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UNC ADAMS SCHOOL OF DENTISTRY

Over-the-counter Medication Use in a Community-based Sample of Preschool-age Children

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ABSTRACT

Objectives: Over-the-counter medications (OTCM) can be beneficial when used as indicated, but they might be used inappropriately as a substitute for needed dental care. Here, we examine the prevalence, types and correlates of OTCM reported by a community-based sample of preschool-age children who were participants of an epidemiologic study of early childhood oral health.

Methods: We used questionnaire and examination information obtained from 8,059 preschool-age children (mean age=53 months) enrolled in Head Start centers in North Carolina and participating in the ZOE 2.0 study. In the questionnaire, parents were asked whether their child had received any OTCM within the last 30 days, and if so, to specify the medication(s). Responses were categorized into common medication groups. Children's dental caries status was determined by trained and calibrated examiners using International Caries Detection and Assessment System (ICDAS) criteria. Early childhood caries (ECC) was defined as ≥1 tooth surfaces with restored or untreated caries lesions defined at the threshold of ICDAS>2. Data were analyzed using descriptive statistics and bivariate (Chi-square) tests of association.

Results: Eighteen percent (n=1,470) of children used OTCM in the preceding 30 days, with 16% (n=1,304) using one or more of the five most frequent groups: analgesic (5%), cold and cough medication (5%), allergy medication (5%), anti-inflammatory (4%), vitamins/supplements (1%). Among those, most children had received one (79%) or two (18% medications). Non-Hispanic whites were twice as likely (26%) to report receipt of OTCM compared to their African American (13%) and Hispanic (12%) counterparts (P<0.0005). This difference was most pronounced for analgesics and anti-inflammatories. A majority of children had ECC (54%) and one third had untreated caries (36%), although neither condition was meaningfully associated with use of any OTCM groups.

Conclusion: While ECC was highly prevalent in this cohort, there was no evidence of recourse to OTCM to manage it.

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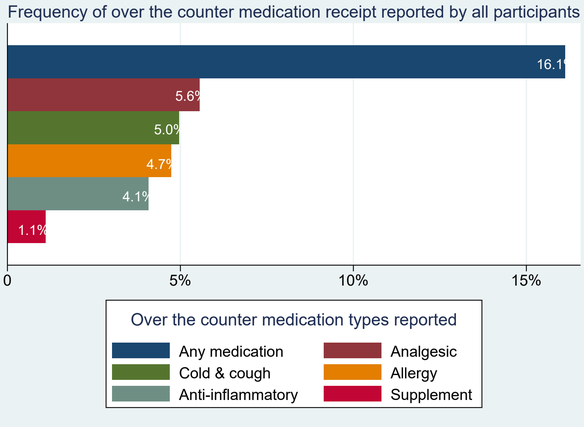
Introduction

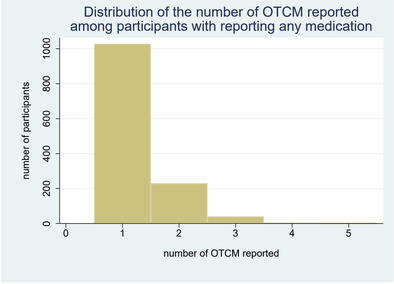
- **Over-the-counter medications** (OTCM) are easily accessible and effective, but they *may be used inappropriately as a substitute for necessary dental treatment*.
- Dental disease can cause **pain** which is often treated using OTCM. The risk of overdose is low, but can result in severe or fatal side effects.[1]
  - Between 2002-2012: >600,000 reported cases of out-of-hospital medication errors.[2]
- Here, we examine the prevalence, types and correlates of OTCM reported by a community-based sample of **preschool-age children**.
  - We specifically examined types of OTCM and well as use by **race/ethnicity**, and association with **early childhood caries** (ECC).

Materials & Methods

- **8,059 preschool-age children** (mean age=53 months) enrolled in Head Start centers across North Carolina participating in the ZOE 2.0 study[1]. 6,404 of those had **clinical examinations**.
- **ECC status** was defined using ICDAS criteria as ≥1 affected tooth surfaces at the threshold of ICDAS>2.
- Caregivers reported if the **child received any OTCM within 30 days before the examination**.
  - Medications were categorized into common groups: *analgesics*, *cold & cough*, *allergy*, *anti-inflammatory*, and *supplements*
- Data were analyzed using descriptive methods and bivariate (chi-square) tests of association using a P<0.05 statistical significance threshold.

Results





Reported OTCM use according to participants' race/ethnicity		
Race/Ethnicity	Participants (n)	OTCM users, n (%)
African American	3,817	514 (13.5)
Hispanic	1,611	195 (**12.1**)*
Non-Hispanic white	1,445	370 (**25.6**)**
More than one (non-Hispanic)	845	175 (20.7)
Other (non-Hispanic)	336	50 (14.9)

*P<0.05 after Bonferroni multiple testing correction indicating lower percentage compared to African Americans and non-Hispanic whites; **P<0.05 after Bonferroni correction, indicating higher percentage compared to all other groups except 'more than one race'

Association of OTCM with ECC & untreated caries prevalence		
OTCM receipt	ECC, n (%)	untreated disease, n (%)
None	2,820 (55)	1,860 (36)
Any medication	584 (51)*	408 (36)
Analgesic	192 (55)	135 (39)
Cold & cough	152 (48)*	114 (36)
Allergy	144 (50)	100 (35)
Anti-inflammatory	139 (56)	88 (35)
Supplement	32 (50)	19 (30)

*P<0.05; not statistically significant after Bonferroni correction for multiple testing

Conclusions

- Approximately 1 out of 6 children reportedly received an OTCM within the preceding 30 days
- Most frequent medications were analgesics, cold and cough and allergy medications
- While ECC was highly prevalent in this cohort, we found no evidence of recourse to OTCM to manage it

References

1. Bárzaga Arencibia Z, Choonara I. Balancing the risks and benefits of the use of over-the-counter pain medications in children. Drug Saf. 2012 Dec 1;35(12):1119-25.
2. Smith MD, Spiller HA, Casavant MJ, Chounthirath T, Brophy TJ, Xiang H. Out-of-hospital medication errors among young children in the United States, 2002-2012. Pediatrics. 2014 Nov;134(5):867-76.
3. Ginnis J, Ferreira Zandoná AG, Slade GD, Cantrell J, Antonio ME, Pahel BT, Meyer BD, Shrestha P, Simancas-Pallares MA, Joshi AR, Divaris K. Measurement of Early Childhood Oral Health for Research Purposes: Dental Caries Experience and Developmental Defects of the Enamel in the Primary Dentition. Methods Mol Biol. 2019;1922:511-523.