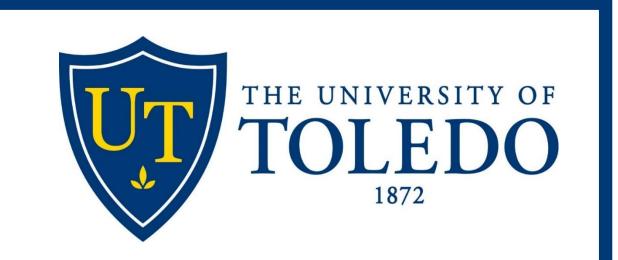


Survey of Local Anesthetic Knowledge of Dental Practitioners

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Introduction

Worldwide, most practicing dentists do not know the maximum recommended dosage (MRD) for their most used dental local anesthetic (Malamed). In an effort to maximize patient safety during dental treatment and to minimize negative local anesthetic outcomes, dental providers must assess current local anesthetic knowledge and identify where "further educational courses are recommended" (Khalil). With as many resources that are present and accessible for additional education, there remains areas of uncertainty regarding local anesthetic knowledge in the dental industry that may also stem from the initial dental school education process.

Hypothesis

Dental providers will be able to accurately demonstrate local anesthetic knowledge.

Purpose

The purpose of this research was to evaluate the accuracy of dental practitioners' knowledge of commonly used local anesthetics (within a 20% standard deviation) as demonstrated via a voluntary questionnaire.

Materials and Methods

Approval was obtained via the Institutional Review Board (protocol #302025-UT). A nine-question survey was completed by attendees at the Greater Toledo Dental Society Spring Clinic in April 2024. A sample size of 29 total clinicians (n=29), including 19 dentists and 10 hygienists. One survey was returned with one of these dentists returning the survey with answers for each question listed as "I do not know." The survey provided a total of 171 possible dentist responses and 90 possible hygienist response. Data was analyzed for the total sample and for dentists and hygienists independently by tallying the number of correct responses in each question group. Statistical analysis included: one-way samples tests, independent t-tests, ANOVA tests through SPSS software in order to test the accuracy of both groups' local anesthetic knowledge. We also assessed whether years in practice contributed to a higher number of correct responses.

Results

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Results

Correlation analysis found a weak negative correlation between the years of practice and total responses correct (p=0.154) which suggests that years of practice alone would not be a good predictor of performance. Independent t-tests revealed a significant mean difference in total correct responses between dentists and hygienists (p= 0.010), with dentists, on average, performing better. Overall, 25.5% hygienists and 36.6% of dentists accurately answered questions on local anesthetic. Hygienists showed a weak positive correlation r = 0.304 between years in practice and correct answers. Dentists were revealed to exhibit a moderate negative correlation r = -0.396 namely, the more time of practice, the lower the scores were on the questions. These findings indicate that there is a complicated relationship between professional experience and retention of knowledge in dental healthcare.

Discussion

It was concluded that the years of practice and profession should have been better predictor variables for total responses correct. Regression results indicated that having the profession of "dentist" would predict significant high scores (p=0.016), whereas years of practice would not predict this significantly (p=0.377). yet this model accounted for only 20.6% of the variance in total responses correct, which indicates that other non-model factors that might also influence performance as well. The findings indicate that professional training and knowledge expected by a role drive performance more than duration of professional experience yet do not fully account for why each professional group had lower than expected performance results. Future studies with larger sample sizes should be done to include other variables like continuous education or specialization so that better understanding of factors influencing retention and application of knowledge can be achieved.

Conclusion

None of the variables that were surveyed *years of experience or career role, made a significant difference in the participants' ability to having more consistent representation in basic local anesthetic prescribing information.