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Helmich, Esther; Derksen, Els; Prevoo, Mathieu; Laan, Roland; Bolhuis, Sanneke; Koopmans, Raymond

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Medical students' professional identity development in an early nursing attachment

Esther Helmich,¹ Els Derksen,¹ Mathieu Prevoo,¹ Roland Laan,² Sanneke Bolhuis² & Raymond Koopmans¹

OBJECTIVES The importance of early clinical experience for medical training is well documented. However, to our knowledge there are no studies that assess the influence of very early nursing attachments on the professional development and identity construction of medical students. Working as an assistant nurse while training to be a doctor may offer valuable learning experiences, but may also present the student with difficulties with respect to identity and identification issues. The aim of the present study was to describe first-year medical students' perceptions of nurses, doctors and their own future roles as doctors before and after a nursing attachment.

METHODS A questionnaire containing open questions concerning students' perceptions of nurses, doctors and their own future roles as doctors was administered to all Year 1 medical students ($n = 347$) before and directly after a 4-week nursing attachment in hospitals and nursing homes. We carried out two confirmatory focus group interviews. We analysed the

data using qualitative and quantitative content analyses.

RESULTS The questionnaire was completed by 316 students (response rate 91%). Before starting the attachment students regarded nurses as empathic, communicative and responsible. After the attachment students reported nurses had more competencies and responsibilities than they had expected. Students' views of doctors were ambivalent. Before and after the attachment, doctors were seen as interested and reliable, but also as arrogant, detached and insensible. However, students maintained positive views of their own future roles as doctors. Students' perceptions were influenced by age, gender and place of attachment.

CONCLUSIONS An early nursing attachment engenders more respect for the nursing profession. The ambivalent view of doctors needs to be explored further in relation to students' professional development. It would seem relevant to attune supervision to the age and gender differences revealed in this study.

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¹Department of Primary and Community Care, Centre for Family Medicine, Geriatric Care and Public Health, Radboud University Nijmegen Medical Centre, Nijmegen, the Netherlands

²Department of Medical Education, Radboud University Nijmegen Medical Centre, Nijmegen, the Netherlands

Correspondence: Esther Helmich, Department of Primary and Community Care (ELG-117), UMC St Radboud, PO Box 9101, 6500 HB Nijmegen, the Netherlands. Tel: 00 31 24 361 88 34; Fax: 00 31 24 361 95 58; E-mail: e.helmich@elg.umcn.nl

INTRODUCTION

There is growing evidence that early clinical experience plays an important role in medical students' professional development.^{1–4} Learning outcomes include empathy towards patients, an understanding of the impact of disease, confidence in meeting patients and the development of communication skills.⁴ Early clinical experiences help students to learn about the roles and responsibilities of different health care professionals² and enhance the development of a professional identity.⁵

Internationally, most early clinical experiences offered to students are supervised clinical placements or attachments to a community or to single patients.⁴ At our university medical centre, the first clinical experience offered to medical students is a nursing attachment which students undertake in the first year of medical school at an average age of 18–19 years. Literature reporting on nursing attachments is scarce.^{6–8} However, being a member of the nursing team instead of being attached to a doctor-preceptor may offer students a different perspective on the roles and responsibilities of nurses and doctors.

Learning by observation is one of the key concepts in the social learning theory developed by Bandura.⁹ Learners observe and reject or accept modelled behaviour.^{9,10} Therefore, it would seem relevant to know what behaviours medical students witness in medical practice and if they intend to implement what they observe into their own future professional behaviour. Learning on this so-called 'hidden-curriculum' is thought to represent a profound way of learning to be a professional.^{11,12}

Several socio-cultural learning theories focus on participation in teams or so-called 'communities of practice', in which identity is constructed in interaction with other individuals within a given social context.^{13,14} During a nursing attachment medical students become short-term members of the nursing team. Belonging to a social group is a central feature of social identity theory.¹⁵ A process of social comparison leads to the definition of an 'in-group' with similar characteristics and attitudes, and an accentuation of the perceived differences with the 'out-group'. Thus, it may be challenging for medical students in nursing attachments to identify with medical professionals as part of a nursing team while training to be doctors.

Another issue concerning identity and identification is gender. In a Swedish study which considered Year 2

medical students' reflections on being a doctor, male and female students expressed the same ideas about the requirements of a good doctor.¹⁶ However, female students emphasise caring characteristics more than men do.^{16,17} It seems to be especially difficult for female students to identify with a future role as an outstanding, ambitious professional who has demanding duties, but is at the same time confronted with strong social expectations about family commitments.^{16,18} By contrast, during a nursing attachment, students become part of a female-dominated nursing community, which may pose challenges, especially for male students.¹⁹

As identities are constructed within a social context, relationships and the learning environment are other central components of the identification process.²⁰ Learning environments differ with respect to the learning atmosphere, opportunities for active participation and recognition of students' individuality.^{21–24} Nursing homes may foster a care-oriented attitude more than hospitals, which may be inherent in the nature of patient care delivered.

The aim of the present study was to describe Year 1 medical students' perceptions of nurses, doctors and their own future roles as doctors before and after a 4-week nursing attachment in a hospital or nursing home, and to relate these to age, former experiences with patients and gender. We formulated the following research questions:

- 1 What are students' perceptions of nurses and doctors before and after a Year 1 nursing attachment?
- 2 How do students construct their identities as future doctors based on experiences in a Year 1 nursing attachment?
- 3 Are students' perceptions related to age, former patient experiences, gender or place of attachment?

METHODS

Participants

All Year 1 undergraduate medical students at the Radboud University Nijmegen Medical Centre participate in a 4-week nursing attachment on a hospital ward or nursing home ward. Students are assigned to three successive groups. The attachment is scheduled from November to January inclusive. The main

purposes are to familiarise students with patients and stimulate reflection on professional behaviour. After a short introduction, students participate actively in patient care, working as assistant nurses. After 2 weeks and at the end of the attachment, students attend small-group reflection meetings supervised by faculty staff.

Data collection

Students completed a questionnaire with open-ended and closed questions during the introductory and final small-group sessions before and directly after the attachment. Completing the whole survey took them about 30 minutes. In this paper we report on one part of the questionnaire containing three open-ended prompts asking for keywords describing the main characteristics of nurses, doctors and students' own future roles as doctors. We asked for keywords or ultra-short descriptions to encourage students to express condensed perceptions.²⁵

To triangulate the data we carried out two focus group interviews with five students each. The interviews were audiotaped and listened to by the first researcher (EH). Because the focus groups were only used as member checks, we did not consider verbatim transcription to be necessary.

Ethical considerations

In the Netherlands ethical approval of medical education research is not yet required, so instead we discussed the aims and design of the study with the main educators in this attachment and with a member of the education management team at our medical school. The first author (EH) informed all students about the study at the beginning of the attachment and invited them to participate. Participation was fully voluntary. We considered the return of a completed questionnaire to represent the provision of informed consent. Students were randomly asked to participate in the additional focus groups through a personal e-mail from the first author, which explained the design and purpose of the interviews. A positive reply was considered to represent informed consent.

Analysis

We performed qualitative and quantitative content analyses. Three researchers (EH, ED, MP) clustered all keywords into sub-categories and broader main categories. This categorisation was used to give a thematic, qualitative description of students' percep-

tions of nurses, doctors and themselves as future doctors.

The same three researchers independently coded the keywords in accordance with this categorisation and labelled students' answers within one sub-category as positive/high, ambivalent/neutral or negative/low. Quantitative content analysis started with counting frequencies. For further analysis we used only answers with frequencies > 10% and recoded them into dichotomous variables (mentioned/not mentioned). We carried out a logistic regression analysis to reveal associations between medical students' perceptions as dependent variable, and age, gender, former patient experiences and place of attachment as independent variables. We used SPSS Version 16.0 (SPSS, Inc., Chicago, IL, USA) for all statistical procedures.

RESULTS

Of the 347 Year 1 medical students, 316 completed at least one of the questionnaires, before or after the attachment (response rate 91%). A total of 296 students completed the first and 293 completed the second questionnaire. We were able to compare both questionnaires for 217 students. Among them were 156 females, 74% of whom were younger than 20 years. Most students (91%) had entered medical school directly after pre-university secondary education and about half of them still lived with their parents. A total of 143 students already had patient experience, mostly with family members or friends. Equal numbers of students were allocated to hospital wards or nursing homes (Table 1).

The answers to the first questionnaire contained 2586 keywords, equally distributed around perceptions of nurses, perceptions of doctors and perceptions of students' own future roles as doctors. In the questionnaire completed after the attachment, students gave less extended but more concrete and compact descriptions, using 997 keywords. By analysing all keywords, we identified 14 different sub-categories which could be clustered into three broader categories: individual features, work-related features, and external appreciation (Table 2). Students in the focus group interviews recognised and confirmed this categorisation.

Perceptions of nurses before and after the attachment

Before the attachment, students reported almost exclusively positive perceptions of the personal

Table 1 Characteristics of respondents (n = 217)

	<i>n</i>	Percentage
Gender		
Female	156	72%
Male	60	28%
Missing	1	
Age		
17–19 years	160	74%
≥ 20 years	56	26%
Missing	1	
Highest educational level		
Pre-university secondary education	198	91%
University degree	18	8%
Higher vocational education	1	1%
Living situation		
Living with parents	99	47%
Living independently	109	50%
Living with partner and/or children	5	2%
Missing	4	
Patient experience*		
None	74	34%
Patients in family	110	51%
Patients by (voluntary) job	52	24%
Patients by education	14	7%
Patient care as professional	3	1%
Place of attachment		
Nursing home	107	49%
Hospital	110	51%

* More than one answer was allowed on this item

characteristics of nurses (Table 3). Nurses were seen as careful, patient, kind, honest and reliable. Students considered nurses to be skilled and competent, and nursing work to be highly computerised and organised. Students expected nurses to have a central role in patient care, involving physical care and being intimate and personal. Teamwork was seen as an important aspect of working as a nurse. Students expected the workload to be high, but they also thought of nurses as taking time for coffee, small talk and gossip. Nurses were known to have undergone an intermediate or higher vocational training, but students regarded them as having low status and as underpaid.

After the attachment, students' perceptions of the individual characteristics of nurses remained highly

positive, although they now also included more negative characteristics, such as unkindness. We also found more negative comments on work-related features, especially considering job content. Some students reported that nurses undertake dirty work with a lot of administration. The workload was considered to be high by some students; others reported a lower workload than they had expected. Despite these perceptions, students in general remained highly positive. Nurses spent even more time with patients than students had expected. Many students reported that nurses 'know more, do more and are able to do more' than they had believed before. Students stated they had gained more insight into and more respect and appreciation for the roles and competencies of the nursing profession.

Perceptions of doctors before and after the attachment

Medical students' perceptions of doctors before the attachment were rather ambivalent. Students thought some doctors would be kind and careful, but others might be unpleasant and arrogant. Doctors were seen as interested and involved, but also as detached and insensible. Students considered doctors to be highly skilled and competent, but to spend too little time with patients. According to students, doctors had high workloads, faced difficult problems and bore high levels of responsibility. Students expected doctors to have high social status.

After the attachment students reported that they had observed many different types of doctors and thus their perceptions remained ambivalent. They met some very friendly doctors, but others were authoritarian. Students considered some doctors to be creative and honest, whereas other doctors 'need to remediate their professional behaviour'. In the opinion of students, some doctors spent too little time with patients, but others were very involved. Comments were made about teamwork and the nurse–doctor collaboration, which in several cases was considered to be very hierarchical.

Students' future roles as doctors before and after the attachment

Before the attachment, students' perceptions of their own future roles as doctors were exclusively positive. As future doctors they were determined to be kind and social, empathic and careful. Students emphasised contact with patients and colleagues. Students were looking forward to pleasant, satisfying, varied, interesting and well-paid jobs. They considered their

Table 2 Categorisation of medical students' perceptions of nurses, doctors and own future roles as doctors

Main categories	Sub-categories	Examples
Individual features	Personal characteristics/attitudes	Careful, patient, helpful, arrogant, serious, unpleasant, empathic
	Personal professional qualities	Competent, intelligent, skilled, expert
	Factual general descriptions	Female/male, old/young, white coat
Work-related features	Role towards patients	Key role, inform and advise patients, short interactions
	Teamwork/collaboration	Confidence in other team members, hierarchical
	General characteristics of work	Impressive, interesting, satisfying, varied
	Organisation/allocation of work	Irregular shifts, computerised
	Workload	Busy, work hard, emotional burden, physically demanding
	Job content/specific tasks	Dirty work, physical care, surgery, cure, administration
	Complexity of tasks and problems	Difficult decisions, routines, making choices
	Knowledge and skills required	Continuing medical education, learning from experience
	Range of responsibility	Leadership, able to do more than they are allowed to
External appreciation	Status (in society)	Underpaid/well paid, high/low social status
	Students' appreciation	Respect, admiration, role model, positive general perception

future jobs as physically and emotionally demanding, impressive, intensive and responsible, and thought working as doctors would leave them little leisure time. Students expected to be required to make difficult decisions and commented on the need to have a great deal of knowledge in advance, but to be able to learn from experience as well. They expected that being a doctor would mean they were respected, would have authority and would serve as a role model in health care as well as in social life.

After the attachment students still emphasised their wishes to become good doctors, to remain social and empathic and (in 17 cases) to behave differently from the way they had seen doctors behave in this attachment. A substantial number (98 students, 31%) expressed a general positive view: 'I am looking forward to it; I think it will be great!' Many students (61%) left this question unanswered or reported that they had 'no ideas at this moment, because it is still far away'.

Changes in medical students' perceptions

The most consistently mentioned keywords were about doctors' personal attitudes and professional qualities (Table 4). New comments reflected in particular on negative personal attitudes of doctors and their negative roles for patients and, by contrast, students' own positive personal attitudes and positive roles for patients.

Associations between students' perceptions and age, former patient experiences, gender and place of attachment

Before the attachment younger students (aged 17–19 years) more frequently expected nurses to have a high workload (odds ratio [OR] 2.4) than older students (aged ≥ 20 years) did. After the attachment younger students reported an increase in appreciation for the nursing profession less frequently (OR 0.5). Younger students more often commented on their own future professional qualities. Having no former patient experiences appeared to be an indicator for more frequent reports on job content for nurses and on a high workload as a future doctor before the attachment and a high workload for nurses after the attachment (Table 5).

Gender appeared to have significant associations with medical students' perceptions, especially before the attachment. Female students less often mentioned positive personal attitudes in doctors (OR 0.5), but more often expressed ambivalent or negative perceptions (OR 2.5). Women commented more often on their own future professional qualities (OR 2.1) and on having a positive role for patients (OR 3.7), but were less likely to mention status in society (OR 0.3) when considering their own future. After the attachment these associations had disappeared, but women more often reported an increase in appreciation for the nursing profession (OR 3.0).

Table 3 Year 1 medical students' perceptions of nurses, doctors and their own future roles before (n = 296) and after (n = 293) an early clinical attachment

	Before, n (%)	After, n (%)
Nurse: positive personal attitudes	204 (69%)	13 (4%)
Nurse: negative personal characteristics	18 (6%)	4 (1%)
Nurse: professional qualities	107 (36%)	16 (5%)
Nurse: factual general descriptions	44 (15%)	2 (< 1%)
Nurse: positive role towards patients	71 (24%)	27 (9%)
Nurse: negative role towards patients	2 (1%)	1 (< 1%)
Nurse: good teamwork	26 (9%)	1 (< 1%)
Nurse: bad teamwork	3 (1%)	0 (0%)
Nurse: high workload	84 (28%)	48 (16%)
Nurse: comments on job content	53 (18%)	18 (6%)
Nurse: comments on status in society	13 (4%)	0 (0%)
Nurse: students' respect	6 (2%)	104 (35%)
Doctor: positive personal attitudes	98 (33%)	59 (20%)
Doctor: negative personal attitudes	99 (33%)	66 (23%)
Doctor: professional qualities	193 (65%)	30 (10%)
Doctor: factual general descriptions	36 (12%)	5 (2%)
Doctor: positive role towards patients	31 (11%)	13 (4%)
Doctor: negative role towards patients	15 (5%)	33 (11%)
Doctor: good teamwork	10 (3%)	24 (8%)
Doctor: bad teamwork	9 (3%)	18 (6%)
Doctor: high workload	85 (29%)	18 (6%)
Doctor: comments on job content	22 (7%)	1 (< 1%)
Doctor: high range of responsibility	36 (12%)	3 (1%)
Doctor: comments on status in society	37 (13%)	1 (< 1%)
Own future: positive personal attitudes	61 (20%)	43 (15%)
Own future: professional qualities	50 (17%)	15 (5%)
Own future: positive role towards patients	53 (18%)	47 (16%)
Own future: good teamwork	44 (15%)	20 (7%)
Own future: general characteristics of work	136 (46%)	18 (6%)
Own future: high workload	165 (56%)	13 (4%)
Own future: comments on job content	42 (14%)	5 (2%)
Own future: high complexity of task	38 (13%)	0 (0%)
Own future: high range of responsibility	57 (19%)	2 (< 1%)
Own future: comments on status in society	33 (11%)	1 (< 1%)
Own future: positive general perception	2 (< 1%)	98 (33%)

Whether a respondent had been allocated to a hospital or to a nursing home did not seem to make much difference. However, we found an association

Table 4 Changes in Year 1 medical students' perceptions of nurses, doctors and their own future roles before and after an early clinical attachment; paired comparisons (n = 217)

	Mentioned before and mentioned after, n (%)	Not mentioned before but mentioned after, n (%)
Nurse: positive personal attitudes	9 (4%)	0 (0%)
Nurse: professional qualities	4 (2%)	7 (3%)
Nurse: positive role towards patients	5 (2%)	19 (9%)
Nurse: high workload	16 (7%)	19 (9%)
Doctor: positive personal attitudes	19 (9%)	8 (4%)
Doctor: negative personal attitudes	27 (12%)	12 (6%)
Doctor: professional qualities	24 (11%)	5 (2%)
Doctor: positive role towards patients	3 (1%)	6 (3%)
Doctor: negative role towards patients	1 (< 1%)	23 (11%)
Doctor: good teamwork	1 (< 1%)	17 (8%)
Doctor: bad teamwork	1 (< 1%)	14 (7%)
Doctor: high workload	8 (4%)	8 (4%)
Own: positive personal attitudes	5 (2%)	31 (14%)
Own: professional qualities	1 (< 1%)	12 (6%)
Own: positive role towards patients	14 (7%)	28 (13%)
Own: good teamwork	2 (1%)	14 (7%)

between being in a hospital and the reporting of negative personal attitudes in doctors (OR 1.9).

Summary of main findings

Medical students have positive perceptions of nurses that grow even more positive after a Year 1 nursing attachment. By contrast, many students remain or become critical of the perceived distance between doctors and patients, and the hierarchical way doctors collaborate with nurses, which resonates with findings from former research.^{6,8} Despite these observations, students maintain exclusively positive about their own future roles as doctors, focusing on empathic communication with patients and

Table 5 Medical students' perceptions (mentioned versus not mentioned) and associations with age, former patient experience, gender and place of attachment

		OR (95% CI)
Before		
Nurse: high workload	Age 17–19 years (ref. age ≥ 20 years)	2.4 (1.4–4.4) [†]
Nurse: comments on job content	No patient experience (ref. prior patient experience)	2.4 (1.1–5.3)*
Doctor: positive personal attitudes	Female gender (ref. male)	0.6 (0.3–1.0) [†]
Doctor: ambivalent or negative personal attitudes	Female gender (ref. male)	2.5 (1.4–4.4) [†]
Own future: professional qualities	Age 17–19 years (ref. age ≥ 20 years)	2.6 (1.4–5.0) [†]
	Female gender (ref. male)	2.1 (1.0–4.4)*
Own future: high workload	No patient experience (ref. prior patient experience)	1.9 (1.1–3.1)*
Own future: positive role towards patients	Female gender (ref. male)	3.7 (1.7–8.1) [†]
Own future: high status in society	Female gender (ref. male)	0.3 (0.1–0.6) [†]
After		
Nurse: high workload	No patient experience (ref. prior patient experience)	3.3 (1.2–8.9)*
Nurse: high students' appreciation	Age 17–19 years (ref. age ≥ 20 years)	0.5 (0.3–1.0)*
	Female gender (ref. male)	3.0 (1.6–5.6) [†]
Doctor: ambivalent or negative personal attitudes	Hospital (ref. nursing home)	1.9 (1.0–3.5)*

Multiple logistic regression analysis; only significant associations are presented

* $p < 0.05$; [†] $p < 0.005$

OR = odds ratios; 95% CI = 95% confidence interval

We also carried out a logistic regression analysis for the following items, but found no other significant associations:

- Nurse: positive personal attitudes
- Nurse: professional qualities
- Nurse: factual general descriptions
- Nurse: positive role towards patients
- Doctor: professional qualities
- Doctor: factual general descriptions
- Doctor: high workload
- Doctor: positive role towards patients
- Doctor: negative role towards patients
- Doctor: high range of responsibility
- Doctor: high status in society
- Own future: positive personal attitudes
- Own future: good teamwork
- Own future: general characteristics of work
- Own future: comments on job content
- Own future: high complexity of task
- Own future: high range of responsibility

respectful collaboration with nurses and other professionals. Students' perceptions are related to age, former patient experiences, gender and place of attachment.

DISCUSSION

Our study suggests that this first introduction to medical practice might be different for younger

students compared with their older colleagues. Younger and less experienced students more often focus on workload, job content and the professional qualities expected from them in the future. These students less often reflect on personal or role characteristics of nurses, doctors and themselves as future doctors. Former research has already revealed that critical thinking and identity status vary a great deal among pre-clinical students and Year 1 students display the least mature reflections.²⁶

Providing even very young students with early clinical experiences seems to be important for their professional development, provided that supervision and feedback consider differences between students adequately.

Female students especially are highly ambivalent with respect to the personal attitudes of doctors. They emphasise a positive role for patients more frequently than their male counterparts and consider high social status to be less important when reflecting on their own future. Particularly before entering medical practice, it may be difficult for female students to identify with the predominantly masculine perceived characteristics of doctors. By contrast, it may be easier for female students to fit into a feminine nursing culture, which may be reflected in a greater increase in appreciation for the nursing profession after a Year 1 nursing attachment.

After the attachment students commented on nurses in rather general terms, such as by indicating respect, but used greater numbers of different keywords to refer to the personal and role characteristics of doctors and themselves as future doctors. Although they were part of the nursing team and spent relatively little time with other health care professionals, they seem to have struggled particularly with the observed behaviour of doctors and its consequences for their own future behaviour. Apparently, students select doctors as the 'in-group' with which to identify, but at the same time feel a better fit with the more care-oriented attitudes of the nursing profession. Although this identity dissonance may lead to powerful emotional disruptions,²⁰ it seems highly important to provide students with care-oriented role models early in medical education.

Nursing attachments in a hospital resulted in more negative perceptions of the personal attitudes of doctors. Our findings suggest that the nursing home is not only an appropriate site in which students can learn medical skills and develop a positive attitude towards older and chronically ill patients,^{27–29} but it may also offer good opportunities for students to develop collaborative and patient-centred behaviour.

One of the strengths of our study is its use of keywords to gain highly focused descriptions of students' perceptions. In addition to other methodologies, this may represent a useful way of opening a window on a specific component of the hidden curriculum.³⁰ Possibilities for paired comparisons were limited because of large differences in the numbers and distributions of keywords used before

and after the attachment. A more structured assessment probably would have been helpful. However, in-depth, longitudinal and qualitative methods seem especially appropriate ways of gaining more evidence about the lasting influence of an early nursing attachment on medical students' perceptions of nurses, doctors and the development of their own identities as doctors.

In conclusion, a Year 1 nursing attachment is a very powerful learning experience which we recommend is offered to all students early in their medical education. More research is needed to clarify the possible emotional and behavioural consequences of identity dissonances that are likely to emerge. It seems important to know more about the differences between students in their abilities to learn reflectively and critically from clinical experience and to adapt supervision to accommodate these differences.

Contributors: EH, SB and RK contributed to the conception and design of the study. EH, ED, RL and RK contributed to the acquisition of the data. EH, ED, MP and SB analysed and interpreted the data. EH wrote the first draft of the article and all authors revised it critically for important intellectual content. All authors approved the final version of the manuscript.

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