossalivação** • **Exposição pulpar, fístula ou abcesso** • Lesões ativas de cárie • Placa visível nos incisivos centrais superiores • Superfícies radiculares expostas

RISCO GERAL DO PACIENTE	
RISCO BAIXO	Nenhum dos fatores
RISCO MODERADO	Nenhum dos fatores grifados e/ou um dos demais fatores
RISCO ALTO	Um fator grifado e/ou dois ou mais dos demais fatores

Figura 1. Classificação geral de risco do paciente de acordo com o ICCMS

CARACTERÍSTICAS DAS LESÕES			
Superfícies sadias (ICDAS código 0)	Lesões em estágio inicial (ICDAS código 1 e 2)	Lesões em estágio moderado (ICDAS código 3 e 4)	Lesões em estágio avançado (ICDAS código 5 e 6)

		CARACTERÍSTICA DAS LESÕES		
		Sem lesões ativas	Lesões ativas em estágio inicial	Lesões ativas em estágio moderado ou avançado
CLASSIFICAÇÃO GERAL DE RISCO	Risco baixo	Risco baixo	Risco moderado	Risco moderado
	Risco moderado	Risco baixo	Risco moderado	Risco alto
	Risco alto	Risco moderado	Risco Alto	Risco alto

TEMPO DE RECHAMADA	
RISCO BAIXO	Retorno após 12 meses
RISCO MODERADO	Retorno após 6 meses
RISCO ALTO	Retorno após 3 meses

Figura 2. Classificação combinada de acordo com o risco geral e as características das lesões e tempos de retorno de acordo com a classificação segundo o ICCMS

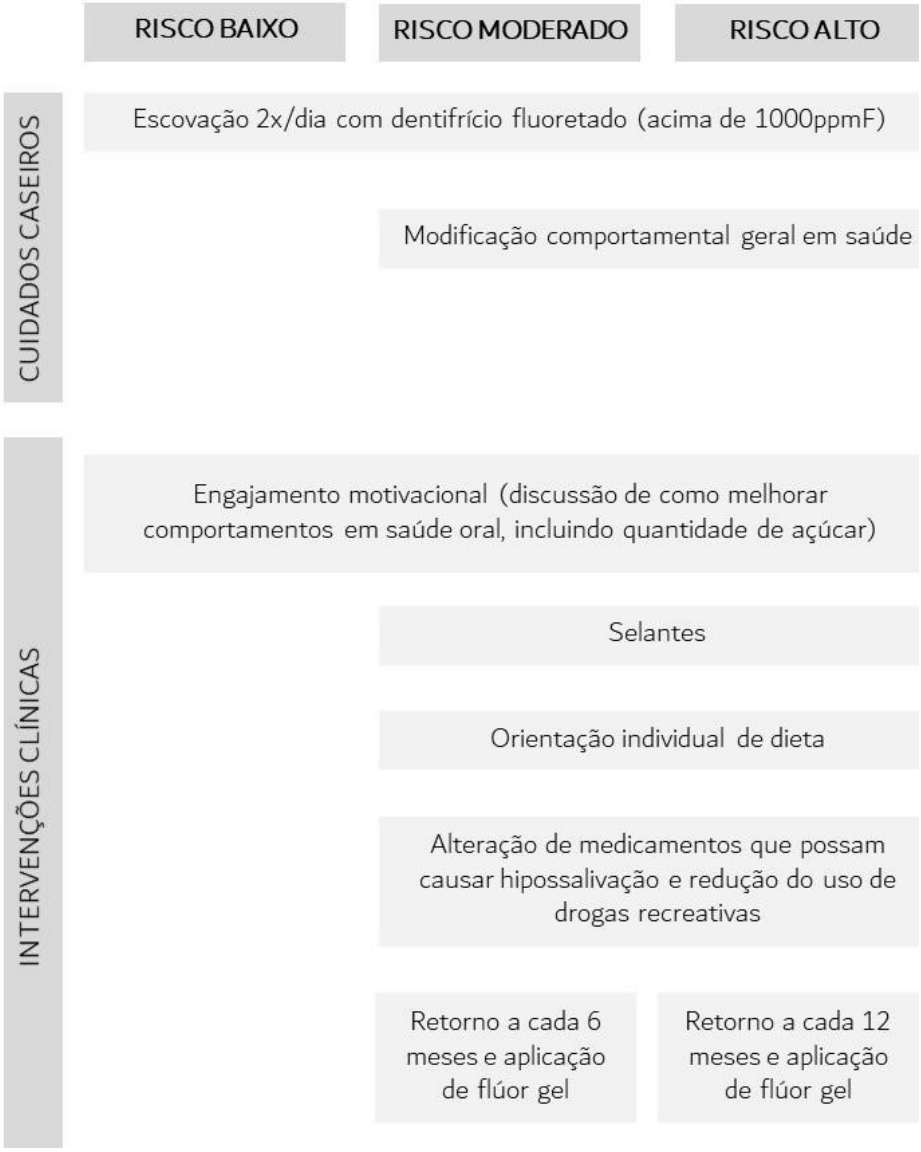

Figura 3. Condutas clínicas de acordo com a classificação de risco de cárie segundo o ICCMS

Após a realização do plano de tratamento baseado no ICCMS, o indivíduo será classificado em alto ou baixo risco de acordo a avaliação de risco simplificada. Um novo plano de tratamento será realizado, pelo mesmo pesquisador, baseado nessa nova classificação e nas condutas apresentadas nas figuras 4 e 5.

CLASSIFICAÇÃO DE RISCO	
RISCO BAIXO	Ausência de lesões de cárie cavitadas
RISCO ALTO	Presença de lesões de cárie cavitadas

TEMPO DE RECHAMADA	
RISCO BAIXO	Retorno após 12 meses
RISCO ALTO	Retorno após 6 meses

Figura 4. Avaliação de risco simplificada e tempos de retorno

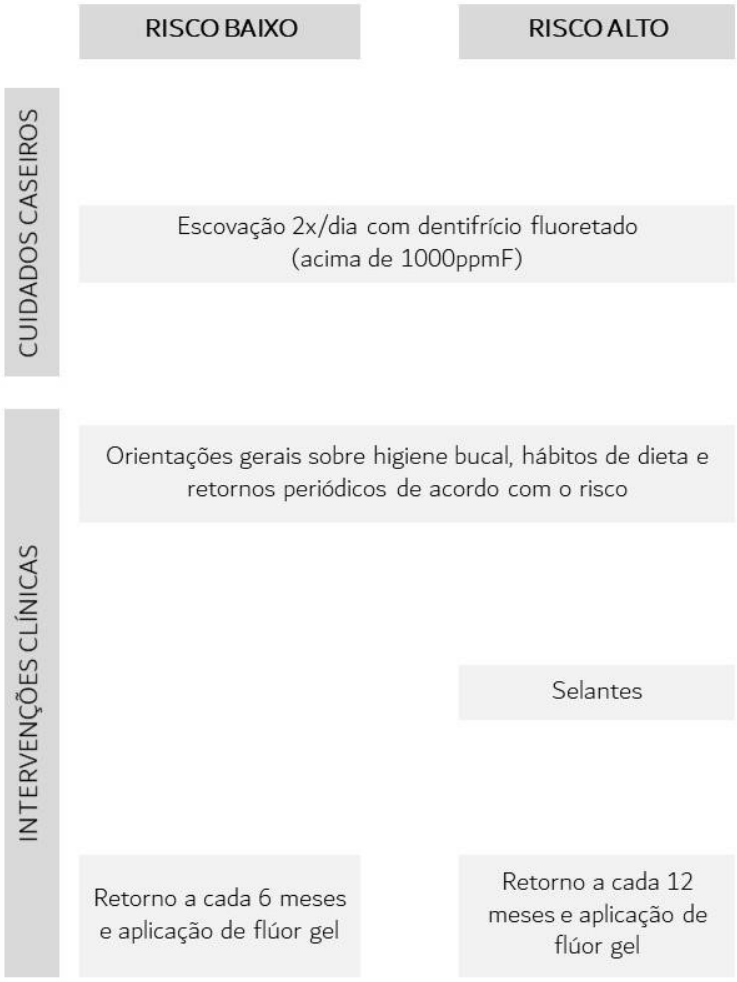

Figura 5. Condutas clínicas de acordo com a avaliação de risco simplificada

Os planos de tratamento serão codificados, e somente após a inclusão e realização dos dois planos, o participante será randomizado em um dos grupos por um pesquisador sem contato com os participantes. Os dentistas responsáveis pelo tratamento não saberão a qual grupo o indivíduo pertence.

Os procedimentos operatórios serão realizados pelos cirurgiões-dentistas (CDs) das UBSs seguindo as melhores evidências disponíveis, e não haverá diferenciação de acordo com o grupo dos participantes. Após o término do tratamento o instrumento de qualidade de vida relacionada à saúde bucal será reaplicado pelo ASB da UBS, após isso, o pesquisador responsável pela avaliação inicial agendará o retorno do paciente, para que não haja quebra de cegamento do operador.

3.6 Visitas de acompanhamento

Os participantes retornarão nos intervalos determinados pela classificação de risco. Nessas consultas de retorno, um novo exame clínico será realizado, e caso haja necessidade, um novo plano de tratamento será confeccionado baseado na avaliação de risco a qual o paciente foi inicialmente alocado.

Após 12 e 24 meses do término do tratamento, todos os participantes retornarão para a coleta dos desfechos. Para isso, dois examinadores previamente treinados e calibrados, cegos em relação aos grupos que os pacientes foram alocados e sem participação nos tratamentos dentários, irão realizar os exames, encaminhando para tratamento os pacientes que tiverem necessidade.

Com relação à coleta dos desfechos, os examinadores avaliarão os indivíduos quanto ao:

- Número de superfícies dentárias com lesão de cárie com envolvimento dentinário, necessitando de tratamento operatório;

- Número de superfícies restauradas que necessitam de reparo ou substituição (falhas, lesões de cárie ao redor das restaurações ou perda completa do material restaurador);

- Número de dentes com episódios de dor, necessidade de tratamento endodôntico ou exodontia.

3.7 Desfechos

O desfecho primário será um desfecho composto que representa o número de superfícies dentárias necessitando de intervenção operatória nesses dois anos de acompanhamento. Dessa forma, o desfecho primário será a soma de superfícies com novas lesões de cárie envolvendo dentina, superfícies restauradas que tiverem necessidade de reparo ou troca de restauração, dentes que necessitem de tratamento endodôntico ou exodontia (contabilizando 4 ou 5 superfícies por dente, para dentes anteriores ou posteriores, respectivamente). Caso a superfície dentária necessite de dois tipos de tratamento em diferentes ocasiões, o tratamento será computado duas vezes.

Os desfechos secundários serão os componentes do desfecho primário considerados separadamente: superfícies com novas lesões envolvendo dentina, superfícies

restauradas com necessidade de troca de restauração, dentes com episódios de dor, com necessidade de tratamento endodôntico e de exodontia.

Também serão considerados desfechos secundários o número de restaurações necessitando de reparos, o número de novas lesões de cárie, o custo efetividade do tratamento de acordo com o grupo e o impacto na qualidade de vida.

3.8 Linha do tempo

O recrutamento terá início em 2019. Os participantes serão arrolados no estudo por, aproximadamente, 25 meses, considerando o tempo do tratamento inicial e os 24 meses de acompanhamento. Esse tempo sofrerá variações de acordo com a necessidade de tratamento de cada participante. A linha do tempo está apresentada na figura 6.

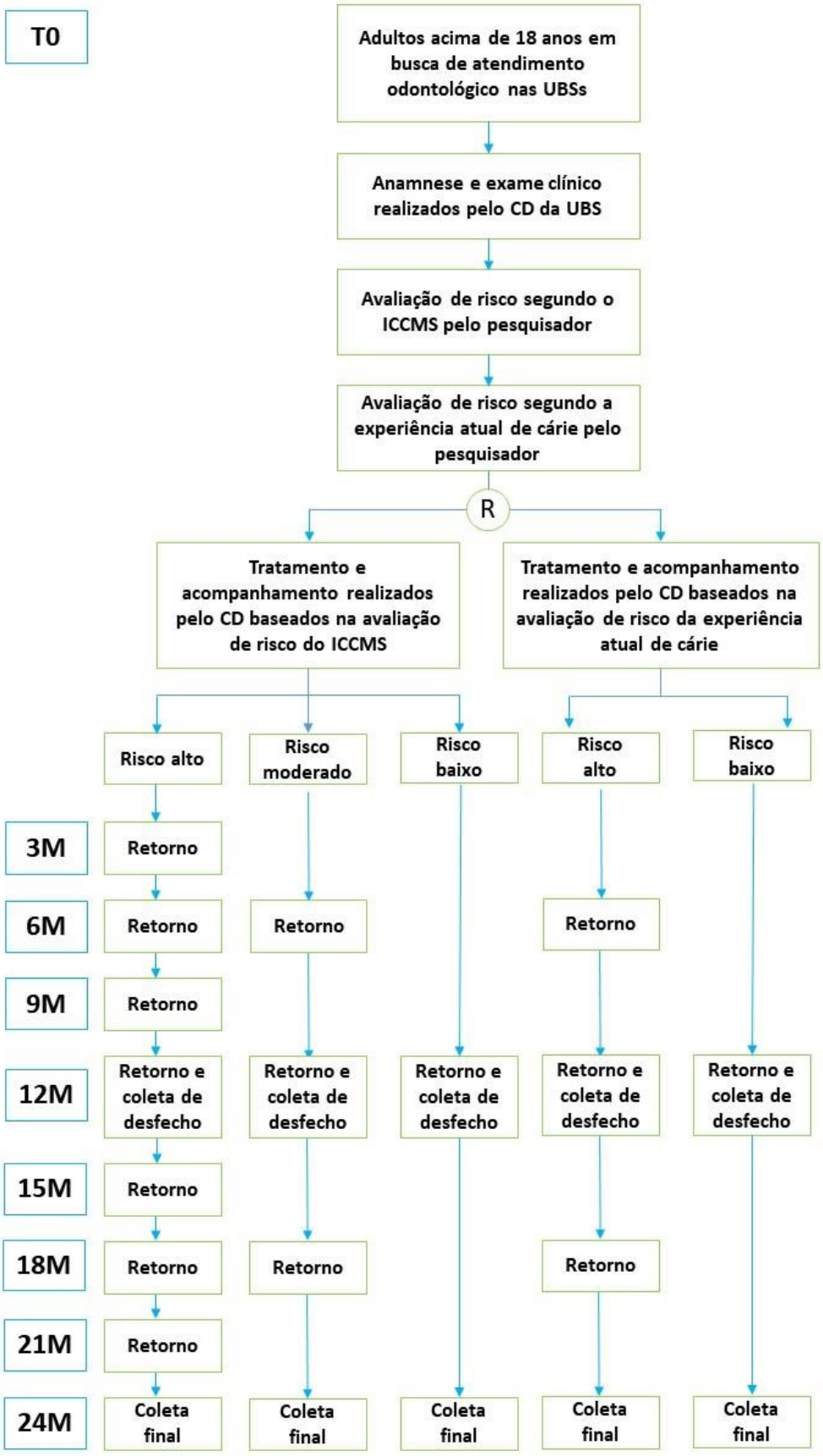

Figura 6. Linha do tempo do estudo

3.9 Cálculo amostral

De acordo com a hipótese nula de que não haverá diferença entre as intervenções estabelecidas após o período de acompanhamento, o cálculo amostral baseou-se em um estudo de equivalência. Assim, se não há diferença verdadeira entre os tratamentos dos grupos controle e experimental, então 270 pacientes são necessários para 80% de probabilidade que os limites do intervalo de confiança de 90% irão excluir a porcentagem de diferença entre o grupo experimental e controle de mais de 5%. Considerando-se 20% de perdas, a quantidade total requerida é de 324 pacientes (162 pacientes por grupo).

3.10 Recrutamento

Serão recrutados pacientes em busca de atendimento odontológico programado em três Unidades Básicas de Saúde da cidade de Pelotas – RS escolhidas por conveniência.

3.11 Alocação das intervenções

Geração da sequência de alocação

Os participantes serão selecionados entre aqueles que forem em busca de tratamento, e serão checados quanto aos critérios de inclusão e exclusão em ordem consecutiva. Uma sequência de números aleatórios será gerada no website www.sealedenvelopes.com. A estratégia de randomização utilizada será em blocos permutados com tamanhos de 2, 4 e 8 números, e estratificada pela UBS e pela idade.

Mecanismos de sigilo de alocação

A sequência de alocação dos grupos por estratos será colocada em envelopes opacos e lacrados sequencialmente numerados por um pesquisador sem nenhum contato com os participantes. Os CDs das UBSs realizarão a inclusão dos pacientes e os exames clínicos. Na sequência, por meio da ficha clínica, previamente realizada pelos CDs, um novo pesquisador avaliará os pacientes com relação ao risco de cárie pelas duas estratégias e estabelecerá o plano de tratamento para cada uma delas. Somente após a elaboração dos dois planos de tratamento, o pesquisador realizará a randomização do participante. Após a randomização, o pesquisador entregará o plano de tratamento sorteado para o CD realizar os procedimentos estabelecidos.

Cegamento

Os grupos aos quais os participantes serão alocados não será revelado aos mesmos, nem aos CDs que realizarão os procedimentos. No entanto, devido às diferenças nos tratamentos e, principalmente, devido aos diferentes intervalos para as consultas de retorno nos dois grupos, o cegamento nesse sentido pode ser comprometido.

Os avaliadores dos desfechos de 12 e 24 meses serão completamente cegos em relação aos grupos de alocação dos participantes. O pesquisador responsável pela análise dos dados também será cegado por meio da codificação dos grupos nas planilhas.

3.12 Coleta, gestão e análise dos dados

Coleta dos dados

A consulta inicial com realização da anamnese e exames clínicos (presença de placa visível nos incisivos centrais superiores, presença de exposição radicular e aplicação do ICDAS na sua forma simplificada) será realizada pelos CDs das UBSs, que serão treinados e calibrados, previamente ao estudo, para realização desses procedimentos até atingirem valor de Kappa ponderado maior do que 0,80. Checagens periódicas (a cada 50 pacientes incluídos no estudo) da calibração serão feitas durante o estudo em 10% da amostra.

Dois avaliadores, que não tenham participação em nenhuma fase prévia do estudo, realizarão a reavaliação dos participantes para a coleta dos desfechos após 12 e 24 meses. Esses examinadores também serão treinados e calibrados antes do início dos acompanhamentos e de forma periódica a cada 10 participantes avaliados. Um coeficiente de correlação intraclasse maior que 0,80 deverá ser obtido antes do início das avaliações.

Gestão dos dados

Os dados serão transferidos para planilhas após as diferentes fases do estudo (início, 12 meses e 24 meses), e serão checados por um pesquisador externo com relação a dados faltantes, valores fora do esperado e respostas ilógicas ou inválidas.

Análise dos dados

Para comparação do desfecho principal entre os dois grupos, teste t de Student será realizado. Com relação aos desfechos secundários, esses também serão analisados pelo teste t de Student. Análises de subgrupo serão realizadas considerando diferentes grupos de risco de cárie, para avaliar se os tratamentos são mais efetivos nos diferentes grupos de risco. Para todas as análises, serão utilizados testes bicaudais e o nível de significância será fixado em 5%.

4 CRONOGRAMA

Quadro 1. Cronograma e plano de atividade da pesquisa.

Atividades	**Ano e semestre do projeto de início e término da atividade**					
	2019		**2020**		**2021**	
	1º	**2º**	**1º**	**2º**	**1º**	**2º**
Submissão no CEP	x					
Treinamentos	x	x				
Baseline	x	X				
Avaliação 1			x	x		

Avaliação 2					x	x
Processamento dos dados						x
Análise de dados						x
Relatório e divulgação dos resultados						x

5 ORÇAMENTO

Quadro 2. Orçamento previsto para a condução da pesquisa

Descrição	Quantidade	Valor unitário (R$)	Valor total (R$)
Folha A4 para impressão de questionários e relatórios (pacote com 100)	2	15,00	30,00
Cartucho de tinta para impressora	2	30,00	60,00
Fotocópias de fichas clínicas	320	0,90	288,00
Canetas	20	1,00	20,00
Lápis	20	0,70	14,00
Pranchetas	10	5,00	50,00
Envelope	10	2,00	20,00
Saco plástico transparente	100	0,20	20,00
Pacote de gaze	10	18,00	180,00
Luva de procedimento	50	19,00	950,00
Pacote de gorro	10	6,00	60,00
Caixa de máscara	30	8,50	255,00
Pacote de algodão rolete	50	1,80	90,00
Kit Resina Filtek Z250	2	380,00	760,00
Selante Resinoso Fluoroshield	4	38,00	152,00
Adesivo Single Bond	2	100,00	200,00
Pacote de Condicionador ácido	2	15,00	30,00
Ionômero de Vidro Riva Ligth Cure	2	150,00	300,00
Flúor care	4	40,00	160,00
Dentifrício Fluoretado	4	12,00	48,00
Verniz Fluoretado	2	30,00	60,00

Espelho bucal e cabo	20	10,00	200,00
Sonda exploradora	20	9,00	180,00
Pinça	20	5,00	100,00
Espátula de resina	20	15,00	300,00
TOTAL			4.434,00

Os materiais utilizados nos procedimentos clínicos usuais da atenção básica, já presentes nas UBSs, serão custeados pelo município. Todos os demais materiais referentes à pesquisa serão custeados pelos próprios pesquisadores.

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Anexos

Anexo A – Parecer Consubstanciado do Comitê de Ética em Pesquisa do projeto Benefícios da avaliação de risco de cárie individual e detalhada em adultos: Estudo Clínico Randomizado.

UFPEL - FACULDADE DE ODONTOLOGIA DA UNIVERSIDADE FEDERAL DE

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Benefícios da avaliação de risco de cárie individual e detalhada em adultos: Estudo Clínico Randomizado

Pesquisador: Maximiliano Sérgio Cenci

Área Temática:

Versão: 3

CAAE: 10227419.2.0000.5318

Instituição Proponente: Faculdade de Odontologia da Universidade Federal de Pelotas/ FO-UFPel

Patrocinador Principal: FUND COORD DE APERFEICOAMENTO DE PESSOAL DE NIVEL SUP

DADOS DO PARECER

Número do Parecer: 3.436.126

Apresentação do Projeto:

A avaliacao do risco de carie e um componente essencial para o correto manejo e controle da doenca carie; entretanto as estrategias atuais para avaliacao de risco tendem a ser muito complexas, havendo, ainda, uma carencia de evidencias mais robustas que demonstrem essa real necessidade.

Objetivo da Pesquisa:

O objetivo desse estudo sera comparar o controle e acompanhamento da doenca carie baseado numa avaliacao elaborada e individualizada do risco de carie, a uma estrategia mais simples de avaliacao de risco, por meio de um estudo clinico randomizado com dois anos de acompanhamento.

Avaliação dos Riscos e Benefícios:

Beneficios: A participacao dos pacientes no estudo tem como beneficio a realizacao de todos os procedimentos odontologicos necessarios que se enquadrem dentro dos servicos ofertados pela atencao basica e o acompanhamento dos mesmos durante o periodo de 24 meses.

Como beneficios da pesquisa, ira ajudar a melhorar os protocolos de atendimentos, com intuito de avancar no manejo e prevencao da carie dentaria, bem como estabelecer um tempo adequado para

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consultas de retorno.
Riscos: Os procedimentos restauradores, executados quando necessario, como nos casos de selamento de fossulas e fissuras, restauracoes de resina composta e reparo ou substituicao de restauracoes
ja existentes oferecem risco minimo ao paciente, tais como sensibilidade pos-operatoria, ou em casos pontuais exposicao pulpar ou fratura da superficie dentaria durante o procedimento restaurador.

Comentários e Considerações sobre a Pesquisa:
A pesquisa e relevante e esta bem justificada. Entretanto, observe que não tem relação direta do titulo da pesquisa com o PB. Favor consertar o titulo do projeto de acordo com o que foi cadastrado na plataforma.

Considerações sobre os Termos de apresentação obrigatória:
Os termos estao adequadamente apresentados. Entretanto, apesar de solicitado na primeira revisao, o termo de autorizacao da secretaria municipal da saude para tal realizacao da pesquisa esta ausente. Favor, anexar esta ao protocolo.

Recomendações:
Aprovar ad referendum

Conclusões ou Pendências e Lista de Inadequações:
Aprovar ad referendum

Considerações Finais a critério do CEP:

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1295589.pdf	01/07/2019 16:01:20		Aceito
Outros	SMS.pdf	01/07/2019 16:00:41	Maximiliano Sérgio Cenci	Aceito
Projeto Detalhado / Brochura Investigador	PROJETOALTERADO.docx	09/05/2019 10:30:52	Maximiliano Sérgio Cenci	Aceito
Orçamento	orcamento1.docx	13/03/2019	Maximiliano Sérgio	Aceito

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Orçamento	orcamento1.docx	09:45:04	Cenci	Aceito
Projeto Detalhado / Brochura Investigador	PROJETO.docx	13/03/2019 09:43:50	Maximiliano Sérgio Cenci	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE.docx	13/03/2019 09:40:19	Maximiliano Sérgio Cenci	Aceito
Cronograma	CRONOGRAMA.docx	13/03/2019 09:30:16	Maximiliano Sérgio Cenci	Aceito
Folha de Rosto	folharostoCacia2.pdf	13/03/2019 08:07:32	Maximiliano Sérgio Cenci	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

PELOTAS, 03 de Julho de 2019

Assinado por:
Adriana Fernandes da Silva
(Coordenador(a))

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Anexo B – Parecer Consubstanciado do Comitê de Ética em Pesquisa do projeto O Impacto do Gênero da Pesquisa Financiada: Dados de uma Agência de Fomento do Sul do Brasil.

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PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: O Impacto do Gênero na Pesquisa Financiada: Dados de uma Agência de Fomento do Sul do Brasil.

Pesquisador: Maximiliano Sérgio Cenci

Área Temática:

Versão: 1

CAAE: 29343320.0.0000.5318

Instituição Proponente: Faculdade de Odontologia da Universidade Federal de Pelotas/ FO-UFPel

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 3.910.668

Apresentação do Projeto:

O financiamento em pesquisa é considerado um dos principais impulsionadores das atividades científicas no mundo, representando um importante papel na definição de novos projetos científicos, bem como, no estabelecimento de prioridades em projetos já existentes. Estudos já demonstraram
que o auxílio financeiro em pesquisa pode, também, influenciar a performance do pesquisador financiado e as suas interações com outros pesquisadores. Considerando que uma melhor performance científica pode ser alcançada devido a uma correta alocação dos recursos, é de grande
importância definir e executar processos sistemáticos para a avaliação da performance dos pesquisadores a fim de alocar adequadamente os recursos entre eles. Além disso, a distribuição de financiamentos deve ser realizada de forma justa e imparcial, sem nenhum tipo de viés.A literatura
já demonstrou previamente que, na área acadêmica, mulheres devem ter um melhor desempenho em relação aos homens para receber um reconhecimento similar. Quando comparadas aos homens, as mulheres possuem uma menor probabilidade de serem vistas como líderes. Além disso, na pesquisa as mulheres fazem um maior trabalho manual por menos crédito em artigos publicados e estão mais sujeitas à sofrerem abuso.
Considerando o recebimento de financiamento, estudos mostraram que as mulheres têm uma

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menor chance de receberem financiamento e quando recebem é por menos tempo e por uma menor quantia do que os homens.

Objetivo da Pesquisa:

Calcular a prevalência de mulheres que receberam financiamento comparadas aos homens ajustando para estágio de carreira acadêmica e produtividade em pesquisa, considerando o número de aplicações de uma base de dados da FAPERGS (Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul).

Objetivos Secundários

- Calcular a proporção de projetos financiados que não foram publicados em formato completo por gênero.
- Calcular a proporção de projetos financiados que foram publicados em servidores pré-print por gênero.
- Calcular a proporção de projetos financiados que foram publicados em periódicos predatórios por gênero.
- Calcular a proporção de projetos financiados publicados com qualquer tipo de viés de reporte por genêro.
- Estabelecer determinantes na avaliação de concessão de financiamentos comparando a uma amostra de aplicações mal sucedidas considerando o gênero.

Avaliação dos Riscos e Benefícios:

Os riscos associados a esse estudo são mínimos, e podem estar relacionados com algum desconforto por parte do pesquisador em responder as perguntas enviadas por e-mail. Entretanto, o mesmo sempre terá a possibilidade de não participar da pesquisa.

Os benefícios por parte desse estudo incluem um maior conhecimento da distribuição de financiamentos em pesquisa no nosso país, principalmente voltado para a avaliação de viés de gênero, bem como uma avaliação da quantidade e qualidade dos produtos referentes à projetos financiados.

Comentários e Considerações sobre a Pesquisa:

A pesquisa está adequadamente apresentada e justificada. Serão coletados dados públicos e as informações adicionais serão perguntadas em e-mail para os pesquisadores.

Considerações sobre os Termos de apresentação obrigatória:

Os termos obrigatórios foram apresentados. Sugere-se adequar o TCLE ao formato de

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comunicação eletrônica (formulário online), visto que a entrevista será feita por e-mail.

Conclusões ou Pendências e Lista de Inadequações:

Não há pendências, apenas adequar o formato do TCLE.

Considerações Finais a critério do CEP:

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1494961.pdf	09/01/2020 11:20:08		Aceito
Folha de Rosto	folharosto.pdf	09/01/2020 11:19:10	Marina Christ Franco	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE.docx	07/01/2020 11:50:29	Marina Christ Franco	Aceito
Projeto Detalhado / Brochura Investigador	Projeto.docx	07/01/2020 11:47:20	Marina Christ Franco	Aceito
Orçamento	Orcamento.docx	07/01/2020 11:46:00	Marina Christ Franco	Aceito
Cronograma	Cronograma.docx	07/01/2020 11:20:47	Marina Christ Franco	Aceito

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

PELOTAS, 11 de Março de 2020

Assinado por:
Marília Leão Goettems
(Coordenador(a))

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Anexo C – Parecer Consubstanciado do Comitê de Ética em Pesquisa do projeto O Impacto do Gênero na Avaliação dos Pesquisadores: Um Ensaio Randomizado.

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PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: O Impacto do Gênero na Avaliação dos Pesquisadores: Um Ensaio Randomizado
Pesquisador: Maximiliano Sérgio Cenci
Área Temática:
Versão: 3
CAAE: 29175520.0.0000.5317
Instituição Proponente: Faculdade de Medicina da Universidade Federal de Pelotas
Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 3.965.047

Apresentação do Projeto:
Os seres humanos não são neutros, e o seu julgamento e atitudes são moldados de acordo com associações decorrentes de experiencias prévias que levam a certas preferências ou aversões. Viés implícito ou inconsciente é o termo por trás de comportamentos discriminatórios sem uma intenção consciente que ocorrem com base em esquemas internalizados impostos pela sociedade. O viés de gênero implícito é um problema na academia. Estudos já demonstraram que, no meio acadêmico, os homens são considerados mais competentes, produtivos e com uma maior capacidade de liderança que as mulheres quando considerado apenas o gênero. Apesar de o viés de gênero ser um tópico de grande relevância, que impacta diariamente a vida das mulheres, ainda é um tema pouco explorado dentro do campo da Odontologia. Considerando o viés de gênero dentro da academia, essa evidência é ainda menor. Devido à falta de evidência sobre viés de gênero na academia dentro da Odontologia e à grande importância de se ter um maior conhecimento e uma maior discussão em torno do assunto, o objetivo desse estudo é de avaliar o impacto do gênero na avaliação de pesquisadores para uma bolsa de pós-doutorado em Odontologia.

Objetivo da Pesquisa:
Objetivo Primário:
Avaliar se, com base em um currículo igualmente qualificado de um estudante do gênero masculino e outro do gênero feminino, os pesquisadores darão notas mais altas na avaliação do

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currículo do estudante homem para receber uma bolsa de pós-doutorado em Odontologia.
Objetivo Secundário:
- Calcular a média dos scores para contribuição científica de acordo com o gênero dos aplicantes.
- Calcular a média dos scores para capacidade de liderança de acordo com o gênero dos aplicantes.
- Calcular a média dos scores para capacidade de trabalhar em grupo de acordo com o gênero dos aplicantes.
- Calcular a média dos scores para inserção internacional de acordo com o gênero dos aplicantes.

Avaliação dos Riscos e Benefícios:
Riscos:
Os riscos são mínimos e estão associados com algum possível desconforto por parte do pesquisador avaliador em seus dados serem utilizados para a pesquisa (mesmo tendo sua identidade preservada). Entretanto o pesquisador terá toda a liberdade de não permitir a utilização dos seus dados no estudo.
Benefícios:
Dentre os benefícios estão um maior entendimento de como os pesquisadores avaliam os seus alunos e um maior conhecimento sobre o viés de gênero inconsciente dentro da Academia brasileira na área da Odontologia.

Comentários e Considerações sobre a Pesquisa:
Trata-se de um estudo experimental de relevância científica. Neste estudo, será comparada a avaliação de pesquisadores para um mesmo currículo identificado com os gêneros masculino ou feminino para concorrer a uma suposta bolsa de pós-doutorado em uma universidade do sul do Brasil. Serão incluídos no estudo 100 pesquisadores. A randomização será realizada por meio de uma lista aleatória gerada no site www.sealedenvelope.com. A taxa de alocação será de 1:1 e a amostra dos pesquisadores será estratificada em gênero feminino e masculino. A sequência de alocação será gerada por um pesquisador sem envolvimento no estudo, colocando a lista em sequência em envelopes opacos, selados e numerados correspondentes a cada pesquisador da amostra. No momento de enviar os e-mails uma pesquisadora (MCF) irá abrir o envelope numerado e enviar o e-mail correspondente de acordo com a sequência. Os pesquisadores serão randomicamente alocados para receber um currículo com uma das duas condições: aplicante do

gênero feminino ou aplicante do gênero masculino. Cada um dos 100 pesquisadores eleitos para o estudo receberá um e-mail contendo informações sobre um suposto processo de seleção de pós-doutorado e um convite para atuar como avaliador externo. Os pesquisadores serão divididos em dois grupos: Grupo 1- receberá um currículo identificado com o gênero feminino e Grupo2: receberá um currículo identificado com o gênero masculino. Os pesquisadores serão solicitados a avaliar o currículo recebido com notas de 0 a 10 para os critérios: contribuição científica, capacidade de liderança, capacidade de trabalhar em grupo e inserção internacional.

Os currículos conterão exatamente as mesmas informações, exceto pelo gênero de identificação que será determinado em feminino ou masculino de acordo com a randomização. Para possibilitar o cegamento dos pesquisadores e a equivalência dos currículos, informações como nome completo e lista de publicação serão cegadas (serão incluídos apenas iniciais, nome da revista e ano de publicação do artigo), assim como qualquer referência externa que possa levar a identificação do aplicante como currículo lattes, ORCID ID, número de financiamento, etc.

Os pesquisadores não serão informados de que estão participando de um estudo, entretanto, no momento em que enviarem a avaliação do currículo eles receberão um e-mail contendo informações sobre o estudo e solicitando a utilização dos dados enviados previamente. Os dados somente serão utilizados caso o pesquisador assine o termo de consentimento livre e esclarecido (TCLE). O TCLE será pós-informado. Análises descritivas serão utilizadas para sumarizar os dados. Uma ANOVA de duas entadas será utilizada para comparar as médias de scores dadas pelos pesquisadores em cada item (contribuição científica, capacidade de liderança, capacidade de trabalhar em grupos, e inserção internacional) de acordo com o gênero dos aplicantes. O gênero dos pesquisadores também será considerado na análise.

Considerações sobre os Termos de apresentação obrigatória:

- Folha de rosto: ok
- TCLE : ok
- Protocolo de Pesquisa: ok

Conclusões ou Pendências e Lista de Inadequações:

Solicita-se as seguintes adequações:

Pendência 1: A metodologia deve explicitar como serão adquiridos os contatos dos pesquisadores que participarão do estudo, bem como a abordagem que será empregada para a seleção de 100

pesquisadores.

Resposta Pesquisador: Ambas as recomendações foram adicionadas ao texto:
“A lista de Bolsistas de Produtividade em Pesquisa do CNPq do ano de 2020 é disponibilizada publicamente no site da agência (http://www.cnpq.br/).” (pag 3, l 67-68)
“Os pesquisadores a serem incluídos na amostra serão selecionados por meio de uma lista de 100 números randômicos de 1 a x, sendo x o número total de bolsistas de produtividade CNPq na área de Odontologia no ano de 2020.” (pag 3, l 76-78)

Resposta CEP-FAMED: Pendência atendida

Pendência 2: O delineamento do estudo deve ser melhor definido. Entende-se que será um estudo experimental randomizado. Porém, a descrição como um ensaio clínico randomizado deve ser justificado com base na pesquisa apresentada.

Resposta Pesquisador: O delineamento do estudo foi melhor detalhado no texto:
“Nesse estudo os participantes serão bolsistas de produtividade CNPq dentro da área de odontologia e a intervenção será uma avaliação de currículo para uma bolsa de pós-doutorado identificada como do gênero feminino ou masculino, o que será definido por meio de randomização. O desfecho primário será a média de notas dadas para currículos identificados com o gênero feminino em comparação a média de notas dadas para currículos do identificados com o gênero masculino.” (pag 2-3, l 53-59)

Resposta CEP-FAMED: Pendência parcialmente atendida. Sugere-se que o termo “Ensaio Clínico” Seja substituído por “estudo experimental”, uma vez que o estudo não apresenta algumas características próprias de um ensaio clínico randomizado, como o caráter longitudinal, com avaliação dos participantes na linha de base e após a intervenção.

Resposta pesquisador: A recomendação foi seguida através da mudança do termo no texto: “Esse estudo será um Ensaio experimental randomizado cego, de grupos paralelos, comparando a avaliação de pesquisadores para um mesmo currículo identificado com o gênero masculino ou feminino para concorrer a uma bolsa de pós-doutorado em uma universidade do sul do Brasil.” (pag 3, l 54)

Resposta CEP-FAMED: Pendência atendida

Pendência 3: O protocolo deve conter uma seção de aspectos éticos
Resposta pesquisador: Uma seção de aspectos éticos foi incluída ao texto:
" Aspectos Éticos Esse estudo será registrado na plataforma Clinical Trials (clinicaltrials.gov) e será submetido à aprovação ética pelo comitê de ética local, ambos antes de sua implementação. O protocolo completo do estudo estará disponível online na plataforma Open Science Framework (www.osf.io). Além disso, somente serão utilizados os dados dos participantes que assinarem um termo de consentimento livre e esclarecido concordando com a sua participação na pesquisa e utilização dos dados sem qualquer tipo de identificação." (pag 2, l 41-48).

Resposta CEP-FAMED: Pendência atendida parcialmente. Solicita-se maior esclarecimento sobre como o TCLE será assinado e como será enviado ao pesquisador responsável.

Resposta Pesquisador: Foi esclarecido no texto como o TCLE será enviado e assinado pelos participantes. Além disso, foi enviado o formato do TCLE já no formulário que será enviado aos pesquisadores. "O TCLE será enviado em formato de um formulário online por meio de um e-mail automático assim que o pesquisador responder a avaliação. Nesse formulário o TCLE será apresentado na íntegra e caso o participante concorde com a sua participação no estudo esse deverá selecionar a caixa de seleção concordando com a sua participação no estudo." (pag 2, l 48-52)

Resposta CEP-FAMED: Pendência atendida.

Pendência 4: Não fica claro quais informações serão coletadas dos participantes. As diferenças de pontuação entre os grupos poderão ser confundidas por fatores demográficos e socioeconômicos. Porém, o protocolo não menciona como o sucesso da randomização será testado. Solicita-se que as variáveis de interesse a serem coletadas dos participantes sejam descritas.

Resposta pesquisador: Incluiu-se como novo objetivo avaliar se confundidores socioeconomicos e demográficos podem influenciar no resultado. Uma nova seção denominada foi incluída para clarificar todos os desfechos que serão coletados e analisados. A forma como o sucesso da

randomização será conformado também foi melhor explicitado no texto:
"- Avaliar se fatores confundidores como salário dos pesquisadores e região influencia no viés de gênero." (pag 2, l 38-39)
"A taxa de alocação será de 1:1 e a amostra dos pesquisadores será estratificada em gênero feminino e masculino, a fim de garantir que pesquisadores homens e mulheres tenham a mesma chance de receber currículos identificados como do gênero feminino/masculino, garantindo um balanço na randomização." (pag 3-4, l 81-85)
"O sucesso da randomização será confirmado por meio da igual distribuição da intervenção (currículo identificado com o gênero feminino ou masculino) entre os pesquisadores do gênero feminino e masculino." (pag 4, l 95-97)
"Desfechos
Serão coletadas as seguintes informações referentes ao pesquisador: e-mail, gênero, universidade, região, salário mensal, gênero do CV recebido, nota dada para cada um dos critérios solicitados (contribuição científica, capacidade de liderança, capacidade de trabalhar em grupo e inserção internacional).
Os e-mails dos pesquisadores serão obtidos por meio de buscas nos sites das instituições de cada pesquisador. O gênero dos pesquisadores será determinado por meio do software Genderize (https://api.genderize.io/?name=), e em casos em que o gênero não puder ser inferido de forma confirmatória (probabilidade menor que 90%) o currículo lattes do pesquisador será checado. A universidade de cada pesquisador será coletada da lista de bolsistas de produtividade CNPq (http://www.cnpq.br/), e a região será determinada de acordo com a localização da universidade (regiões sul, sudeste, centro oeste, nordeste e norte). O salário mensal de cada pesquisador será obtido por meio da plataforma Portal da Transparência (www.portaldatransparencia.gov)." (pag 5, l 118-131)

Resposta CEP-FAMED: Pendência parcialmente atendida. A resposta levanta outro questionamento a respeito do delineamento e de sua população-alvo. Solicita-se esclarecimentos a respeito da coleta da informação de renda e o delineamento do projeto. Não fica claro se o estudo será restringido a servidores públicos já que a renda será coletada por meio do portal da transparência. De que maneira a renda será coletada dos demais pesquisadores?

Resposta pesquisador: O estudo não será restringido a servidores públicos. Os pesquisadores do setor privado terão seu salário mensal coletado por meio de pergunta via e-mail, o que foi

esclarecido no texto:
"O salário mensal de cada pesquisador será obtido por meio da plataforma Portal da Transparência (www.portaldatransparencia.gov), para os pesquisadores que trabalham no setor privado o salário mensal será coletado via e-mail no mesmo e-mail em que será encaminhado o TCLE." (pag 5, l 134-137)

Resposta CEP-FAMED: Pendência atendida.

Pendência 5: O TCLE deverá apresentar os objetivos do estudo, os procedimentos, riscos e benefícios claramente

Resposta pesquisador: O objetivo do estudo, assim como os riscos e benefícios foram explicitados no TCLE:
"O presente estudo tem por objetivo avaliar o impacto do gênero na avaliação de pesquisadores para uma bolsa de pós-doutorado em Odontologia." (pag 1, l 11-13)
"Os riscos relacionados com a sua participação nessa pesquisa são mínimos e estão associados com algum possível desconforto em seus dados serem utilizados para a pesquisa (mesmo tendo sua identidade preservada). Dentre os benefícios estão um maior entendimento de como os pesquisadores avaliam os seus alunos e um maior conhecimento sobre o viés de gênero inconsciente dentro da Academia brasileira na área da Odontologia." (pag 1, l 15-20)

Resposta CEP-FAMED: Pendência atendida parcialmente. O TCLE não apresenta os procedimentos ou a metodologia do estudo. Os procedimentos do estudo devem estar claramente mencionados no TCLE.

Resposta pesquisador: Os procedimentos a serem realizados e a metodologia do estudo foram clarificadas no TCLE: "O presente estudo é um ensaio experimental randomizado com o objetivo de avaliar o impacto do gênero na avaliação dos pesquisadores, comparando a avaliação de bolsistas de produtividade CNPq da área de Odontologia para um mesmo currículo identificado com o gênero masculino ou feminino para concorrer a uma bolsa de pós-doutorado em uma universidade do sul do Brasil. O desfecho primário desse estudo será a média de notas dadas para currículos identificados com o gênero feminino em comparação a média de notas dadas para currículos do identificados com o gênero masculino." (pag 1, l 15-22)

Resposta CEP-FAMED: Pendência atendida.

Pendência 6: O TCLE deve mencionar claramente que a seleção de pós-doutorado não é verídica e trata-se de uma pesquisa apenas.

Resposta pesquisador: A informação foi clarificada no TCLE: “A seleção para a bolsa de pós-doutorado da qual o senhor(a) participou como avaliador externo não era verídica e seu único objetivo era condecer dados para essa pesquisa.” (p1, l 13-15)

Resposta CEP-FAMED: Pendência atendida. Corrigir a grafia da palavra “condecer” para “conceder”.

Resposta: Grafia corrigida: “A seleção para a bolsa de pós-doutorado da qual o senhor(a) participou como avaliador externo não era verídica e seu único objetivo era conceder dados para essa pesquisa.” (p1, l 13-15)

Resposta CEP-FAMED: Pendência atendida.

Pendência 6: O TCLE deve conter o contato dos pesquisadores responsáveis e do CEP – FAMED
Resposta:
Os demais contatos foram adicionados ao TCLE:
“Em caso de dúvidas, entre em contato:
Prof. Dr. Maximiliano Sérgio Cenci
Endereço: R. Gonçalves Chaves, 457 - Centro, Pelotas - RS, 96015-560, Brasil.
Telefone:+55 (53)99155.6494
E-mail: maximiliano.cenci@ufpel.edu.br
CD Marina Christ Franco
Telefone: +1 (613) 447.9286 / +55 (53) 997072679
Endereço: 1053 Carling Ave, Ottawa, ON K1Y4E9, Canada. / R. Gonçalves Chaves, 457 - Centro, Pelotas - RS, 96015-560, Brasil.
E-mail: mchrist@ohri.ca
Comitê de Ética em pesquisa da Universidade de Medicina da Universidade Federal de Pelotas
Endereço: Av. Duque de Caxias, 250 – Fragata, Pelotas – RS, 96030-000, Brasil.
Telefone: +55 (53) 3221.3554

E-mail: cep.famed@gmail.com (pag 1-2, l 33-50)"

Resposta CEP-FAMED: Pendência atendida. Substituir "Comitê de Ética em pesquisa da Universidade de Medicina" por "Comitê de Ética em pesquisa da Faculdade de Medicina"

Resposta pesquisador: Termo corrigido:
"Comitê de Ética em pesquisa da Faculdade de Medicina da Universidade Federal de Pelotas
Endereço: Av. Duque de Caxias, 250 – Fragata, Pelotas – RS, 96030-000, Brasil.
Telefone: +55 (53) 3221.3554
E-mail: cep.famed@gmail.com" (pag 2, l 53)

Resposta CEP-FAMED: Pendência atendida.

Demais pendências geradas nos documentos submetidos à Palataforma Brasil em 11 de março de 2020:

Pendência 7: Considerando a versão do protocolo submetida em 11 de março de 2020, subentende-se que o TCLE será enviado de forma digital. Dessa maneira, solicita-se esclarecimentos de que maneira os participantes irão assinar o TCLE e o enviar para o pesquisador responsável. O TCLE deve ser apresentado ao CEP com formatação que será disponibilizada ao participante da pesquisa.

Resposta pesquisador: Foi esclarecido no texto como o TCLE será enviado e assinado pelos participantes. Além disso, foi enviado o formato do TCLE já no formulário que será enviado aos pesquisadores.
"O TCLE será enviado em formato de um formulário online por meio de um e-mail automático assim que o pesquisador responder a avaliação. Nesse formulário o TCLE será apresentado na íntegra e caso o participante concorde com a sua participação no estudo esse deverá selecionar a caixa de seleção concordando com a sua participação no estudo." (pag 2, l 48-52)

Resposta CEP-FAMED: Pendência atendida.

Pendência 8: Considerando a versão do TCLE datada de 11 de março de 2020, solicita-se as seguintes alterações adicionais:

(a) TCLE conta com a cidade de Pelotas no campo de local e data. Solicita-se alterar o campo, uma vez que pesquisadores de diferentes partes do Brasil assinarão o TCLE.
Resposta pesquisador: Essa informação foi removida do TCLE.
Resposta CEP-FAMED: Pendência atendida.

(b) O texto apresentado em um quadro ao final do TCLE não apresenta informações novas. Ele deve ser incorporado ao longo do texto e o quadro deve ser removido.
Resposta pesquisador: Essa informação foi removida do TCLE.
Resposta CEP-FAMED: Pendência atendida.

(c) Não é necessário coletar o número do RG do participante. A coleta do nome é suficiente.
Resposta pesquisador: Campo de coleta do RG removido do TCLE.
Resposta CEP-FAMED: Pendência atendida.

Considerações Finais a critério do CEP:

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1502122.pdf	30/03/2020 14:58:32		Aceito
Recurso Anexado pelo Pesquisador	carta.docx	30/03/2020 14:58:05	Marina Christ Franco	Aceito
Projeto Detalhado / Brochura Investigador	Projeto.docx	30/03/2020 14:57:34	Marina Christ Franco	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE.pdf	30/03/2020 14:57:14	Marina Christ Franco	Aceito
Outros	FR.pdf	20/02/2020 11:17:46	Patricia Abrantes Duval	Aceito
Folha de Rosto	folha_de_rosto.pdf	13/02/2020 16:12:08	Marina Christ Franco	Aceito

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Orçamento	Orcamento.docx	27/01/2020 17:59:00	Marina Christ Franco	Aceito
Cronograma	Cronograma.docx	27/01/2020 17:58:44	Marina Christ Franco	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

PELOTAS, 11 de Abril de 2020

Assinado por:
Patricia Abrantes Duval
(Coordenador(a))

Endereço: Av Duque de Caxias 250
Bairro: Fragata **CEP:** 96.030-000
UF: RS **Município:** PELOTAS
Telefone: (53)3301-1801 **Fax:** (53)3221-3554 **E-mail:** cep.famed@gmail.com

Anexo D – Parecer Consubstanciado do Comitê de Ética em Pesquisa do projeto A Covid-19 está aumentando a disparidade de gênero nos periódicos brasileiros de Odontologia?

UFPEL - FACULDADE DE ODONTOLOGIA DA UNIVERSIDADE FEDERAL DE PELOTAS

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: A Covid-19 está aumentando a disparidade de gênero nos periódicos brasileiros de Odontologia?

Pesquisador: Flávio Fernando Demarco

Área Temática:

Versão: 2

CAAE: 42177020.0.0000.5318

Instituição Proponente: Faculdade de Odontologia da Universidade Federal de Pelotas/ FO-UFPel

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 4.654.295

Apresentação do Projeto:

Segundo os autores o projeto se propõe a avaliar o impacto do COVID-19 na disparidade de gênero entre os periódicos odontológicos brasileiros, por meio de um estudo de caso-controle de submissões de artigos. Será calculada a proporção de mulheres como primeiras e últimas autoras e autoras correspondentes em submissões aos principais periódicos de Odontologia do Brasil (BOR, BDJ e JAOS) no ano de 2019 comparado às submissões do ano de 2020. Além disso, serão realizadas análises secundárias considerando o estágio de carreira e o país dos autores.

Objetivo da Pesquisa:

Objetivo Primário

Avaliar a proporção de mulheres como primeiras, últimas e autoras correspondentes (AC) de todos os artigos submetidos no ano de 2020 (durante a pandemia COVID-19) em comparação com o ano anterior e o próximo nas três principais revistas odontológicas brasileiras.

Objetivos secundários

- Avaliar o número absoluto de mulheres como primeiras, últimas e autoras correspondentes em artigos submetidos durante os anos de 2019, 2020 e 2021 nas três principais revistas odontológicas brasileiras;
- Avaliar o percentual de aceitação de artigos submetidos para publicação de acordo com o gênero

Endereço: Rua Gonçalves Chaves, 457
Bairro: Centro **CEP:** 96.015-560
UF: RS **Município:** PELOTAS
Telefone: (53)3260-2821 **Fax:** (53)3260-2801 **E-mail:** cepodonto@ufpel.edu.br

dos autores correspondentes;
- Avaliar a relação entre gênero do autor e estágio de carreira em artigos submetidos e aceitos para publicação nas três principais revistas odontológicas brasileiras antes, durante e após a pandemia COVID-19;
- Avaliar o intervalo de tempo entre a submissão dos artigos e a decisão final (aceitação ou rejeição) será coletado com o objetivo de avaliar uma possível associação com o viés de gênero.

Avaliação dos Riscos e Benefícios:
Segundo os autores os riscos relacionados com a participação nessa pesquisa são mínimos e estão associados com algum possível desconforto nos dados dos periódicos incluídos serem utilizados para a pesquisa (mesmo com todas as identidades preservadas). Dentre os benefícios estão um maior entendimento de como os pesquisadores da Odontologia foram afetados pela COVID-19 e, principalmente, se a pandemia afetou de forma diferente homens e mulheres

Comentários e Considerações sobre a Pesquisa:
O protocolo completo estará disponível online em um formato público na plataforma Open Science Framework antes do início da condução do estudo.

Considerações sobre os Termos de apresentação obrigatória:
Adequados.

Conclusões ou Pendências e Lista de Inadequações:
PARECER DO CEP: Acrescentar a solicitação de dispensa do TCLE dos autores e o termo de autorização do uso de dados do editores.
RESPOSTA: Foram incluídos os termos solicitados.
PARECER DO CEP: Rever cronograma e orçamento conforme recomendações.
RESPOTA: Cronograma e orçamento foram adequados.

Considerações Finais a critério do CEP:

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1675615.pdf	09/03/2021 12:04:07		Aceito

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Continuação do Parecer: 4.654.295

Outros	AUTORIZACAO.docx	09/03/2021 12:03:50	Marina Christ Franco	Aceito
Cronograma	cronograma.docx	09/03/2021 11:19:35	Marina Christ Franco	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	justificativa.docx	09/03/2021 11:16:59	Marina Christ Franco	Aceito
Orçamento	orcamento.docx	09/03/2021 10:46:26	Marina Christ Franco	Aceito
Folha de Rosto	folhaderosto.pdf	04/12/2020 09:49:57	Marina Christ Franco	Aceito
Projeto Detalhado / Brochura Investigador	ProjetoCEP.docx	03/12/2020 18:00:17	Marina Christ Franco	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

PELOTAS, 16 de Abril de 2021

Assinado por:
Marília Leão Goettems
(Coordenador(a))

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