



# What Water Works for SWOSU?

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### Introduction

Bottled water has become a staple of our fast paced lives. Between 2000 to 2008, the sales of bottled water in the United States doubled from \$6.1 to \$12.6 billion ("Bottled Water," 2008). One of the major reasons that bottled water drinkers give for their preference is convenience. Alternatively, critics assert that bottled water hurts the environment, is overpriced, and is no safer than tap water. This raises the question: does taste or other less physiological factors such as cost and availability affect what water people choose to drink? A study conducted at University of Applied Sciences Hamburg sampled females on whether type of water affected sensitivity to taste (Hoehl, Schoenburger, & Busch-Stockfisch, 2010). Researchers found most subjects tasted a sourness when sampling water containing minerals. Nordin, Razani, Markison, & Murphy (2003) reported older subjects to have a poorer ability to discriminate between taste intensities. These researchers also observed some gender differences. Therefore, the objective of our study was to determine whether taste, age, gender, cost and/or availability have an effect on what water that people at Southwestern Oklahoma State University (SWOSU) actually prefer.

### Aim of Study

The following objectives were tested in this study:

1. To compare the water preferences of SWOSU students versus faculty and staff to determine whether age is a factor.
2. To determine whether gender affects preferences of drinking water.
3. To determine whether cost or availability affects water preferences.
4. To determine if the water source preferred by subjects in the experiment was the same as reported in the survey.

### Material and Methods

This project was done to meet the course requirements of ALHLT 3043 Health Statistics in Spring 2010.

The following steps were followed:

- Received approval from the SWOSU Protection of Humans Subjects Committee.
- Conducted experiment and questionnaire using convenience sampling of 28 student volunteers from the SWOSU University Grill and 24 faculty and staff volunteers from the Old Science and Chemistry buildings on April 20, 2010.
- Subjects completed a blind taste test of six water sources (Evian, Fiji, Aquafina, Dasani, Ozarka, and tap water) followed by a questionnaire.
- Data were input and organized using Microsoft Excel.®
- Data Analysis was conducted via Friedman Ranking and Chi Square analysis using PASW® Statistics 17.0 software.

### Results

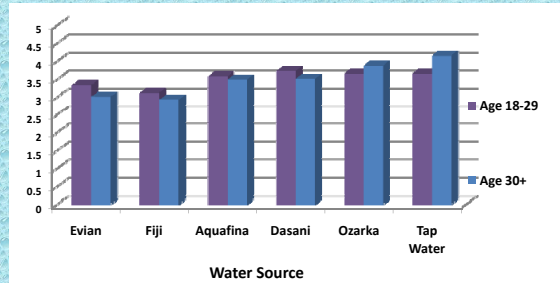


Figure 1. TASTE TEST RESULTS: Average rankings of water source preferences as related to age, where 1 = most preferred and 6 = least preferred.

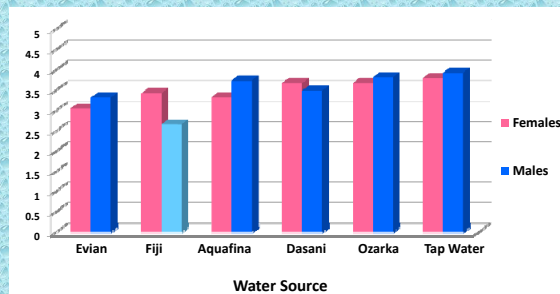


Figure 2. TASTE TEST RESULTS: Average rankings of water source preferences as related to gender, where 1 = most preferred and 6 = least preferred.

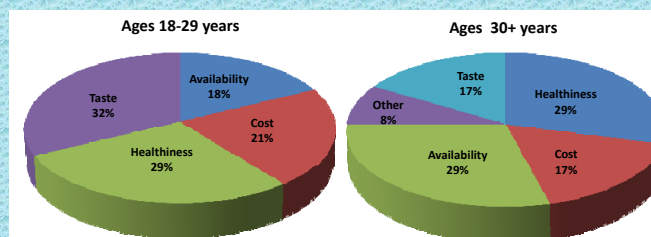


Figure 3. QUESTIONNAIRE RESULTS: Stated reasons for water source preferences as related to age of SWOSU students, faculty and staff.

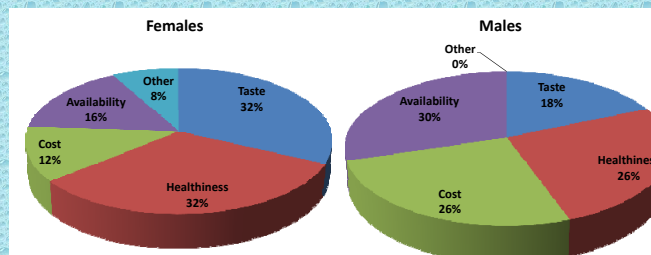


Figure 4. QUESTIONNAIRE RESULTS: Stated reasons for water source preferences as related to gender of SWOSU students, faculty and staff.

### Conclusions

- Taste test results suggest no difference ( $P > 0.05$ ) in water source preference as related to age (Figure 1).
- Taste test results suggest no difference ( $P > 0.05$ ) in water source preference as related to gender (Figure 2). Numerically, females preferred Evian, and males tended ( $P = 0.12$ ) to prefer Fiji more than females.
- Questionnaire results suggest younger subjects base their decisions for water preferences on taste and healthiness, whereas older subjects consider availability and healthiness to be most important (Figure 3).
- Questionnaire results also suggest a gender difference in making decisions for water preferences (Figure 4). Females were most concerned with taste and healthiness, whereas males considered taste to be the least important reason.
- Of the 27 subjects who stated a preference for bottled water type, 74% did not choose the same water source in the taste test as to what they reported to prefer in the questionnaire. Instead, 17 subjects said they preferred Ozarka and Aquafina on the questionnaire, whereas the more costly bottled water brands were most preferred (Fiji and Evian) in the taste test.
- Twelve of the 52 subjects stated they usually drink unpurified tap water, but this water source was found to be the least preferred in the taste test.
- The taste test could have been improved by defining the descriptors we asked subjects to use to describe the water sources they tasted (Salty, Sour, Bitter, Sweet, Umami). Due to subject confusion, this data was not analyzed.
- Results suggest subjects may be able to taste a difference among water sources. However, other non-physiological factors ultimately influence the buying habits and perceived preferences of SWOSU students, faculty and staff.

### Literature Cited

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Hoehl, K. Schoenberger, G., & Busch-Stockfisch, M. (2010). Water quality and taste sensitivity for basic tastes and metallic sensation. *Food Quality & Preference*, 21(2), 243-249. Retrieved January 27, 2010, from <doi:10.1016/j.foodqual.2009.06.007>.

Nordin, S., Razani, L., Markison, S., & Murphy, C. (2003). Age-Associated increases in intensity discrimination for taste. *Experimental Aging Research*, 29(3), 371. Retrieved January 27, 2010, from Health Source: Nursing/Academic Edition database.



SWOSU faculty members participate in the taste test of water sources.