

IMPACT OF A 30-SECOND CONSULTATION ON ACETAMINOPHEN KNOWLEDGE AMONGST MIDDLE EASTERNERS

Eric J. Ip, Pharm.D., APh, BCPS, CSCS, CDE, FCSHP; Vista Khosraviani, Pharm.D, APh; Sam Pourneshad, BS; Nour Itani, BS; Armon Khosraviani, BS; Shadi Doroudgar, Pharm.D, APh, BCPS, BCGP, BCPP
Touro University California College of Pharmacy, Vallejo, CA 94592

Introduction

- Acetaminophen (APAP), known by the tradename Tylenol®, is one of the most commonly used over-the-counter (OTC) medications
- When used appropriately, it can safely and effectively treat pain and fever
- Taking more than the Federal Drug Administration (FDA) recommended dose of 4,000 mg/day in healthy adults can cause liver damage, including acute liver failure and even death
- Many consumers still seem to lack the appropriate knowledge to safely use APAP
- The general English-speaking population lacks basic APAP knowledge, but a limitation of these studies was an exclusion of non-English speakers
- APAP-containing products are among the most commonly used medications amongst Middle Easterners (ME), especially in the Iranian population

Purpose

- This study assesses baseline acetaminophen knowledge among Arabic- and Farsi-speaking ME and the impact of a 30-second consultation

Methods

Design

- A 14-item in-person paper-pen questionnaire was administered to 125 Arabic and 125 Farsi-speaking ME assessing general demographics and knowledge regarding APAP (**Survey #1**)
- Participants' health literacy were evaluated using the Rapid Estimate of Adult Literacy in Medicine- Revised (REALM-R)
- A 30-second educational consult was administered to each participant regarding the three key acetaminophen facts (Tylenol® is the brand name for acetaminophen, 4,000 mg/day is the maximum daily dose for a healthy adult, and the liver is the primary organ of toxicity with excessive use)
- A 4-item in-person, paper-pen APAP questionnaire was immediately administered after a brief 30-second educational consult (**Survey #2**)
- Participants were re-surveyed with the same 4-item questionnaire via telecommunication 4-6 weeks after the education consult (**Survey #3**)

Inclusion Criteria

- Farsi, Arabic, and English-speaking ME individuals ≥ 18 years old
- Present at religious centers, markets, and community centers in Northern California were recruited to participate in the study

Exclusion Criteria

- Non-ME individuals who do not speak Farsi, Arabic, or English
- Individuals <18 years old
- Individuals who started the survey, but did not complete it
- Individuals whose country of origin or race/ethnicity was not from the Middle East

Demographics

- There were 250 surveys attempted. All surveys were deemed valid and analyzed.

Gender (N=250)	Frequency	Educational Level (N=250)	Frequency	Ethnicity (N=250)	Frequency
Female	123 (49.2%)	No high school diploma or GED	8 (3.2%)	Palestinian	47(18.9%)
Male	127 (50.8)	High school diploma or GED or above	242(96.8%)	Syrian	11(4.4%)
				Lebanese	32 (12.9%)
				Jordanian	7 (2.8%)
				Iranian	123(49.4%)
				Other	29(11.7%)
Age (N=250)	Frequency (years ± SD)	Health Literacy/ REALM-R Score (N=250)	Frequency	Language (N=250)	Frequency
Mean	43.9% ± 18.4	Poor (0-6)	7 (2.8%)	Farsi only	27 (10.8%)
		Good (7-11)	243(97.2%)	Arabic only	4 (1.6%)
				English only	6 (2.4%)
				Bilingual	213(85.2%)

Acetaminophen Knowledge Correctly Answered

Key Acetaminophen Question #1: Tylenol® contains acetaminophen

Survey 1 (N=250)	Survey 2 (N=250)	Survey 3 (N=125)
107 (42.8%)	245 (98.0%)*	115 (92.0%)*

Key Acetaminophen Question #2: Maximum daily dose of acetaminophen (4g)

Survey 1 (N=250)	Survey 2 (N=250)	Survey 3 (N=125)
19 (7.6%)	219 (87.6%)*	74 (59.2%)*^

Key Acetaminophen Question #3: Primary organ of toxicity (Liver)

Survey 1 (N=250)	Survey 2 (N=250)	Survey 3 (N=125)
104 (41.6%)	237 (94.8%)*	101 (80.8%)*^

Note: Single asterisks (*) indicates a statistically significant difference at p<0.001, in comparison to Survey #1. Single carrot (^) indicates a statistically significant difference at p<0.003, in comparison to Survey #2.

Results

Arabic-speakers, Farsi-speakers, and total surveyed population able to correctly answer all 3 APAP questions

Participants	Survey 1	Survey 2	Survey 3
Arabic-speaking Middle Easterners (Survey#1/2: N=125, Survey #3: N= 33)	5 (4.0%)	116 (92.8%)	32 (97.0%)
Farsi-speaking Middle Easterners (Survey#1/2: N=125, Survey #3: N=92)	5 (4.0%)	99 (79.2%)	35 (38.0%)
Total surveyed population (Survey#1/2: N=250, Survey #3: N=125)	10 (4.0%)	215 (86.0%)	67 (53.6%)

A cohort of 250 participants completed Surveys #1 and #2, and only 4% were able to correctly answer all three key APAP knowledge questions at baseline. Immediately following a 30-second consultation, **86%** (p<0.0001) of participants correctly answered the three questions. Four to six weeks later, **125 participants** (from the original 250 participants; response rate 50%) completed Survey #3 and **53.6%** (p<0.0001; 3rd survey vs. 1st survey) answered all three APAP knowledge questions correctly.

Discussion/Conclusion

- The majority of Middle Easterners lacked basic key acetaminophen knowledge
- A 30-second consultation improved both short-and long-term knowledge, with a decrease seen in longer-term retention
- High levels of health literacy among the surveyed Middle Easterners could be a contributing factor of improvements in APAP knowledge retention
- This study is limited to the San Francisco Bay Area and may not be generalizable to all ME populations
- Due to the ongoing COVID-19 pandemic the number of participants for Survey #3 was significantly reduced and telecommunication had to be used to conduct surveys (N=125 v. N=250)
- Future studies should investigate different educational interventions and their abilities to improve long-term knowledge retention

References

- Ip, Eric J., et al. "Impact of Educational Levels and Health Literacy on Community Acetaminophen Knowledge." Journal of Pharmacy Practice, vol.28, no.6, Dec. 2015, pp. 449- 503. doi: 10.1177/0897190014544819.
- Ip, Eric J., et al. "Lack of Basic Acetaminophen-Knowledge among Spanish-Speaking Hispanics." (unpublished data).
- Center for Drug Evaluation, and Research. "Acetaminophen Information." U.S. Food and Drug Administration, 2Sept.2019, <http://www.fda.gov/drugs/information-drug-class/acetaminophen-information>.

Title: IMPACT OF A 30-SECOND CONSULTATION ON ACETAMINOPHEN KNOWLEDGE AMONGST MIDDLE EASTERNERS

Authors: Eric J. Ip, Pharm.D., APh, BCPS, CSCS, CDE, FCSHP; Vista Khosraviani, Pharm.D, APh; Sam Pourneshad, BS; Nour Itani BS; Armon Khosraviani BS; Shadi Doroudgar, Pharm.D., APh, BCPS, BCGP, BCPP

Introduction

Acetaminophen (APAP) is commonly used worldwide to treat pain and fever and is well-tolerated at the maximum daily dose (MDD) of 4000 mg/day in a healthy adult. However, higher doses are associated with hepatotoxicity, liver failure, and death. Currently, no study has assessed baseline acetaminophen knowledge among Middle Easterners (ME), in particular, the Arabic- and Farsi- speaking populations.

Study Objectives

To assess baseline APAP knowledge among ME, and the impact of a 30-second consultation.

Primary Outcomes

Percentage of ME able to answer three key APAP questions.

Secondary Outcomes

To assess APAP knowledge retention immediately after and 4-6 weeks after a 30-second consultation.

Methodology

Surveys were conducted at various supermarkets, religious and community centers in the San Francisco Bay. The 14-item survey available in English, Farsi, and Arabic was administered to Arabic and Farsi-speaking ME (Survey 1). After receiving a 30-second consultation of the three key APAP facts: brand name, adult MDD, and main organ of toxicity, participants were immediately resurveyed (Survey 2). After 4-6 weeks, APAP knowledge was reassessed (Survey 3).

Results

A cohort of 250 participants completed Surveys #1 and #2. Only 4% were able to answer all three key APAP knowledge questions at baseline. Immediately following a 30-second consultation, 86% ($p < 0.0001$) of participants correctly answered the three questions. Four to six weeks later, 125 participants (from the original 250 participants; response rate 50%) completed Survey #3 and 26.8% ($p < 0.0001$; 3rd survey vs. 1st survey) answered all three APAP knowledge questions correctly.

Conclusion:

The majority of Middle Easterners lacked key acetaminophen knowledge at baseline. However, a 30-second consultation on three key APAP facts: brand name, adult MDD, and main organ of toxicity improved both short- and long-term APAP knowledge. Further studies are needed to determine the most optimal and cost-effective method to provide such education.