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WEB PAPER

Patient-centred attitudes among medical students: Gender and work experience in health care make a difference

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Abstract

Background: Previous studies of medical students' patient-centred attitudes show a decline across undergraduate education and overall higher scores for female students.

Aim: To assess undergraduate students' patient-centred attitudes at various stages of education and to explore possible associations between attitudes and age, gender and work experience in health care.

Methods: In autumn 2005, medical students in Gothenburg ($n = 797$) were asked to answer Patient-Practitioner Orientation Scale (PPOS), a validated instrument exploring attitudes towards the doctor-patient relationship. Data including gender, age, current term and students' work experience in health care were collected.

Results: Of 797 students 600 (75%) answered the questionnaire. No decrease of students' PPOS score across the curriculum was observed. PPOS scores from female students were higher compared to males ($p < 0.0001$) and female scores were significantly higher in the later terms compared with earlier ($p = 0.0011$). Female students had more experience from working in health care ($p = 0.0023$). Extended work experience was associated with higher PPOS only among females ($p = 0.0031$).

Conclusion: No decline of students' patient-centred attitudes may indicate an ongoing shift. Gender differences in patient-centred attitudes were reproduced. Work experience in health care presents a new gender difference. These gender differences should be considered when training patient-centred attitudes and skills.

Introduction

In 1969, the term 'patient-centred medicine' was introduced by Enid Balint as 'understanding the patient as a unique human being', thus opposing a general apprehension of medicine as being 'disease-centred' (Balint 1969). Research in the 1970s and 1980s developed and expanded these ideas (Byrne & Long 1976; Levenstein et al. 1986). The concept of patient-centred medicine has had an impact in the development of care during the last decades. It has also been criticized for being too wide a concept but the label 'patient-centred medicine' has a wide recognition (Bensing 2000; Roter 2000; Mead & Bower 2002). Patient-centred communication is helpful in building a working alliance with the patient and a tool of mediating doctor's professional competence to the patient–doctor relationship. The advantage of using patient-centred communication in the patient–doctor encounter is supported by a large body of research (Simpson et al. 1991; Stewart et al. 2000).

Due to this development and societal trends, a call for better communicative abilities of future doctors was heard from both the medical profession and the public. Learning patient-centred communication received high attention among medical educators, and communication skills curricula were

Practice points

- No decline of students' patient-centred attitudes across the medical curriculum was found. Previously reported gender differences were reproduced.
- Among female students, patient-centred attitudes were significantly higher in the later terms compared with the earlier terms.
- New findings were that female students had significantly more work experience in health care and that work experience among females was associated to higher patient-centred attitudes.
- The gender differences should be considered when training patient-centred attitudes and skills.

introduced, studied and developed at many medical schools (Aspegren 1999; Makoul 2001; Rubin 2002).

However, learning to communicate as a professional physician is a complex process. Research in medical education of learning communication has pointed out the interdependence of knowledge areas such as medical content, process skills of the consultation and professional attitudes

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(Colliver et al. 1999). At present, communication skills are core learning objectives in new emerging curricula of 'doctoring', personal and professional development (PPD courses; Hellquist et al. 2005).

In 1999, patient-centred attitudes of first-year medical students' were studied by a new instrument (Krupat et al. 1999). Female students scored higher on patient-centred attitudes than male students and were willing to work as equal partners and also to share information with patients. Patient-centred attitudes were positively associated with a higher rank of psychosocial issues and an interest in community and primary care practice. Gender differences were also seen in studies of students' development of patient-centred attitudes through stages of medical education (Haidet et al. 2002). Patient-centred attitudes were associated with female gender and studies in earlier years, while lower scores were associated with male gender and later year studies. However, the picture varies in studies of students patient-centred attitudes from Greece and Nepal (Shankar et al. 2006; Tsimtsiou et al. 2007) and in a Brazilian study, a small increase was found in students patient-centred attitudes across the curriculum (Ribeiro et al. 2007). Summing up these results, traditional doctor-centred attitudes seem to be connected to cultural and societal values of paternalism in the patient-doctor relationship. Even though some gradual changes appear to be evolving, doctor-centred attitudes still have a big influence during clinical education compared to the patient-centred attitudes. If we go to observational studies of medical students' behaviour, a decline of students' patient-centred skills is still reported during medical education (Pfeiffer et al. 1998; Hook & Pfeiffer 2007).

Results from previous research performed in the Gothenburg curriculum support these observational findings of behaviour. In an explorative qualitative assessment of supervisors' views of students' communication abilities in video consultations, a patient-centred introduction but also a main doctor-centred instrumental behaviour strategy was discerned. This study suggested that an instrumental strategy in students' behaviour was a stage in medical students' consultation training (Wahlqvist et al. 2005). In order to elucidate if an instrumental, doctor-centred strategy also was reflected in students' beliefs and values, students' patient-centred attitudes were approached. We assumed that an instrument assessing students' patient-centred attitudes would add further information.

Here, earlier reported gender differences in patient-centred attitudes were relevant. It was also considered, of interest, to analyse whether background factors could add a further understanding of variations among male and female students.

In Sweden, the median age for admission to medical education is 22 years (National Statistics in Sweden 2007) and many students have work experience from health care. Studies of the association between patient-centred attitudes and work experience of health care have not previously been reported.

The main aim of the study was to assess students' patient-centred attitudes at various stages of undergraduate medical education. A secondary aim was to explore the association between patient-centred attitudes and gender, age and work experience in health care.

Methods

The Gothenburg undergraduate medical curriculum comprises altogether eleven 6-month terms (T1–T11). The patient-centred perspective is introduced to students in a longitudinal strand of Early Professional Contact (EPC) (Hellquist et al. 2005), during the first two years of biomedical studies (T1–T4). Course content of EPC prepares the students to a 5-week consultation skills course in T5. In this course, patient-centred attitudes are developed and student's communication skills and clinical examination skills are assessed. The third and fourth years comprise clinical rotations, e.g. internal medicine and surgery. In T10, patient-centred approaches are addressed as explicit learning goals again in a community medicine module during the course of general practice.

Participants

There were 858 students attending the medical curriculum in the autumn of 2005. Sixty-one students of T7 attended an external clinical attachment in the course of internal medicine at several hospitals in the western region of Sweden. These students were not possible to reach and therefore had to be excluded. Thus, in all 797 students were eligible.

Procedures

Students in attendance on start-off day of the autumn term 2005 were asked to answer a questionnaire by their course leaders. Students were informed both orally and in writing that the survey was part of a research evaluation of the undergraduate medical education and that participation was anonymous and voluntary. They were given approximately 20 min to complete the questionnaire.

Data collection

Student characteristics

Students' age and gender were recorded together with current term of the medical curriculum.

Measurement of student patient-centred attitudes: Patient-Practitioner Orientation Scale instrument

A previously translated and validated 18-item instrument, Patient-Practitioner Orientation Scale (PPOS) was used (Appendix) (Krupat et al. 1999; 2000). Based on earlier research (Byrne & Long 1976; Levenstein et al. 1986), this instrument consists of two dimensions presented as 'Sharing' (paternalism vs. shared decision) and 'Caring' (objective-subjective/disease vs. illness). The dimensions are complementary and reflect central aspects the patient-doctor relationship that are of current interest in medical education worldwide. An analysis of the subscales was not pursued in this study.

A Swedish version of the PPOS instrument was used, previously and cross-wise translated by two bi-lingual persons. Reliability of the Swedish version was tested in two steps in

Table 1. Test–retest and language test, within 14 days, of the translated English-Swedish PPOS instrument.

Item	Test–retest (<i>n</i> = 43)		Language test (<i>n</i> = 65)	
	Six-point Likert ordinal scale	Aggregated	Six-point Likert ordinal scale	Aggregated
1	0.24	0.30	0.37	0.33
2	0.43	0.54	0.33	0.49
3	0.45	0.60	0.16	0.31
4	0.30	0.39	0.04	−0.03
5	0.51	0.67	0.34	0.39
6	0.20	0.38	0.29	0.37
7	0.37	0.44	0.27	0.09
8	0.35	0.44	0.31	0.51
9	0.52	0.60	0.28	0.22
10	0.40	0.59	0.33	0.42
11	0.38	0.51	−0.03	0.03
12	0.49	0.49	0.23	0.30
13	0.42	0.70	0.30	0.51
14	0.09	0.31	0.37	0.34
15	0.28	0.34	0.26	0.35
16	0.40	0.67	0.02	0.04
17	0.48	0.59	0.25	0.34
18	0.48	0.64	0.36	0.51

Notes: Evaluation of each item using kappa coefficient. Students from terms 4 and 6, autumn 2005. Medical school at Sahlgrenska Academy, University of Gothenburg.

our study. First, all students in term 6 who had responded to the Swedish version were asked to answer the instrument in English within 14 days. Of 88 eligible responses 65 (74%) were obtained. Second, another group of students, all students in term 4, were asked to answer the translated version in a test–retest procedure. Here, 43/89 eligible students responded (48%). An evaluation of the language test and the test–retest of was then performed, respectively, by using a Kappa coefficient analysis of each item in the questionnaire (Table 1).

Respondents were asked to agree or disagree with individual statements on a six-point Likert scale (1 = strongly disagree to 6 = strongly agree). PPOS score was computed as the mean of the scores for the 18 items (Haidet et al. 2002).

Work experience in health care

An additional question was included: 'Have you been working in health care?' With three response alternatives: (a) yes, many times/extended experience, (b) for a few weeks and (c) no/less than 1 week.

Statistical analysis

For test–retest and comparison of English and Swedish versions of PPOS items, kappa analysis was used. In this analysis, responses from each item were aggregated from six to three alternatives.

Group comparison for nominal data with two groups was done with Fisher's exact test. Comparison of means for continuous data with two groups was done with Student's *t*-test. Mann–Whitney's test was used in case of

skewed data. Comparison of PPOS between genders was done by logistic regression. In this analysis, gender was used as a dependent variable, while age and rank for PPOS score were used as independent variables.

Association between PPOS score and increasing term or age was estimated with multiple linear regression using rank for PPOS as dependent variable and term, gender and age as independent variables. A subanalysis was made for each gender.

Previous work experience in health care was dichotomized to extended experience versus none or small experience. Association between work experience in health care and mean PPOS score was estimated with multiple regression using rank for PPOS as dependent variable and work experience in health care, gender and age as independent variables. In the latter analysis, interaction between previous work experience and gender was also investigated. A subanalysis was made for each gender.

Ethics

The ethical research committee of Sahlgrenska Academy at Gothenburg University approved the study.

Results

Student characteristics

Of 797 invited students (men 311, women 486), attending the undergraduate medical curriculum, 600 students completed the questionnaire, giving an overall response rate of 75% (men 71%, women 77%).

The gender distribution of responding and non-responding students is depicted in Figure 1, illustrating the greater part of female students in the sample (63%). The respondents' age ranged from 18 to 49 years. Mean age was 26.1 years (men 26.3, women 26.0, ns). Seven students did not report gender and were omitted from further analysis.

Gender and age in relation to PPOS score

Female students displayed a higher overall PPOS mean score when compared to male students (men 4.20, SD ± 0.46, women 4.36, SD ± 0.36, $p < 0.0001$, logistic regression).

Male and female students both showed a positive association between PPOS score and age (men $p = 0.0096$, women $p = 0.030$, multiple linear regression).

PPOS score at consecutive terms of the curriculum

A positive association between later term and mean PPOS score was seen even when adjusting for gender and age ($p = 0.0061$, multiple linear regression) (Figure 2). Further analysis shows that this association between PPOS and later term can be shown among female students ($p = 0.0011$, multiple linear regression) but not among male students ($p = 0.41$, multiple linear regression).

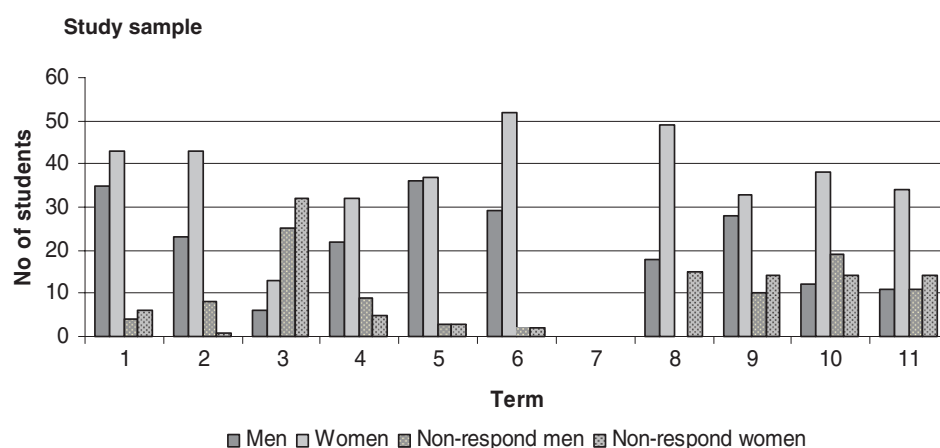


Figure 1. Study sample.

Notes: Students attending start-off day autumn 2005, $n = 593$. Response rate 75% (Men 71%, women 77 %). 17 students attended external attachments. Medical school, Sahlgrenska academy, Gothenburg university.

Table 2. Work experience in health care, gender and mean PPOS score among students at the medical school, Sahlgrenska Academy at University of Gothenburg ($n = 591$).

Work experience	Women	Men	Total
Extended period/many times ^a	170	74	244
Mean PPOS score	4.42	4.22	
A few times or none	201	146	347
Mean PPOS score	4.30	4.19	

Note: ^a Number of students.

Work experience in health care in relation to PPOS and gender

The association between work experience in health care and gender is illustrated in Table 2. Female students had more work experience when compared to male students (men 74/220, 33.6%, women 170/371, 45.8%, $p = 0.0023$, Fischer's exact test). A positive association between work experience in health care and mean PPOS score was seen even when adjusting for gender and age ($p = 0.0039$, multiple linear regression). Further analysis showed that the association between PPOS and work experience could only be seen among female students ($p = 0.0031$, multiple linear regression) but not among male students ($p = 0.58$, multiple linear regression).

Discussion

In this study, no decline of students' patient-centred attitudes across the medical curriculum was found. A small, but statistically significant, increase of the PPOS mean score across the curriculum (T1–T11) (Figure 2) was seen among female students but not in male students. Higher age was also significantly associated with higher PPOS scores. Female students had significantly longer experience from work in health care than male students. Finally, among female students, work experience in health care was associated with higher PPOS scores.

Comments on methods

Considering the size of the study population ($n = 797$), the response rate 75% seems acceptable in a voluntary survey of students in a Scandinavian medical school, when faculty assisted in distributing the questionnaires (Gude et al. 2005). There were 197 of 797 students who did not respond to the questionnaire. Failure to respond probably depended on late arrival to the call day at the university and that the necessary information did not reach latecomers. It is noted that the response rate was similar in male and female students throughout the curriculum.

Test–retest and language test analyses of the translated Swedish version of the PPOS instrument were performed, yielding acceptable kappa values (Table 1). However, three items of the language test; items 4, 11 and 16, have a low kappa value. Translations were checked and no errors were found. These items refer to the two complementary dimensions Sharing (item 4) and Caring (item 11 and 16). It is possible that these low kappa values in the language test to some extent might affect the results, especially of the Caring dimension. However, an analysis of the subscales was not pursued in this study and all PPOS items were kept in the analysis.

Students of T3 had a very low response rate (25%) due to administrative problems in collecting the questionnaire. In T10 and T11, male students' drop out rate is high (19/31, 61% and 11/22, 50%) and this circumstance should also be noted as a limitation. However, the large sample including the overall acceptable response rate along with the mentioned similarity between male and female drop out students compensate for these limitations. We assume that the drop out students would have a generally lower PPOS score than responding students as an expression of non-interest. It cannot be excluded that the low response rate of male students in T10 and T11, might affect the result of PPOS score at the end of the curriculum. If these male students would have participated, the total PPOS score would perhaps be lower. Therefore, in interpretation of the results, we put emphasis on the absence of a decline of PPOS scores across the curriculum instead of a statistically small increase.

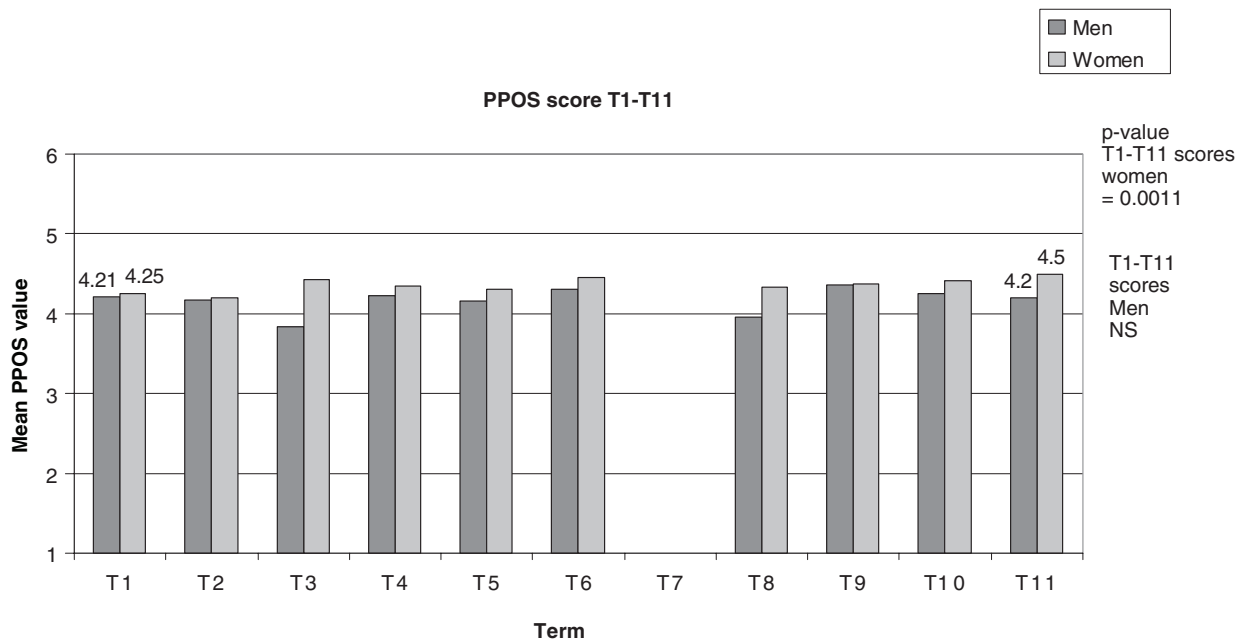


Figure 2. Mean PPOS score at consecutive terms of the curriculum. Students of the medical school at Sahlgrenska Academy, University of Gothenburg. $n = 593$.

Cross-sectional studies have limitations. An instant or 'frozen' picture of students' patient-centred attitudes at consecutive terms of the curriculum cannot generate developmental data of groups or individuals. Further, a structured questionnaire does not permit students to add descriptive and personal comments of importance. The PPOS instrument was easy to handle and no difficulties in completing the questionnaire were reported.

An instrument measuring attitudes towards the patient-doctor relationship in American health care might not be immediately transferable to a Scandinavian context. However, the PPOS instrument reflects central values and attitudes of the patient-doctor relationship that are current in most modern societies. In a review of reports of communication skills training programmes in medical education of 1999, a systematic use of validated international instruments was recommended, instead of reporting a plethora of locally developed evaluation instruments (Aspegren 1999). This project was an attempt to follow that recommendation.

In a research review of assessment of non-cognitive factors, attitude questionnaires are reported to have a place. The outcome of educational programmes can be evaluated by assessing changes at different points during the course (Cushing 2002). However, a major concern with questionnaire surveys is that students' beliefs and written attitudes are the research objects and not students' performance. This notion must be addressed since the link between attitudes and behaviour is questioned (Kaplan 1990; Levinson & Roter 1995). In assessment of different domains of knowledge in medical practice, a concept often referred to is Miller's clinical assessment pyramid (Figure 3; Miller 1990). Applying these ideas, patient-centred attitudes obtained from students in a questionnaire should refer to the level competence (Knows How). Higher levels in the Miller pyramid include performance

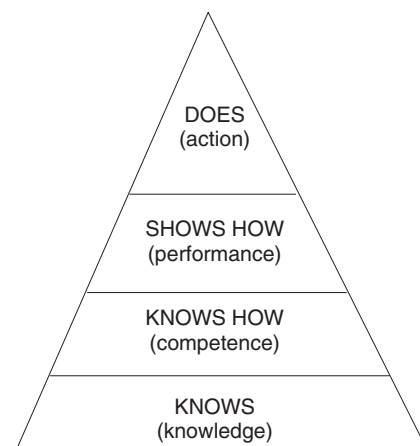


Figure 3. Miller's clinical assessment pyramid (1990).

(Shows How) and independent action (Does). Thus, student's application in practice of patient-centred attitudes also needs to be assessed.

Comments on results

Comparison of detailed data between reports may be biased from differences in language, cultures and specific educational contexts. Therefore, we do not compare scores between studies. However, the overall direction is interesting. The small increase of patient-centred attitudes at the end of education is a new finding compared to reports of a decline during undergraduate medical curriculum (Haidet et al 2002; Tsimitsiou et al. 2007). Changed societal values in Sweden of the patient's rights in the patient-doctor relationship during the 1990s may have contributed to the results, e.g. as they are

reflected in legislation of responsibilities for health care personnel (Svensk Författningssamling 1998).

We presume that our freshmen students might be older than in other countries. Median age for admission to undergraduate medical education in Sweden is 22 years. After finishing upper secondary school, many Swedish medical students have experience from a few years at work or other university studies.

We were interested in elucidating if a proposed instrumental doctor-centred strategy of behaviour was reflected in students' patient-centred attitudes. Present results do not support that students in our education acquire an attitude corresponding to a doctor-centred instrumental strategy. Instead, the absence of a decline of students' patient-centred attitudes suggests that a long-term development of a patient-centred strand comprising term 1–5 in the Gothenburg medical programme has been effective (Wahlqvist 2007). However, this study only focuses the attitudinal aspect of students' patient-centred abilities during medical education. More research is required to assess students' patient-centred abilities in clinical practice and to analyse the interaction of students' patient-centred attitudes and abilities (Colliver et al. 1999; Howe 2001).

Gender differences found in the study reproduced earlier findings (Krupat et al. 1999; Haidet et al. 2002; Tsimtsiou et al. 2007). Among female students, patient-centred attitudes were significantly higher in the later terms compared with the earlier terms. The same pattern was reported in a study of gender and attitudes to communication skills training: female students were more positive than men (Cleland et al. 2005). A similar gender difference, persisting through the medical curriculum, was found in a study of students' ethical attitudes (Price et al. 1998). Here, early socialization was suggested to have an impact. Parallel results are reported in a psychometric study of candidates to Scottish medical schools (Lumsden et al. 2005). Female applicants as a group were identified as being more empathic, with a greater communitarian orientation than men. Moreover, gender differences in empathy were recently reported throughout medical education (Hojat et al. 2009). The authors of this longitudinal study suggest that there are 'at-risk' medical students who are more vulnerable to losing their sense of empathy. Further, a large meta-analysis of observational studies of physicians' communication behaviour in practice concludes that female primary care physicians engage in more communication that can be considered patient-centred and have longer visits than their male colleagues (Roter et al. 2002). Summing up, we think these findings give support to our results.

Work experience, in general, is reported as a factor sometimes used in admission procedures to medical education, nationally or locally (Park et al. 2005). A Norwegian study showed a positive correlation between students' attitudes towards learning communication skills and previous work experience (Anvik et al. 2008), thus supporting our findings.

The present results show that extended experience of work in health care was more prevalent among female students (Table 2). This gender difference found in the relation between work experience and PPOS score is a new but not surprising result. Some of the female students who reported extended experience represent skilled health care personnel in

re-training (e.g. nurses, physiotherapists). However, it is intriguing why male students with extended experience from working in health care present low PPOS scores.

Gender-related learning events during clinical education, such as identification and role modelling could be important contributing factors to the gender difference. There might be a risk that male students, without a possibility to critically reflect on clinical events, easily imitate and gradually adopt a doctor- and disease-centred approach more common among male doctors (Roter et al. 2002). Here, the concept 'hidden curriculum' fits well to such unintended and non-reflected social learning processes in the clinical culture (Hafferty 1998; Hook & Pfeiffer 2007). Further research is needed in this field.

Many medical researchers and educators now pay more attention to personal continuity in the learning relationship (Tiberius et al. 2002) and organize longitudinal courses of PPD. These 'doctoring' or PPD courses strive to balance fragmentation of student-facilitator relationships in clinical education (Hirsh et al. 2007). Here, results from a recent study by Bell et al. at Harvard Medical School are very interesting. Albeit the sample was small, pilot students that attended a new third year clerkship including longitudinal mentorship demonstrated significant greater standardized measures of clinical aptitude and preservation of patient-centred attitudes, when compared to parallel students in a traditional clerkship model. The authors conclude that 'exposing' the hidden curriculum through specific longitudinal activities may prevent degradation of student attitudes about patient-centred care (Bell et al. 2008).

Implications for practice

Our findings suggest that further efforts are necessary in the clinical part of the medical curriculum, in order to reach a progression of students' patient-centred attitudes.

The gender differences found concerning patient-centred attitudes and work experience in health care should be considered when facilitating student groups and in education of teachers. We recommend that student small groups in medical education are mixed. Here, facilitators should be aware of the gender differences, elicit female students' view on patient encounters and encourage female students to contribute in group reflections. A patient-centred approach is a necessary part of clinical competence and 'fitness to practise' is required for tomorrow's doctors (General Medical Council 2009). In addition, the medical record that is learnt should also reflect these requirements (Donnelly 2005). It is of importance that patient-centred learning objectives are implemented and assessed (Biggs 2003) throughout medical education and not is regarded as curriculum plan 'poetry' among teachers. If many clinical teachers are educated in patient-centred skills and also involved in assessment, then students that need extra training will be identified (Deveugele et al. 2005).

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Appendix

Items of the Patient-Physician Orientation scale (Krupat et al. 2000).

Answered by respondents on a six-point Likert scale (strongly disagree–strongly agree).

- (1) The doctor is the one who should decide what gets talked about during a visit.
- (2) Although health care is less personal these days, this is a small price to pay for medical advances.
- (3) The most important part of the standard medical visit is the physical examination.
- (4) It is often best for patients if they do not have a full explanation of their medical condition.
- (5) Patients should rely on their doctors' knowledge and not try to find out about their conditions on their own.
- (6) When doctors ask a lot of questions about a patient's background, they are prying too much into personal matters.
- (7) If doctors are truly good at diagnosis and treatment, the way they relate to patients is not that important.
- (8) Many patients continue asking questions even though they are not learning anything new.
- (9) Patients should be treated as if they were partners with the doctor, equal in power and status.
- (10) Patients generally want reassurance rather than information about their health.
- (11) If a doctor's primary tools are being open and warm, the doctor will not have a lot of success.
- (12) When patients disagree with their doctor, this is a sign that the doctor does not have the patient's respect and trust.
- (13) A treatment plan cannot succeed if it is in conflict with a patient's lifestyle or values.
- (14) Most patients want to get in and out of the doctor's office as quickly as possible.
- (15) The patient must always be aware that the doctor is in charge.
- (16) It is not that important to know a patient's culture and background in order to treat the person's illness.
- (17) Humor is a major ingredient in the doctor's treatment of the patient.
- (18) When patients look up medical information on their own, this usually confuses more than it helps.