Do professional attitudes change during medical education?

"Students may have a staggering knowledge of disease but be naïve about human suffering".

(Weston & Lipkin 1989)
6.1 Abstract

Objective
The aim was to measure students’ professional attitudes, in particular the level of humaneness. The quality of humaneness was defined in terms of both patient-centredness and psychosocial orientation towards disease.

Method
Medical students completed a questionnaire designed to survey professional attitudes. Measuring instruments consisted of the Doctor-Patient Scale and the Social Context Scale, both containing statements of the Likert-type. Reliability and validity of the scales had to be established.

Sample
In total, 476 students from four different classes, both preclinical and clinical, were studied in a cross-sectional design.

Results
The expectation that the attitudes of senior students would be less patient-centred and less psychosocially oriented due to a process of dehumanisation, was not supported by the results. Differences in the attitudes of male and female students were also examined. Generally, female students held more patient-centred and psychosocially oriented attitudes than their male counterparts. The possible influence of measurement and educational factors upon students’ attitudes is also discussed.

Conclusion
No decrease in humaneness during medical education was detected. Gender differences in professional attitudes were visible. More validation of the scales has to be done.

6.2 Introduction
Attitudes form an important part of medical competence.\textsuperscript{1,2,3} The attitude of the physician influences the doctor-patient relationship, the outcome and the quality of care.\textsuperscript{4,5} A recent meta-analysis of 500 empirical studies on the relation between attitudes and behaviour showed a correlation of 0.49; it was concluded that attitudes play a central role in behaviour.\textsuperscript{6} Attitudes are defined as systems of beliefs, feelings and action intentions towards a given object.\textsuperscript{7} Attitudes can be investigated and
measured by questionnaires.\textsuperscript{8,9,10} In 1958 the medical educational establishment was challenged by the disturbing conclusions of a study concerning the attitude development of students.\textsuperscript{11,12} These conclusions stated that students appeared to become more cynical and less humane as a result of the medical education; self-interest was developing at the cost of respect for the interests and wellbeing of patients. Though Eron’s methods and results have been criticised,\textsuperscript{13} his results were repeated by later educational research.\textsuperscript{14,15,16} It has been established that attitudes are learned and can be modified.\textsuperscript{7,15,17} The unfavourable attitude development observed, also called ‘dehumanisation’, was ascribed to the predominantly biomedical orientation of the educational programme.\textsuperscript{15,18} Together, these findings provided the stimulus for medical schools to seek educational conditions which would enhance a more favourable attitude development amongst students.

In response to this, the Utrecht Medical School also began to consider which parts of the educational programme could best support positive attitude development among students. At the time of the study, the programme consisted of four years of traditional discipline-centred teaching, followed by two years of clinical clerkships. During each of these years a limited amount of time was devoted to courses fostering attitude development. No empirical data were available however concerning the attitudes actually held by students. In view of future curricular changes into a more biomedical orientation it was decided to record the existing attitudes of the students in a pilot study. The study was directed in particular to attitudes toward patients and disease.

Attitudes toward patients can be described by a dimension ranging from doctor-centred to patient-centred.\textsuperscript{19} In the case of a doctor-centred attitude, diagnosing pathological phenomena and curing physical disease are considered most important. The doctor-patient relationship can be described in terms of guidance-cooperation.\textsuperscript{20} A patient-centred attitude favours understanding the problem of the illness for the patient. The doctor has a listening approach to the patient; the doctor-patient relationship is based on mutual participation.

Attitudes toward disease can be described by a dimension ranging from the biomedical to the psychosocial.\textsuperscript{2} In a biomedical orientation, attention is payed to detectable biomedical factors causing disease. Disease is conceived as an objective, somatic phenomenon. A psychosocial orientation takes into consideration the psychosocial factors influencing health and illness. Illness is regarded in a broader, more subjective sense.
In several studies of attitudes to patients and disease, male doctors and students have been found to show more doctor-centred and biomedically oriented attitudes than their female colleagues.\textsuperscript{19,21,22}

One priority of the pilot study was to establish the reliability and validity of the measuring instrument, containing the Doctor-Patient Scale and the Social Context Scale. This required the use of a third scale designed to check the validity of the above-mentioned scales. After this testing of the measuring instrument, the questions of whether the attitudes of medical students were related to phase of medical education and to gender could then be investigated. The following outcomes were expected: senior students would have more doctor-centred and biomedically oriented attitudes than junior students, and male students would have more doctor-centred and biomedically oriented attitudes than their female counterparts. Students preferring biomedical specialties would show more doctor-centred and biomedically oriented attitudes than students preferring biosocial specialties.

6.3 Method

Subjects

The study was carried out in the 1989-1990 academic year and involved four classes of students in the Utrecht Medical School. Attitude scales were completed by the first year students (N=165), a number of students in their second year (N=53), all fourth year students (the last pre-clinical year; N=160) and all students in the sixth year (N=188), the final year of clinical clerkships. A total of 566 students participated. Questionnaires were distributed and completed under identical circumstances at the end of compulsory practical courses. The questionnaires were answered completely anonymously. In a written instruction it was stressed that respondents should express their own opinion and that data were to be treated confidentially. The research design was cross-sectional. The four classes consisted of both junior and senior students enrolled at the school at the time of the study.

Measuring instruments

The most common technique used to measure attitudes is that of the structured questionnaire of a scale-type.\textsuperscript{7,9,15}

The Doctor-Patient Scale by De Monchy et al. (1988) was employed as a measuring instrument for doctor- versus patient-centredness. This Likert-type scale measures attitudes toward patients and the doctor-patient relationship. It consists of 48 statements; the respondent expresses agreement or disagreement on a 5-point scale.
At one pole, a low score (1) indicates a doctor- and disease-centred attitude. The opposite pole, representing a patient- and problem-centred attitude, is indicated by a high score (5). Table 6.1 shows examples of statements.

Table 6.1 Examples of statements from the Doctor-Patient scale and the Social Context scale

<table>
<thead>
<tr>
<th>Doctor-Patient scale</th>
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</thead>
<tbody>
<tr>
<td>- Listening to patients is more efficient than talking to them.</td>
</tr>
<tr>
<td>- In deciding on the management of a given case the doctor should have the last word.</td>
</tr>
<tr>
<td>- &quot;Unclassifiable disease&quot; is an important domain of attention for every doctor.</td>
</tr>
<tr>
<td>- Clinical competence is based on knowledge and skills, very little on attitude.</td>
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<table>
<thead>
<tr>
<th>Social Context scale</th>
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<tbody>
<tr>
<td>- I am more interested in somatic aspects than in psychosocial aspects of disease.</td>
</tr>
<tr>
<td>- In most diseases psychosocial factors influence genesis and course.</td>
</tr>
</tbody>
</table>

De Monchy et al. (1988) have established a sufficient reliability (Cronbach alpha: 0.62) of the Doctor-Patient Scale to characterise doctor- and patient-centredness of British medical students’ and registrars’ attitudes. Moreover, an expert panel adequately recognised the items on the doctor-versus patient-centred dimension of the scale; this corroborated content validity. Construct validity was supported by higher, i.e. more patient-centred scores of general practice trainees in comparison to students and registrars; also, scores of women were more patient-centred than scores of men. In a validation study among Italian medical students, the difference between men and women was repeated; reliability was 0.85. De Monchy et al. (1988) have established a sufficient reliability (Cronbach alpha: 0.62) of the Doctor-Patient Scale to characterise doctor- and patient-centredness of British medical students’ and registrars’ attitudes. Moreover, an expert panel adequately recognised the items on the doctor-versus patient-centred dimension of the scale; this corroborated content validity. Construct validity was supported by higher, i.e. more patient-centred scores of general practice trainees in comparison to students and registrars; also, scores of women were more patient-centred than scores of men. In a validation study among Italian medical students, the difference between men and women was repeated; reliability was 0.85.23 A validation study among US medical students showed mean scores and standard deviations comparable to the British study, with a reliability of 0.69.24 For the study in Utrecht, reliability and validity of the Dutch version (translated) had to be established.

The Social Context Scale was developed for this study8,10 to measure the attitude toward disease. This 5-point scale of the Likert-type consists of 10 statements on the importance of somatic versus psychosocial factors in health and illness. One pole (score 1) represents a biomedically oriented, the other pole (score 5) a psychosocially oriented attitude. The statements have been derived from themes in the attitude-aimed courses of the Utrecht curriculum and from the literature.2,25 Examples of statements
can be found in Table 6.1. Validity and reliability of the Social Context Scale had to be established.

To avoid response-sets, the statements were formulated using alternatingly humane and technological terms. Answers to statements were given a score. Statement scores were transformed into final mean scale scores. Final scores of 3.5 or above were called humane, final scores of 2.5 or below were called technological. The neutral score between humane and technological ranged from 2.5 to 3.5.

Questions relating to background variables such as gender, previous education and specialty preference were added. A preference was defined as biosocial if it consisted of family medicine, psychiatry or community medicine; a biomedical preference was represented by surgery, neurology and biomedical research. To study scale validity another questionnaire was completed at the same time. It contained a scale regarding traits of the Ideal Physician, expressed in terms of cure versus care.26

Data-analyses

The four different classes of junior and senior students have been compared on background variables via Chi-square and Scheffé test. Differences between classes and between men and women on final mean scale scores have been tested by Student’s $t$-test for independent samples. P-values of .05 and lower were considered significant. It was decided to use a two-sided test since subjects were studied for the first time without prior empirical data on the direction of their attitude development. Data have been analysed by analysis of variance (SAS procedure GLM).

Reliability and validity

To study internal consistency of the scales, Cronbach’s alpha, a habitual test of reliability,27 was calculated. A value of 0.50 has been mentioned in the literature as a sufficient criterium for reliability when comparing final scale scores on group level.28 Reliability for all 476 respondents was 0.77 for the Doctor-Patient Scale and 0.73 for the Social Context Scale. Amongst the four classes variations between 0.73 to 0.88 were found on the Doctor-Patient Scale and between 0.70 to 0.81 on the Social Context Scale. These results are comparable to other findings on the Doctor-Patient Scale.19,23,24 We did not study reliability by repeated tests to avoid a possible learning effect from the first measurement, contaminating the second test. Parallel forms or equivalent halves of the attitude scales were not yet available. Validity was investigated using four different criteria: content validity, convergent and discriminant validity and construct validity.28,29 The translated version of the
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Doctor-Patient Scale resembles attitude scales used before in Dutch attitude studies\textsuperscript{30,31,32} but is more encompassing. This corroborates content validity. Statements of the Social Context Scale are derived from themes in the Utrecht medical education programme and as such are recognisable to the students. This strengthens face validity.\textsuperscript{33}

For convergent validity subscores of both scales were correlated with scores on the extra attitude scale mentioned above (measuring cure- versus care-oriented attitudes). Pearson correlations between subscores on the Doctor-Patient and Social Context Scale were 0.61 and 0.64 respectively. Correlations between related subsets of items on the other two scales were: for the Doctor-Patient Scale between 0.35 and 0.49 for the Social Context Scale between 0.78 and 0.90. This partly sustains convergent validity. The correlation between items on the Doctor-Patient Scale and unrelated subsets on the Social Context Scale was 0.23, corroborating the discriminant validity of the Doctor-Patient Scale. Social Context-items correlated 0.58 with unrelated Doctor-Patient-items. This only partly upholds discriminant validity of the Social Context Scale.

Construct validity was studied in two ways: female students’ scores were compared to male’s scores; according to expectation, women scored higher on both scales, into a more patient-centred and context oriented direction than men (P< 0.001 and P< 0.002 respectively). This strengthened construct validity of both scales. Secondly, students preferring biomedical specialties were compared to their counterparts preferring biosocial specialties, with outcomes as expected, the former scoring into a more doctor-centred and biomedically oriented direction (P< 0.001 on both scales), thus further corroborating construct validity of the Doctor-Patient and Social Context Scales. Specialty preference and gender may be correlated; however, they each contributed their unique part.

Although further validation is needed, we conclude from our data that validity and reliability of the translated version of the Doctor-Patient Scale and of the newly developed Social Context Scale are adequate to describe students’ attitudes toward patients and disease.

6.4 Results
A total of 489 forms has been collected. For years one, two, four and six, the response rates were 89\%, 93\%, 84\% and 79\% respectively. The mean response rate was 86\%. 13 Forms were incomplete or unfit for analysis. A total of 476 forms remained.
Analysis of background variables did not reveal differences between the four classes of students in terms of gender, self-reported level of grades or prior education.

**Attitude**

The final scale score of doctor-versus patient-centredness was 3.5 (SD=0.24); the final scale score of biomedical versus psychosocial orientation was 3.4 (SD=0.46). These scores were situated between the neutral and humane side.

**Phase of education**

Analysis of variance showed no influence of educational phase on patient-centredness (Table 6.2). In psychosocial orientation, however, differences were apparent. The senior students in year four and six scored higher and appeared to have a greater level of humaneness than their first-year counterparts.

<table>
<thead>
<tr>
<th></th>
<th>Patient-centredness</th>
<th>Psychosocial orientation</th>
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<tbody>
<tr>
<td></td>
<td>Mean Square</td>
<td>P</td>
</tr>
<tr>
<td>Gender</td>
<td>0.97</td>
<td>0.001</td>
</tr>
<tr>
<td>Phase</td>
<td>0.01</td>
<td>0.93</td>
</tr>
<tr>
<td>Difference</td>
<td>CI 95 %</td>
<td></td>
</tr>
<tr>
<td>Means</td>
<td></td>
<td></td>
</tr>
<tr>
<td>year:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>0.01</td>
<td>-0.10-0.12</td>
</tr>
<tr>
<td>2-4</td>
<td>0.03</td>
<td>-0.09-0.14</td>
</tr>
<tr>
<td>1-4</td>
<td>0.02</td>
<td>-0.06-0.09</td>
</tr>
<tr>
<td>4-6</td>
<td>0.01</td>
<td>-0.08-0.07</td>
</tr>
<tr>
<td>1-6</td>
<td>0.01</td>
<td>-0.07-0.08</td>
</tr>
<tr>
<td>2-6</td>
<td>0.02</td>
<td>-0.09-0.13</td>
</tr>
</tbody>
</table>

* comparisons significant at 0.05 level; the direction of all differences is: a higher score for students of later years.
A surprising finding was that the students’ answers to both scales appeared to be highly consistent. In all four classes the statements receiving the highest final scores as well as statements receiving the lowest final scores were identical.

Gender
Analysis of variance showed an influence of gender on both scales (Table 6.2). Female students generally scored the same as or more highly than male students; they have more patient-centred and slightly more psychosocially oriented attitudes, as can be seen in Table 6.3 and Table 6.4. At item-level, a difference between male and female students was also visible: women scored more highly on 21 of 48 items of the Doctor-Patient Scale and were more patient-centred (P<.05). Scores were equal on the remaining 27 items. On the Social Context Scale women scored also more highly on 6 out of 10 items (P<.05), indicating a greater psychosocial orientation. Scores were equal for the remaining 4 items.
Analysis of variance did not show an interaction between phase of education and gender on Doctor-Patient or Social Context scores.

Table 6.3 Differences in final mean Doctor-Patient scores (patient-centredness) of male and female students. The highest possible score is 5, the lowest is 1

<table>
<thead>
<tr>
<th></th>
<th>women</th>
<th>men</th>
</tr>
</thead>
<tbody>
<tr>
<td>year 1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>year 2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>year 4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>year 6</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>all</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 6.4 Differences in Social Context scores (psychosocial orientation) of male and female students. The highest possible score is 5, the lowest is 1.

6.5 Discussion
The expression of humaneness, in terms of patient-centredness and psychosocial orientation in students’ attitudes, appears to remain unchanged during the course of six years of medical education. Contrary to expectation, and the findings of other authors, no decreased patient-centredness or psychosocial orientation has been found in attitudes of senior students. Generally, attitudes toward patients seem to remain ‘slightly humane’. Attitudes toward disease seem to be neutral in junior students but slightly more humane in senior students, even after clinical clerkships. Psychosocial orientation even appears to have increased as students proceed through the educational process. As expected, female students show slightly more humane attitudes than their male colleagues; the observed differences are small but statistically significant.

The main result of the study, a stable level of humaneness, could have been influenced through some unseen measurement factor. It is possible that the attitude scales are not sufficiently sensitive to detect existing differences in students’ attitudes. However, since differences between men and women in patient-centredness and psychosocial orientation were visible, and because research using the Doctor-Patient Scale elsewhere has revealed differences in gender and phase of education\textsuperscript{19,23} it is improbable that the Doctor-Patient Scale is insensitive. Further validation of the
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scales is needed, however. Students’ answers to scale statements may have been influenced by social desirability. Although the existence of response sets can never be totally ruled out, we took precautions to minimise any bias. Care was taken to instruct the students to express their own opinions, to guarantee the anonymity of the response, to alternate the terms the statements and to ensure the confidential treatment of data. It cannot be not excluded however that students preferred patient-centred and psychosocially oriented answers because these were more acceptable, according to societal norms, than doctor-centred or biomedically oriented alternatives. If this is the case, students’ answers could be regarded as strategies to show acceptable attitudes. Students would then appear to be knowledgable of what patient-centredness and psychosocial orientation include. They would at least be aware of the social desirability of some attitudes compared to others and are able to show humane attitudes at a strategic moment. It has been pointed out that students are active accommodators to educational demands and do not absorb examples of attitudes passively; the norms and values they express can vary according to circumstances.

The possibility that attitude scales measure relatively stable and unchanging personality traits rather than modifiable attitudes can be discarded because in the British study the Doctor-Patient Scale showed clearly different attitudes between groups of students and registrars. Other authors have found that students beginning their education with humane attitudes and warm personality traits are able to retain these attitudes and traits as they proceed. Perhaps the same is true for our population, due to the relatively large number of female students in the study. Female students seemed to have somewhat more humane attitudes than men. It may be that demonstration of these attitudes by female students, who formed a small majority in student groups during coursework, permitted male students to retain their attitudes through medical school.

Differences in attitudes between male and female students appear constantly, from the first to the final year of medical education. This may be caused by differences between men and women in responding to questionnaires, but other authors mentioned above have also found gender differences in attitudes of medical students and practising physicians. In the literature this difference is commonly explained as the result of a process of gender socialisation and psychological development. In a societal process, norms and values for customary behaviour of men and women are transmitted and internalised. On an individual level, women seem to develop at an early stage a greater psychological potential for personal involvement and empathy in
relationships, thus entering medical school with different attitudes than men.
The stability of attitudes in different classes and the slightly more humane attitudes of students in senior years can be indicative of an absence of dehumanisation in the professional socialisation. Considering the predominantly biomedical content of the educational programme, this finding is remarkable. The existing attitude-aimed courses possibly have a counterbalancing influence, resulting in a net stability in students’ attitudes. In course evaluations by self-assessment students have reported repeatedly a benefit in attitudes.\textsuperscript{38,39} The existence of a counterbalancing influence by specific course cannot be investigated within the design of this pilot study and remains as a hypothesis for further research. Likewise it could be assumed that a general process of maturation exists in students relatively independent of curriculum content or experience.
Since the stability in attitudes has been found in a cross-sectional design involving groups of different students, no definite conclusions on a longitudinal development can be drawn as yet. A longitudinal study following the same students during different phases of education is needed for further insight.

6.6 Conclusion
In this pilot study surveying junior and senior students’ attitudes, humane to neutral attitudes toward patients and disease have been found. There seemed to be no difference in patient-centredness between junior and senior students even after clinical clerkships. In psychosocial orientation differences were found: senior students appeared to have more psychosocially oriented attitudes. These findings seem to indicate a stability in humaneness instead of dehumanisation in attitudes as students proceed in their education. Attitude-aimed courses may have provided a counterbalancing influence.
Female students were found to hold more patient-centred and slightly more psychosocially oriented attitudes than their male counterparts. This is probably the effect of a societal process of gender socialisation resulting in different attitudes in men and women.
Since these results were obtained in a cross-sectional design, caution in longitudinal interpretation is needed. In future studies more validation work on the attitudes scales is to be done.
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6.7 References


