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# Breaking Barriers for Diverse Students

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**Abstract**

This paper examines the barriers faced by underrepresented minority students (URM) in applying to dental hygiene programs. Underrepresented minorities make up approximately one fourth of the US population, a number which is not mirrored in the field of dental hygiene. Primary barriers faced by students when applying to dental hygiene programs were reported to be financial barriers and lack of confidence in filling out applications. The program was focused on identifying and eliminating the barriers faced by these students, in order to increase the diversity in the future workforce of dental hygiene.

**Degree Type**

Capstone Project

**Degree Name**

Bachelor of Science

**First Advisor**

Amy E. Coplen, RDH, MS

**Subject Categories**

Dental Hygiene

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# **Breaking Barriers for Diverse Students**

**Capstone Project  
Ally Bush & Stephanie Hutchinson  
Class of 2016**

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**ABSTRACT:**

This paper examines the barriers faced by underrepresented minority students (URM) in applying to dental hygiene programs. Underrepresented minorities make up approximately one fourth of the US population, a number which is not mirrored in the field of dental hygiene. Primary barriers faced by students when applying to dental hygiene programs were reported to be financial barriers and lack of confidence in filling out applications. The program was focused on identifying and eliminating the barriers faced by these students, in order to increase the diversity in the future workforce of dental hygiene.

**INTRODUCTION:**

African Americans, Hispanic/Latinos, American Indians/Native Americans, collaboratively make up about one fourth of the population in the US, and by 2050 these minority populations are projected to comprise almost half of the US population, but these minorities only make up 5% of the dental workforce (6). Dental hygiene exhibits the least diversity out of all allied health programs with 80% of the graduates being white, with 98% being female and 2% being male. Underrepresented minorities (URM), defined as African Americans, Hispanics, Native Americans or bicultural groups, are underrepresented in the dental hygiene profession. Findings from the literature provide strong evidence that “whether it be dentists, nurses, pharmacists or physicians, African Americans, Latinos and American Indians/Alaskan Natives are markedly underrepresented relative to their shares in the overall US population” (2).

The biggest impediment to greater diversity in the health professions is the failure of primary education in the United States particularly in meeting the educational needs of minority and low-income students in kindergarten through grade twelve (2). There is strong reason to believe that developing sustained and ongoing partnerships with primary schools and health profession schools produces better academic achievement. Providing role models and mentors, particularly for high school students, can increase their interest and preparedness to enter a career in the dental field. The results of past studies offer some evidence that URM students admitted to professional health programs are as likely as non-minority students to graduate, pass their

licensing boards and enter practice, despite minority students having lower test scores and college grade-point averages (2). Although their grade point averages tend to be lower, clinical performance is equivalent to their non-minority counterparts. If URM had equal opportunities or a mentor, it is likely that the composition of health profession classes would improve and more closely represent the general population.

A diverse healthcare workforce is important for advancing cultural competency, increasing access to high quality health care services, strengthening the medical research agenda and ensuring optimal management of the healthcare system (1). In a survey, 60% of people responded it is important to have health professionals who reflect the racial and ethnic diversity of the patients that they are serving. Lack of diversity among health care providers contributes to health disparities and problems with access to health care for patients from disadvantaged groups. Minority health professionals historically have provided more health care and research for the poor and uninsured and for patients in their own racial and ethnic groups than non-minority providers. Also, URM physicians are more likely than white physicians are to practice in underserved communities and to treat larger number of minority patients. Diversity will help broaden and strengthen the US health research agenda as well as increase the pool of minority health professionals in policy-making positions. Based on the literature, it is evident that the percentage of minority populations in the field of dental hygiene does not mirror the general population in the United States. African American, Hispanic, Native American and bicultural groups are vastly underrepresented. Evidence suggests that

there is a positive relationship with mentoring programs between students and health professionals. This diversity is important in order to strengthen cultural competency, increase access to health care, and ensure the bettering of health in minority populations. Based on these findings it was necessary to identify the barriers students face in applying to dental professional programs. A survey was created and administered to high school students 18 years of age, and current dental hygiene students to identify the barriers they are facing or have faced/overcome in applying to a health profession school and more specifically dental hygiene school.

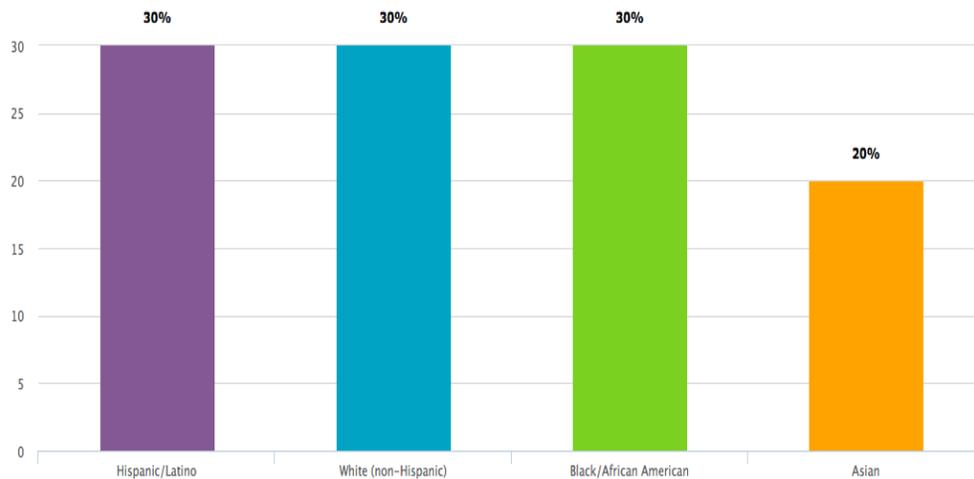
**MATERIALS & METHODS:**

A cross-sectional survey of high school students 18 years or older, as well as current dental hygiene students was conducted in February 2016. The online survey was developed by the authors and distributed to program directors of Pacific University dental hygiene studies, Portland Community College dental hygiene program, and Benson Polytechnic High School. The Pacific University institutional review board reviewed the survey instrument and protocol,

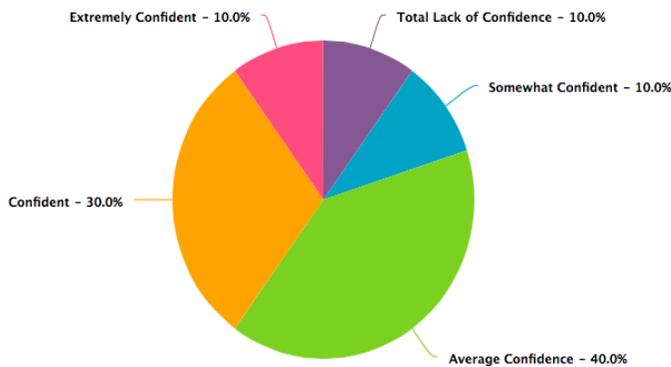
and the study was approved as exempt. The link to the online survey was distributed through e-mail to program directors, and subsequently distributed to students. The high school students received a different survey than the hygiene students. The survey for high school students was 17 questions long, consisting of multiple choice, yes/no, select all that apply, Likert scale, and free form answer questions. The survey for hygiene students was 12 questions long, consisting of multiple choice, yes/no, select all that apply, and free form answer questions. The surveys assessed the following areas: demographics, perceived support in applying to college, and barriers faced when applying to college. The survey was distributed by e-mail to program directors along with a cover letter explaining the purpose of the study and consent was implied by answering “yes” to the consent questions and moving forward with the online survey. To maintain anonymity the surveys were completely anonymous and cannot be linked back to the surveyee in any way. Data and reports were provided by the survey software, and checked by the principal investigators.

**RESULTS:**

10 high school students from Benson Polytechnic High School were over the age of 18, and received the survey, 100% (n=10) of the surveys were returned. The students surveyed represented various



**(Figure 1)** Demographics of high school students at Benson Polytechnic High School

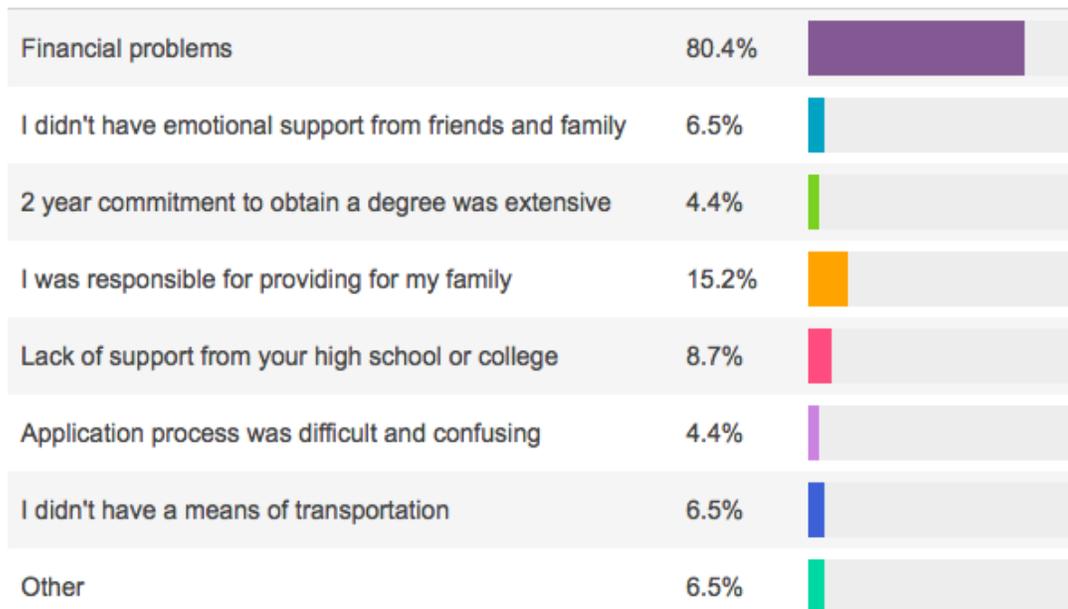


**(Figure 2)** Distribution of confidence levels of high school students when applying for financial aid

ethnicities; these results are shown in figure 1. One respondent was male, 9 were female. 50% of the respondents were interested in dental hygiene as a career, while 30% were interested in dental assisting. 90% of the respondents reported having emotional support from family while only 50% reported having financial support from family. 30% of the respondents would be the first members of their family to attend college. Half the respondents reported not having enough money for college as a barrier to applying. Students

were asked to rate their confidence level in applying for financial aid, figure 2 represents the surveyed students results. As seen in figure 2, only one student surveyed reported having extreme confidence in applying for financial aid.

104 current dental hygiene students from PCC and Pacific University received the survey, 59 students responded (n=59) for a response rate of 56%. The majority (71%) of the respondents reported being “white/non-hispanic”. 91.2% of the respondents were female. Only 59% of the respondents reported having financial support from their family, and 84.2% of the students requested financial aid at the time of application. Figure 3 demonstrates the barriers faced by current dental hygiene students when applying to dental hygiene school, with the majority of the respondents reporting “financial problems”. No respondents felt that their ethnicity played a negative role when applying to the dental hygiene program. 96% of the respondents reported believing that a diverse workplace is important.



**(Figure 3)** Prevalence of barriers faced by current dental hygiene students when applying to dental hygiene school

**DISCUSSION:**

Overall, the findings from the two surveys matched the background research with little to no discrepancies. As figure 1 demonstrates, Benson Polytechnic High School has a diverse student body, making it an ideal population for this program. The lack of diversity in current dental hygiene programs mirrored the current dental hygiene workforce, with the majority (71%) of students being white/non-Hispanic.

It was clear through the results of the survey that both current hygiene students and high school students were concerned about finances when applying to dental hygiene programs. With finances being an issue, it was concerning to the researcher that the high school students surveyed did not report more confidence in applying for financial aid for future studies. Based on the primary and secondary research, the number one need of this population was education about financial options when applying to college and more specifically dental hygiene programs. The second most pertinent need of this population understood the process and requirements of applying to different dental hygiene programs, and what is required of students prior to the application process. In the future, the researchers hope to survey additional high schools with similar demographics to Benson Polytechnic High School to develop a better understanding of barriers faced by these groups of students. It was beneficial to survey a diverse high school population in order to identify what barriers these students were facing. The objective of this program was to identify and overcome one or more major barriers these students faced. By overcoming these barriers, more diverse students can enter the

workforce, creating a better-balanced, more diverse healthcare system.

**DESCRIPTION AND IMPLEMENTATION OF PROGRAM:**

**WHO:**

High school students in the dental assisting program at Benson Polytechnic High School

**WHAT:**

Informative powerpoint presentation about prerequisite courses, application processes, and financial options and resources in relation to hygiene programs in the state of Oregon

**WHEN:**

The program was implemented on March 16, 2016, from 8:15-9:15am with instructor JaNae Jamison.

**MISSION STATEMENT:  
We aim to inspire and enable diverse high school students in their ability to apply to dental hygiene programs and have confidence in navigating financial options in the path toward future education.**

**HOW:**

Students Ally Bush and Stephanie Hutchinson traveled to Benson Polytechnic High School and gave a powerpoint presentation to the students during class time with instructor JaNae Jamison. Capstone faculty advisor Amy Coplen accompanied the students to give their presentation.

**TIME:** 1 hour

**SUSTAINABILITY:**

This program is highly sustainable in nature due to being a powerpoint presentation. This program presentation was given to JaNae Jamison in hopes that it will be presented each year for new dental assisting students.

**GOALS:**

- > Understand the application process
- > Navigate prerequisite courses
- > Understand resources available
- > Understand financial options

**OBJECTIVES:**

- Participants will be given the tools to compare each hygiene program's prerequisites and identify which courses can be used
- Participants should be able to identify courses needed in college in order to apply for the hygiene program of their choice
- Participants should be able to describe the 2+2 program at Pacific University and find information online about the program requirements

- Participants should feel comfortable seeking out open houses, advising appointments, and shadowing options at each hygiene program they are interested in
- Participants should be able to define tuition, and discuss what tuition includes at each hygiene program they are interested in
- Participants should be able to recognize the difference between financial options such as private loans, federal loans, scholarships, and grants

**INTERVENTIONS:** This intervention will be an educational presentation increasing the audience knowledge about financial options for dental hygiene schools and the application process involved with said schools.

**ACTIVITIES:**



TIMELINE:

Week	Identify a Topic	Formulate Purpose/Hypothesis	Literature search/write review	Prepare research proposal	Identify/develop instruments	Administer instruments	Analyze Data	Plan Program	Implement Program	Write Research Report/Review and Revise	Present findings
1	xxx										
2											
3											
4		xxx									
5											
6			xxx								
7											
8											
9											
10											
11											
12				xxx	xxx						
13											
14											
15											
January						xxx					
February						xxx	xxx	xxx			
March							xxx	xxx	xxx	xxx	
April										xxx	
May											xxx

BUDGET: The researchers were given a budget of \$100.00. After all expenses the researchers came in under budget with \$70.00 remaining. All expenses are listed below in expense chart.

Research budget	\$100.00
Gas for transportation to Benson High School	-\$10.00
Pre & post test	-\$5.00
Raffle prizes	-\$15.00
Printing & binding presentation	-\$0.00 TBD
<b>BUDGET REMAINING</b>	<b>\$70.00</b>

## EVALUATIONS:

The researchers utilized a pre-program and post-program test to evaluate the knowledge gained by the students. The following questions were given to the students before and after the educational presentation. Figure 4 represents the numerical value of how many students answered that question correctly, and compares it to the number of students who answered the questions correctly after the program presentation. Question number six on the posttest asked the students to evaluate the helpfulness of the program; Figure 5 represents the student's assessment of the information presented to them.

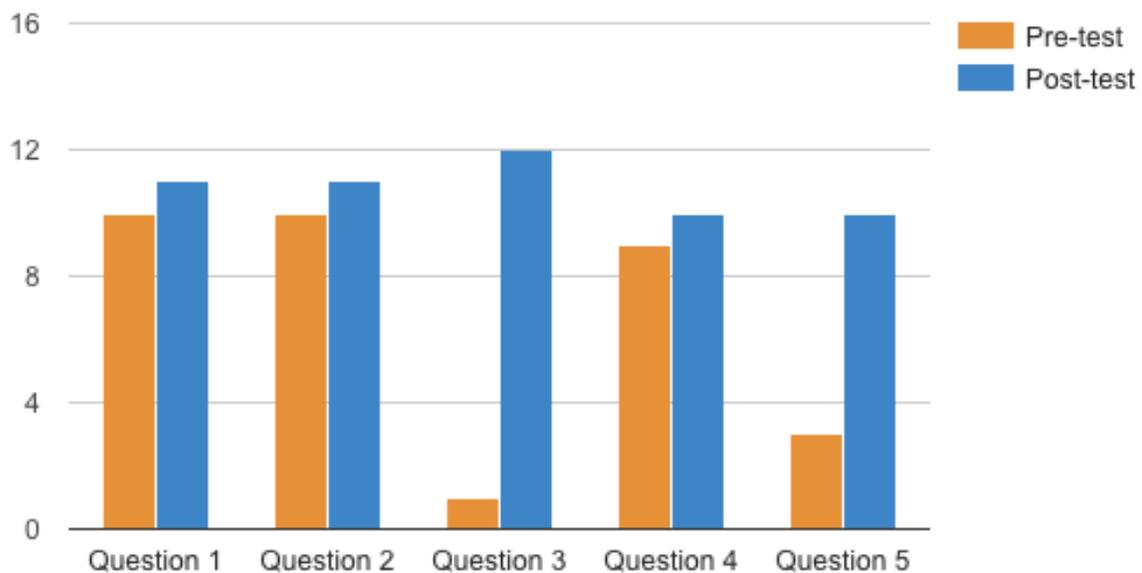
### PRE-TEST

1. What is a prerequisite course?
2. What is the difference between a Bachelor's and an Associate's degree?
3. How many dental hygiene programs are in Oregon?
4. What is FAFSA?
5. What is a private loan?

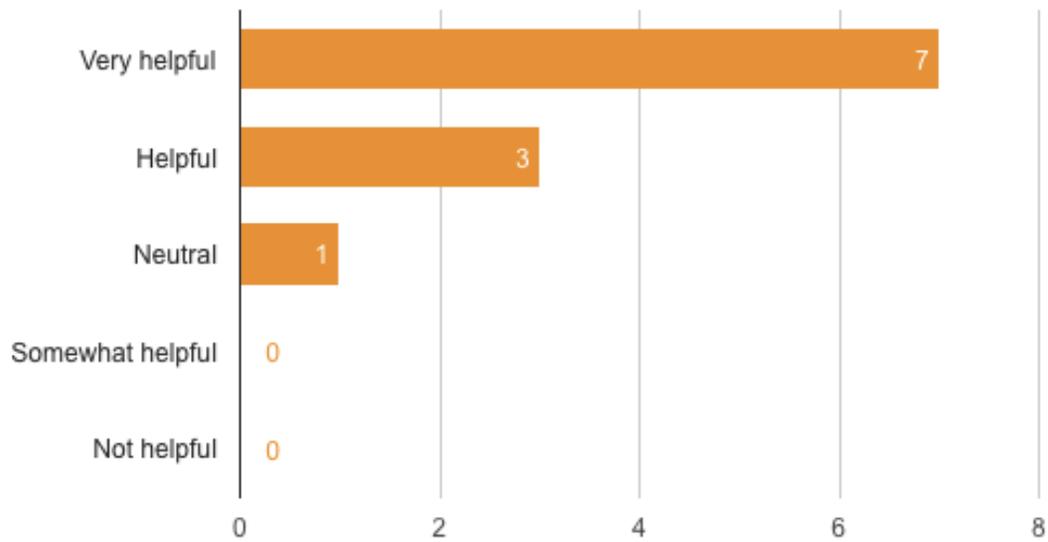
### POST-TEST

1. What is a prerequisite course? List one prerequisite course you would need for a dental hygiene program.
2. What is the difference between a Bachelor's and an Associate's degree? Which type of program is Pacific University?
3. How many dental hygiene programs are in Oregon?
4. What is FAFSA? What is the difference between a FAFSA loan and a FAFSA grant?
5. What is a private loan?
6. How helpful has this information been?

Very helpful   Helpful   Neutral   Somewhat helpful   Not helpful



**(Figure 4)** Comparison of the number of students who answered correctly before and after the program presentation



**(Figure 5)** Student's assessment of the helpfulness of the program presentation

**FINAL REPORTS:**

IMPACT	ROADBLOCKS	SUGGESTIONS FOR IMPROVEMENT
<p>A total of 12 students were present for the program implementation.</p> <p>An overall increase in knowledge of financial aid and application processes was observed through pre and post-testing.</p> <p>Sustainable program</p> <p>Provided take home information for students</p>	<p>Scheduling difficulties were encountered when attempting to secure a date for the presentation.</p> <p>Working around the Portland Public Schools (PPS) academic calendar.</p> <p>Keeping in touch with community partners was difficult.</p> <p>IRB approval delayed</p>	<p>Survey more high school students for primary research</p> <p>Greater attendance on date of program implementation</p> <p>Contact Portland Public Schools more in advance to avoid delays in IRB approval</p>

**NEXT STEPS:**

In the future, the researchers hope to survey additional high schools with similar demographics to Benson Polytechnic High School to develop a better understanding of barriers faced by these groups of students. The program presentation has been made into a powerpoint format and is easily accessible to present to these additional high school in the future to educate future students.

## **ACKNOWLEDGMENTS:**

Amy Coplen for her time and effort put into this program, as well as accompanying us to Benson Polytechnic High School. For sharing her knowledge and experience with navigating IRB and research, and her expertise in scientific writing.

Gail Aamodt for her guidance in Capstone class throughout the past year and for her confidence in our abilities to create a sustainable program.

Lisa Rowley for supporting our research and distributing the necessary survey in order to gain beneficial knowledge from the students at Pacific University.

JaNae Jamison for being an outstanding community mentor and allowing us to present to her class.

Josette Beach for distributing our survey to all the current dental hygiene students at Portland Community College. Every student response helped us develop and model our program.

Leah Baldwin for reviewing our presentation and sharing important information with us about the 2=2 program, as well as providing donation prizes for the students



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