

Assessment of adverse events and patient safety culture in dental practice: cross-sectional study

Eventos adversos e cultura de segurança do paciente na prática odontológica: estudo transversal

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How to cite: dos Santos FPF, do Nascimento DDG, Cunha IP. Assessment of adverse events and patient safety culture in dental practice: cross-sectional study. Rev Odontol UNESP. 2024;53:e20240010. <https://doi.org/10.1590/1807-2577.01024>

Resumo

Introdução: Eventos adversos (EA) são lesões ou danos não associados à evolução natural da doença, mas que resultam em prejuízos aos pacientes. Em instituições de saúde, a adoção de uma cultura de segurança do paciente pode reduzir a ocorrência de EA. **Objetivo:** Analisar a associação entre a ocorrência de EA percebidos pelos cirurgiões-dentistas com as dimensões da cultura de segurança do paciente (CSP). **Material e método:** Trata-se de um estudo transversal, conduzido no estado do Mato Grosso do Sul e no Distrito Federal, no ano de 2021. O desfecho (EA) foi mensurado por meio de um questionário autoaplicável, on-line, para 350 cirurgiões-dentistas, inseridos na Atenção Primária à Saúde (APS). As variáveis independentes foram coletadas via questionário sociodemográficas e pelo instrumento Medical Office Survey on Patient Safety Culture, validado no Brasil que mensura as dimensões da CSP. Utilizou-se análise de regressão de Poisson. **Resultado:** O evento mais relatado foi: "O paciente necessitou de retorno para atendimento de urgência seja por dor e/ou edema ou outro motivo", após uma intervenção clínica (60,6%). A "Percepção geral da segurança do paciente e qualidade" (PR: 0,86; IC:95%: 0,76-0,89), o "Processo de trabalho e padronização" (PR: 0,86; IC95%: 0,78-0,92) e o "Trabalho em equipe" (PT:1,11; IC95%: 1,03-1,73), foram as dimensões da CSP relacionadas ao EA. **Conclusão:** São frequentes os EA na prática odontológica da APS, sendo associados às dimensões da CSP. Isso reforça a necessidade de ampliar o conhecimento sobre esta temática, e interpor barreiras que evitem danos aos pacientes durante o cuidado odontológica neste nível de atenção à saúde.

Descritores: Incidente de Segurança do Paciente; Segurança do paciente; Atenção Primária à Saúde; Odontologia.

Abstract

Introduction: Adverse events (AE) are injuries or harm not related to the natural progression of the disease but that result in harm to patients. In healthcare institutions, the adoption of a patient safety culture can reduce the occurrence of AE. **Objective:** To identify the frequency of AE reported by dentists in primary dental care and analyze the dimensions of patient safety culture (PSC) associated with this outcome. **Material and method:** This cross-sectional study was conducted in two Brazilian states in 2021. A total of 350 dentists working in primary dental care participated in the study. The outcome (AE) was measured using a semi-structured questionnaire, which was tested through a pilot study. Independent variables were collected through sociodemographic questionnaires and the validated Medical Office Survey on Patient Safety Culture instrument, which measures dimensions of PSC. Poisson regression analysis was used. **Result:** The most reported event was: "The patient required an urgent return visit due to pain, swelling, or other reasons" after a clinical intervention (60.6%). The dimensions of PSC related to AE were "Overall perception of patient safety and quality" (PR: 0.86, 95% CI: 0.76-0.89), "Work processes and standardization" (PR: 0.86, 95% CI: 0.78-0.92), and "Teamwork" (PR: 1.11, 95% CI: 1.03-1.73). **Conclusion:** Adverse events are frequent in primary dental care practice and are associated with dimensions of patient safety culture. This reinforces the need to expand knowledge about this topic and implement barriers to prevent harm to patients during dental care at this level of health care.

Descriptors: Near Miss; Patient safety; Primary Health Care; Dentistry.



INTRODUCTION

Adverse events (AEs) are harm unrelated to the natural course of disease that result in unintended patient injury during the delivery of healthcare¹.

In Dentistry, the first studies on the subject date back to 2005 and aimed to measure and classify their frequency². For instance, a survey conducted in Finland between 2000 and 2012 identified 948 AEs, with the majority classified as potentially preventable and often associated with procedural or diagnostic errors during treatment³. Among the 747 AEs that occurred during dental care in the United States between 2006 and 2016, frequent occurrences included aspiration or ingestion of materials (14%), performance of incorrect procedures or procedures conducted in the wrong location (13%), damage to hard tissues (13%), and damage to soft tissues (13%)⁴.

Overall, studies on AEs are predominantly focused on hospital care^{5,6}. Research on patient incidents in primary health care (PHC) is still in its early stages as current evidence does not provide reliable estimates of AE frequency⁷. This highlights the need to better understand the prevalence of AEs in dental care within PHC and investigate interventions for mitigation⁸.

One way to minimize the occurrence of AEs is the implementation of strategies that promote a patient safety culture (PSC)⁹. PSC refers to a set of values, attitudes, and behaviors shared by a healthcare organization that prioritizes the safety and quality of care provided to patients¹⁰. It involves the promotion of a culture of openness and continuous learning, where healthcare professionals feel encouraged to report errors, failures, and adverse events without fear of retaliation. PSC aims to identify and address systemic and individual factors contributing to errors and adverse events, with the goal of improving safety and preventing harm to patients¹¹. In this regard, assessing the patient safety culture in PHC is the first step in understanding professionals' perception of patient safety^{12,13}.

Previous research has identified that poor performance in PSC dimensions can contribute to the presence of AEs in hospital settings^{14,15}. This is because PSC enables patients and professionals to recognize and manage AEs¹⁰. Strong PSC performance encourages professionals to reflect on safe care without facing punitive measures in the event of AEs¹⁶.

Based on the above, the hypothesis arises that AEs caused by dental care in PHC are frequent and associated with poor performance in PSC dimensions. In order to advance this debate, this study aims to identify the frequency of AEs reported by dentists in dental care within PHC and analyze the PSC dimensions associated with this outcome.

MATERIAL AND METHOD

Study Type

This is a cross-sectional, quantitative study conducted with dentists practicing in Primary Health Care (PHC).

Sample Characteristics

Two states in Brazil were considered: the Federal District (DF) and Mato Grosso do Sul (MS). A total of 182 Oral Health Teams (OHT) in the DF and 554 OHT in MS were included in the sample, totalling 736 professionals. The sample size was calculated proportionally to the total number of professionals in each state, considering a 95% confidence interval.

The selection of professionals was conducted using a random sampling method. The sample size was determined using the following formula, considering a 95% confidence interval and a 5% margin of error:

$$n = \frac{Z^2 \times p \times (1-p)}{E^2} \quad (1)$$

Where:

- n is the required sample size,
- Z is the z-value corresponding to the desired confidence interval
- p = is the estimated proportion of the characteristic of interest
- E is the desired margin of error (set at 0.05 for a 5% margin of error).

Substituting the values into the formula, the sample size required for an infinite population was approximately 384 respondents. However, since the professional's population is finite ($n = 736$), we applied the finite population correction formula:

$$nf = \frac{n}{1 + \frac{n-1}{N}} \quad (2)$$

Where N is the total population size ($n = 736$) and n is the sample size calculated earlier ($n = 384$). Thus, the adjusted sample size for the finite population was approximately 253 respondents.

Despite the adjusted sample size for the finite population being approximately 253 respondents, the decision to distribute the questionnaire to as many professionals as possible was strategic. This approach was intended to ensure a robust dataset by accounting for any potential non-responses or incomplete submissions. The online nature of the survey facilitated reaching a broad audience, and the larger number of distributed questionnaires helped in obtaining enough complete responses, thereby enhancing the representativeness and reliability of the collected data.

Data Collection

The study was conducted from April to August 2021. An online survey was administered using the Survey Monkey® application, utilizing the email addresses of the professionals obtained from the Health Departments. The survey consisted of three parts.

The first part included seven questions regarding the participants' sociodemographic and professional data, including age (in years), self-reported race or skin color (yellow, white, indigenous, brown, black), the state in which they practice professionally (DF or MS), the municipality or administrative region where they work, gender (male or female), years of education in Dentistry, and level of education (undergraduate, specialization, master's, doctorate, post-doctorate).

The second part consisted of objective questions assessing the presence of 13 adverse events (AE) based on two previous inventories^{17,18}. Dentists were asked about the frequency of these incidents in their clinical practice over the past 12 months. The incidents included a patient experiencing soft tissue trauma after local anesthesia during treatment, an adjacent tooth being cut/damaged during dental preparation, a patient experiencing soft tissue damage (e.g., gums, tongue, palate) during restorative treatment, infection resulting from dental care, a patient requiring urgent return visits due to pain, edema, or other reasons, a patient experiencing paresthesia after local anesthesia, a patient swallowing dental material (e.g., steel crown, gauze, cotton roll, broken instrument, clamps, or orthodontic brackets), a patient having an allergic reaction to dental material, anesthetic, or other complications resulting from medication prescription, the dental team/patient being unaware of this allergy, a dental procedure (restoration, extraction, sealant, etc.) being performed on the wrong tooth, the patient's body being injured/hurt during physical restraint (e.g., the use of bands, mouth openers), a patient's tooth being perforated during pulpotomy and/or pulpectomy procedures, a patient requiring cardiopulmonary resuscitation (CPR) during a dental procedure, and the need for retreatment of the same tooth or redoing a procedure completed less than 12 months ago.

The frequencies of all reported AEs by the dentists were scored on a Likert scale, ranging as follows: Did not occur in the past 12 months (1), occurred a few times in the past 12 months (2),

occurred several times in the past 12 months (3), occurred many times in the past 12 months (4), and occurred always in the past 12 months (5).

The third part of the survey involved the application of the Patient Safety Culture instrument for Primary Care, adapted from the Medical Office Survey on Patient Safety Culture (MOSPSC) and validated in Portuguese by Timm, Rodrigues¹⁹. Sections A (Patient Safety and Quality), C (Working in This Health Service), D (Communication and Tracking), F (Your Health Service), G (Overall Evaluation), and I (Your Comments) were included in their entirety. Responses were provided using a 6-point Likert scale ranging from 1 (daily) to 6 (did not occur in the past 12 months) or in terms of agreement, ranging from 1 (totally disagree) to 5 (totally agree). The option "not applicable or don't know" was included at the end of each response and excluded from the percentage display for the respective items.

The percentage of positive responses for each item on the MOSPSC scale was calculated as the quotient between the sum of positive responses and the total number of responses for that item. Thus, the calculation of the average percentage of positive responses allowed obtaining the scores for each dimension. A dimension was classified as strong when 75% or more of the participants answered "totally agree/agree" or "often/always" to positively formulated questions and "totally disagree/disagree" or "never/rarely" to negatively formulated questions. Dimensions were classified as weak (with potential for improvement) when 50% or more of the subjects answered negatively, choosing "totally disagree/disagree" or "never/rarely" for positively formulated questions or "totally agree/agree" or "often/always" for negatively formulated questions. Neutral classification fell within the range of 50% to 75% of the total respondents.

The data collection form was pilot tested with twenty professionals, and the collected data were excluded from the analysis. No variables were included or excluded after the pilot test because all instrument variables were suitable for addressing the study objectives.

Data Analysis Multilevel

The statistical analysis of the data was conducted using the Statistical Package for Social Sciences version 25.0 (SPSS Inc., Chicago, IL, USA, 2018) for Windows. A significance level of 5% was adopted for statistical decision criteria. Results were presented through descriptive statistics, including absolute and relative distributions (n - %), as well as measures of central tendency (mean and median) and variability (standard deviation and interquartile range). The symmetry of continuous distributions was assessed using the Kolmogorov-Smirnov test. Estimates for adverse events were also analyzed through absolute and relative distributions for the positive responses of each dimension.

To identify the relation of the MOSPSC scale dimensions in explaining/predicting the occurrence of adverse events, Poisson regression with robust variance was employed, and results were expressed as Prevalence Ratios (PR) with the corresponding 95% Confidence Interval (CI). A binary model [1: Adverse event recorded and 0: No adverse event recorded] was used, adjusted for location, training duration, level of education, and gender.

Ethical Aspects

The study was approved by the Research Ethics Committee of the Oswaldo Cruz Foundation (FIOCRUZ) CAAE n^o. 42462820.4.0000.8027. All participants electronically signed the informed consent form.

RESULT

480 questionnaires were completed (response rate of 52.34%). After excluding incomplete forms, data from 350 respondents were included in the final analysis. Most participants were female (76%). The mean age was 40 years (SD = ±9.8) and the mean years of education in

dentistry ranged from 17.5 to 9.5 years. More than half of the professionals self-identified as white (67.3%) and had a specialization degree (73.2%). Among the responding professionals, 44.6% practiced in the Federal District (DF) and 55.4% in Mato Grosso do Sul (MS) (Table 1).

Considering the descriptive analysis of adverse events (AEs), it was identified that the event "The patient required an urgent return visit due to pain, swelling, or other reasons" was reported by 60.5% of professionals as the highest percentage among all frequencies in the last 12 months. It was followed by the event "There was a need for retreatment of the same tooth or redoing a procedure completed less than twelve months ago" with a cumulative frequency of 53.1% of events.

After analyzing the positive responses of "Occurred a few times in the past 12 months," "Occurred several times in the past 12 months," "Occurred many times in the past 12 months," and "Occurred always in the past 12 months," a decrease in the frequency of experienced AEs was observed, although the presence in all four possible scores was evident when the event was clearly present.

As observed in Table 2, none of the events "occurred always in the past 12 months" in dental clinical practice. None of the professionals indicated that "A patient required cardiopulmonary resuscitation (CPR) during a dental procedure."

Regarding the MOSPSC scale, the proportions of positive responses for the various dimensions studied were obtained. According to the numbers presented in Table 3, the average percentage of positive responses varied, with the lowest results for the dimension "Work pressure and pace" (33.1%), followed by "Team training" (38.1%), both not reaching 50% of positive responses. On the other hand, the highest scores were obtained for the dimensions "Overall perception of patient safety and quality" (82.2%), followed by "Teamwork" (78%). Both dimensions achieved a percentage of positive responses $\geq 75\%$ and were evaluated as strong areas. The average proportion of positive responses for the entire scale was estimated at 56.4% (neutral culture).

Furthermore, an attempt was made to identify the presence of no events or one or more events in dental practice during the last 12 months. Thus, the outcome was the presence of AEs, experienced at least once in daily practice, identified by 94.0% of the sample. The analysis of the association between the independent variables and the outcome is presented in Table 4.

In the final multivariate analysis, the dimensions "Overall perception of patient safety and quality" (PR: 0.86; 95% CI: 0.76-0.89; $p = 0.010$), "Teamwork" (PR: 1.11; 95% CI: 1.03-1.73; $p = 0.002$), and "Work process and standardization" (PR: 0.86; 95% CI: 0.78-0.92; $p = 0.011$) were found to have a significant relation with the occurrence of adverse events (Table 4).

Table 1. Sociodemographic and professional characterization of respondents (n=350); Distrito Federal and Mato Grosso do Sul, Brazil, 2021

Variables	Total sample (n=350) ^A	
	N	%
Age (Years)^B		
Average \pm SD (Range)	40.7 \pm 9.8 (22 - 67)	
Median (1st-3rd quartile)	41 (32 - 48)	
Self-reported race or skin color^B		
Yellow	13	3.8
White	233	67.3
Indigenous	1	0.3
Brown	93	26.9
Black	6	1.7
Unit of the Federation where you work professionally^B		
Federal District	154	44.6
Mato Grosso do Sul	191	55.4
Gender^B		
Female	244	76.0
Male	77	24.0
Time of dentistry training (years)^{B E}		
Average \pm SD (Range)	17.5 \pm 9.5 (0.5 - 45)	
Median (1st-3rd quartile)	18 (10 - 24)	

Table 1. Continued...

Variables	Total sample (n=350) ^A	
	N	%
Level of education ^B		
Undergraduate	59	17.0
Specialization	254	73.2
Master's Degree	27	7.8
PhD	6	1.7
Post-doctorate	1	0.3

Note: A - Percentages obtained based on total valid cases. B - Missing data - Age [1(0.3%)]; Self-reported race/color, State unit [5(1.4%)]; Sex [29(8.3%)]; Education level [3(0.9%)]. SD – Standard Deviation. E - Shappiro Wilk test (p<0.05) -Variable with asymmetric distribution (not approximately normal).

Table 2. Distribution of Adverse Events in Dentistry in Primary Health Care; (n=350), Distrito Federal and Mato Grosso do Sul, Brazil, 2021

Adverse Events	Frequency for the last 12 months ^C									
	Did not happen		Happened few times		Happened very often		It has happened many times		It has always happened	
	n	%	n	%	n	%	n	%	n	%
One patient presented with soft tissue trauma after using local anesthetic during treatment. ^B	287	82.0	56	16.0	5	1.4	0	0	2	0.6
An adjacent tooth was cut/damaged during dental preparation. ^B	298	85.4	49	14.0	2	0.6	1	0.3	0	0
A patient sustained soft tissue damage (in other words gingiva, tongue, palate) during restorative treatment.	178	50.9	148	42.3	22	6.3	2	0.6	0	0
Infection has occurred because of the dental care.	258	73.7	85	24.3	6	1.7	1	0.3	0	0
The patient needed to return for emergency care either for pain and/or swelling or other reasons. ^B	73	20.9	212	60.6	49	14.0	12	3.4	4	1.1
One patient had paresthesia after local anesthesia.	338	96.6	12	3.4	0	0	0	0	0	0
A patient has swallowed dental material (in other words, steel crown, gauze, cotton roll, broken instrument, staples, or orthodontic brackets).	345	98.6	5	1.4	0	0	0	0	0	0
A patient had an allergic reaction (in other words to a dental material or anesthetic or other complication from a prescription drug); the dental team/patient was unaware of this allergy.	328	93.7	22	6.3	0	0	0	0	0	0
A dental procedure (filling, extraction, sealant, etc.) was done on the wrong tooth. ^B	344	98.3	5	1.4	1	0.3	0	0	0	0
Patient's body was injured/mutilated during physical restraint (in other words by use of bands, mouth openers) ^B	327	93.4	20	5.7	3	0.9	0	0	0	0
A patient's tooth was perforated during pulpotomy and/or pulpectomy procedure.	328	93.7	21	6.0	1	0.3	0	0	0	0
A patient required cardiopulmonary resuscitation (CPR) during a dental procedure.	350	100.0	0	0	0	0	0	0	0	0
There was a need for retreatment of the same tooth or a need to redo the same procedure completed less than twelve months ago.	106	30.3	186	53.1	54	15.4	3	0.9	1	0.3

Note: C: Percentages for each question obtained based on total valid responses for the scale (n=350). B: Missing data - Q1, Q2, Q5, Q10 [1(0.3%)]; Q9 [2([1(0.6%))].

Table 3. Mean proportion of positive responses for the tool Medical Office Patient Safety Survey (MOSPSC); n=350, Distrito Federal and Mato Grosso do Sul, Brazil, 2021

MOSPSC Scale	Average of Positive Responses (n=350)
Overall perception of patient safety and quality	82.2
Working in this healthcare facility	
Teamwork	78.0
Work pressure and pace	33.1
Team training	38.1
Work process and standardization	48.3
Professional Communication and Patient Follow-up	
Open Communication	48.7
Patient Care Follow-up	63.9
Error Communication	47.4
Your Health Service	
Organizational Learning	68.1
Patient Safety and Quality Issues	71.8
Overall evaluation about the services provided	
Overall quality score	41.5

Table 4. Poisson regression model (univariate and multivariate) for predicting the occurrence of adverse events through the dimensions of the MOSPSC scale

Independent variables MOSPSC Scale	Univariate Poisson Regression model*				Multivariate Poisson Regression model**			
	Dependent variable: the occurrence of adverse events							
	RP	CI95% PR		p-value	RP	CI95% PR		p-value
		Lower	Upper			Lower	Upper	
Overall perception of patient safety and quality	0.83	0.77	0.92	0.010	0.86	0.76	0.89	0.010
Teamwork	0.91	0.86	1.05	0.450	1.11	1.03	1.73	0.002
Work Pressure and Pace	0.91	0.88	1.04	0.454	0.94	0.87	1.01	0.454
Staff Training	0.89	0.87	1.02	0.205	0.92	0.86	0.99	0.205
Work process and standardization	0.83	0.79	0.95	0.003	0.86	0.78	0.92	0.011
Open communication	0.97	0.88	1.19	0.540	1.00	0.87	1.16	0.540
Follow-up on patient care	0.84	0.82	0.97	0.004	0.92	0.88	1.06	0.314
Error Communication	0.88	0.85	1.01	0.116	0.91	0.84	0.98	0.116
Organizational Learning	0.90	0.86	1.04	0.393	0.93	0.85	1.01	0.393
Patient Safety and Quality Issues	0.88	0.84	1.02	0.155	0.91	0.83	1.02	0.655
Overall Quality Score	0.85	0.82	0.99	0.027	0.92	0.87	1.06	0.814
Overall Patient Safety Rating	0.86	0.84	0.99	0.019	0.89	0.83	1.03	0.074

Note: *Univariate models (or crude models) generated for each of the dimensions of the MOSPSC scale. **Model adjusted for location, training duration, level of education, and gender. PR - Prevalence Ratios. CI - Confidence Interval.

DISCUSSION

The study revealed that adverse events (AEs) were frequent in primary dental care practice, as perceived by dentists, and were associated with the dimensions of "Overall perception of patient safety and quality," "Work process and standardization," and "Teamwork" in patient safety culture (PSC).

The results indicated that the majority of professionals experienced at least one AE in the past 12 months, similar to other studies that identified a high prevalence of AEs in dental care^{20,21}. For instance, a study conducted in the United States found records of AEs in 85.6% of dental records²⁰. Additionally, an investigation with paediatric dentists in the United States revealed that 92.7% of these professionals experienced at least one AE in the past 18 months¹². These findings corroborate the persistence and scope of AEs in the healthcare setting, demanding the adoption of effective measures to improve patient safety.

The most frequent adverse event identified in this study was the need for patients to return for urgent care due to pain, swelling, or other reasons. In Brazil, access to oral health services in primary care often occurs in response to toothache²². This finding raises concerns about the effectiveness of certain procedures performed in primary care, which apparently do not provide resolution and contribute to patients returning with physical symptoms such as pain and swelling. This highlights the need to improve the quality of procedures, especially those related to toothache relief, such as treatment for pulpitis, fractures, among others. In addition to the negative impact on users in terms of frequent returns to primary healthcare units, this situation overburdens healthcare services and scheduling²³. Therefore, measures should be implemented to enhance the effectiveness of dental treatments in primary care, aiming for case resolution and reducing the recurring demand for urgent care.

To understand the patient safety culture in this study, the recommendations of the Agency for Healthcare Research and Quality (AHRQ) were used to assess the percentage of positive responses in the PSC instrument. The strengths of PSC revealed were the dimensions of "General perception of patient safety and quality," followed by "Teamwork," which is consistent with previous studies identifying these dimensions as positive among professionals^{24,25}.

A strong perception in the dimension of "General perception of patient safety and quality" may indicate an organizational culture where professionals are more aware and willing to identify and report adverse events²⁶. In this study, this dimension was associated with the presence of AEs. Justifying this finding, this may result in an apparent increase in the presence of recorded and/or perceived adverse events but does not necessarily imply a real increase in the occurrence of adverse events.

Another association identified with AEs was the dimension of "Work process and standardization." This dimension assesses issues related to service organization, activities, and workflows. In this study, participants considered this dimension weak. Standardization of healthcare actions is important as it allows for alignment and organization in task execution²⁷. This does not mean rigidly controlling the process but carrying out planned activities transparently, as described in the AHRQ manual²⁶. Therefore, disorganized workflows, lack of process standardization in healthcare tasks, and failure to verify the quality of work performed can contribute to the presence of AEs.

Another aspect of PSC associated with the outcome was the dimension of "Teamwork." A strong perception of the "Teamwork" dimension in the patient safety culture instrument is generally associated with a lower incidence of adverse events²⁶. However, there are situations where a strong perception of this dimension may paradoxically be related to a higher incidence of adverse events.

One possible explanation for this paradoxical scenario is that a strong perception of teamwork can lead to complacency or a false sense of security. For example, if healthcare professionals have high confidence in the team's skills and performance, they may underestimate risks and not be

sufficiently vigilant regarding potential errors or failures. Additionally, a strong culture of teamwork may be accompanied by a lower inclination of professionals to question or challenge each other. This can result in communication failures, lack of critical information sharing, or lack of constructive feedback, all of which can contribute to the occurrence of adverse events.

Indeed, further research is needed to clarify the findings regarding the associations between dimensions of patient safety culture and AEs in dentistry. It should be noted that dentists are still distant from the patient safety debate, as evidenced by the number of adverse event reports related to medications in Brazil, where only 0.34% of the 82,566 notifications registered in the Brazilian pharmacovigilance system were made by dentists²⁸.

It is important to mention the limitations of this study. The use of a self-administered questionnaire, reliant on the memory of each professional, may have affected the measurement of AEs. The most used method to measure AEs is through incident reporting systems or medical record reviews²⁹. However, due to the low notification and reporting of adverse events (AEs) by dentists in the country, semi-structured and non-validated questions were used. The lack of validation of the instrument may raise concerns about the internal validity of the obtained results. Additionally, this cross-sectional design cannot establish causality as it does not prove the existence of a temporal sequence between patient safety culture and the occurrence of adverse events perceived by professionals. Furthermore, due to the COVID-19 pandemic, elective procedures in dental care were suspended³⁰. This period coincided with the data collection for this study, which may have altered the frequency and types of AEs.

It is worth emphasizing that this is the first cross-sectional study focusing on AEs in primary dental care practice and their association with patient safety culture. Despite this topic being relatively unexplored in dentistry, the results may indicate specific targets to overcome barriers and plan actions to prevent harm to patients.

CONCLUSION

The most frequently reported AE among primary care dentists was "The patient required an urgent return visit due to pain, swelling, or other reasons" after a clinical intervention.

Adverse events are common in primary dental care and are significantly linked to dimensions of patient safety culture. Specifically, a stronger perception of patient safety and quality, along with improved work processes and standardization, serves as protective factors against AEs. In contrast, a higher perception of teamwork is associated with an increased occurrence of AEs. These findings highlight the critical need to enhance patient safety culture and implement effective strategies to mitigate harm in dental care settings.

AUTHORS' CONTRIBUTIONS

FABRÍCIA PAOLA FERNANDES RIBEIRO DOS SANTOS and INARA PEREIRA DA CUNHA participated in the conception, design, data collection, article writing and participated in the critical review. DÉBORA DUPAS GONÇALVES DO NASCIMENTO participated in the validation and writing original draft. All Authors read and approved the manuscript.

FUNDING

No funding was obtained for this study.

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CONFLICTS OF INTEREST

Authors declares that they do not have any conflict interest.

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Received: June 4, 2024

Accepted: August 27, 2024