

# How satisfied are recently-trained German dentists and their patients with dental care under nitrous oxide sedation?

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Fig. 1 Administered N<sub>2</sub>O concentrations

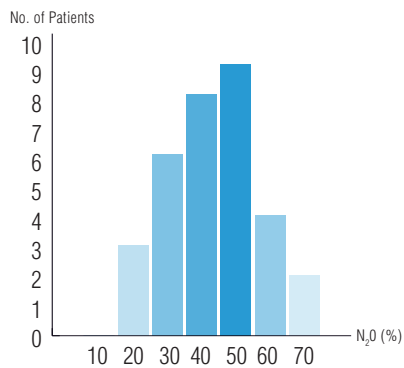


Fig. 2 Age distribution

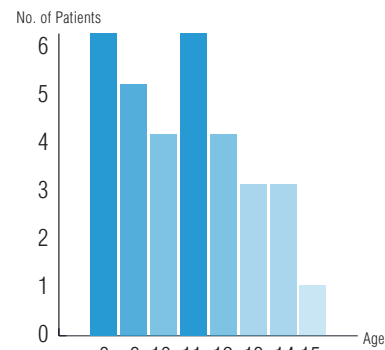


Fig. 3 Sedation score

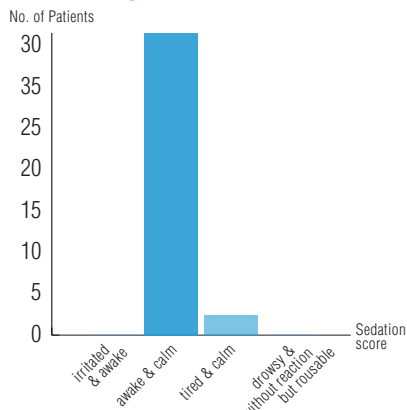


Fig. 4 Houpt Behaviour Rating Scale

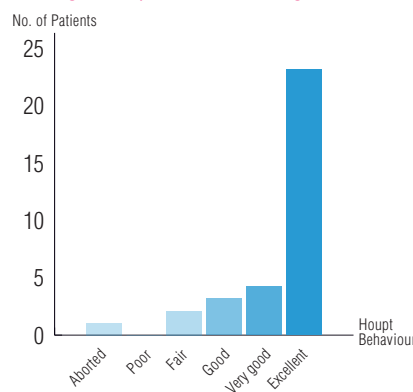
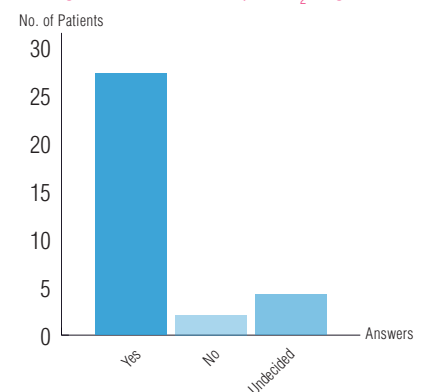


Fig. 5 Patient would request N<sub>2</sub>O again



**Background:** In Germany there is a renewed interest in dentist-administered nitrous oxide (N<sub>2</sub>O) sedation as an alternative to deep sedation or general anesthesia conducted by an anesthesiologist. An increased awareness of anesthesia-related deaths has caused dentists to seek opportunities to qualify as providers of safer sedation techniques for their own patients<sup>1</sup>. Also, most third-party payers have discontinued coverage of dental sedation and general anesthesia, forcing patients to pay more out of pocket. Therefore, the low cost of N<sub>2</sub>O sedation compared to anesthesia is a welcome relief to financially-burdened families<sup>2</sup>. But even for patients with the financial means and desire to receive general anesthesia or intravenous deep sedation, it is becoming more difficult for them to receive these services due to physician shortages and lack of qualified anesthesia nursing personnel in Germany.

**AIM:** With the shift away from anesthesiologist-led dental sedation or general anesthesia it was the aim of this study to examine patient satisfaction with N<sub>2</sub>O sedation and evaluate dentists' perceptions of sedation success.

**Methods:** Five dentists who had received 16 hours of post-graduate training in N<sub>2</sub>O sedation during the previous year recommended N<sub>2</sub>O sedation to 39 patients. 32 ASA I patients were treated (age=8-15 years; treatment duration=45-60 minutes). N<sub>2</sub>O sedation was administered using a Biewer Medical Sedaflo System with an Accutron Digital Ultra PC Flowmeter. The N<sub>2</sub>O concentration was titrated to effect, with a maximum of 70% N<sub>2</sub>O possible. Sedation levels were recorded every five minutes using the Brietkopf and Buttner classification. Overall behaviour and treatment outcome were rated using the Houpt Behaviour Rating Scale<sup>3</sup>. Patients were asked if they would choose N<sub>2</sub>O sedation in the future.

**Results:** Fig. 1 shows the actual concentrations of N<sub>2</sub>O administered and fig. 2 shows the patient age distribution. The maximum sedation score was 2 in 30/32 patients (94%) and 3 in 2/32 patients (6%) (Fig. 3). On the Houpt Behaviour Rating Scale, 22/32 patients (69%) achieved a 6 (excellent), 4/32 (13%) achieved a 5 (very good), 3/32 (9%) achieved a 4 (good), 2/32 (6%) achieved a 3 (fair), and 1/32 (3%) achieved a 1 (treatment termina-

ted prematurely). When asked if they would choose N<sub>2</sub>O sedation again, 26/32 patients (81%) said "yes", 4/32 (13%) were undecided and 2/32 (6%) said "no". No adverse effects or complications were reported.

**Conclusions:** An increasing number of German dentists are expanding their practice to include conscious sedation in their offices. N<sub>2</sub>O sedation has an unparalleled track record for safety, efficacy and convenience<sup>4</sup>. Studies have shown that dentists can learn the essentials of safe N<sub>2</sub>O sedation and perform well under rigorous testing following a 16-hour N<sub>2</sub>O postgraduate course employing the modified educational standards of the EAPD and the AAPD<sup>5</sup>. In this study an overwhelming majority of patients followed their dentist's recommendation for inhalational N<sub>2</sub>O sedation and only 6% said that they would not ask for the same treatment again. From the dentist's point of view, 9 out of 10 patients did well with this technique and only one patient in the study had to abort the procedure and be re-scheduled for general anesthesia. N<sub>2</sub>O sedation is a growing field within dentistry and this study found two primary explanations for

this growth: a high level of satisfaction among both dentists and patients and no adverse effects or complications.

## References:

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