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## WEB PAPER

# Mentoring medical students during clinical courses: A way to enhance professional development

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## Abstract

**Background:** Mentoring is known to develop professional attributes and facilitate socialization into a profession. Only a few structured mentoring programmes for medical students have been reported in the literature.

**Aim:** The objective of this study was to investigate undergraduate medical students' experiences and perceptions of one-to-one mentoring and whether they felt that the mentorship promoted their personal and professional development.

**Methods:** Medical students ( $n = 118$ ) during their third and fourth years of their studies were offered a personal mentor for 2 years and followed up via a questionnaire when the mentoring programme was completed. Statistical software was used to compute data. Open-ended questions were analyzed by content analysis.

**Results:** Most of the respondents experienced that the mentoring programme had facilitated their professional and personal development. The role of the mentor was experienced as being more supportive than supplying knowledge. The students appreciated talking to a faculty not connected with their courses. The few barriers to a successful mentorship were mainly related to timing logistics and 'personal chemistry'.

**Conclusions:** One-to-one mentoring during clinical courses seems to enhance the medical student's professional and personal development. Future studies are needed to get a deeper understanding and knowledge about factors of importance for successful mentorship.

## Introduction

Professional development is an important part of medical education, but there is no generally accepted model in use today on how to integrate these aspects in the medical school curricula (Archer et al. 2008). Mentoring is known to develop professional attributes (Lindgren 2000; Markakis et al. 2000) and facilitate socialization into the profession (Ramani 2006). Mentoring is also a way to reduce the students' anonymity on the university level (Woessner et al. 1998, 2000). Structured mentoring programmes for health professionals have been designed during the past few decades and literature describes various mentoring programme designs for doctors and medical students (Kalet et al. 2002; Buddeberg-Fischer & Herta 2006; Sambunjak et al. 2006). However, only a few structured mentoring programmes for medical students have been reported in literature, such as one-to-one mentoring, peer mentoring and group mentoring (Buddeberg-Fischer & Herta 2006). The duration and the goals of the reported programmes have varied and have focused mostly on students in the first years of mainly preclinical medical education (Buddeberg-Fischer & Herta 2006).

A 'mentor' is described to have multiple roles in the medical education literature. The interpretation of a 'mentor' can imply

## Practice points

- Professional development is an important part of medical education, but there is no generally accepted model in use today to integrate these aspects into medical school curricula.
- One-to-one mentoring during clinical courses, with the role of the mentor as a supporter and facilitator, enhances undergraduate medical student's professional and personal development.
- The students appreciated talking to a faculty not connected with their courses.
- Barriers for a successful mentorship were mainly related to time management, while other factors were motivation and 'personal chemistry'.
- Future studies are needed to get a deeper understanding of the significance of the personal (one-to-one) mentorship for professional and personal development of medical students and to increase the knowledge about factors of importance for successful mentorship relations.

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a preceptor, an assessor or a supervisor (Bray & Nettleton 2007). The roles of a mentor have also been described as those of an adviser, role model, coach, problem solver, teacher, supporter, organizer and guide (Ali & Panther 2008). The role of a mentor is also conceptualized differently between professions (Nettleton & Bray 2008) and the definitions of mentoring and mentors vary in literature (Berk et al. 2005).

A previous student-based evaluation of the undergraduate medical programme at Karolinska Institutet showed that medical students reported a lack of continuity during clinical courses and that they felt anonymous on the hospital wards because they encountered many different individuals for short periods of time (Hylin et al. 2009). The environment at the hospital was experienced as being new and the students felt that there were topics and experiences they wanted to share with a person from their own profession – but not with a teacher of the course they were attending at that time. In order to facilitate the students' learning and their professional development, a mentor programme was set up at Södersjukhuset, one of the teaching hospitals of Karolinska Institutet. All medical students in four subsequent courses starting their first clinical course, their fifth term (third year), were offered a personal mentor for 2 years. This mentoring programme was part of a larger project at Södersjukhuset (Söder Hospital) aimed at developing clinical teaching in general (Hylin et al. 2009). The objective of the mentoring programme was to facilitate the students' professional and personal development and to provide the opportunity to discuss topics that are not covered in the regular programme.

As only a few one-to-one mentoring programmes for undergraduate medical students have been described in literature (Buddeberg-Fischer & Herta 2006), there has been a need for more knowledge about the effectiveness of mentoring relationships (Berk et al. 2005; Sambunjak et al. 2006). It was also of interest to gain more knowledge and understanding of how this mentoring programme would affect the students' professional and personal development. The objective of this study was to investigate the undergraduate medical students' experiences and perceptions of one-to-one mentoring during clinical courses and whether they felt that the mentorship promoted their personal and professional development.

## Methods

### Students and their mentors

All medical students ( $n = 118$ ) at Södersjukhuset starting their first clinical course, i.e. their fifth term (four consecutive classes from January 2005 to August 2006), were included in the study. All assigned mentors ( $n = 101$ ) were voluntarily recruited physicians at the hospital and received a small financial compensation for being a mentor. They were invited to participate in a 2-day course before becoming mentors. The role of the mentor in this programme was to support the students and facilitate their professional development, but not to educate or check on skills and knowledge. The definition of mentor given by the Standing Committee on Postgraduate Medical Education (SCOPME) in the UK corresponds quite

well to the role of the mentor in this study, i.e. 'a voluntary relationship, typically between two individuals, in which: the mentor is usually an experienced, highly regarded, empathic individual, often working in the same organization, or field, as the mentee; the mentor, by listening and talking with the mentee in private and confidence, guides the mentee in the development of his or her own ideas, learning, and personal and professional development' (Bligh 1999). Students and mentors were randomly matched and met at any time that was convenient for them during the 2-year mentoring programme. However, they were recommended to meet 2–4 times per term.

### Follow-up questionnaire

The issues of interest for this study were the students' professional and personal development, the role of the mentor, their relationship and the content of their conversations. Another interesting issue was to identify barriers to a successful mentorship. This study focused on the students' perspective of the programme. Another study was conducted with a focus on the mentors' perspective (Stenfors-Hayes et al. 2010).

A follow-up questionnaire was developed partly based on an earlier mentoring evaluation questionnaire for undergraduate nursing students (Suen & Chow 2001) and a framework of undergraduate teaching activities (Ross & Stenfors-Hayes 2008). The questionnaire was tested on a focus group of six students who had experienced mentoring and then modified. The questionnaire was distributed electronically (Websurvey) to all students ( $n = 118$ ) in the four subsequent classes 1–14 months (mean 7 months) after the mentoring programme was completed. Participation was voluntary and it was possible to withdraw from the study at any time. The questionnaire was open to answering for 26 days. Three reminders were sent and the answering period was extended from 14 to 26 days in order to get a higher response rate. The questions were related to the students' relationship with the mentor, the content of their conversations, the influence on their factual knowledge and the students' professional and personal development. There were also questions about the frequency of meetings and barriers to meeting with the mentor. Most of the questions were fixed response items with four alternatives: *not at all*, *to some extent*, *to a great extent* and *to a very great extent*. Some questions were open ended and one involved a Likert scale of 1–6 (Hulley et al. 2007) where 1 indicated the worst possible and 6 the best possible rating.

### Analysis

A mixed method was used for the data analysis. The statistical software SPSS 15.0 was used to compute data and for statistical analysis. Nominal and ordinal variables were tested by the chi-squared test or Fisher's exact test. The results were regarded as significant if  $p < 0.05$ , two-tailed tests. Open-ended questions were analyzed by content analysis (Dahlberg 1993) whereby meaning units were identified and categorized.

## Results

### Characteristics of the participants

The response rate was 69%. Of the respondents, seven were excluded from the analysis as they had not met with their mentors at all. Consequently, the results of this study are based on the response of 74 of the 111 eligible students (66.7%). Fifty-seven of the respondents (77%) were aged 20–29 and 17 (23%) were aged 30 or older. Twenty-eight (38%) were men and 46 (62%) were women. Thirty per cent originated from the first class, 27% from the second, 26% from the third and 17% from the last class in the project.

Of the non-respondents, 50% were women, 77% were aged 20–29 and 23% were aged 30 or older. Twenty per cent originated from the first class, 30% from the second, 27% from the third and 23% from the last class. No significant differences could be found between respondents and non-respondents regarding gender, age or class.

### Meetings with mentor and barriers for meetings

During the 2-year mentoring programme, 38% of the respondents met their mentor six times or more, 41% met the mentor three to five times and 20% one to two times. Fifty per cent of the students had also met their mentors in other contexts than regular mentor meetings. They described these meetings in words as ‘Very instructive and stimulating to assist my mentor at the operating table’ (male student, aged 25–29) or ‘I followed him on his on-call duty a couple of times which was great’ (female student, aged 25–29).

Of the students, 76% ( $n=56$ ) experienced some kind of barrier to meetings with their mentor. The most frequent barriers were related to logistics and a lack of time (Figure 1). It was hard for students and mentors to synchronize their calendars for meetings, as both the students and the mentors lacked time. Some students were not in need of a mentor or

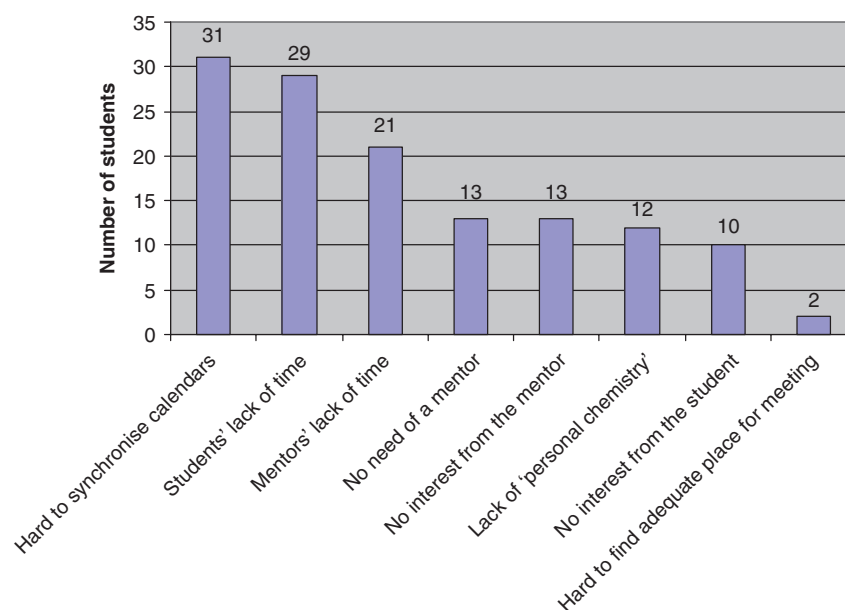
reported that the mentor was not interested. A lack of ‘personal chemistry’ was also reported as a barrier to mentor meetings by some students.

### Topics discussed

According to fixed response alternatives (i.e. multiple-choice answers), the most frequent topics discussed with the mentor were education in general, future career, the role of being a doctor and the combination of work and private life (Figure 2). Topics such as work environment, collaboration with other professions, ethical dilemmas and equality were discussed less. Female students discussed topics related to the role of a doctor ( $p=0.045$ ) and the work environment ( $p=0.005$ ) significantly more often than male students. Students aged 20–29 discussed topics related to the role of a doctor significantly more often ( $p=0.041$ ) than students aged 30 or older.

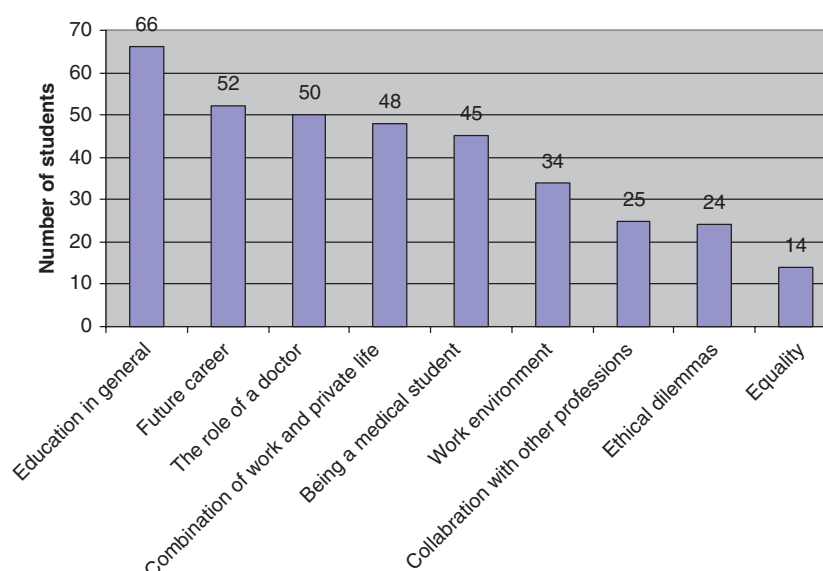
### The role of the mentor and the mentor–student relationship

The role of the mentor was experienced by the students as being more supportive than supplying knowledge. Eighty-nine per cent felt no negative stress or pressure from their mentor. On summarising all the positive responses (to some, a great or very great extent), 98% of the students felt that the mentor respected them, 89% that the mentor was interested in their needs and 81% answered that they received emotional support. Ninety-one per cent of the students felt that the mentor provided perspective and 87% felt that they received guidance. Seventy-two per cent had support from the mentor in finding alternative solutions to problems (Table 1). Among the students who answered *to a great extent* or *to a very great extent* to these questions, about 90% gave the mentoring programme the overall opinion 4, 5 or 6 on a Likert scale of 1–6. Ninety per cent of the students felt that the mentor met them on the right level of knowledge, 67% considered that



**Figure 1.** The students' experiences of barriers to meetings with their mentor.

Note: Multiple answers were accepted.



**Figure 2.** The students' experiences of topics discussed with mentor.

Note: Multiple answers were accepted.

**Table 1.** Students' experiences of the role of the mentor and their relationship.

Question	Not at all		To some extent		To a great extent		To a very great extent		Missing		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Did you feel respected by your mentor?	1	1.4	10	13.5	23	31.1	40	54.1			74	100
Did your mentor give you emotional support?	14	18.9	18	24.3	18	24.3	24	32.4			74	100
Did you feel negative stress or strain from your mentor?	66	89.2	1	1.4	5	6.8	2	2.7			74	100
Did your mentor share his/her own professional experiences with you?	2	2.7	21	28.4	26	35.1	25	33.8			74	100
Did you share your own experiences of being a student with your mentor?	3	4.1	33	44.6	19	25.7	19	25.7			74	100
Was your mentor interested in your needs?	7	9.5	20	27.0	23	31.1	23	31.1	1	1.4	74	100
Did your mentor give you guidance?	10	13.5	17	23.0	28	37.8	19	25.7			74	100
Did your mentor provide you perspective?	5	6.8	24	32.4	27	36.5	17	23.0	1	1.4	74	100
Did your mentor help you to find alternative solutions to problems?	19	25.7	26	35.1	18	24.3	10	13.5	1	1.4	74	100
Did your mentor stimulate you to think critically?	25	33.8	26	35.1	13	17.6	9	12.2	1	1.4	74	100
Would you consider your mentor as a role model for you?	20	27.0	25	33.8	17	23.0	10	13.5	2	2.7	74	100

the mentor was supplying knowledge and 65% felt that the mentor stimulated critical thinking. Seventy-two per cent of the students would consider their mentor as a role model for them (Tables 1 and 2).

### Professional and personal development

On summarizing all the positive responses, 78% of the students reported that the mentor programme had facilitated their professional development and 63% that it had facilitated their personal development. Sixty-two per cent reported that the programme had increased their self-confidence (Table 3). There were no significant differences related to age or gender in this respect.

### Students' opinions about the mentoring programme

The students were asked to give their overall opinion of the mentoring programme on a Likert scale of 1–6. The median

value for this question was 5. All students who had met their mentor six times or more rated the programme on the higher (positive) score levels of 4, 5 or 6. Female students rated the programme significantly higher than male students ( $p=0.035$ ); students aged 20–29 rated the programme significantly higher than students aged 30 or older ( $p=0.04$ ). Fifty per cent of the students had a relative or friend who was a physician. No difference was found between how they rated the programme in comparison to the students who did not have a physician among their relatives or friends. Nor was there any significant difference between how students from the four different classes rated the programme. When asked to describe what it was like to have a mentor, words related to *rewarding* and *good* were used. They also described it in terms of such words as *reassuring*, *fun* and *important*. Some students answered that having a mentor was *unnecessary*.

In open-ended questions, the respondents had the option to report what was positive and negative about the programme

**Table 2.** Students' experiences of the role of the mentor regarding learning and knowledge.

Question	Not at all		To some extent		To a great extent		To a very great extent		Missing		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Did your mentor meet you on the right level of your knowledge and ability?	5	6.8	13	17.6	30	40.5	24	32.4	2	2.7	74	100
Did your mentor supply you with knowledge about your course subjects?	23	31.1	27	36.5	14	18.9	9	12.2	1	1.4	74	100
Did the mentorship facilitate your learning about your course subjects?	36	48.6	29	39.2	2	2.7	6	8.1	1	1.4	74	100
Did the mentorship facilitate orientation in the clinical environment?	22	29.7	31	41.9	15	20.3	5	6.8	1	1.4	74	100

**Table 3.** Students' experiences of the mentorship regarding professional and personal development.

Question	Not at all		To some extent		To a great extent		To a very great extent		Missing		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Did the mentorship facilitate your professional development?	15	20.3	35	47.3	19	25.7	4	5.4	1	1.4	74	100
Did the mentorship facilitate your personal development?	26	35.1	22	29.7	18	24.3	7	9.5	1	1.4	74	100
Did the mentorship increase your self-confidence?	27	36.5	23	31.1	16	21.6	7	9.5	1	1.4	74	100
Did your mentor give feedback regarding your development?	41	55.4	17	23.0	10	13.5	4	5.4	2	2.7	74	100

and to suggest improvements. The results including examples of the meaning units from the students' responses related to each category are summarized in Table 4. Seven categories among the positive answers were identified, i.e. getting someone to talk to who is not connected with the course, getting insight into the professional role of a doctor, support, fellowship, continuity, getting to be seen and getting references. Five categories were identified among the negative statements, i.e. no need for a mentor, mentor not interested, hard to find time for meetings, unclear purpose and incompatible 'personal chemistry'. Proposed improvements in the programme were scheduled meetings with mentor and to have the possibility to choose your own mentor.

## Discussion

Our findings suggest that a one-to-one mentoring programme for medical students during clinical courses, with a supportive and facilitating role of the mentor, enhances professional development, even though there are students who are not motivated to participate in a mentoring programme. Having a mentor was a positive experience for most of the students in terms of both professional and personal development. However, the number of mentor meetings and the students' satisfaction varied. Having a mentor was described by the students as being rewarding, reassuring, good, fun and important. The students appreciated talking to a faculty not

connected with their courses. The most frequently discussed topics were education in general, future career and the professional role of a doctor. The students rated the programme high when the mentor gave emotional support, was interested in the students' needs, gave guidance and provided perspective. Other important factors for a successful mentorship were a motivated student, an interested mentor and that they met six times or more.

## Methods

The strength of this study is that it was based on a consecutive series of classes of medical students participating in the programme. The results are based on the respondents' experiences and perceptions of the mentoring programme at the time when they completed the questionnaire, 1–14 months after they had completed the mentoring programme. The answering rate was the highest in the first class even if they had completed the programme 14 months ago. Since perspectives and opinions can change over time, it was interesting to note that no significant differences were found between the consecutive classes in regarding their overall opinion of the programme. Most of the questions had fixed response alternatives, which may be seen as a weakness as some opinions and perceptions may have been disregarded; however, there were some open-ended questions which might possibly capture such data.



**Table 4.** Examples from the content analysis of students' comments about the programme.

Meaning unit	Category
Positive statements	
Opportunity to address problems and issues in a different context ...to have someone to turn to outside the school environment...	Getting someone to talk to who is not connected with the course
Get insight into the mentor's work The mentor shared his experiences ...someone to talk to who can give support...	Getting insight into the professional role of a doctor Support
My self-confidence has been strengthened ...had the same special interests as me ...a more experienced person who is like me...	Fellowship
That it extended over several terms Cohesive over time	Continuity
That my mentor was interested and listened That there was someone at the clinic you knew	Getting to be seen
Get good references for job applications To get a person for references	Getting references
Negative statements	
I had no need It was not important to me A bad mentor who wasn't interested I didn't hear from my mentor ...hard to find time suitable for both of us Hard to find enough time The purposes of the meetings were sometimes unclear Unclear what it would mean...	No need for a mentor Mentor not interested Hard to find time for meetings Unclear purpose
...I didn't feel so comfortable with my mentor... ...never felt natural to ventilate my problems...	Incompatible 'personal chemistry'
Proposed improvements	
The meetings more regulated That it was mandatory To request a mentor with a particular speciality To choose the mentor yourself	Scheduled meetings Have the possibility to choose your own mentor

## The role of a mentor

The role of the mentor in this study was to be a supporter and facilitator of the students' professional and personal development, but not to act as a teacher or supervisor providing knowledge. Therefore, we used literature where the role of the mentor was described in a similar way, while literature with an obviously different role of the mentor was excluded (Scheckler et al. 2004; Goldstein et al. 2005; Hoffman et al. 2006; Corwin et al. 2006; Heflin 2006; Nguyen & Divino 2007; Hoffman et al. 2008). Because of the multiple roles of 'mentor' in medical educational literature (Berk et al. 2005; Bray & Nettleton 2007; Nettleton & Bray 2008; Ali & Panther 2008) and the fact that the role of the mentor is not always clarified, it has to be taken into consideration that the referenced literature may comprise other roles of the mentor than those indicated in this study. As the role of the mentor has been reported to be an important factor for improving the mentoring process (Nettleton & Bray 2008), it was of interest to investigate how the students in this programme perceived the role of their mentors. Most of the respondents perceived their mentor as being emotionally supportive, respecting the students, being interested in the students' needs, sharing their own experiences, guiding and giving good advice. The role of the mentor was perceived less as that of a supplier of knowledge and the students did not feel any negative stress or pressure from their mentor. These findings verify that the mentors acted in a way which complies with the intention of the programme.

## Mentoring programmes

Mentoring has been found to be an important tool for career advancement, especially for women (Buddeberg-Fischer & Herta 2006). This is in line with our findings, as female students in this study were significantly more positive about the programme and discussed the professional role more often than male students. Incompatible 'personal chemistry' was reported by some students as a barrier to meetings with their appointed mentor. Since multiple answers were accepted regarding barriers, it was not uncommon that those students who reported 'lack of personal chemistry' also experienced other barriers for meetings with their mentor, for example lack of time. Other authors assert that each mentor-mentee relationship is unique (Berk et al. 2005) and that the relationship and 'personal chemistry' between mentor and mentee are of great importance for the effectiveness of mentoring (Jackson et al. 2003). Having a mentor that one does not like has been reported to be a reason for students to pull out of the programme (Woessner et al. 1998). In mentoring programmes similar to ours, with a large number of participants, it is, for practical reasons, difficult to let the students choose their own mentors, even if it might increase the possibilities of successful mentoring relationships. In any case, future studies are needed to identify factors of importance for successful mentorship relations. With regard to designs of mentoring programmes, this *one-to-one* mentoring programme was rated high and experienced as facilitating professional development by most of the responding students.

Other studies have found that medical students did not point out that it was important that the mentor mentored only *one* student (Nettleton & Bray 2008) but suggest that the number of students per mentor in mentoring groups should be reduced (Woessner et al. 1998). A successful factor in this programme was the increasing number of meetings between the student and the mentor. Since time is regarded as an important factor in improving the mentoring process (Woessner et al. 1998; Nettleton & Bray 2008) and barriers to meetings with the mentor were mainly related to time and a lack thereof, scheduled mentor meetings are to be recommended to facilitate the participation of students in an organized mentoring programme. As time was identified as a barrier, it would be valuable to emphasize skills of time management early in medical school training to prepare the students for professional practice.

### Implications for practice and future research

Even though personal mentoring was a positive experience for most of the students in terms of both professional and personal development, the requirements of personnel and economic resources to perform, organize and handle a one-to-one mentoring programme with a large number of students and mentors have to be taken into consideration in comparison with programme effectiveness. The role of the mentor as a supporter not connected with the courses can be recommended to enhance medical students' professional development. The frequencies of meetings are also of importance when performing such a programme. Future studies are needed to get a deeper understanding of the significance of personal (one-to-one) mentorship for professional and personal development of medical students and to increase the knowledge about factors of importance for successful mentorship relations.

**Declaration of interest:** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

### Notes on contributors

SARI PONZER initiated the mentoring programme and the study. All the authors contributed to the conception and design of the study.

SUSANNE KALÉN, gathered all data from respondents, analyzed data and wrote the draft of the article. All the authors contributed with valuable assistance and feedback. All the authors approved the final version for submission.

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