

KNOWLEDGE OF PERUVIAN GENERAL DENTISTS REGARDING THE PRESCRIPTION OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS AND ANTIBIOTICS IN CHILDREN

Conocimiento de los odontólogos generales peruanos sobre la prescripción de antiinflamatorios no esteroides y antibióticos en niños

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ABSTRACT

Introduction: Pharmacological care in pediatric patients must be appropriate for their stage of growth and development; therefore, dentists must have adequate knowledge to ensure safe prescribing. **Objective:** To determine the knowledge of general dentists in Lima, Peru regarding the prescription of non-steroidal anti-inflammatory drugs (NSAIDs) and antibiotics (ATBs) in children.

Material and Methods: This cross-sectional descriptive study included 300 general dentists (57.3% male; 51.7% \geq 30 years old). A 25-question questionnaire on knowledge of NSAIDs and ATBs (22 items, Kaiser-Meyer-Olkin value \geq 0.795, Bartlett's test: $p < 0.001$, Kuder-Richardson-20 value \geq 0.893) and demographic data (age, sex, work sector) was applied in 2023. Mann-Whitney U and Chi-square tests were used considering $p < 0.05$ as significant.

Results: Most participants had low level knowledge about NSAIDs (59%) and ATBs (60.7%) prescription, with total knowledge scores [(10 (IQR = 6)], NSAIDs [5, IQR = 10] and ATBs [4 (IQR=7)] being similar for sex, age, and work sector ($p \geq 0.199$). Most participants were aware of the therapeutic indication of NSAIDs for pain and inflammation relief but were unaware of the adequate dosages of sodium diclofenac and naproxen concentrations (57.7% to 58.3%) and the concentration of amoxicillin with or without clavulanic acid, azithromycin dosage, administration volume, or duration of ATB use (56% to 58.7%) ($p \leq 0.043$). The group < 30 years old presented a higher knowledge score for NSAIDs compared to ATBs ($p = 0.030$).

Conclusions: General dentists in Lima have insufficient knowledge regarding NSAID and ATB prescription in pediatric patients.

Keywords: *Antibacterials; Child; Knowledge; Non-steroidal anti-inflammatory drugs; Pediatric dentistry; dentists.*

Received: September 05, 2024. | Accepted: July 04, 2025. | Published online: December 01, 2025.

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doi:10.17126/joralres.2025.031

RESUMEN

Introducción: La atención farmacológica en pacientes pediátricos debe ser adecuada a su etapa de crecimiento y desarrollo, por lo que el odontólogo debe tener los conocimientos adecuados para garantizar una prescripción segura. **Objetivo:** Determinar el conocimiento de los odontólogos generales de Lima respecto a la prescripción de antiinflamatorios no esteroideos (AINEs) y antibióticos (ATBs) para niños en odontólogos de Lima.

Materiales y métodos: Estudio descriptivo transversal en el que participaron 300 odontólogos generales (57,3% varones; 51,7% \geq 30 años). Un cuestionario de 25 preguntas sobre conocimientos de AINEs y ATBs (22 ítems, valor de Kayser-Meyer-Olkin \geq 0,795; Bartlett $<$ 0,001, KR-20 \geq 0,893) y datos demográficos (edad, sexo, sector laboral) se aplicó en 2023. Las pruebas de U de Mann-Whitney y Chi cuadrado se utilizaron considerando $p <$ 0,05

Resultados: La mayoría de los participantes tenían un bajo nivel de conocimiento sobre la prescripción de AINEs (59%) y ATBs (60,7%) con puntuaciones de conocimiento sobre el total [(10 (IQR = 6)], AINEs [5, IQR = 10] y ATBs [4 (IQR = 7] siendo similares para sexo, edad y sector laboral ($p \geq$ 0,199). La mayoría de los participantes conocían la indicación terapéutica de los AINEs para el alivio del dolor e inflamación, pero desconocían las dosis adecuadas de diclofenaco sódico y concentraciones de naproxeno (57,7% a 58,3%) y la concentración de amoxicilina con o sin ácido clavulánico, dosis de azitromicina, volumen de administración o duración de los ATBs (56% a 58,7%) ($p \leq$ 0,043). El grupo de $<$ 30 años presentó un mayor nivel de conocimiento de los AINEs en comparación a los ATBs ($p =$ 0,030).

Conclusiones: Los odontólogos generales tuvieron conocimientos insuficientes en la prescripción de AINE y ATB pediátricos.

Palabras clave: *Antibacterianos; Niño; Conocimiento; Antiinflamatorios no esteroideos; Odontología pediátrica; Odontólogos.*

INTRODUCTION

Healthcare professionals involved in pediatric care acknowledge that children are not simply smaller versions of adults, and thus, pharmacological care must be appropriate for their stage of growth and development. Consequently, to ensure the safety and well-being of pediatric patients, dentists must also be careful when prescribing and administering drugs to children.¹⁻³

Antibiotics (ATBs) are essential for the treatment of bacterial infections. However, over-

use of ATBs has become a global problem, which has led to common bacteria becoming resistant to drugs that were previously effective.^{4,5}

Amoxicillin is of note as the ATB most commonly used in pediatric patients. A previous study revealed that 80% of ATBs prescribed before dental procedures in children were unnecessary, highlighting the need to evaluate the appropriateness of antibiotic prophylaxis in dentistry.^{6,7} Moreover, it is essential for antibiotics to be adequately prescribed and administered to avoid the risk of adverse events, such as allergic reactions.^{8,9}

Non-steroidal anti-inflammatory drugs (NSAIDs) are medications with antipyretic and anti-inflammatory properties. They are widely used as a first-line treatment, often without prior prescription and are among the drugs most frequently associated with adverse reactions (2-6%).¹⁰ Administration of NSAIDs includes routine use in the pediatric population, especially the prescription of ibuprofen in cases of pain and fever.^{10,11}

Preoperative dental prescription of NSAIDs for the prevention of infection and pain is controversial and requires special attention to the current use of antimicrobials and biological factors associated with the patient.¹² A recent systematic review reported that the combined administration of NSAIDs and analgesics was effective for the control of acute pain in children.¹³

There is limited evidence on the knowledge of dentists in relation to adequate drug prescription in pediatric dental care. To avoid antimicrobial resistance (AMR), evaluation of the knowledge of those who prescribe ATBs is necessary. Indeed, knowledge of the adequate use of ATB treatment in pediatric patients was found to be low among Israeli¹⁴ and Jordanian¹⁵ dentists and sufficient among Egyptian,¹⁶ Indian,¹⁷ and Turkish¹⁸ dentists.

The literature emphasizes the need to improve the guidelines for the prescription of NSAIDs and ATBs by healthcare professionals.¹⁶ The World Health Organization highlights the role of education in improving the quality of drug prescribing. Therefore, the purpose of this study was to determine the level of knowledge among general dentists in Lima, Peru in relation to the prescription of NSAIDs and ATBs in children.

MATERIALS AND METHODS

Study Design and Ethics

This cross-sectional observational study was approved by the Institutional Ethics Committee in Research of the Universidad Científica del Sur (No. 166-CIEI-CIENTÍFICA-2022). The study was conducted according to the requirements of the Declaration of Helsinki. The study participants signed electronic informed consent.

Study Sample

The study population consisted of 22,500 dentists from Lima, Peru. Data were obtained from the website of the Colegio Odontológico del Perú. A convenience sample of 300 general dentists licensed by the Colegio Odontológico of the Lima Region was formed. The inclusion criteria were dentists currently practicing clinical dentistry in Peru and were able to independently respond and complete the entire questionnaire. Specialist dentists were excluded from the study.

Adaptation of the Questionnaire

The questionnaire on knowledge of the prescription of NSAIDs and ATBs in children was adapted from a previous thesis study conducted in Peru.¹⁹ The original questionnaire was modified by rewriting it into direct questions, specifying the indication for children, and rearranging the response options in alphabetical, chronological or hierarchical order. The questions (Q) were evaluated by three pediatric dentists who assessed the criteria of relevance, pertinence, and clarity, with scores from level 1 (does not meet) to 4 (high). According to a suggestion by the three evaluators, the responses to Q20 were modified.

Validation and Reliability of the Questionnaire

The Aiken's V index had an overall result of 0.983 (95% confidence interval [CI]: 0.678-1.000) and by items ≥ 0.889 (95% CI: $\geq 0.565-1$), with both being considered acceptable. A pilot study with 110 general dentists (5 participants per item) was conducted to evaluate construct validation and internal consistency reliability.

The factorial validation of principal components resulted in a good Kaiser-Meyer-Olkin coefficient (KMO=0.795) and a significant Bartlett's test of sphericity ($p < 0.001$), with moderate to strong factor loadings (0.453 to 0.950) and explanation in two dimensions (58.7%). The reliability was good in the Kuder-Richardson-20 coefficient (KR-20=0.893). The participants of the pilot study were also part of the study sample.

Description and Application of the Study Questionnaire

The questionnaire on the prescription of NSAIDs and antibiotics in children consisted of 22 closed-ended questions (Supplementary Material) distributed into two dimensions: 11 questions about NSAIDs (D1) and 11 questions about ATBs (D2) with a single correct response out of four options. Each correctly answered question was assigned one point.

According to the Peruvian educational grading system, the total score was categorized into levels of total and dimensional knowledge as low ($\leq 50\%$ of the score: ≤ 6 points per dimension and ≤ 11 points in total), medium ($> 50\% - \leq 75\%$ of the score: 7-8 points per dimension and 12-16 points in total), and high ($> 75\%$ of the score: ≥ 9 points per dimension and ≥ 17 in total). Other data obtained by the questionnaire included

gender, age group (< 30 years or ≥ 30 years), and place of work (private or public/mixed). The survey was conducted virtually through Google Forms, with the link shared via email to the dentists in 2023.

Data Analysis

Descriptive statistics included frequencies (n), percentages (%), medians, interquartile range (IQR), quartile 1, and quartile 3. Inferential statistics included non-parametric tests such as the binomial test to compare the distribution of correct and incorrect answers and the Mann-Whitney U test to compare knowledge scores according to demographic variables. Data analysis was performed using the IBM-SPSS® v.26.0 statistical software, considering statistical significance when $p < 0.05$.

RESULTS

The demographic characteristics of the sample are presented in Table 1. The dentists were between 23 and 52 years of age (33.73 ± 6.89), with similar age groups ($p = 0.603$) and a higher proportion of males (57.3%) and private sector workers (95%) ($p \leq 0.013$).

The distribution of responses to the questionnaire is shown in Table 2. There was a similar distribution between incorrect (45.7% to 55.7%) and correct (44.3% to 54.3%) answers in most items (Q2-P6, Q7-Q10, Q12, Q14-P18) ($p = 0.057-0.954$). Most participants correctly answered the therapeutic indication of NSAIDs for pain and inflammation relief (Q1) but incorrectly answered the question about the dosage of sodium diclofenac (Q7) and the concentration of naproxen (Q11) in the NSAIDs dimension (57.7% to 58.3%) as well as the concentration of amoxicillin with (Q20) or without clavulanic acid (Q19), the dosage of azithromycin (Q21), administration volume

(Q22), and duration of use (Q13) in the ATBs dimension (56% to 58.7%).

Comparison of the responses to the questionnaire according to the demographic characteristics of the participants is shown in Table 3. Knowledge of NSAIDs and ATBs was not associated with gender, age, or work sector ($p=0.057-1.000$), except in regard to the correct answers about: the dosage of sodium diclofenac (Q7), which was associated with participant age <30 years ($p=0.004$) and work in the private sector ($p=0.035$), and adverse reactions to NSAIDs (Q17), which were associated with participant age ≥ 30 years ($p=0.014$).

The level of knowledge of the participating dentists on the prescription of NSAIDs and ATBs in children is shown in Figure 1.

A significantly higher proportion ($p < 0.001$) of low knowledge was found in relation to NSAIDs, ATBs, and in total (59% to 61.3%). A total of 21.3% of the participants had medium overall knowledge, while between 29% and 32.3% showed high knowledge by dimensions.

The knowledge scores on NSAIDs and ATBs prescription in children are shown in Table 4. The median total knowledge score was 10 points (IQR=6), while in the NSAIDs dimension, it was 5 (IQR=10), and in the ATB dimension, it was 4 (IQR=7). Greater knowledge of NSAIDs than ATBs was found in the <30 years of age group ($p=0.030$), compared to the other gender and age groups in which the results were similar ($p=0.141$ to 0.815). Total or dimensional knowledge scores were not associated with gender or age ($p=0.199$ to 0.981).

Figure 1

Level of knowledge of general dentists in Lima on the prescription of non-steroidal anti-inflammatory drugs (NSAIDs) and antibiotics (ATB) in children

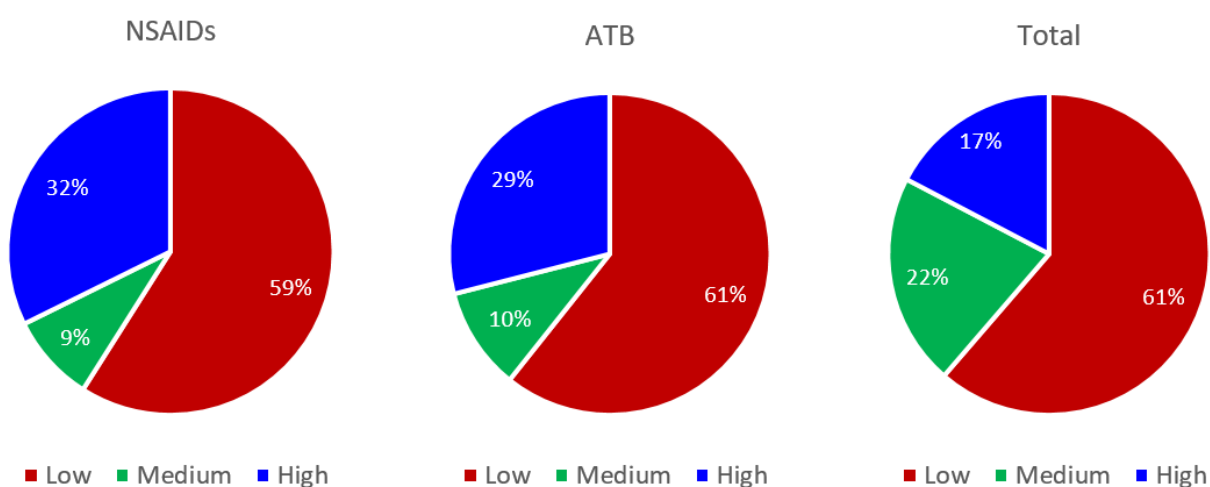


Table 1

Sociodemographic characteristics of the general dentists in Lima participating in the study.

Demographic Data		n	%
Age	<30 years	155	51.7
	≥30 years	145	48.3
	<i>p</i> -value	0.603	
Sex	Male	172	57.3
	Female	128	42.7
	<i>P</i> value	0.013*	
Work Sector	Private	285	95.0
	Public / mixed	15	5.0%
	<i>p</i> -value	<0.001*	

Binomial test. **p*<0.05.

Table 2

Responses of the participating general dentists in Lima regarding their knowledge of the prescription of non-steroidal anti-inflammatory drugs and antibiotics in pediatric patients

Knowledge Items on Prescription in Children			Incorrect		Correct		<i>p</i> -value
			n	%	n	%	
NSAIDs	Q1	Therapeutic indication of NSAIDs	127	42.3	173	57.7	0.009*
	Q2	Duration of NSAID use	146	48.7	154	51.3	0.686
	Q3	Age for indicating NSAIDs	148	49.3	152	50.7	0.862
	Q4	Administration of NSAIDs	158	52.7	142	47.3	0.386
	Q5	Alternative to NSAID allergy	157	52.3	143	47.7	0.453
	Q6	Adverse reaction to NSAIDs	137	45.7	163	54.3	0.149
	Q7	Dosage of sodium diclofenac	175	58.3	125	41.7	0.005*
	Q8	Dosage of ibuprofen	167	55.7	133	44.3	0.057
	Q9	Concentration of ibuprofen	156	52.0	144	48.0	0.525
	Q10	Dosage of naproxen	159	53.0	141	47.0	0.326
	Q11	Concentration of naproxen	173	57.7	127	42.3	0.009*
ATBs	Q12	Therapeutic indication of antibiotics	162	54.0	138	46.0	0.184
	Q13	Duration of antibiotic use	168	56.0	132	44.0	0.043*
	Q14	Administration of antibiotics	160	53.3	140	46.7	0.273
	Q15	Alternative in moderate infection	157	52.3	143	47.7	0.453
	Q16	Alternative to antibiotic allergy	160	53.3	140	46.7	0.273
	Q17	Adverse reaction to antibiotics	144	48.0	156	52.0	0.525
	Q18	Dosage of amoxicillin	151	50.3	149	49.7	0.954
	Q19	Concentration of amoxicillin	172	57.3	128	42.7	0.013*
	Q20	Concentration of amoxicillin + clavulanic acid	176	58.7	124	41.3	0.003*
	Q21	Dosage of azithromycin	171	57.0	129	43.0	0.018*
	Q22	Administration volume of antibiotics	170	56.7	130	43.3	0.024*

*: NSAIDs, nonsteroidal anti-inflammatory drugs; ATB, antibiotics. Binomial test. *p*< 0.05.

Table 3

Correct responses of general dentists in Lima related to their knowledge regarding the prescription of non-steroidal anti-inflammatory drugs and antibiotics in children according to age and gender

Knowledge Items	Q	Male		Female		Age <30		Sex ≥30		Private		Public /mixed		p-value		
		n	%	n	%	p-value	n	%	n	%	p-value	n	%			
NSAIDs	1 Therapeutic indication of NSAIDs	100	58.1	73	57.0	0.848	89	57.4	84	57.9	0.929	162	56.8	11	73.3	0.118
	2 Duration of NSAID use	90	52.3	64	50.0	0.690	83	53.5	71	49.0	0.427	147	51.6	7	46.7	1.000
	3 Age indication of NSAIDs	88	51.2	64	50.0	0.842	86	55.5	66	45.5	0.084	144	50.5	8	53.3	1.000
	4 Administration of NSAIDs	82	47.7	60	46.9	0.891	80	51.6	62	42.8	0.125	135	47.4	7	46.7	1.000
	5 Alternative to NSAID allergy	78	45.3	65	50.8	0.351	74	47.7	69	47.6	0.978	136	47.7	7	46.7	1.000
	6 Adverse reaction to NSAIDs	91	52.9	72	56.3	0.565	86	55.5	77	53.1	0.679	152	53.3	11	73.3	0.118
	7 Dosage of sodium diclofenac	76	44.2	49	38.3	0.305	77	49.7	48	33.1	0.004*	122	42.8	3	20.0	0.035*
	8 Dosage of ibuprofen	79	45.9	54	42.2	0.519	73	47.1	60	41.4	0.319	125	43.9	8	53.3	1.000
	9 Concentration of ibuprofen	87	50.6	57	44.5	0.300	80	51.6	64	44.1	0.195	139	48.8	5	33.3	0.302
	10 Dosage of naproxen	79	45.9	62	48.4	0.667	80	51.6	61	42.1	0.098	134	47.0	7	46.7	1.000
	11 Concentration of naproxen	70	40.7	57	44.5	0.506	69	44.5	58	40.0	0.429	121	42.5	6	40.0	0.607
ATBs	12 Therapeutic indication of antibiotics	77	44.8	61	47.7	0.620	68	43.9	70	48.3	0.444	132	46.3	6	40.0	0.607
	13 Duration of antibiotic use	72	41.9	60	46.9	0.387	67	43.2	65	44.8	0.780	123	43.2	9	60.0	0.607
	14 Administration of antibiotics	83	48.3	57	44.5	0.522	71	45.8	69	47.6	0.757	135	47.4	5	33.3	0.302
	15 Alternative in moderate infection	79	45.9	64	50.0	0.485	71	45.8	72	49.7	0.505	135	47.4	8	53.3	1.000
	16 Alternative to antibiotic allergy	79	45.9	61	47.7	0.767	70	45.2	70	48.3	0.589	134	47.0	6	40.0	0.607
	17 Adverse reaction to antibiotics	85	49.4	71	55.5	0.300	70	45.2	86	59.3	0.014*	148	51.9	8	53.3	1.000
	18 Dosage of amoxicillin	87	50.6	62	48.4	0.713	77	49.7	72	49.7	0.997	145	50.9	4	26.7	0.118
	19 Concentration of amoxicillin	73	42.4	55	43.0	0.927	58	37.4	70	48.3	0.057	120	42.1	8	53.3	1.000
	20 Concentration of amoxicillin + CA	66	38.4	58	45.3	0.227	64	41.3	60	41.4	0.988	119	41.8	5	33.3	0.302
	21 Dosage of azithromycin	73	42.4	56	43.8	0.821	65	41.9	64	44.1	0.700	125	43.9	4	26.7	0.118
	22 Administration volume of antibiotics	72	41.9	58	45.3	0.551	66	42.6	64	44.1	0.786	124	43.5	6	40.0	0.607

NSAIDs, nonsteroidal anti-inflammatory drugs. ATB, antibiotics. CA, clavulanic acid. Chi-square test. Q: quartile. Mann-Whitney U test. $p < 0.05$.

Table 4

Knowledge score of general dentists in Lima on the prescription of non-steroidal anti-inflammatory drugs and antibiotics in children according to age and gender

Demographic Data		NSAIDs			ATBs			Total				
		Median	p-value	Q1-Q3	Median	p-value	Q1-Q3	Median	p-value	Q1-Q3		
Total		5		0-10	4		2-9	0.141		10		7-13
Sex	Male	5		0-11	4		2-9	0.188		11		7-13
	Female	5		0-10	4		2-9	0.488		10		6-13
	p-value		0.981			0.552		0.915				
Age	<30 years	5		0-10	3		2-9	0.030*		11		6-13
	≥30 years	5		0-11	4		2-9	0.815		10		7-13
	p-value		0.217			0.199		0.562				
Work Sector	Private	5		0-10	4		2-9	0.178		10		7-13
	Public / mixed	5		4-7	4		3-7	0.430		9		7-11
	p-value		0.920			0.885		0.475				

NSAIDs, nonsteroidal anti-inflammatory drugs. ATB, antibiotics. Q: quartile. Mann-Whitney U test. $p < 0.05$.

DISCUSSION

There is a documented global trend concerning AMR, with nearly five million deaths associated with AMR being reported in 2019 caused by multidrug-resistant organisms in Latin America and the Caribbean.²⁰ This public health problem involves both the use and misuse of medications by public and health-care professionals alike.^{21,22} The present study found that a significant portion of general dentists in Lima had a low level of knowledge regarding the prescription of NSAIDs and ATBs.

The questionnaire in this study included a variety of items on the indications, administration, and therapeutic alternatives of NSAIDs and ATBs. The survey was directed at general dentists because the demand for specialized care is not yet predominant in Peru. On the other hand, previous studies have used a variety of questionnaires to assess knowledge, some targeting general dentists^{14,16,18} and others focusing on specialists in pediatric dentistry.¹⁴⁻¹⁷

This study showed that around 61% of dentists had a low level of knowledge regarding the prescription of NSAIDs and ATBs in pediatric patients. Knowledge was lower in relation to the use of ATBs compared to NSAIDs in dentists under 30 years of age. Knowledge of ATBs use was also found to be inadequate in studies conducted in Israel¹⁴ and Jordan,¹⁵ unlike the study in Turkey,¹⁸ which showed sufficient knowledge. The study results indicate the association of knowledge with professional experience, but it is also possible that general dentists have less experience and interest in staying updated compared to specialists.^{14,16,18}

More than half of the study sample was unaware of the correct use of ATBs in cases

of infection. Similarly, dentists in Egypt,¹⁶ India,¹⁷ and Turkey¹⁸ were unaware of the guidelines that indicate the prescription of ATBs for infections with signs of systemic involvement, dental avulsion, and acute periodontal conditions.²³ However, the prescription of an ATB for irreversible pulpitis may be debated, as ATBs have no effect on the pathogenic pulpal area, in which case abscess drainage or root canal treatment is preferable.^{14,17}

Amoxicillin is the most commonly prescribed and first-choice antibiotic, being appropriate for infections caused by streptococci and oral anaerobes.^{14,16} The addition of clavulanic acid is indicated in mixed infections involving beta-lactamases. Less than half of the participants were aware of this combination and associated its prescription with moderate infections. Nonetheless, the combination of amoxicillin plus clavulanic acid should be limited to anaerobic conditions due to the risk of side effects.¹⁵⁻¹⁸

The dentists participating in this study had little knowledge of the signs and symptoms of penicillin sensitivity. This result was associated with less professional experience, possibly in relation to having few pediatric cases presenting allergic reactions.¹⁸ Similarly, the macrolide azithromycin was not chosen as a first choice alternative. In other studies, the choice was erythromycin¹⁵ and clindamycin,¹⁸ although reactions, such as gastrointestinal disorders, may occur with these drugs.²⁴

The prescription of a 5-day ATB regimen was reported by half of the participants, similar to what was found in studies in Jordan¹⁵ and Egypt,¹⁶ while in India,¹⁷ a 3-day schedule was reported. A minimum duration of five days is compatible with infection resolution.²³ A subtherapeutic or prolonged dose can generate resistant strains and damage the usual

oral microbiota.¹⁴ A short dose in children at risk of non-compliance would require an antibiotic with rapid initial bactericidal action, easy tissue penetration, and no induction of AMR.^{15,17} In the case of over-prescription, the factors would be prophylactic indication, diagnostic uncertainty,^{15,16,18} parental pressure,^{16,17} the need to delay treatment, and the risk of infection due to public healthcare overload.^{15,17}

Systemic prophylactic use is debatable, considering that an increased risk of infection in distant tissues after treatment has not been proven.^{16,17} The majority of participants in this study knew the indications for the use of NSAIDs. In pediatric emergencies, dentists must distinguish between infection and pain and inflammation, as the latter responds to ibuprofen.¹⁵ In other aspects, a large number of study participants were unaware of the prescription of NSAIDs for a maximum of five days and from the age of two years. There was also inaccuracy in recognizing an adverse reaction and switching to paracetamol in cases of sensitivity.

The administration of oral NSAIDs and ATBs with meals was not acknowledged in this study. There may be doubts due to the variation in drug bioavailability; however, the drug delivery system is effective with a healthy diet.²⁵ Regarding knowledge of the dosage and concentrations of common NSAIDs and ATBs, the results were poor. The responses may depend on memory or continuous care of pediatric patients. On the other hand, dentists acquire pharmacological information from various clinical and non-clinical sources. Despite the National Formulary providing accurate information, it is common for healthcare professionals to consult colleagues or the internet.^{18,26}

Adherence to clinical guidelines for dental care in children requires dentists to prescribe

NSAIDs to relieve acute pain and reduce inflammation and ATBs to treat symptomatic non-chronic infections and in some cases as complementary therapy to therapies for trauma, ulcerative gingivitis, periodontitis and oral wounds.²⁷ Therefore, the selection of medications is a challenge in daily pediatric dental clinical practice, considering that prescription errors can increase drug resistance in children.²⁸ Appropriate prescription involves evaluating a specific action of the medication based on the diagnosis, protection of the respiratory and gastrointestinal systems, drug information and lower costs for patients and society.²⁹

In Peru, many pediatric dental drug prescriptions are made by non-specialist dentists, especially in non-ambulatory settings in peripheral urban and rural areas. Time, workload, and patient cooperation are reported as possible factors influencing this prescription.²⁹ The suboptimal knowledge about NSAIDs and ATBs corroborated in this study indicates the need for refresher courses to improve pharmacological knowledge regarding efficacy, dosage, safety, tolerability, and contraindications. Several organizations communicate updated clinical guidelines that should be the subject of study in higher education and audited by regulatory institutions.³⁰

A limitation of this study was that the sample did not include dentists from other regions, and most worked in the private sector, which could affect the representativeness of the results. It was also not possible to determine whether the general dentists regularly treated pediatric patients or to verify their knowledge in prescription practices, which could be more accurate to measure. It is recommended that future studies take these factors into account.

CONCLUSIONS

Within the limitations of this study, it was concluded that general dentists in Lima have insufficient knowledge on both the prescription of NSAIDs and ATBs in pediatric patients. The sex, age, and the work sector of the participants were not associated with the knowledge score obtained.

CONFLICT OF INTERESTS

The authors declare that they have no conflicts of interest.

ETHICS APPROVAL

Ethical approval was obtained from the Institutional Research Ethics Committee of the Universidad Científica del Sur (N°166-CIEI-CIENTÍFICA-2022).

FUNDING

Kilder Carranza-Samanez and Julissa Dulanto-Vargas were supported by Universidad Científica del Sur (RD N°058-DGIDI-CIENTÍFICA-2025). The institution had no influence on the outcomes of the research.

AUTHORS' CONTRIBUTIONS

Francisco Arias-Meneses: Conceptualization; methodology; data collection; formal analysis; writing-original draft.

Kilder Carranza-Samanez: Methodology; supervision; writing-original draft and writing-review and editing.

Julissa Dulanto-Vargas: Formal analysis; interpretation of statistical data, writing-original draft and review.

ACKNOWLEDGEMENTS


The authors express their gratitude to Jiuliana Alina Ocaña Reyes, DDS, Jeimy Marcela Li Albrizzio, DDS, and María Emely Rodríguez Rimachi, DDS. for the support in the revision of the questionnaire.

SUPPLEMENTARY MATERIAL


Survey used in this study (English and Spanish version) is available at <https://doi.org/10.6084/m9.figshare.29551118>

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PUBLISHER'S NOTE

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ISSN PRINT 0719-2460 - ISSN ONLINE 0719-2479

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