

Predictors of Student Success in an Entry-Level Baccalaureate Dental Hygiene Program

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Purpose. The purpose of this study was to measure the utility of various predictors that have been used by the Old Dominion University Gene W. Hirschfeld School of Dental Hygiene baccalaureate degree dental hygiene program in selecting dental hygiene students who are most likely to graduate and be successful in passing the National Board Dental Hygiene Examination (NBDHE). The following factors were examined: incoming grade point average; grade point average in prerequisite science courses; admissions criteria points (ACP); final grade in prerequisite science courses, including chemistry I and II, human anatomy, physiology I and II, and microbiology; final grades in first-year dental hygiene courses, including oral anatomy and histology, and oral pathology; multiple attempts to achieve a passing final grade in prerequisite science courses; and the academic setting where these prerequisite science courses were completed. The ACP is a custom-designed rating program used by the Old Dominion University Gene W. Hirschfeld School of Dental Hygiene to organize data submitted by prospective students on applications for admission. This instrument assigns quantitative numbers to the required admissions data and tallies the numbers into a total score. This total score is utilized to assist the admissions committee with selecting applications.

Methods. The sample selected for study consisted of the academic records of dental hygiene students who were admitted to the Old Dominion University Gene W. Hirschfeld School of Dental Hygiene for the academic years 1998 to 2002 ($N = 235$), who would have been eligible to take the NBDHE during the years 2000 to 2004. Prior to initiation of the study, a proposal was submitted to the Old Dominion University Institutional Review Board to obtain approval. Data were obtained from admissions documents and department records. Data were analyzed using multiple logistic regression with a pre-determined level of significance ($P = .05$) to determine whether or not these variables predicted success in this entry-level baccalaureate dental hygiene program as measured by graduation from the program. When the NBDHE was a criterion variable, data were analyzed using the multiple linear regression with a pre-determined level of significance ($P = .05$) to determine whether or not these variables predicted successful entry into the profession as evidenced by passing the NBDHE.

Results. Data analysis revealed that final course grade in oral pathology was a significant predictor of success when graduation was used as the indicator of success ($P = .0008$). Variables that predicted success on the NBDHE included the final course grade in oral pathology; final course grade in oral anatomy and histology; and the ACP rating ($P < .0001$, $P < .0001$, and $P = .0245$ respectively). There was no statistically significant relationship between final grade in prerequisite science courses; multiple attempts to achieve a passing final grade in prerequisite science courses; and the academic setting where these prerequisite science courses were completed and success in the dental hygiene program.

Conclusion. Results from this study add to the body of knowledge that attempts to identify variables with the potential to predict success in dental hygiene educational programs. These findings may allow academic institutions and dental hygiene educators to evaluate admissions criteria and possibly identify those criteria most likely to predict success. While most of the variables under investigation in this study were not found to be predictors of success when tested alone, when these variables were combined into a cluster of variables (ACP), they proved significant at predicting success. The significance of the ACP to predict success might prove that combined variables rather than one variable are more likely to predict success. Results may generate debate among admission committees concerning what

combination of variables should be collected on student applications. In addition, dental hygiene coursework (oral pathology, and oral anatomy and histology) after admission to the program can significantly predict graduation and NBDHE success, suggesting that educators look to improving student performance after admission to the program to improve the likelihood of success.