

BMJ Open LeiKA: an optional German general practice teaching project for first-semester medical students: who is taking part and why? A cross-sectional study

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ABSTRACT

Objectives This study investigates students' adoption of LeiKA, a new extracurricular longitudinal general practice (GP) teaching project. LeiKA aims to attract a broad range of students, not only those who are already planning to become GPs. This study compares participants' and non-participants' characteristics, career preferences and job-related value orientations to assess the programme's initial potential to increase the number of students subsequently entering GP careers. Additionally, students' motives for taking part in the programme were explored.

Design We analysed administrative data and data from a cross-sectional questionnaire survey for the first three cohorts. LeiKA participants were compared with non-participants regarding baseline characteristics, career intentions and attitudes associated with GP careers. There was also a qualitative analysis of the reasons for taking part.

Setting Faculty of Medicine, University of Leipzig, Germany.

Participants First-semester medical students in the years 2016–2018.

Results In the first 3 years, 86 of 90 LeiKA slots were taken, 9.0% (n=86/960) of those eligible to apply. LeiKA participants were a mean of 0.6 years older (LeiKA: 21.5 vs whole cohort: 20.9 years, $p<0.001$) and slightly more interested in long-term doctor–patient relationships (3.6 vs 3.3, scale from 1 'unimportant' to 5 'very important', $p=0.018$), but did not differ regarding other characteristics and attitudes. Although more participants definitely favoured a GP career (13.1% vs 4.9%, $p=0.001$), it was a possible option for most students in both groups (78.6% vs 74.0%). Early acquisition of skills and patient contact were the main motives for taking part, stated by 60.7% and 41.7% of the participants, respectively.

Conclusions The extracurricular programme was taken up by a broad range of students, indicating its potential to attract more students to become GPs. The reasons for taking part that we identified may guide the planning of other similar projects.

Strengths and limitations of this study

- This study provides a sound comparison of participants in an extracurricular longitudinal GP teaching project with their counterparts regarding career intentions, as well as characteristics and attitudes associated with future GP careers.
- The results permit an assessment of the programme's initial success in attracting a broad range of students and not only those who were already planning a GP career, indicating its future potential to increase the number of students entering GP careers.
- The reasons for taking part that we identified may be used to guide implementation and recruitment strategies for other similar projects.
- The inclusion of three cohorts of study entrants and the sufficient sample size increase the explanatory power of the study.
- The inclusion of only one German medical school might limit the generalisability of the findings.

INTRODUCTION

Shortage of primary care physicians is an issue in many European countries, including Germany, and worldwide.^{1–3} Thus, during recent decades, considerable efforts have been made to attract more undergraduate medical students to careers in primary care. These range from electives to mandatory clerkships and longitudinal programmes.^{2–5} Specialised curriculum tracks have been established in the USA and other low population density countries to support recruitment of general practitioners (GPs) for rural and underserved areas.⁶

There is evidence that particularly positive role models, regular practice experiences, longitudinal and early implementation, and good quality teaching have positive effects on choice of a GP career.^{1 2 5 7–10} Within this

context, most European medical schools have now integrated general practice into their undergraduate curriculum, though important differences remain with regard to the duration and timing of the clinical component.^{11 12}

In Germany, the 6-year undergraduate medical education is divided into three sections: preclinical (basic science, years 1–2), clinical (clinical science, years 3–5) and the final clinical year (three 4-month full-time clinical rotations in year 6).^{13 14} The current mandatory general practice (GP) curriculum is part of the clinical study section and includes a lecture series and a 2-week community-based clinical clerkship in a university-affiliated GP practice. Every student is obliged to complete a 4-week clinical clerkship in primary care. Students can choose an optional 4-month clinical rotation in general practice during their final year.¹³

Due to recruitment problems in general practice, several German medical faculties have introduced additional initiatives.³ To establish early and continuous exposure to general practice content, some faculties have developed extended teaching concepts to integrate general practice from year 1. This is either done through generally revised curricula with increased general practice contact for all students (eg, 'Modellstudiengang Medizin' at the Charité Universitätsmedizin Berlin)¹⁵ or through optional general practice tracks for selected students offered in addition to the standard curriculum (eg, 'Klasse Allgemeinmedizin (KAM)' at the University of Halle-Wittenberg and 'Schwerpunktcurriculum Primärversorgung' at the University of Marburg).^{16 17}

At the University of Leipzig, the longitudinal teaching project 'Leipziger Kompetenzpfad Allgemeinmedizin' ('Leipzig Competency Pathway for General Practice', LeiKA) was established in 2016, supported by funding from the Saxon State Ministry for Science and Arts (SMWK). The project offers 30 slots per year for interested study entrants, and has capacity for ~10% of first-semester students. As this is the first scientific publication about LeiKA, a detailed description of the structure and content of this new teaching concept is included in the Methods section. In order to increase the number of students interested in general practice, we tried to avoid selective participation of those that were already favouring a GP career. Thus, the LeiKA project was explicitly designed to attract all students interested in early and continuing ambulatory care experiences, regardless of their current career aspirations. With the present study, we wanted to investigate whether we succeeded in including a substantial number and a broad range of students. To be able to do this, we aimed to identify differences between the LeiKA participants and their non-participant counterparts with relation to their career plans, as well as sociodemographic characteristics and job-related value orientations that have previously been found to be associated with a preference for a GP career. An additional aim was to analyse the reasons for taking part in the LeiKA project, to allow us to gain insight into what made the project attractive to first-semester medical

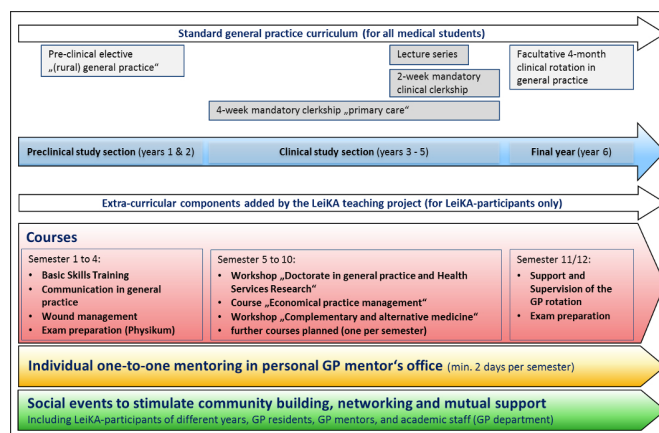


Figure 1 Overview of the structure of the standard general practice curriculum, and the structure of the extracurricular components provided for LeiKA participants.

students. This study is the starting-point for a longitudinal evaluation of the LeiKA project. The lack of sound evaluations of curricular initiatives and programmes to increase the number of medical students entering primary care careers has been criticised in a recent review article,³ and our results contribute to fill an important gap in this field of research.

METHODS

Structure and content of the LeiKA teaching project

LeiKA consists of three main components, and includes regular full-day visits to a personal GP mentor's community-based practice, accompanying courses at university venues and regular informal social events. For an overview on LeiKA in relation to the standard undergraduate general practice curriculum, please refer to figure 1.

In order to support identification with GP role models, the process of allocating the participants to their GP mentors considers personal and professional preferences of both parties and regional background as far as possible. Two courses per year are organised by the Department of General Practice. Preclinical courses provide participants with basic clinical skills which can promptly be applied and deepened in the mentor's practice. Clinical courses have a broader scope, covering medical, administrative and research topics. Regular social events are an important part of LeiKA, as several studies have emphasised the impact of peers on career considerations, which can be both supportive and unsettling,^{18 19} and there is evidence that creating a sense of community can counterbalance negative comments and feelings of isolation for students contemplating GP careers.²⁰ The project is promoted via internet and social media, posters and flyers, and is introduced to all new students in the course of an introductory lecture during the 'welcome week'. Places are allocated on a first come, first served basis.

Sampling and design

In this study, we compared the first three cohorts of LeiKA participants with their non-participating counterparts. This was based on different data sources. First, we used anonymised administrative data made available from our office of academic affairs for the three cohort years to compare the age and gender distribution of LeiKA participants with the respective distributions in the whole classes (one sample case).

Second, we analysed data from a cross-sectional questionnaire survey conducted at study entry. In 2016, all LeiKA participants completed this questionnaire during the project's classroom-based 'welcome' reception, while non-participants were contacted by mail (including a covering letter, questionnaire and return envelope) using postal addresses collected on a voluntary basis during the welcome week introductory lecture. Due to unsatisfactory response rates in 2016, we changed our sampling procedure in 2017 and 2018. In these 2 years, all questionnaires were completed during the welcome week classroom-based introductory lecture; they contained standardised personal ID-codes which had to be created by the students to allow further longitudinal analyses. LeiKA participants were identified post hoc by providing their ID-codes anonymously.

Third, we used anonymised qualitative data (written free-text answers) on students' motives to take part in the project; these were collated from short profiles that LeiKA participants provided for the GP mentor allocation process.

Questionnaire

A multidisciplinary team that included physicians and social scientists designed the questionnaire. It contained three sections addressing the following topics: sociodemographics, career preferences and job-related value orientations (an English translation is given in online supplementary file 1). A focus was set on sociodemographics and value orientations that have been described as typically associated with GP career choice in previous research.^{1 5 8 21}

Qualitative analysis of the reasons to take part in the project

Data were extracted from standardised short profiles with information on personal and professional interests and expectations that were provided by all LeiKA participants as the basis for individual matching with their GP mentors. The anonymised raw data were analysed according to Mayring's qualitative content analysis.²² In a first step, two scientists (a psychologist and a GP trainee) developed categories independently from each other following an inductive approach and including all available material. The resulting category systems were compared, and consensus was found for all differences. Subsequently, the material was reassigned to the final category system with 87.7% agreement and consensus was found for all assignments. Applicable categories were used only once per person. In order to be able to assess the reliability of the

results, a third (uninvolved) rater allocated the raw data once again. Agreement was 76.3%, which can be considered as good due to the high number of 26 categories with subtle differences between some of them. Finally, the categories were recoded as binary variables and absolute and relative frequencies were calculated. Additionally, categories with related content were summarised into master categories to facilitate the communicability of the results.

Statistical analysis

Data were analysed using IBM SPSS Statistics V.24 for Windows. Continuous variables are presented as mean±SD. Frequencies were presented as n (%). In case of missing values for single items, frequencies are presented as %_{valid} ($n_{\text{absolute}}/n_{\text{valid}}$). One-sample χ^2 test and one-sample Wilcoxon signed-rank test were used for one-sample case comparisons of sex and age (LeiKA vs whole class). To compare frequencies between independent groups, χ^2 test and Fisher's exact test were used as appropriate. The Mann-Whitney U test was used to compare differences in central tendency between groups. Statistical significance was assumed for a probability of error of $p<0.05$.

Patients and public involvement

Neither participants nor the public were involved in the design or conduct of this study.

RESULTS

Data available for the whole class (administrative data)

Number, sex and age of all first-semester students and information on their LeiKA participation is depicted in table 1 for the three cohorts. There was no difference regarding the distribution of sex among the LeiKA participants compared with the whole group of first-semester students (LeiKA: 75.6% (65/86) women, whole group: 67.9% women, $p=0.127$). However, the age of LeiKA participants was slightly higher when compared with the whole group (LeiKA: mean age 21.5±4.7 years, whole group: 20.9±3.8, mean difference: 0.6 years; LeiKA: median 20 years, 75%-percentile 25 years, whole group: median 19 years, 75%-percentile 23 years; $p<0.001$).

Questionnaire response

Altogether, 720 questionnaires (from both LeiKA participants and non-participants) were completed, corresponding to a response rate of 75.0% (720/960) for all study entrants 2016–2018. Due to the different sampling procedure in the first year (see Methods section), the overall response rates among LeiKA participants (97.7%) and non-participants (72.8%) differed. An overview of the response rates for each cohort, and the response rates within the LeiKA project, are included in table 1.

Analysis of the data based on the questionnaire survey

Students who decided to participate in the LeiKA project reported significantly more often that general practice



Table 1 Study entrants 2016–2018: sex, age and questionnaire return (compared with LeiKA participants)

Study entrants ('whole class'*)		Whole class*, women	Whole class*, age	Whole class, returned questionnaires†	LeiKA participants	LeiKA participants, returned questionnaires	Students on the LeiKA 'waiting list'‡
Year	n	n (%)	Mean±SD	n (%)	n (% max capacity§)	n (%)	n
2016	318	231 (72.6)	21.0±4.0	149 (46.9)	26 (86.7)	26 (100)	0
2017	316	204 (64.6)	20.8±3.7	299 (94.6)	30 (100)	30 (100)	30
2018	326	217 (66.6)	20.8±3.7	272 (83.4)	30 (100)	28 (93.3)	22
All	960	652 (67.9)	20.9±3.8	720 (75.0)	86 (95.6)	84 (97.7)	52

*Including LeiKA participants.

†Changed sampling procedure in 2017 and 2018 (see Methods section).

‡If all 30 LeiKA slots were taken, further students with interest to take part were placed on a 'waiting list'.

§The maximum capacity of LeiKA is 30 students per year.

was their favoured career option, and less often that it was not an option (table 2).

Comparisons between LeiKA participants and other students showed no statistically significant differences with regard to sociodemographic characteristics (other than age and gender) potentially associated with a higher probability of a future GP career choice (table 3). LeiKA participants were less often a physician's child and more often stated that they had already worked in a social or medical field, though neither difference was statistically significant.

Except for participants rating the importance of long-term doctor–patient relationships a little more highly, we found no statistically significant differences between LeiKA participants and non-participants in relation to a variety of job-related value orientations that might be associated with interest in a GP career (table 4). However, while not statistically significant, LeiKA participants rated the importance of being involved in research activities lower than their non-participating counterparts.

Reasons for taking part in the project (qualitative analysis)

The reasons for taking part in LeiKA were collated from free-text answers in the students' short profiles at the beginning of the project. Altogether, 201 statements from 84 students were grouped into 26 categories that were close to the original text and, in a second step, summarised into 8 more condensed master categories.

Table 2 Interest in a GP career at study entry—LeiKA participants versus non-participants

		For me, general practice is ...		
	N	The favoured career option	An imaginable career option	Not a career option
LeiKA	84	11 (13.1%)	66 (78.6%)	7 (8.3%)
Others	616	30 (4.9%)	456 (74.0%)	130 (21.1%)

p=0.001

The absolute and relative frequencies of the single and master categories are shown in table 5. Categories were assigned only once per person. Consequently, frequencies can be read as the number of students who made one or more statements summarised in the respective master category.

DISCUSSION

LeiKA was well adopted by the students, with all slots being taken from the second year on. While LeiKA participants were slightly older, had a slightly higher interest in long-term doctor–patient relationships, and were more likely to favour GP careers, they did not differ from their counterparts in other respects, indicating a broad range of students being attracted by the project. Early acquisition of practical skills, early patient contact, insights into ambulatory care, and mentoring and networking were the main motives for taking part.

The high interest among our medical school entrants in extracurricular longitudinal GP experiences is in line with findings reported from similar projects. The 'Klasse Allgemeinmedizin' (KAM) at the University of Halle-Wittenberg offers 20 slots per year, and 38 students were enrolled in the project within the first 2 years.²³ Whether this initial high interest in LeiKA and the resulting high participation rates will persist in future study years remains to be seen. For the pilot stage of the KAM project, Samos *et al*²³ reported a loss of 37% of participants after the pre-clinical study section.

Increasing age, more interest in long-term doctor–patient relationships, and GP career considerations at study entry have been shown to be associated with the choice of a GP career after graduation.^{5 8} Apart from these variables, we found no typical 'GP-associated' profile for the LeiKA participants in terms of a more frequent occurrence or stronger expression of characteristics and values that have been frequently reported in other studies to be associated with GP career consideration or choice. However, considering the low magnitude of the significant differences, our results suggest that the

Table 3 Comparison between LeiKA participants and other students: sociodemographic characteristics

Variable	n valid	LeiKA participants % (n/n _{valid})	Others % (n/n _{valid})	P value
In a relationship	708	31.0 (26/84)	31.3 (195/624)	0.956
Has children	715	7.1 (6/84)	3.5 (22/631)	0.127
At least one parent with higher education degree	712	81.0 (68/84)	75.8 (476/628)	0.296
Being a physician's child	715	17.9 (15/84)	26.1 (165/631)	0.100
Family or friends working in general practice	709	33.7 (28/83)	34.0 (213/626)	0.958
Mainly grew up in ...	716			
Big city		37.3 (31/83)	32.2 (204/633)	0.496
Small town		31.3 (26/83)	37.6 (238/633)	
Rural area		31.3 (26/83)	30.2 (191/633)	
Has already worked in a social or medical field	706	60.2 (50/83)	48.8 (304/623)	0.050
Has a qualification in a medical vocational education	684	24.4 (19/78)	23.3 (141/606)	0.830

LeiKA project succeeded in attracting a broad range of students, and not just those already planning GP careers. A large majority of the LeiKA participants did not definitely favour a GP career at study entry, and one in twelve LeiKA students stated that a GP career was not an option for them. This is important, as these students might change their views over the course of their studies, which may lead to a higher proportion of graduates entering GP residencies. Current evidence-based conceptual frameworks of medical students' primary care career choice distinguish between four types of students according to their initial affinity for primary care (PC): PC committed,

PC positive, undecided, and non-PC committed.^{1 24} Our results imply that LeiKA includes students from all four of these groups. According to Bennett *et al*,¹ these groups partially differ with regard to the factors affecting their career choice.²⁴ However, with regard to medical school experiences, positive role models and longitudinally implemented practical PC experiences (both core components of LeiKA) have positive effects on all four types of students.¹ The fact that LeiKA includes students with different preferences for a GP career distinguishes the project from initiatives explicitly targeting those already committed to the field, for instance by providing

Table 4 Comparison between LeiKA participants and other students—job-related value orientations

Personal (job-related) importance of ... (five-point Likert-scale from 1=unimportant to 5=very important)	LeiKA participants		Other students		p value
	n	Mean±SD	n	Mean±SD	
Variety of everyday tasks	84	4.4±0.6	633	4.3±0.7	0.859
Wide variety of patients	84	3.8±0.8	629	3.6±0.8	0.221
High income	84	3.2±0.9	633	3.3±0.8	0.222
Prestige	83	2.5±1.1	627	2.7±1.0	0.175
Positive work-life balance	82	4.5±0.6	630	4.3±0.8	0.079
Involvement in research	84	3.2±1.0	631	3.4±1.0	0.050
Long-term doctor-patient relationships	84	3.6±0.9	633	3.3±1.0	0.018
Independence in daily business and decisions	83	3.9±0.7	632	4.0±0.7	0.077
Work with modern technical equipment	84	3.2±1.0	634	3.4±0.9	0.089
Provision of preventive and health-promoting measures	83	3.8±0.8	633	3.8±0.8	0.463
Management of employees	84	3.2±0.9	632	3.2±0.9	0.909
Performing surgical procedures	84	3.1±1.0	634	3.3±1.1	0.154
Consideration of psycho-social treatment aspects	84	3.9±0.9	631	3.9±0.9	0.997
Wide variety of possibilities for professional development within the specialty	84	4.2±0.8	630	4.2±0.7	0.737
Daily interaction with colleagues	83	4.0±0.8	633	4.0±0.8	0.816
Intellectually challenging daily work	84	4.3±0.6	631	4.4±0.6	0.427

p-values > 0.05 are marked bold

Table 5 Reasons for taking part in the LeiKA project (n=84 due to two missing short profiles; ordered by frequency of the master categories)

Motives (categories) close to the original text	Frequency n (%)	Summarised (master) motives	Frequency n (%)
Gaining practical experience	22 (26.2)	Early acquisition of practical skills, competencies and experience	51 (60.7)
Early acquisition of practical skills/ abilities/ medical competencies/professional attitudes	18 (21.4)		
Preparation for subsequent work/ Facilitation of career start	2 (2.4)		
Wish for practice-based training	15 (17.9)		
(early) Patient contact	28 (33.3)	(early) Patient contact	35 (41.7)
Learning about interaction and/or communication with patients	6 (7.1)		
Interest in long-term doctor-patient relationships	2 (2.4)		
Insights into ambulatory/ GP care	27 (32.1)	(early) Insights into ambulatory everyday healthcare	29 (34.5)
Early insights into a GP's life	3 (3.6)		
Learning from the GP mentor and his/her experiences	7 (8.3)	Mentoring and networking	27 (32.1)
Establishing contacts/ networking/ exchange	18 (21.4)		
Interest in mentoring	4 (4.8)		
Consideration of working in general practice in the future	4 (4.8)	Verification or confirmation of career plans	15 (17.9)
Fixed career goal GP/ ambulatory care/ establishing a practice	4 (4.8)		
Verification of career plans/ finding career goals	8 (9.5)		
Permanent work in a hospital is not conceivable	1 (1.2)		
Working practically as a good complement and welcome change to theoretical studies	11 (13.1)	Practical orientation as motivation for and complement to academic studies	14 (16.7)
Practical orientation as motivation for studies	3 (3.6)		
Support for exam preparation	1 (1.2)		
Interest/ curiosity regarding general practice as a specialty	7 (8.3)	Interest in general practice and its specific characteristics	9 (10.7)
Comprehensive approach in general practice	1 (1.2)		
Contact with a broad spectrum of diseases	1 (1.2)		
Contact with general practice	1 (1.2)		
Appeal of the programme of the LeiKA project	1 (1.2)	Other	4 (4.8)
Widening the view on medicine	1 (1.2)		
Acquisition of knowledge	2 (2.4)		

grants in exchange for early and definitive decisions in favour of a GP career. In Germany, such grants are, for example, offered by regional Associations of Statutory Health Insurance Physicians (Kassenärztliche Vereinigung).²⁵ These commendable programmes might be suitable to keep the committed group on track and increase planning security, but they exclude all other groups. By addressing a broader audience with LeiKA, we hope to maintain initial commitment as well as to inspire those not initially convinced that they want to become GPs.

On a descriptive level, we found that LeiKA students more often stated that they had already 'worked in a social or medical field', although this difference was not statistically significant and the percentage of those who had a qualification in a medical vocational education was quite similar. This difference could be related to the fact that LeiKA students were slightly older and had, therefore, had more time to gather some kind of working experience before the start of their studies. Similarly, while not statistically significant, we found LeiKA students were less

likely to be the child of a physician than their counterparts. This is in line with previous reports,⁵ and it may be that students who have not had home experience of a physicians' life and work are more inclined to take the opportunity to experience future work environments. This process of 'trying on possible selves' in terms of 'projecting oneself into hypothetical career and personal roles'¹⁰ has been described as an important part of career choice in medicine. Consequently, the wish for early insights into everyday ambulatory healthcare and for the verification or confirmation of career choices were among students' main motives to take part in LeiKA.

The influence of early exposure to practical experiences on career choice in general practice and other medical careers has frequently been highlighted.^{8 9 26 27} In our study, the opportunity for early practical experiences including early acquisition of skills, contact with patients and GPs, and early insights into ambulatory healthcare, were the most important aspects attracting students to participate in LeiKA. Within German undergraduate medical education, the pre-clinical study section is primarily dedicated to basic sciences; there is usually no patient contact during the first 2 years. This may explain the attractiveness of an early practice-oriented curriculum to a broad range of students. The motives that we identified should be considered in the design of similar teaching projects, as they provide insights into which curricular offerings are needed to attract a broad range of students, and which aspects should be highlighted in promotional activities.

The number of students interested in the LeiKA course by far exceeded the number of available slots from the second year onwards. We believe that this was due to our intense promotional activities as well as word-of-mouth recommendations from other students. Unfortunately, places were limited to 30 per year due to the large number of GP mentors involved in the project (not more than two students per GP mentor) and the extensive recruitment efforts required each year. Second, courses are offered in small-group teaching environments and they involve a substantial number of teachers and resources. Additionally, we believe that the individual and easy-to-access support offered by our department is an important aspect of our success. However, the large number of students interested in LeiKA makes us confident that it enhances the visibility and attractiveness of general practice, is potentially suitable for enlargement, and could serve as a role-model for future integration of general practice content into the standard curriculum.

Implications for practice and research

The results show that it is possible to attract a broad range of students to participate in an extracurricular practice-orientated longitudinal general practice programme, and not just to those that are already planning GP careers. The reasons for participation that we identified may be used to guide public relations work and recruitment strategies for similar projects. Further research is needed to

investigate how medical students' interest and participation in this kind of teaching project develops over the whole course of their studies, and which factors influence continued participation. Despite the broad previous evidence of the success of practice-oriented longitudinal curricular interventions, the effect of this kind of project on eventual GP career choice must be demonstrated and needs to be considered in relation to the effort involved.

Limitations

This study has some limitations. First, the study entry questionnaire response rate was lower than we had anticipated for the first of the three cohorts. This might limit the representativeness of the questionnaire-based results in the first year. However, a non-response analysis of those who provided their postal addresses but did not return the questionnaire considering age and gender did not indicate a sampling bias. The improved sampling procedure in the second year led to a better response rate, and we consider the overall response rate for the 3 years to be acceptable. As a second limitation, the reasons for taking part in the project were derived from students' short profiles which were used to introduce themselves to the participating GP mentors for matching purposes. Consequently, the reasons that they gave might have been influenced by social desirability. Finally, this study was conducted at a single German medical school, which may limit the generalisability of the findings.

Conclusion

The new extracurricular longitudinal general practice teaching project LeiKA was well accepted by first-semester students. Participation in the project seemed to be attractive to a broad range of students, not just for those who were already planning GP careers. This raises hopes for success in increasing the number of graduates entering GP careers in the future. The long-term effects of the project on actual GP career choice remain to be seen.

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Contributors AKG contributed to acquisition, analysis and interpretation of the data and drafting the manuscript. CS and SL contributed to data acquisition and analysis, and critically revised the manuscript. MN contributed to data interpretation and critically revised the manuscript. TF contributed to conception and design, data interpretation and critically revised the manuscript. TD contributed to conception and design of the study, data acquisition, analysis and interpretation and drafting the manuscript. All authors approved the final version of the article.

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Competing interests None declared.

Patient consent for publication Not required.

Ethics approval According to the regulations of the ethics committee of the Leipzig Medical Faculty, an explicit ethical approval is only necessary if epidemiological research includes personally identifiable information; this was not the case in this social research study. All participants were informed about the study's background and told that the statistically aggregated analysis of the data would not allow them to be personally identifiable. Participation in the study was voluntary. Completing and returning the questionnaire was interpreted as informed consent to take part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request.

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