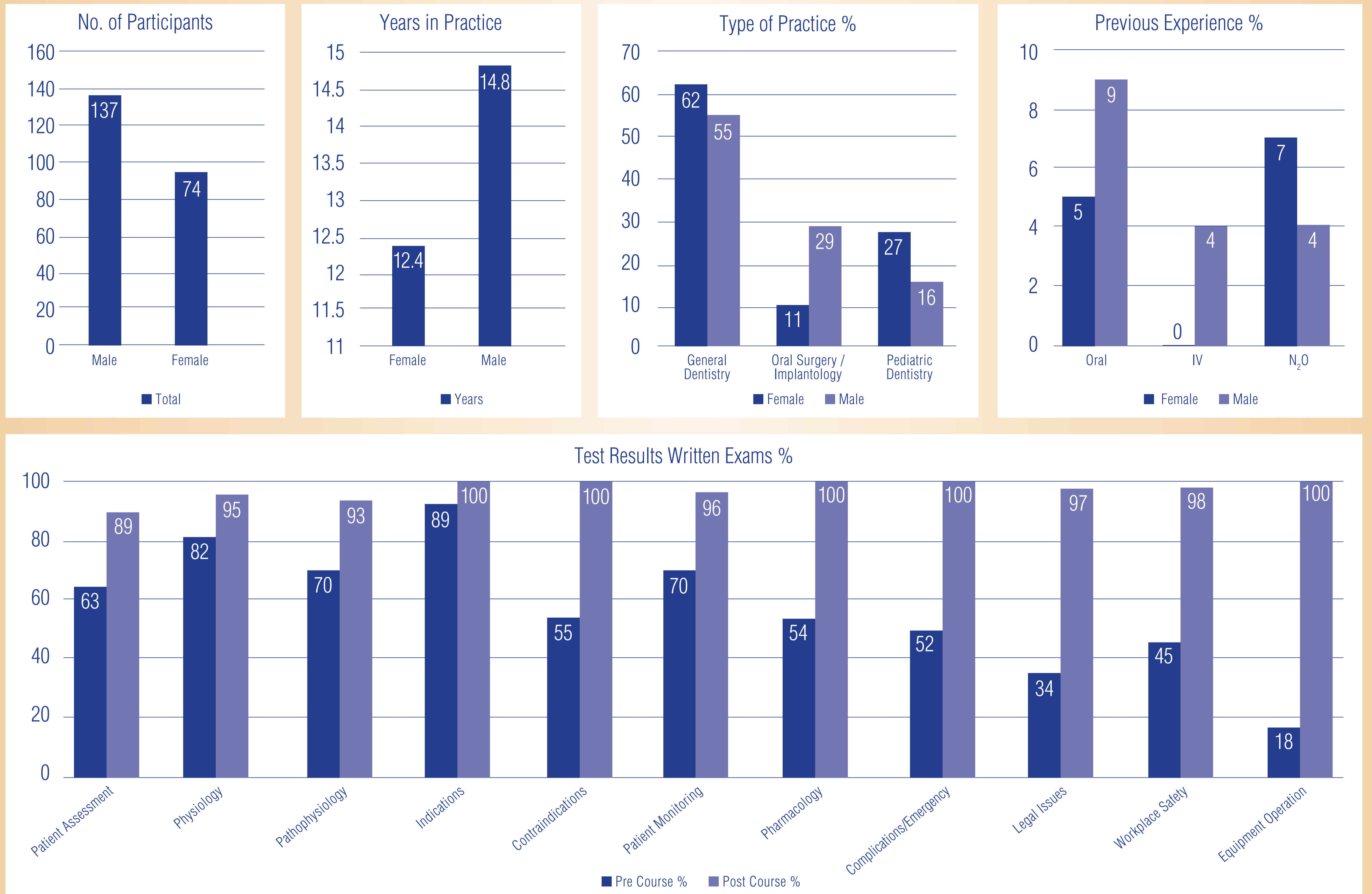


Competence of German dentists in nitrous oxide sedation - Results from a postdoctoral education program -

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Introduction: Dentists in Germany are looking for sedation techniques as viable alternatives to deep sedation (DS) and general anesthesia (GA). This development is being driven by several factors: there is a shortage of physicians, a lack of qualified anesthesia nursing personnel, and third-party payers no longer cover anesthesia services for most dental patients. All of this is making it difficult for dentists to find outside sedation/anesthesia services. There is also an increased awareness of anesthesia-related mishaps and deaths which has deterred dentists from having DS and GA performed in their offices and sent them looking to qualify themselves as providers of sedation for their own patients¹. The high demand for sedation is met by the realization that treatment outcomes may be related to dentists' qualifications². The aim of this study was to assess core competencies in dentists who underwent a rigorous post-doctoral course in the theory and practice of conscious sedation with nitrous oxide.

Materials and Methods: During a six-month period in 2009/2010, 211 dentists licensed in Germany completed a 14-hour nitrous oxide postgraduate course, employing the modified educational standards of the EAPD and the AAPD^{3,4}. The faculty consisted of board-certified physician anesthesiologists, certified registered nurse anesthetists, an attorney specializing in medical litigation and dentists experienced in conscious sedation. All participants completed a pre-course and post-course written test. Additio-

nally, the dentists underwent a post-course practical examination, conducted with a resuscitation manikin (Laerdal, Stavanger, Norway) and, for training purposes, sedated each other with nitrous oxide equipment commercially available in Europe (Accutron Inc., Phoenix, Arizona).

Results: There were 137 male and 74 female participants. They indicated their primary type of practice as: general dentistry: 62% for women, 55% for men, oral surgery/implantology: 11% for women, 29% for men, pediatric dentistry: 27% for women, 16% for men. On average the male participants had been practicing for 14.8 years and the female dentists had been working for 12.4 years. Previous experience with dentist-administered sedation techniques: oral sedation: female: 5%, male 9%, intravenous sedation: female: 0%, male 4%, nitrous oxide sedation: female: 7%, male: 4%. Pre and post-course written test results are given as the mean percentage of correct answers: Patient assessment: 63%/89%, physiology: 82%/95%, pathophysiology: 70%/93%, indications: 89%/100%, contraindications: 55%/100%, patient monitoring: 70%/96%, pharmacology: 54%/100%, complications and emergency management: 52%/100%, legal issues: 34%/97%, workplace safety: 45%/98%, equipment operation: 18%/100%. All participants had a 100% score on the post-course practical examination and on a separate hands-on emergency management/basic life support exam.

Conclusion: Nitrous oxide is universally recognized as the safest and most effective technique for conscious sedation in dentistry, provided that the dental professionals are rigorously trained. Pediatric dentists have been leading the way in establishing high standards of care⁵. Increasingly, general dentists have been entering training programs in order to offer sedation to their patients of all ages. Accessibility of dental nitrous oxide and educational opportunities to learn its proper use vary among the European countries⁶. Germany does not have legally-binding national standards for dental nitrous oxide sedation. Providing high-quality post-graduate education to dentists with little or no undergraduate training in nitrous oxide use can contribute to an increase in the number of patients accepting professional dental care⁷. This positive contribution to oral health can be effectively achieved with a two-day course led by professional anesthesia personnel and dental educators. Standardized testing serves as a method of quality assurance for both the course participants and the medical educators.

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