



The Impact of Longitudinal Outreach Activities on Physician Assistant Students' Knowledge, Skills, and Attitudes of Oral Health

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Introduction

Dental caries, the most common chronic infectious disease in childhood, disproportionately affects minority and underserved populations. Almost 1/3 of children in low socioeconomic groups have dental caries, highlighting the unequal access to health and dental services. Poor oral hygiene affects adults; decreasing self-esteem and worsening underlying chronic disease conditions. Dental pain or missing teeth can decrease chewing ability, lead to poor nutrition, and serve as a barrier to employment, increasing the risk of homelessness. The NAU PA Program integrated an oral health curriculum with experiential learning throughout the didactic year for the Class of 2017 with pre- and post-test surveys focused on oral health and inter-professional education (IPE). Oral health education and care was also provided to at-risk homeless adults at a free clinic and to five Title I elementary schools. The purpose of this project was to assess whether curriculum only versus curriculum with a hands on component improved PA student knowledge, attitudes and skills in the area of oral health. A secondary purpose examined whether provision of curriculum and experiential care in an inter-professional team improved attitudes towards IPE.

Methods

The project consisted of longitudinal oral health care education and intervention within Maricopa County. The educational arm integrated oral health didactic year education utilizing the Smiles for Life modules and hands-on skills from dentists and dental hygienists. The PA students were taught fluoride varnish application, practicing on each other in the classroom. The students learned how to utilize an oral health craft education box before going out to five Title I elementary schools. Students also had opportunity to provide oral health education and fluoride varnish application at both a health fair with low income families as well as the homeless of Central Phoenix. Program effectiveness was determined by pre- and post-test surveys utilizing a validated survey in four sections to measure core oral health knowledge, attitudes regarding IPE, attitudes towards working with dentistry, and diagnostic and therapeutic skills such as fluoride varnish application. Section 1: 19 questions – covering oral health knowledge Section 2: 21 questions – validated IEPS survey Section 3: 12 declarative statements about what PAs or Dentists should do in a patient encounter Section 4: 8 declarative statements about what the PA feels they would be able to recognize or perform All questions were formulated using a 6-point Likert scale. The pre-test was provided at the PA Program orientation. The post-evaluation survey was conducted at the end of the Spring semester.



Hypotheses

1. Integrating oral health curriculum will increase the student's core knowledge of the first 6 of the 8 oral health competencies.
2. Utilizing IPE outreach experiences in the area of oral health will improve the student's Interdisciplinary Education Perception Scale (IEPS).
3. Integrating oral health curriculum will increase the student's knowledge of how to utilize dentists and dental hygienists in the healthcare of the patient and when to refer.
4. Utilizing IPE outreach experiences in the area of oral health will improve the student's skills in examination, diagnosis and care of the patient.

Conclusion

Integrating oral health curriculum throughout the didactic year and requiring hands-on application and outreach activities improved the student's core knowledge and skills in the area of oral health. While the majority of the in-class curriculum and outreach activities were IPE in nature, this area showed the weakest improvement. The PA Program has a strong integration of IPE throughout the curriculum which could be a potential confounding variable. One limitation is approximately 25% of the 2017 students chose not to complete the post-test survey which could have skewed the results.

Results

Paired samples 2-tailed T-test

- Comparing the Class of 2017 Pre-test to the Post-test by each student
t=6.452, df=36, p=.000
- Comparing the Class of 2017 Pre-test to the Post-test by each question
t=6.439, df=59, p=.000
- Comparing the Class of 2016 post-test with the Class of 2017 post-test by each question
t=3.418, df=59, p=.001

Section 1:

- Putting infants to sleep with a bottle of milk can cause tooth decay. (+1.24)
- There is an increased risk of tooth decay in patients on medications that dry your mouth. (+1.08)
- Infants usually acquire bacteria from their mothers that cause caries (+1)
- The most common chronic disease of childhood is caries. (+0.97)
- Gum disease is associated with cardiovascular disease. (+0.84)
- Fluoride decreases risk of tooth decay in adults (+0.76)

Section 2:

- Individuals in my profession make every effort to understand the capabilities and contributions of other professions. (+0.41)
- Individuals in my profession are willing to share information and resources with other professionals. (+0.41)
- Individuals in my profession have good relations with people in other professions. (+0.32)



Class of 2017 Pre to Post-Test Average Improvement:

- Section 1: Increase of .52 points** *p<0.05, **p<0.01
- Section 2: Increase of .10 points*
- Section 3: Increase of .54 points**
- Section 4: Increase of 1.36 points**

Class of 2016 compared to Class of 2017 Average Improvement:

- Section 1: Increase of .25 points*
- Section 2: Increase of .07 points
- Section 3: Increase of .1 points
- Section 4: Increase of .22 points**

Section 3:

- PAs should assess patients' intake of fluoride. (+1.08)
- Dentists should assess their patients' vital signs. (+0.86)
- Dentists should screen for substance abuse problems. (+0.78)
- PAs should examine the mouth and teeth of their patients for oral disease. (+0.62)
- As a PA it is important that I work with dentists in caring for my patients. (+0.59)

Section 4:

- I would be able to apply fluoride varnish. (+2.41)
- I would be able to perform an appropriate oral health exam. (+1.78)
- I would be able to recognize oral cancer in a patient. (+1.62)
- I would be able to recognize gum disease in a patient. (+1.27)
- I would be able to recognize signs and symptoms of cardiovascular disease. (+1.08)
- I would be able to recognize a patient at risk for diabetes. (+1.05)

References

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