Influence of Manual Dexterity and Self-Perceived Skills on Dental Skill Performance.

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As clinical dental procedures demand a high level of precision and motor control, manual dexterity is considered a fundamental component in dentistry. In addition to manual dexterity, a dental student's perception of their level of skill may also influence their performance at skills-based assessments. This study aims to assess the influence of manual dexterity and self-perceived skill levels on the performance at skills-based assessments of dental undergraduates. This cross-sectional study involved 114 dental undergraduates in their third year of study in 2023/2024 at the University of Peradeniya, selected using convenience sampling. Students with prior dental training were excluded. Each participant completed a self-administered, Likert-type questionnaire which assessed their self-perceived skill level in seven dental procedures. They also completed two manual dexterity tests; the Purdue Pegboard Test and the O'Connor Tweezer Test under direct vision and indirect vision (using a mirror). Finally, skills-based assessment marks were collected. Statistical analysis was carried out to assess the correlations between parameters. Among the study participants, 71.93% (82 students) were females and 85.96% (98 students) were right-handed. The results of the manual dexterity tests placed the participants within the normal range of healthy adults. A weak correlation was found between some manual dexterity test scores and self-perceived skill levels (Purdue pegboard test non-dominant hand under direct vision p 0.034, O'Connor Tweezer Test under direct vision p 0.032). Some manual dexterity tests showed weak correlation with skills-based assessment scores, while self-perceived skills level showed no significant correlation with these scores. Performance at skill-based assessments of dental undergraduates was found to have a weak correlation with their manual dexterity while no association was observed with self-perceived skill levels. The weak correlations may reflect influence of other factors, including clinical knowledge, stress, motivation, fatigue and time management which may also affect the performance in skill-based assessments. The cross-sectional nature of the study and the use of a sample from a single dental school in Sri Lanka were the main limitations. Further longitudinal studies are recommended to assess changes in manual dexterity and self-perceived skills throughout the academic years while accounting for confounding factors.

Keywords: manual dexterity, self-perceived skills, dental education, skill-based assessment

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