

Students at Saarland University dental school—A survey on their background and curriculum perception

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Abstract

Introduction: With the aim of optimising dental education without overburdening students, new legislation restructuring the undergraduate dental curriculum in German is under way. The goal of this study was to survey the current situation of dental students at one specific university with respect to their socio-economic background, admission to dental school, curriculum perception and work-life balance.

Materials and methods: An online questionnaire was presented to all undergraduate students enrolled at Saarland University who had at least completed the first pre-clinical practical course in dentistry.

Results: A response rate of 85% was reached with two-thirds of the student body being females. The profession of 40% of students' parents either was physicians or dentist. Students reported a slight reduction in time spent for leisure activities during their studies, however, with sports activities hardly being affected. With respect to a proper work-life balance, almost 50% of respondents considered their clinical workload as being too high. Students did not express a clear opinion regarding curriculum structure, whilst the content mostly satisfied their expectations (59%). The majority (71%) of students considered their preclinical training as being demanding whilst less than 3% fully agreed that preclinical training provided an optimal background for patient treatment. The learning modules in the first clinical semester were considered as being adequate by 56% of students. Examinations during courses were seen as properly reflecting the students' knowledge by 79% of students.

Discussion: The status quo of German dental students is characterised by a high workload affecting the students' work-life balance and by a transition between pre-clinical and clinical education which only about half the student body perceives as being adequate. Patient-based examinations obviously are not considered as being problematic.

KEYWORDS

admission, sequencing, undergraduate education

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1 | INTRODUCTION

Following long periods of preparation and discussion, new legislation restructuring the undergraduate curriculum in German dental schools will come into effect in fall 2020. Besides harmonisation of dental education in Europe,¹ five main goals govern the new curriculum, which are interdisciplinary study, problem- and symptom-based learning, early patient contact, science-based education and communication training.²

Early exposure to self-dependent patient treatment as already implemented in the current curriculum is a unique feature of studying dentistry, which raises several questions. These start with appropriately weighted, reliable and valid student selection methods³ also taking into account the feminisation of the workforce in dentistry^{4,5} and range up to the graduates' confidence and preparedness for their professional life.^{1,6,7}

Several reports can be found in the literature proving that dental students have higher levels of depression, anxiety or stress than the general population,^{8,9} a problem for which integrated, active-learning curricula¹⁰ and concepts ensuring proper work-life balance¹¹ may provide some relief. Due to the interdependent relationships between students, patients, instructors and administrators,¹² novel curricula should ensure the creation of an educational environment which is satisfying to future dentists.^{13,14} Besides lecture formats which have been shown to be favourably organised in the form of problem based learning,¹⁵ assessment of students' performance is also critical in this context with varying results being reported for traditional test methods^{16,17} and objectively structured clinical examinations (OSCE).^{18,19}

Successful transition from preclinical education to the clinical environment by far seems to pose the greatest challenge for both students and educators.²⁰⁻²² Besides adopting technical skills such as ergonomic posture during treatment,²³ students also have to deal with anxiety resulting from patient treatment²⁴ and immature multitasking skills.^{9,25}

In Germany, the curriculum is currently structured in a preclinical part of five semesters focusing on basic disciplines such as anatomy, biochemistry and physiology. In addition, three major practical dental courses are being taught on phantom heads and in a dental laboratory setting. After passing two state examinations, students are admitted to clinical training for five semesters with a strong focus on patient treatment predominantly in operative dentistry and prosthodontics. Passing of a final state examination comprising oral tests as well as patient treatment forms the basis for getting a dental license in Germany.

In the light of these circumstances and with the aim of generating reference values for future comparisons, it was the goal of this study to survey the current situation of undergraduate dental students at Saarland University in Germany with respect to their socio-economic background, admission to dental school, curriculum structure and work-life balance.

2 | MATERIALS AND METHODS

Saarland University dental school is amongst the smallest dental schools in Germany annually accepting 24 students. In fall 2019, a

questionnaire was designed combining input from administrators, educators and students. A pretest was performed by one student attending the preclinical phase and one student attending the clinical phase which led to further adaptation of the questionnaire. All preclinical and clinical students enrolled at Saarland University dental school during the winter term 2019/ 2020 who had at least completed the first preclinical practical course in dentistry were then asked to complete the questionnaire in a blinded online format (Please see Appendix providing an overview of the items included in the questionnaire). The students were invited through the dean's office of student affairs and were reminded after 1 week with the survey being closed after a total of 2 weeks.

The survey was organised in different subsections dealing with the students' background and admission to dental school as well as the students' personal learning strategies. The students were also asked whether or not the sequence of learning modules experienced so far made sense and how they perceived the transition between preclinical and clinical education. Further items were related to their personal situation with respect to work-life balance as reflected by the time spent on personal hobbies and their future plans. The survey consisted of both, multiple choice and free-text questions, and the students were allowed to provide multiple answers to specific questions.

3 | RESULTS

Out of 83 students being asked to participate, a total of 71 students completed the online questionnaire (86% response rate). The student body was composed of 66% females and 31% males with two students either not disclosing their gender or classifying themselves as divers.

Regarding their family background, 30% of the students indicated that their fathers were dentists or physicians whilst only 11% of mothers fell into that category. On the contrary, 15% of mothers worked as auxiliary personnel in the dental or medical field. Out of those parents who did not work in the medical or dental field, 14% had an academic background.

During their childhood, students obviously spent more time for a wide range of hobbies with the vast majority of students having several hobbies in parallel. The greatest reduction in comparison with their current situation was seen in the fields of handcrafting (62%) and music/ computers/ gaming (51%) followed by reading/ science/ nature (32%) and spending time with friends (21%). Sports activities (8%) were hardly reduced and students spent a mean of 10.49 hours (SD 7.94) per week for leisure activities.

The most important motivation for studying dentistry was the students' interest in the subject (76%) or a general interest in medical and natural sciences (73%). Adequate salary (63%) and social recognition (54%) were further motivational aspects mentioned. Internet resources, their social networks as well as voluntary internships were the primary sources of information prior to enrolment in dental school.

The vast majority of students (92%) directly obtained their university entrance qualification from school whilst 8% of students used second chance education opportunities. If the students had the chance to pick focus subjects in school, biology, chemistry and physics were frequently chosen. The final grades achieved (German school system Best grade: 1; Worst grade: 6) ranged from 1.0 to 3.1 with a mean of 1.69. The mean waiting period prior to admission to dental school was 2.7 semesters (SD 5.14) with the vast majority having no waiting time whilst the maximum waiting time was 17 semesters in one case. Prior to studying dentistry, 25% of students had started and successfully completed an apprenticeship; predominantly in the medical or dental field. Six students had started studying a different subject at a university, and three students had completed university studies prior to attending dental school.

Students did not express a clear opinion regarding the general structure of their curriculum whilst the content satisfied or fully satisfied their expectations (59%). Asking where additional learning content is required, neither of the four classic disciplines (operative dentistry, prosthodontics, orthodontics, oral and maxillofacial surgery) was clearly identified whilst several students explicitly asked for more information about economic aspects of dentistry.

The first preclinical, practical course was considered as being demanding or very demanding by 49% of students with 28% of all respondents stating that the practical work requirements created problems whilst only 5% had problems with the theoretical course content. The complexity of the course content was considered as being adequate. A total of 72% of students considered their preclinical training as being demanding or very demanding whilst less than 3% of students fully agreed that preclinical training provided an optimal background for patient treatment. When asking for suggestions to improve preclinical training, respondents made no clear indications with respect to balancing practical and theoretical learning content, as well as with respect to dental vs. basic medical (anatomy, biochemistry, physiology) learning modules. The clinical course in prosthetic dentistry, for which the foundation is being laid during preclinical training, was considered as being adequate by 64% of respondents. Similarly, the complexity of the learning modules in the first clinical semester was considered as being adequate by 56% of students. Examinations during courses were considered as properly reflecting the students' knowledge by 79% of students and 85% of respondents considered the number of examinations as being adequate. Following completion of dental school, students predominantly intended working as general dentists (63%). The most frequently named specialisation was implant dentistry (41%).

The weekly workload for self-directed studies reached a mean of 11.05 hours (SD 9.07) when students attended the first practical preclinical course and a mean of 8.74 hours (SD 7.13) when they attended the clinical course in prosthetic dentistry. In this context, students indicated that they had more difficulty in memorising and reproducing factual knowledge as compared to learning and applying basic knowledge for solving unknown problems. Also, workflows were unproblematic to be memorised and applied. The clinical

workload was considered as being too high by 48% of students whilst 31% considered their workload as being optimal.

4 | DISCUSSION

Admission to dental school remains being controversial with a wide variety of processes being implemented.³ In the German system, the grade achieved in the university entrance qualification is the most important selection criterion, whilst the completion of an apprenticeship in the dental or medical field may result in a bonus for admission. In the current system, one's grade can be improved by waiting terms which consequently can be seen as an indicator for students' performance. The mean value of 2.7 semesters obtained in the current survey may be considered as being misleading due to one outlier accumulating 17 waiting semesters. However, three students had started university studies in natural sciences prior to switching to dental school, which may also be regarded as accumulating waiting semesters. The problem associated with this strategy is crowding of other programs in addition to artificially increasing failure rates in these disciplines. Whilst admission to dental school certainly has to be controlled, it should also be ensured that not too many waiting semesters can be accumulated by applicants. Besides these specifics and supporting current literature, two-thirds of the current student body were females,^{4,5} which is in contrast to the situation indicated for the parent generation with the male partners working as physicians or dentists whilst females were rather working as auxiliary staff.

Preclinical students consider their training as being stressful^{8,9} whilst in the clinical part of their studies, retrospective judgment changes to adequate. This change in response may be seen as a hint that the current sequence of modules provided as well as their contents facilitate the transition from preclinical to clinical education.²⁰⁻²² However, more robust assessments also involving recent graduates would be required to confirm whether the curriculum is properly aligned and facilitates the transition mentioned above. Given the complexity of Germany's social and medical system, specific economic aspects of dentistry are currently presented on a rudimentary level which is often criticised by students and professional dental organisations as well. Whilst the need for basic economic knowledge for successfully practicing dentistry is undoubted, this must not constitute a major goal of undergraduate training which is supposed to focus on teaching state of the art dentistry as a scientific discipline.

Students indicated to spend a mean of 10.49 hours per week for leisure activities but wide variation was seen in the response received. Both, the workload at dental school as well as the time required for self-directed learning were considered as being high. Potentially even worsening this situation, the updated curriculum coming into effect in fall 2020 may even increase the workload for students. With sports activities obviously not diminishing as a result of attending dental school, students try to maintain a healthy work-life balance¹¹ and to counteract their risk for mental disorders.^{8,9}

Given that dental students seem to focus on natural science early on emphasising related school subjects where possible, it might be an option to reduce the workload in those areas during preclinical training and ensuring minimum requirements as part of an admissions test, instead.

Whilst objectively structured theoretical and practical examinations^{18,19} are well established in preclinical courses, leading to a high level of comparability amongst students, patient-based examinations may be seen controversial. It is impossible to organise identical patients for conducting a practical student examination requiring patient treatment. Based on the feedback received, such examinations are not considered as unfair or inadequate.^{16,17} In order to maintain this notion, well trained examiners are required, who are able to judge patient-related complexity of a specific treatment.⁶

Indicating confidence in routine dental procedures,^{1,7} the majority of students intended to work as general practitioner following graduation. However, this response may also be obscured by the fact that sub-specialisation is not yet well accepted in the German dental community.

Despite the comparably high response rate achieved in this survey, indicating that dental students were willing to actively help improving their situation, it may be seen as a limitation of this study that exact differentiation of student responses was not possible due to the blinded format used. Given the small number of students enrolled at Saarland University dental school, the formation of further subgroups might have also been problematic. An update of this study should be performed once the modernised curriculum has been implemented.

5 | CONCLUSION

Within the current framework implemented at Saarland University dental school, students appear to have a reasonable learning experience properly preparing them for their professional life. Care has to be taken when implementing novel teaching and examination formats not to worsen the students' situation.

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DATA AVAILABILITY STATEMENT

Authors elect to not share data.

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APPENDIX

SAARLAND UNIVERSITY DENTAL SCHOOL—QUESTIONNAIRE

A—Personal background

- A1 Gender
- A2 Parents' professional background
- A3 Leisure activities during childhood
- A4 Current leisure activities
- A5 Time per week currently spent on leisure activities
- A6 Personal motivation for attending dental school
- A7 Desired specialization following graduation
- A8 Personal learning strategies

B—Educational background

- B1 School types attended prior to dental school
- B2 Focus subjects in school

- B3 Date of university entry exam
- B4 Number of waiting semesters
- B5 Location of university entry exam
- B6 Grade achieved in university entry exam
- B7 Apprenticeship prior to attending dental school
- B8 University studies prior to attending dental school
- B9 Sources of information on studying dentistry

C—Dental curriculum

- C1 Opinion on sequencing of the dental curriculum
- C2 Expectations on curriculum content
- C3 Distribution of curriculum content among dental disciplines
- C4 Opinion on the first preclinical dental course
- C5 Complexity of practical and theoretical content in the first preclinical dental course
- C6 Adequacy of workload in the first semester
- C7 Numerical workload (hours) in the first semester
- C8 Suggestions for improving the first preclinical dental course
- C9 Opinion on preclinical training (preparation for patient treatment, theoretical vs. practical content, dental technology, emphasis on basic medical disciplines)
- C10 Opinion on the first clinical course in prosthetic dentistry
- C11 Complexity of practical and theoretical content in the first clinical course in prosthetic dentistry
- C12 Suggestions for improving first clinical course in prosthetic dentistry
- C13 Opinion on the availability of educators
- C14 Opinion on the adequacy of educators' feedback
- C15 Opinion on support in organizational aspects
- C16 Opinion on Students - Educators ratio
- C17 Opinion on available equipment
- C18 Opinion on library
- C19 Opinion on available learning space
- C20 Adequacy of time spent at dental school
- C21 Numerical workload (hours) in the current semester
- C22 Adequacy of exams
- C23 Number of exams
- C24 Comments on exams
- C25 Comments on undergraduate studies