Prosthetic Treatment Concepts for the Reduced Dentition in German Dental Schools

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This survey of German dental schools sought to gain insight into the present prosthetic treatment concepts and their application in student and postgraduate education, as well as to compare the results to those from an identical 2002 survey. A questionnaire, based on this issue, was sent via email to the chairpersons of all prosthetic departments of the German dental schools, and 93.1% of the departments completed the questionnaire. Within the limitations of this survey, almost all treatment concepts for the reduced dentition are taught intensively at dental schools in Germany while some therapy forms are preferred. *Int J Prosthodont 2015;28:425–431. doi: 10.11607/ijp.4268*

The reduced dentition with missing teeth in the maxilla and mandible is a common condition in the German population. In 2005, 48.5% of adults (35 to 44 years of age) and 88.7% of seniors (65 to 74 years of age) underwent prosthodontic treatment, with a focus on removable partial dental prostheses (RPDPs) among the seniors.[1]

The treatment options for the reduced dentition are versatile. However, the dentist's final decision is based on the treatment modalities he or she acquired during his or her dental education.

Therefore, it was the aim of this survey to gain insight into the present prosthodontic concepts and their application in the student and postgraduate education at German universities, as well as to compare the results to the results of the same survey conducted in 2002.[2]

Materials and Methods

A questionnaire was sent to the chairpersons of the prosthodontic departments of all German dental schools (N = 29).

The chairpersons were asked to assess the prevalence of the following prosthodontic treatment modalities for the reduced dentition in their lectures and seminars, choosing "in detail," "just fundamentals," or "not at all":

- Clasp-retained RPDPs (CRs) (Fig 1)
- Precision attachment–retained RPDPs (PAs) (Fig 2)
- Double crown–retained RPDPs (DCs) (Fig 3)
- Adhesively retained precision attachments for RPDPs (APAs) (Fig 4)
- Retentive elements for overdentures (REs) (Fig 5)
- Shortened dental arch (SDA) (Fig 6)
- Strategically placed additional implants to support RPDPs (SPIs) (Fig 7)

Additionally, they were asked to choose the most common double crown system used in their department from among the following, where binomials were possible:

- Cylindrical double crowns
- Conical double crowns
- Double crowns with electroplated gold copings
- Base metal alloy double crowns with supplementary retentive elements
- Base metal alloy double crowns without supplementary retentive elements
- Resilient double crowns

In the second part of the survey they were asked to evaluate whether the treatment options from part one were used "often," "occasionally," or "usually not" in the practical training of undergraduate students and postgraduates.

Finally, the distribution on a percentage basis of the treatment alternatives CRs, DCs, PAs, and REs were assessed for each individual prosthodontic department.

The complete analysis of the survey was done anonymously.

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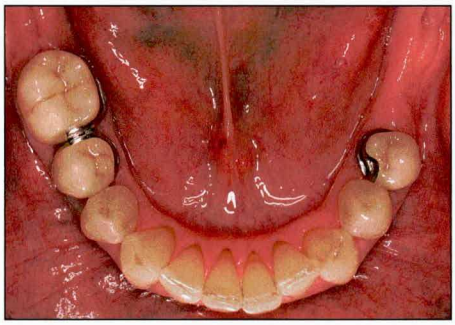
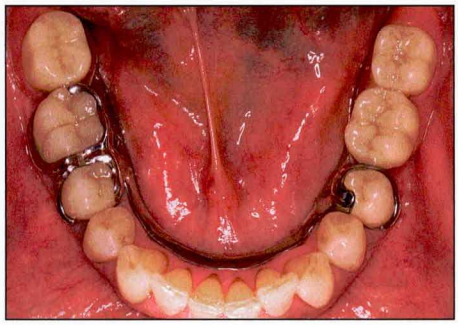



Fig 1 Clasp-retained RPDP.

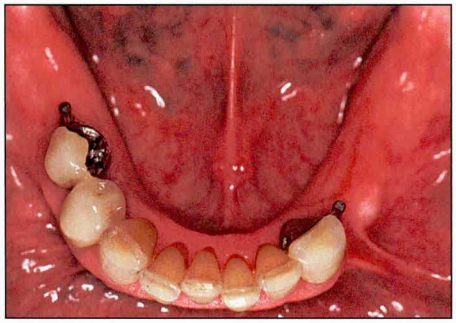



Fig 2 Precision attachment-retained RPDP.

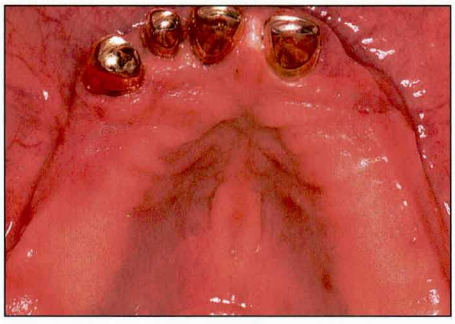
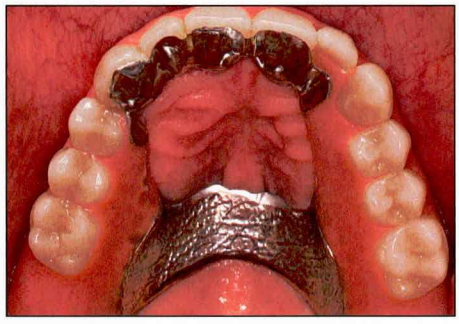



Fig 3 Double crown-retained RPDP.

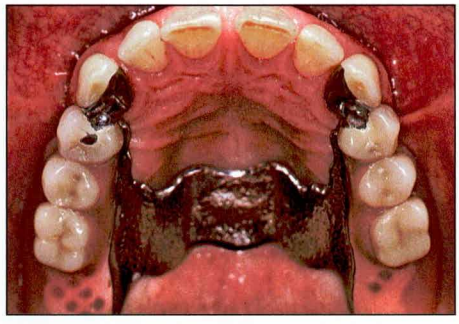



Fig 4 Adhesively retained precision attachments for an RPDP.

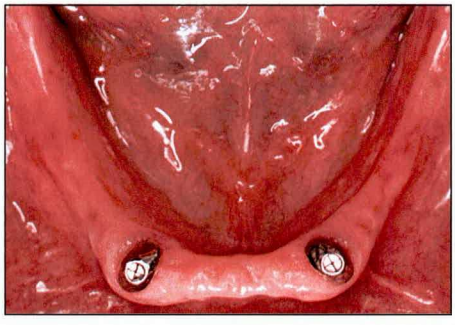
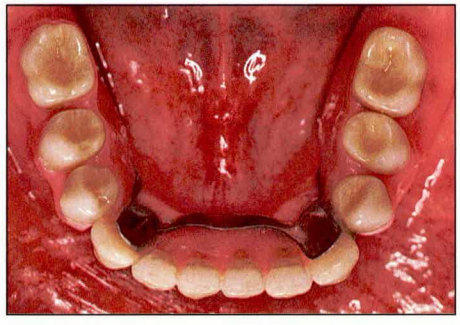



Fig 5 Retentive elements for an overdenture.

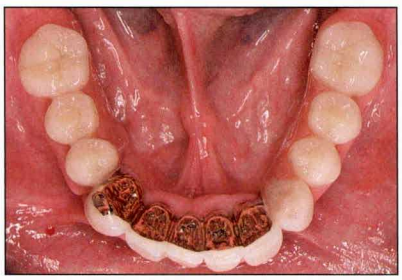


Fig 6 Strategically placed additional implants to support an RPDP.

Fig 7 Shortened dental arch as treatment concept.

Fig 8 Taught treatment modalities in undergraduate lectures and seminars. CR: clasp-retained partial dental prosthesis; PA: precision attachment–retained; APA: adhesively retained precision attachment; DC: double crown–retained; RE: retentive elements; SPI: strategically placed implants; SDA: shortened dental arch.

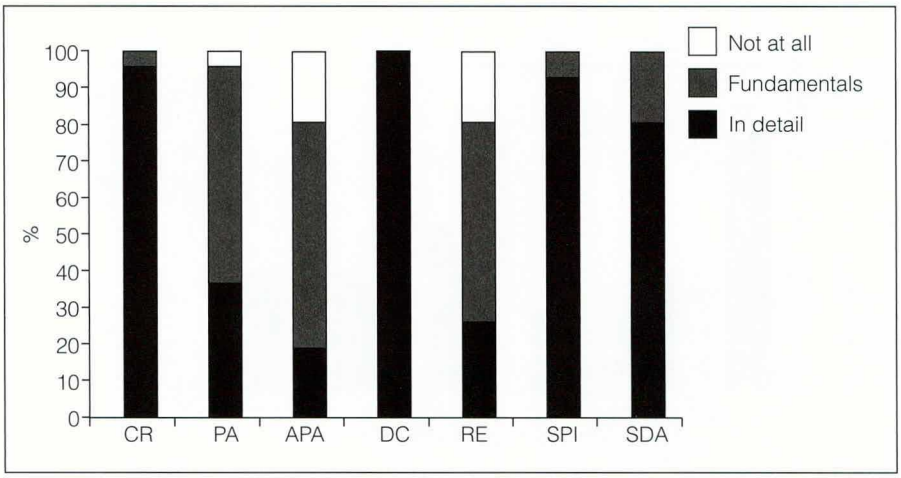
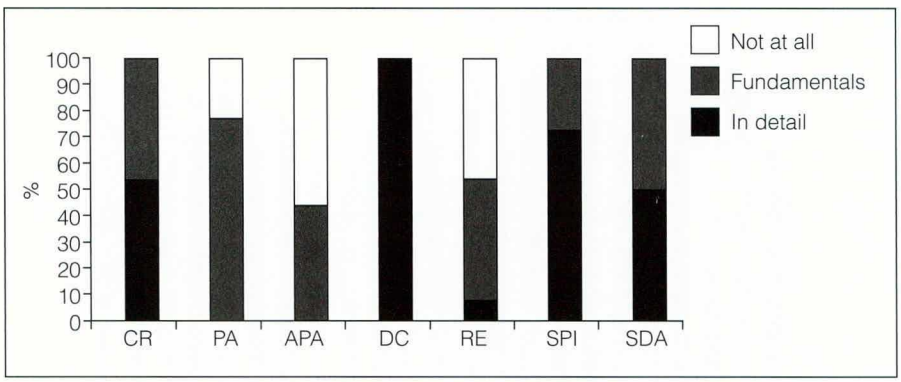


Fig 9 Used treatment modalities in practical training of undergraduate students. CR: clasp-retained partial dental prosthesis; PA: precision attachment–retained; APA: adhesively retained precision attachment; DC: double crown–retained; RE: retentive elements; SPI: strategically placed implants; SDA: shortened dental arch.



Results

Twenty-seven departments answered the questionnaire (93.1%). The treatment alternatives DCs (100%), CRs (97%), SDA (81%), and SPIs (93%) are taught in great detail in lectures and seminars. The topics PAs (37%), REs (26%) and APAs (19%) are considered to be of minor importance (Fig 8).

During undergraduate student treatment the most common treatment modalities are DCs, followed by CRs and the SDA concept (Fig 9). During postgraduate treatment SPIs (Fig 10) are added to those options. The treatment alternatives REs, PAs, and APAs are of minor importance for both groups. The preferred double crown systems at German universities are cylindrical double crowns and base metal alloy double crowns with supplementary retentive elements (Fig 11). The most frequently used attachments for the treatment of the reduced dentition at dental schools in Germany are double crowns and clasps. REs and PAs are, again, of minor importance (Fig 12).

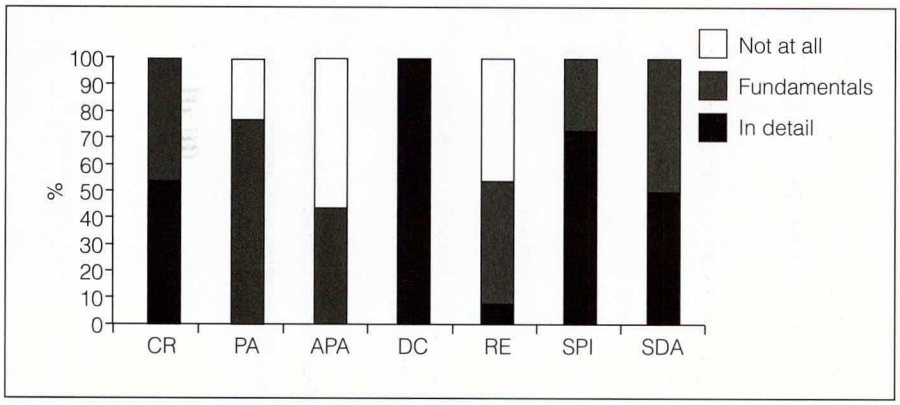


Fig 10 Used treatment modalities in practical training of postgraduates. CR: clasp-retained partial dental prosthesis; PA: precision attachment–retained; APA: adhesively retained precision attachment; DC: double crown–retained; RE: retentive elements; SPI: strategically placed implant; SDA: shortened dental arch.

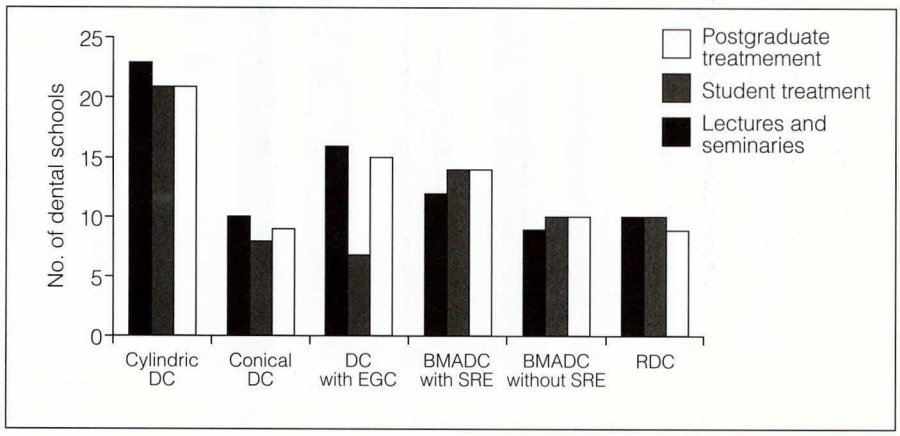


Fig 11 Prefered double crown system. DC: double crowns; EGC: electroplated gold copings; BMADC: base metal alloy double crowns; SRE: supplementary retentive elements; RDC: resilient double crowns.

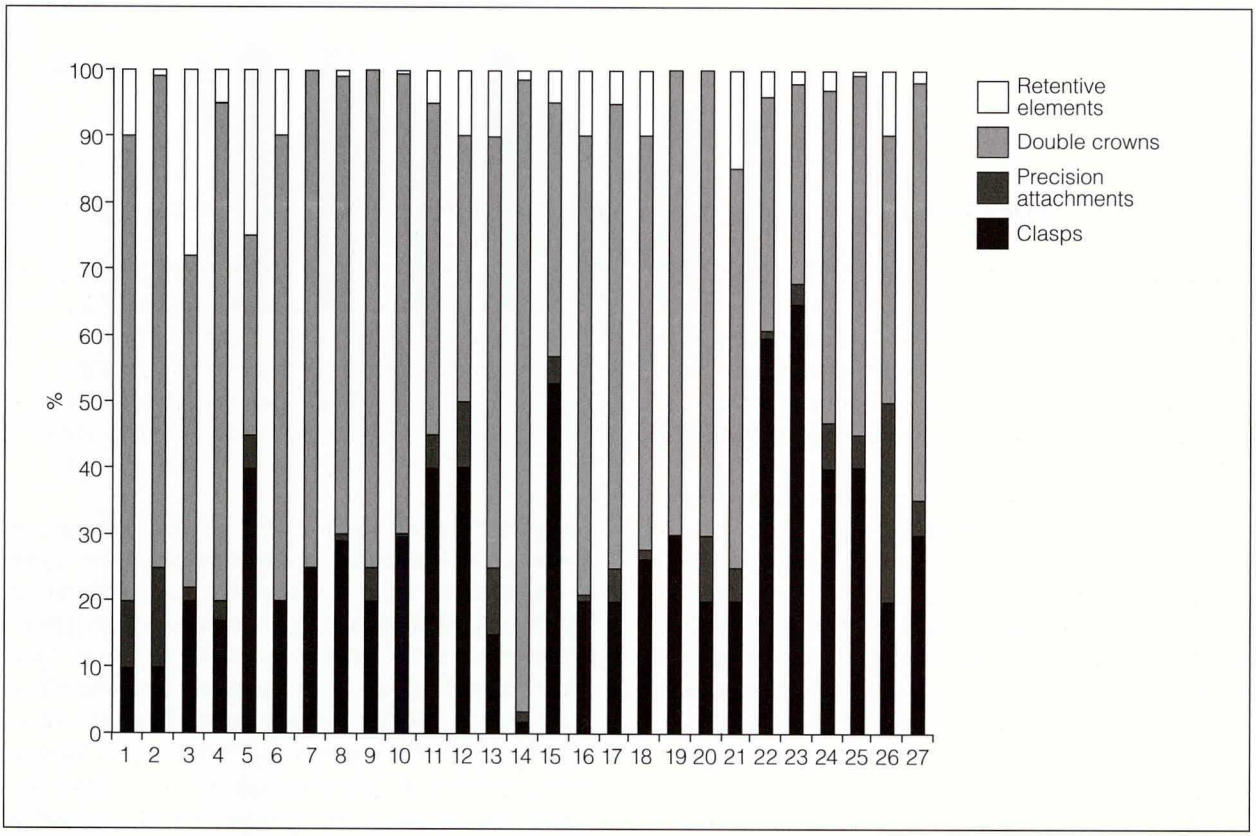


Fig 12 Most frequently used attachment systems for the treatment of the reduced dentition.

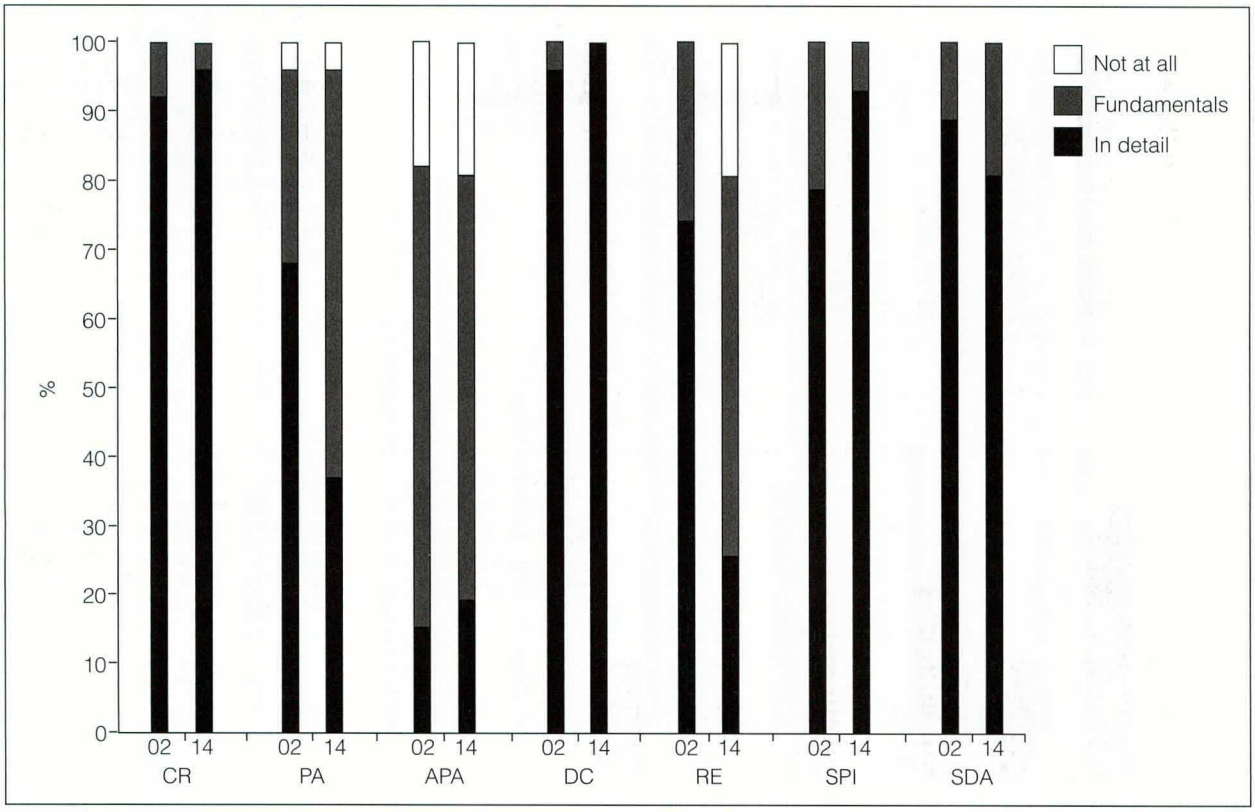


Fig 13 Taught treatment modalities in undergraduate lectures and seminars, 2002 vs 2014. CR: clasp-retained partial dental prosthesis; PA: precision attachment–retained; APA: adhesively retained precision attachment; DC: double crown-retained; RE: retentive elements; SPI: strategically placed implants; SDA: shortened dental arches.

Discussion

The present results are all based on the chairpersons' opinions regarding the dental education and treatment in their department and might not be equivalent to the actual treatment concepts, which are chosen individually, as this is an assessment and not an evaluation of sales figures. A descriptive analysis was chosen, as a representative sample was missing.

CRs, DCs, and the SDA concept are of major importance in seminars and lectures as well as in practical student education. They are appropriate and cost-efficient, and they can be fabricated within a limited treatment time. In postgraduate treatment the number of CRs is reduced and the number of SPIs increases. In Germany, implants are not covered by the national health insurance, and the portion of privately insured patients is greater in the practical training of postgraduates than in that of undergraduates.

CRs, DCs, the SDA concept, and SPIs were already discussed in detail in lectures and seminars in 2002. At that time, PAs and REs were of greater importance than they are today (Fig 13).

This tendency is obvious in the patient´s treatment, as well (Figs 14 and 15). One reason might be that certain disadvantages, such as splinting of the abutment teeth for PAs, came into greater consideration. A well-known clinical trial with negative outcome of PAs might also have influenced the teaching concepts.[3] REs assume the devitalization of the abutment teeth, and their indication is very limited.

The number of CRs and DCs in the student and postgraduate treatment has increased since 2002, and the SDA concept is still relevant. The number of SPIs increased tremendously in the student treatment (Fig 14).

APAs are still not prevalent in dental education. The problem might be that APAs are not supported financially by the German social health insurance system and the production and use of adhesively retained attachments are very challenging and highly technique sensitive.

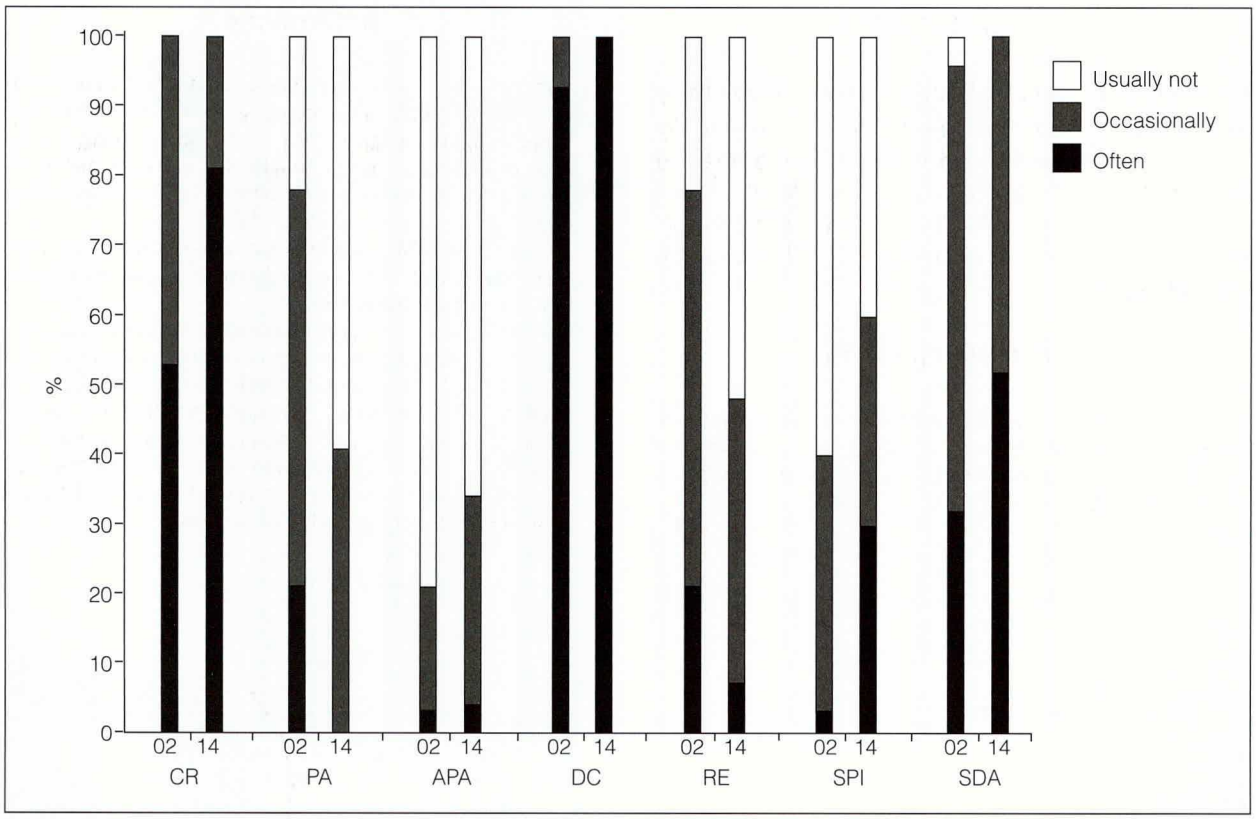


Fig 14 Used treatment modalities in practical training of undergraduate students, 2002 vs 2014. CR: clasp-retained partial dental prosthesis; PA: precision attachment–retained; APA: adhesively retained precision attachment; DC: double crown-retained; RE: retentive elements; SPI: strategically placed implants; SDA: shortened dental arch.

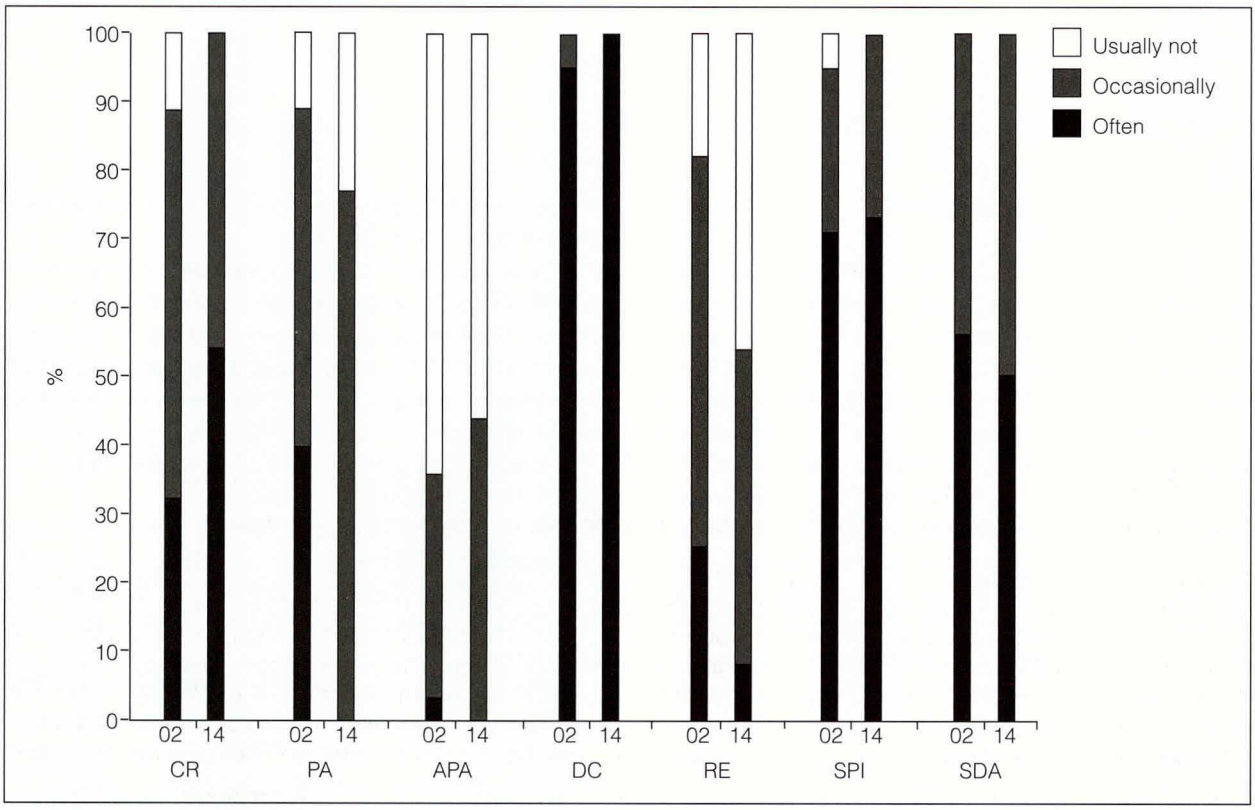


Fig 15 Used treatment modalities in practical training of postgraduates, 2002 vs 2014. CR: clasp-retained partial dental prosthesis; PA: precision attachment–retained; APA: adhesively retained precision attachment; DC: double crown-retained; RE: retentive elements; SPI: strategically placed implant; SDA: shortened dental arch.

Conclusions

Although the number of missing teeth in society is reported to be continuously decreasing, especially in countries with advanced economies, the need to replace lost teeth is unlikely to completely disappear. The educational inclusion of RPDP remains relevant at dental schools all over the world and taught accordingly.[4,5]

Acknowledgments

The authors reported no conflicts of interest related to this study. The results have been presented at the 63rd Annual Meeting of the German Society of Prosthetic Dentistry and Biomaterials in Aachen, Germany, on May 17, 2014.

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Literature Abstract

A systematic review and meta-analysis of the association between poor oral health and severe mental illness

The authors systematically searched for studies published between 1988 and 2013 regarding the relationships between oral health (edentulous, DMFT, and DMFS) and severe mental illness (SMI) condition of patients. Twenty-five studies from different countries satisfied the inclusion and exclusion criteria of the study. Despite some limitations from some of the selected studies (eg, lack of control groups, quality of the study was not optimal, lack of calibration, standardization, blinding of dental assessments), the results showed that people with SMI had significantly higher chances of missing all teeth as well as greater scores of DMFT and DMFS compared to a community control group. The authors also noted that the prevalence of edentulism and tooth decay were similar in males and females in the study groups. The study suggested that oral health should be included in comprehensive health assessments of people with SMI.

Kisely S, Baghaie H, Lalloo R, Siskind D, Johnson NW. *Psychosom Med* 2015;77:83–92. **References:** 71. **Reprint:** Steve Kisely, MD, PhD, School of Medicine, University of Queensland, Level 4, Building 1, Princess Alexandra Hospital, 199 Ipswich Rd, Woolloongabba, QLD 4102, Australia. Email: s.kisely@uq.edu.au—*Huong Nguyen, Edmond, Oklahoma, USA*