

# The Impact of Transfer Shock in a Dental Hygiene Program at a Four-Year Health-Sciences University

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## Abstract

Health-sciences medical universities that host dental hygiene programs typically work on the model of offering upper division coursework, meaning that they enroll only students who complete their first two years at a different institution. The current study investigated the impact of ‘transfer shock’ on students who transferred into a dental hygiene program from community colleges compared to those transferring from four-year universities. This included testing for differences between student grade point average and NBDHE pass rates for the two groups of transfer students. A total of 166 students who graduated from a dental hygiene program at a mid-southern health-sciences university from 2014-2018 were included in the study. The subjects were placed into two groups by the location of their lower division courses: community college or four-year university. Paired *t*-tests suggested the presence of transfer shock for both groups. First-attempt pass rates: 95.5%, with a program GPA of 3.12 for the community college group and 98%, with a program GPA of 3.27 for the four-year university group. Transfer shock did occur in the program in the study, so program

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administrators in dental hygiene academic units should be aware of the impact of transfer and help build bridges that support students to aid in their success.

**Keywords:** Transfer shock, student performance, dental education

## 1. Introduction and Background

The ability to perform well in an academic setting leads to student success. In order to achieve at a high level of academic performance, a student must obtain and build the necessary knowledge and skills, and then incorporate critical thinking to apply these to the academic content area (York, Gibson, & Rankin, 2015). The Commission on Dental Accreditation (CODA), the accrediting body for dental hygiene, echoed this philosophy, indicating that dental hygiene programs in higher education must present students with appropriate opportunities to enable them to become successful (Commission on Dental Accreditation, 2018). Therefore, students should graduate equipped with the knowledge and skills to perform as an entry-level hygienist. CODA (2018) also wrote that students from dental hygiene programs should be able to pass the National Board of Dental Hygiene Examination (NBDHE), the national written examination required by state boards to obtain licensure. In order to meet the oral health needs of the increasing population, it is critical that dental hygiene programs continue to educate and graduate capable, highly qualified students (Alzahrani, Thompson, & Bauman, 2007).

To earn a baccalaureate degree in dental hygiene at a medical university, potential students have the ability to transfer two years of prerequisite credits from a two-year community college or a four-year university (Commission on Dental Accreditation, 2018). Studies have suggested that students matriculating from a community college to a four-year university may experience a phenomenon called “transfer shock” (Ivins, Copenhaver, & Koclanes, 2016). According to Hills (1965), this transition occurs after pre-requisite coursework has been met at a different institution, typically including core requirements across what has been termed the ‘general education core (Hills, 1965). Transfer shock is the phenomenon in which a student’s grade point average (GPA) drops in the first semester after transferring presumably due to the change in environment or academic difficulty (Ivins, Copenhaver, & Koclanes, 2016; Hills, 1965).

Students most affected by transfer shock have been found to be those majoring in mathematics and science disciplines, perhaps suggesting a difference in academic difficulty between two-year colleges and four-year colleges, or possibly the feelings of safety and security that often accompany a two-year college (Cejda, 1997). Another study found that after students impacted by transfer shock were able to adapt to their new academic environment, they were able to perform similarly to non-transfer students (Glass & Harrington, 2002). This academic recovery suggests that the process of transferring from one academic setting to another forces the student to spend time relearning about the environment, establishing expectations, and adapting to the cultural norms of the new location. The Glass and Harrington study provides a positive outcome for these students, suggesting that they can indeed find a way to adapt to their new location. Considering studies such as these, the purpose for conducting the study was to identify and compare transfer academic outcomes between students who transferred into a dental hygiene program from 2- and 4-year colleges.

Zhai and Newcomb (2000) found that students from other four-year universities had higher GPAs than students who transferred from community colleges, noting, for example, that

some community colleges might have higher levels of grade inflation. Researchers have found that one of the reasons for transfer shock was the different types of curricula students took when they reached the four-year university. Schmidt and Wartick (2013) found that the impact of transfer shock increased with the amount of time between the lower-level courses and the higher-level courses, meaning delayed transfer to a four-year institution was especially difficult. Rhine et al. (2000) found additional factors were linked to transfer shock, and that it was not just a question of preparation at a community college. They stressed that variables such as age, financial demands, employment, marital status, time availability, and reliance on financial aid all impacted how well a student academically performed. Thurmond (2007) confirmed many of these variables as well, also introducing race as a variable that influenced academic outcomes following transfer.

For students who transfer into a dental hygiene program, the successful completion of the academic and clinical coursework is only the first step in licensure. These students must also pass the NBDHE to be licensed (Alzahrani, Thompson, & Bauman, 2007). The reputation of dental hygiene programs can sometimes be associated with the success of their students in passing this NBDHE examination, and as such, these programs have a strong interest in admitting students who will be successful (Austin, 2011; Sanderson & Lorentzen, 2011). One major admissions criterion that is strongly linked to passing the NBDHE is grade point average (Alzahrani et al., 2007), and as such, was selected for inclusion in the study.

## 2. Research Methods

The population for the study included all dental hygiene students who transferred from either a two-year college or a four-year university into an upper-level dental hygiene bachelor's degree program. The purposeful sample for the study included all of the 166 students who graduated from an upper-division dental hygiene program affiliated with a mid-southern medical school from between the years 2014-2018. Data were manually coded from student academic transcripts that were maintained by the case study institution. Data included gender, age, race/ethnicity, and the number of miles the students' hometown was from the case study institution. The study also utilized archival data from the dental hygiene program to acquire first-attempt NBDHE scores (pass/fail). A transcript analysis was performed for every student to obtain information to include the type of institution the student attended for the lower-division courses, entering program GPA, first and second semester GPAs, and the exiting program GPAs.

## 3. Results

Descriptive statistics were used to determine an overall profile of the population, including frequencies of race, age, gender, and type of institution the student attended (see Table 1). The population included 40% ( $n=67$ ) community college transfers and 60% ( $n=99$ ) four-year university transfers. In the community college group, 94% ( $n=63$ ) were females and 6% ( $n=4$ ) were males. In the four-year university group, 99% ( $n=98$ ) were females and 1% ( $n=1$ ) were males. In the community college group, 85.1% ( $n=57$ ) were Caucasian, 3% ( $n=2$ ) were African American, and 11.9% ( $n=8$ ) were Hispanic. In the four-year university group, 97% ( $n=96$ ) were Caucasian, 2% ( $n=2$ ) were African American, 1% ( $n=1$ ) Asian, and 1% ( $n=1$ )

fell into the Other category.

The average age of the overall population was 24 years old, with community college students averaging 25 years of age and four-year university transfer students 23 years of age. The average miles from the health-sciences university to the hometown of students was 74.5 miles for both groups.

Table 1. Profile of the Groups

Variable	<i>n</i>	%
Community Colleges		
Male	4	6
Female	63	94
Race		
Caucasian	57	85.1
African American	2	2
Hispanic	8	11.9
Four Year University		
Male	1	1
Female	98	99
Race		
Caucasian	96	97
African American	2	2
Asian	1	1

Data indicated that there was not a significant difference between entering program GPAs of students who completed lower-division classes at a two-year community college versus a four-year university. Entering program GPAs were calculated yielding an average entering program GPA for the community college group of 3.62 and 3.57 for the four-year university group. A one-way ANOVA was then performed to determine any statistical significance difference between the groups. A Levene's test was not significant ( $p = .724$ ) indicating that the two groups possessed equal variances. The ANOVA test also revealed that the groups were not significantly different ( $p = .218$ ), in terms of their entering GPA. Therefore, there was no significant difference in entering GPAs between the community college and four-year university group.

Table 2. Paired Samples t-Tests for Community College Group

First Semester GPA/Entering GPA	Mean	SD	SE	T	df	Sig.
	-.43701	.56626	.06918	-7.219	66	<.001

Paired samples *t*-tests were performed to investigate the difference in means between the entering program GPAs and the first semester program GPAs for both groups. Although the one-way ANOVA demonstrated equal variances between groups, the groups were not combined to determine if there was a difference in GPA following entry into the program. The results showed a difference between entering GPAs and first semester program GPAs for both groups. The community college group had an average entering GPA of 3.62 and an average first semester GPA of 3.18. The results displayed a -.43701 lower mean in their first semester of dental hygiene school compared with the entering GPA,  $t(66) = -7.219, p < .0001$ .

The four-year university group had an average entering GPA of 3.57 and an average first semester GPA of 3.36. The results demonstrated a significant difference in mean, -.21152, from the entering GPAs to the first semester program GPAs,  $t(98) = -5.150, p < .0001$ . However, the decrease in GPAs from the four-year university group was less than the community college group.

Paired sample *t*-tests were performed to explore the difference in means between the first semester program GPAs and the second semester program GPAs for both the community college group and four-year university group. The results showed a difference in first and second semester program GPAs for both groups. The community college group had an average first semester GPA of 3.18 and an average second semester GPA of 2.87. There was a difference in mean, -.30985 in the community college group. The difference in means was significant  $t(66) = -7.219, p = .000$  (see Table 2). The four-year university group had an average first semester GPA of 3.36 and an average second semester GPA of 3.02. The results demonstrated a difference in mean, -.33242. The difference in means was significant  $t(98) = -9.406, p = .000$ .

Paired sample *t*-tests were also performed to determine the difference in means between entering program GPAs and the GPAs at the completion of the program for both the community college group and four-year university group. The community college group had an average entering GPA of 3.62 and an average ending program GPA of 3.09. The results indicated a difference in mean, -.52896 in the community college group. The difference in means was significant,  $t(66) = -8.911, p = .000$ .

The four-year university group had an average entering GPA of 3.57 and an average ending program GPA of 3.26. The results indicated a difference in mean, -.31253. Therefore, the four-year community had a decrease in GPAs from the entering GPAs to the first semester program GPAs as well. The difference in means was significant  $t(98) = -7.695, p = .000$ . The community college group had a larger decrease than the 4-year university students in GPAs at the completion of the program as compared to entering GPAs.

Table 3. Paired Samples Tests for Four-year University Group

First Semester GPA/Entering GPA	Mean	SD	SE	T	Df	Sig.
	-.21152	.40864	.04107	-5.150	98	<.0001

Table 4. Paired Samples Tests for Community College Group

Second Semester GPA/First Semester GPA	Mean	SD	SE	T	Df	Sig.
	-.30985	.35132	.06918	-7.219	66	.000

Descriptive statistics were employed to determine the difference between first-attempt NBDHE pass rates among students who completed their lower division courses while attending a two-year community college versus a four-year university. In the community college group, 95% ( $n=64$ ) passed and 3% ( $n=3$ ) failed the NBDHE on the first attempt. In the four-year university group, 98% ( $n=97$ ) passed and 2% ( $n=2$ ) failed the first attempt. The average GPA at the completion of the program for the community college group was 3.12 and 3.27 for the four-year university students. The average GPA for the students in the community college group who failed the NBDHE was 2.42 and 2.33 for the four-year university group. Therefore, there did not appear to be a difference in first-time pass rates on the NBDHE between the two groups.

#### 4. Discussion

The college experience is comprised of multiple elements, including the academic training that goes into a discipline, but also the non- or co-curricular elements that help a student succeed. In some instances, the socially constructed community provides the supports necessary for a student to succeed, and these supports can be developed through any number of student affairs-type programs (new student orientation, social programs, networking events, etc.). The concern addressed in the current study was how students adapt to their new environment, a professionally driven and highly focused dental hygiene program that makes use of a closed cohort concept. Students must progress academically to remain in the program, and this means that program directors must be aware of the entirety of the students' experience and understand the pre-enrollment variables that might contribute to success or failure are important.

The current study found that there was indeed a level of transfer shock for students enrolling from 'feeder' institutions. This at the very least provides important information for program directors to give special attention to building a supportive environment and culture that helps



new students learn to have supportive social relationships, appropriate study strategies for the level of coursework and practice that they will experience, and to understand expectations of being in a cohort. This research showed that most students were not able to rebound with their grade point average in the first or second semester, and further research should be conducted to identify if this is a skill or competency based issue, or whether it is based on social adaptation. This was especially true for community college transfer students who might be more susceptible to not understanding the culture of an upper-division institution. Future research should also expand upon this one case study institution and explore across multiple dental hygiene programs the impact of transfer shock, continuing to take into consideration the culture and setting of those feeder institutions.

## 5. Conclusion

Based on results of this study and prior research by other investigators, other dental hygiene programs housed in a medical university could potentially benefit from investigating the impact of transfer shock with their students. Other baccalaureate health professional programs that have transfer students could also study transfer shock within their program. In addition to studying the role of transfer shock, it is recommended that all universities investigate for its occurrence in the programs and develop a new student initiative for transfer students to decrease the potential of transfer shock. Topics for a new student program could include improving time-management skills, learning proper study skills, as well as improving test-taking abilities. Incorporating peer tutoring for transfer students could be an added asset to the program. It is also recommended that student advisors invest in students to ensure that they are actively engaging and succeeding in their courses as well as adjusting socially to the university.

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