

12-2016

# Evaluation of over the counter medication knowledge and literacy in middle school and high school students

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### Publication Information

Kelly, Tessa; Conn, Kelly M.; Bosworth, Allison; and Zak, Matthew, "Evaluation of over the counter medication knowledge and literacy in middle school and high school students" (2016). *Doctoral External Publications*. Paper 18.

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# Evaluation of over the counter medication knowledge and literacy in middle school and high school students

## **Abstract**

Over the counter (OTC) medications are commonly utilized by the public, including adolescents, to self-treat many conditions. Unfortunately, these products can be dangerous if not used safely and appropriately. Adolescents between 13 and 19 years old composed 7.32 percent of the human exposure cases reported to U.S. poison control centers in 2014. Among these cases, there were 53 fatalities involving pharmaceuticals. This is an age range where medication use becomes more independent and the education they receive throughout the school curriculum is unknown. This study was designed to evaluate OTC medication knowledge and literacy among middle and high school students.

## **Disciplines**

Education | Pharmacy and Pharmaceutical Sciences

## **Comments**

Presented at the ASHP Midyear Clinical Meeting & Exhibition in Las Vegas, Nevada, in December 2016.

# Evaluation of over the counter medication knowledge and literacy in middle school and high school students

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## Introduction

Over the counter (OTC) medications are commonly utilized by the public, including adolescents, to self-treat many conditions. Unfortunately, these products can be dangerous if not used safely and appropriately. Adolescents between 13 and 19 years old composed 7.32 percent of the human exposure cases reported to U.S. poison control centers in 2014.<sup>1</sup> Among these cases, there were 53 fatalities involving pharmaceuticals.<sup>1</sup> This is an age range where medication use becomes more independent and the education they receive throughout the school curriculum is unknown.

## Objective

This study was designed to evaluate OTC medication knowledge and label literacy among middle school and high school students.

## Methods

A cross-sectional study assessing medication knowledge and label literacy.

Middle school (grades 7-8) and high school (grades 9-12) students in a local school district were presented with the option to complete the survey by their teacher during their physical education class (study approved by IRB and consent indicated by voluntary completion of survey).

The survey questions included:

- Demographic information: age, grade, gender, race, ethnicity, etc.
- Medication History: use for chronic illness, sources of information
- OTC Medication Knowledge: brand vs. generic (6 questions), indication (3 questions), side effects (4 questions) and combination use of OTC medications (2 questions)
- OTC Literacy: Interpretation (4 questions), included a reference sheet with two drug information labels

Knowledge section of survey completed and collected before distribution of reference sheet.

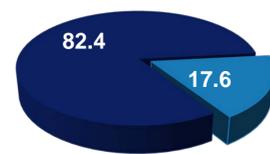
Data analyzed using simple descriptive statistics; chi-square and student t-test used for comparative statistics.

## Results

A total of 309 students completed the survey.

DEMOGRAPHICS		
Age (years): mean (SD, range)		14.04 (1.8, 11-18)
Grade: N (%)	Middle School	140 (46.2)
	High School	163 (53.8)
Gender: N (%)	Male	183 (61.4)
	Female	115 (38.6)
Race: N (%)	White	224 (81.2)
	Black	37 (13.4)
	Other	15 (5.4)
Ethnicity: N (%)	Hispanic or Latino	40 (15.7)
	Not Hispanic or Latino	214 (84.3)
Always talk to an adult before taking any medication	Strongly Agree / Agree	211 (68.5)
	Strongly Disagree / Disagree	97 (31.5)

Medication Knowledge



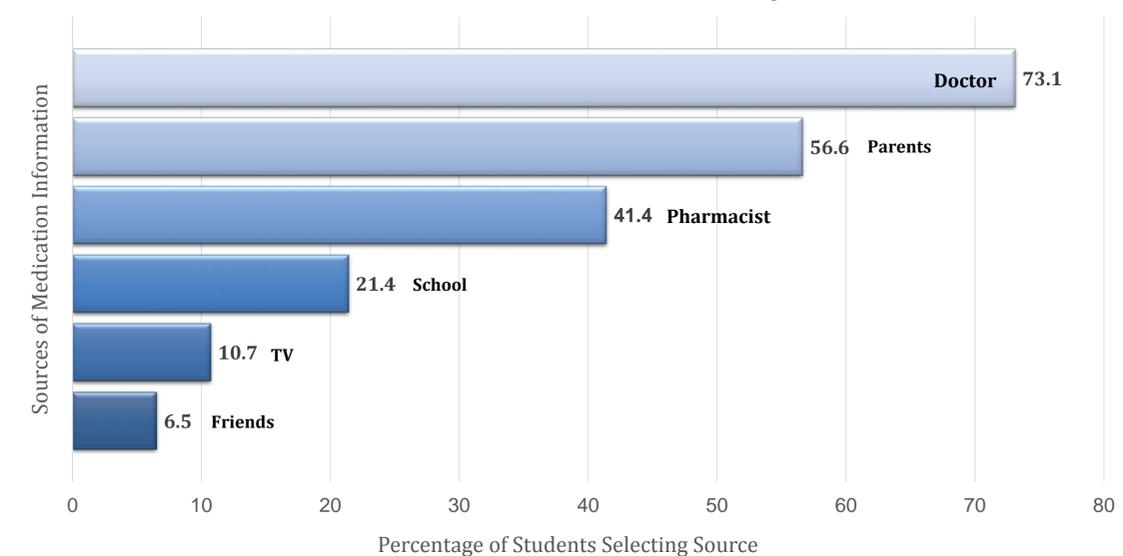
Interpretation Questions



■ Mean, Student % of Questions Correct  
 ■ Mean, Student % of Questions Incorrect

OTC KNOWLEDGE AND BEHAVIORS	Data Displayed as: n (%)	Answered Correctly	Middle School	High School	p-Value
<b>Brand vs. Generic Knowledge</b>					
Active drug name is same as brand name		122 (39.5)	37 (26.4)	83 (51.2)	<.001
Active drug in Advil™		102 (33.0)	35 (25.0)	65 (39.9)	.007
Brand name of ibuprofen		40 (12.9)	13 (9.3)	26 (16.0)	.09
<b>Medication Indications</b>					
What can ibuprofen help		222 (71.8)	82 (58.6)	136 (83.4)	<.001
<b>Side Effects of Medications</b>					
Side effect of ibuprofen		18 (5.8)	3 (2.1)	15 (9.2)	.01
Result of taking too much Tylenol™		40 (12.9)	11 (7.9)	28 (17.2)	.02
<b>Combining Medications / Multiple Doses</b>					
Safe to take naproxen and ibuprofen at same time		114 (36.9)	58 (41.4)	53 (32.5)	.12
Safe to take naproxen and diphenhydramine at same time		15 (4.9)	5 (3.6)	10 (6.1)	.43
<b>Reading Medication Label</b>					
Timing of next dose		183 (59.2)	73 (52.1)	107 (65.6)	.019
How many caplets in 24 hours		214 (69.3)	84 (60.0)	125 (76.7)	.002

Utilization of Sources of Information by Students



## Conclusions

Our study describes the knowledge and literacy levels regarding OTC medications in a large cross-section of middle school and high school students. Overall, students were better at the interpretation of drug labels compared to knowledge-based concepts. It is likely that this population needs additional education and counseling regarding safe and appropriate management of OTC medications. The information learned from this study is an important foundation for future educational programs aimed at proper use of OTC medications in middle school and high school students.

## Disclosures

All authors have nothing to disclose.

## References

1. Mowry JB, Spyker DA, Brooks DE, McMillan N, Schauben JL. 2014 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 32nd Annual Report. Clin Toxicol. 2015 Dec 1;53(10)962-1146.