



## Nursing students' changing orientation and attitudes towards nursing during education: A two year longitudinal study

Yvonne ten Hoeve, MA, PhD candidate, researcher<sup>a,\*</sup>, Stynke Castelein, PhD, Senior researcher<sup>b</sup>,  
Wiebren S. Jansen, PhD, Assistant professor<sup>c</sup>,  
Gerard J. Jansen, RN, PhD, Senior lecturer and researcher<sup>d</sup>,  
Petrie F. Roodbol, RN, PhD, Professor of Nursing Science<sup>a,d</sup>

<sup>a</sup> University of Groningen, University Medical Center Groningen, School of Nursing & Health, P.O. Box 30.001, 9700 RB Groningen, The Netherlands

<sup>b</sup> Lentis Research, Lentis Psychiatric Institute, P.O. Box 86, 9700 AB Groningen, The Netherlands

<sup>c</sup> Utrecht University, Department of Social and Organizational Psychology, Heidelberglaan 1, 3584 CS Utrecht, The Netherlands

<sup>d</sup> Hanze University of Applied Sciences, School of Nursing, Master of Advanced Nursing Practice, Eyssoniusplein 18, 9714 CE Groningen, The Netherlands

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### ABSTRACT

**Background:** Previous studies have shown that nursing students' perceptions of nursing change over time. Little research has been undertaken in the Netherlands of students entering nursing programmes and of how they progress.

**Objectives:** The aims of this study were to explore whether nursing students' orientation and attitudes towards nursing changed over time, when these changes occurred, and what factors influenced the changes. We also aimed to identify the factors which prompted them to consider leaving their programmes, and what factors affected their motivation to stay.

**Design:** The study used a longitudinal quantitative design.

**Participants:** Questionnaires were administered to all students enrolled in a Bachelor's of Nursing programme at four nursing universities of applied sciences in the Netherlands ( $n = 1414$ ). The data for this study were collected during the first two years of the programme, from September 2011 to June 2013. A total of 123 respondents completed the survey each year and this group was used to examine changes over time.

**Methods:** At four time intervals respondents completed a survey consisting of 1) the Nursing Orientation Tool, 2) the Nursing Attitude Questionnaire and 3) background characteristics. Non-parametric tests were used to explore changes in factor scores over time.

**Results:** The results showed an improvement in the students' orientation and attitudes towards knowledge, skills and the professional roles of nurses, while empathic behaviour decreased over time. Although the changes showed non-linear patterns over time, the results showed clear effects between the different time points. The reasons for attrition (24%) proved to be related both to problems with the educational programme and to personal problems. An important motivator for students to stay in the course was their passionate desire to become nurses, suggesting that the positive aspects of a nursing career dominated the problems they encountered.

**Conclusions:** Tutors and mentors should pay more attention to the individual perceptions and problems of first and second-year students, both in the classroom and during clinical placements. Knowledge of the students' perceptions from the very beginning could be vital to study success.

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### 1. Introduction

Several studies have explored students' reasons for becoming nurses. Both intrinsic factors, such as an altruistic motivation to help other people and a personal interest in healthcare (Halperin and Mashiach-Eizenberg, 2013; Jirwe and Rudman, 2012; Rogstad, 2002), and extrinsic factors, including job security, social status, employment opportunities and the ability to enter tertiary education, appear to influence career choice significantly (Mooney et al., 2008; McLaughlin et al., 2010; Wilkes et al., 2015). Moreover, past experiences as patients or

\* Corresponding author at: University of Groningen, University Medical Center Groningen, School of Nursing & Health, P.O. Box 30.001/FC 14, 9700 RB Groningen, The Netherlands.

E-mail addresses: [y.ten.hoeve@umcg.nl](mailto:y.ten.hoeve@umcg.nl) (Y. ten Hoeve), [s.castelein@lentis.nl](mailto:s.castelein@lentis.nl) (S. Castelein), [w.s.jansen@uu.nl](mailto:w.s.jansen@uu.nl) (W.S. Jansen), [gr.j.jansen@pl.hanze.nl](mailto:gr.j.jansen@pl.hanze.nl) (G.J. Jansen), [p.f.roodbol@umcg.nl](mailto:p.f.roodbol@umcg.nl) (P.F. Roodbol).

with the hospitalization of loved ones, and prior health work experience were motivating factors which made students decide to become nurses (Day et al., 2005; Larsen et al., 2003). Students choose nursing for altruistic and professional reasons, where they see nursing as a profession focused on saving lives and improving healthcare through professional knowledge, which requires expertise and exercising responsibility (Halperin and Mashiach-Eizenberg, 2013; Manninen, 1998). With regard to professionalism, previous studies showed that the perceptions of nursing students changed as they progressed in their educational programmes, and moved from having a lay image to a professional image of nursing (Day et al., 2005; Karaoz, 2003). They revealed less idealistic views of nursing in terms of caring and helping people, and they spoke of nursing in more professional terms as they progressed in their programmes (Bang et al., 2011; Bolan and Grainger, 2009; Sand-Jecklin and Schaffer, 2006). During their educational programmes, students' perceptions of caring changed and they developed a stronger professional self-concept, including satisfaction, skill, leadership, flexibility, communication and the ability to cope with the role of being a nurse (Mackintosh, 2006; Watson et al., 1999a,b). The students who participated in the study by Safadi et al. (2011) started their programmes with traditional altruistic views, but they developed more biomedical, technological views during their education.

Nursing students' conceptions of nursing are largely based on discussions and dialogues between students and teachers at school, and on real observations made in clinical settings (Grainger and Bolan, 2006; Manninen, 1998; Sand-Jecklin and Schaffer, 2006). Students with experience in clinical settings were more focused on aspects of the professional nursing role (Cowin and Johnson, 2011; Safadi et al., 2011). The study by Day et al. (2005) and Sand-Jecklin and Schaffer (2006) showed that students' perceptions of nursing changed as a result of classroom experiences. Interaction with teachers and other students made students realize that nursing was an academic profession. Education programmes not only provide students with new knowledge and skills, but also with changing views on clinical practice, nursing roles and the professional values of nursing.

Healthcare education programmes have recently undergone a thorough change as a result of which the nursing workforce has transformed into a highly educated profession. Radical change in healthcare education took off in the Netherlands when the Bologna agreement was concluded in 2002. The Bachelor's–Master's structure in higher education, including vocational education, was introduced. Nursing students were confronted by a profound change from vocational training to higher education due to the Bologna process. It seems plausible that this change to a higher educational level resulted in more academic requirements, which may have an impact on preliminary withdrawal from the course by students who are more practically minded. It could be suggested that their focus might be less on the professional values, nursing roles, nursing practice and clinical decision-making that are some of the competence categories affected by the Bologna agreement (Salminen et al., 2010).

Nowadays, the Bachelor's of Nursing in the Netherlands is a four-year programme. In the first year, the students gather theoretical knowledge, practical work and communication skills. In the second year, they learn to work in more complex care situations and they complete a clinical placement of 10–20 weeks. The third year consists of a 20 week clinical placement and choosing a specialist nursing area for their final year. The fourth and final year focuses on working and doing research in clinical practice. The aforementioned change in the educational programme may have influenced students' commitment to their studies and to their future profession. The aforementioned change in the educational programme may have influenced students' commitment to their studies and to their future profession. This is an important issue, as commitment reflects an individual's desire to be part of a profession, and is a prerequisite for retention and/or attrition. Clements et al. (2016) explored the links between commitment and attrition, and the results of their study showed that students considered

commitment as essential to managing the demands of their educational programme.

High drop-out rates for student nurses, especially in the first two years of their educational programme, is a growing global concern. In the UK the average attrition rates for student nurses range between 20% and 40% (Clements et al., 2016; Willis, 2015). The attrition rates in Canada are 10–40% (Canadian Nurses' Association, 2009; Grainger and Bolan, 2006), and Australia faces attrition rates up to 40% (Dragon, 2009; Health Workforce Australia, 2014). In the Netherlands attrition rates for student nurses range between 20% and 50%, and are nationally more or less the same (the Netherlands Association of Universities of Applied Sciences; in Dutch: Vereniging Hogescholen, 2016). All these figures refer to attrition rates in the first two years until the year before graduation. However, we must be careful when interpreting these figures, as different definitions are used to describe attrition, and an accurate calculation of attrition rates is complex. Figures provided by the participating universities in our study showed that 45% of students left the programme during the first two years of their education. It is therefore interesting to explore the reasons for early withdrawal and the relationship with students' orientation and attitudes towards the nursing profession.

## 2. Objectives

The aim of this study was twofold: 1) to explore whether nursing students' orientation and attitudes towards nursing change over time; and when these changes occur, 2) to explore whether and why they ever considered withdrawing from their educational programme, and what intrinsic and extrinsic factors affected their motivation to stay.

## 3. Methods

### 3.1. Study Design and Sample

A longitudinal quantitative survey design was used. Respondents were recruited from four nursing universities of applied sciences in the Netherlands. Questionnaires were administered to all students enrolled in the Bachelor's of Nursing programme.

### 3.2. Instruments

Students completed a three-part questionnaire consisting of a) the Nursing Orientation Tool (Vanhanen et al., 1999), b) the Nursing Attitude Questionnaire (Toth et al., 1998), and c) background information. The Nursing Orientation Tool (NOT) (Vanhanen et al., 1999) is a widely used self-report instrument and consists of 17 items using a five-point Likert scale. The instrument measures students' orientation towards nursing using three subscales: caring, nursing expertise and life orientation. The caring orientation is based on students' meaningful caring and nursing experiences either in their families or in working life ('A nurse must have a powerful need to take care for others'). The nursing expertise orientation is based on professional nursing experience ('I expect this training to give me a possibility to progress in my career'). Life orientation is based on the need to maintain a balance between family life and studies ('I do not want to make decisions in my life that would risk my family being together') (Vanhanen and Janhonen, 2000b, p. 655). The validity and reliability of the tool were tested in previous studies (Janhonen et al., 2000; Vanhanen and Janhonen, 2000a). The Nursing Attitude Questionnaire (NAQ) was developed by Toth et al. (1998) and is one of the earliest tools for measuring attitudes towards nursing. Attitude towards nursing was defined theoretically 'as the view that persons hold regarding the roles, values, and professional activities of nurses, and the responsibilities nurses have towards society' (Toth et al., 1998). The NAQ consists of a 30-item questionnaire using a five-point Likert scale. The reliability of the NAQ was tested in previous studies (Bolan and Grainger, 2009; Grainger and Bolan, 2006; Toth et al.,

1998). However, these studies used the scores across the entire NAQ to compare demographics or interventions, not content areas. No factor analysis was performed to test its construct validity. It is not clear which items contribute to which factor or dimension of the 'attitude towards nursing' concept. To reduce the NAQ items to a smaller number of coherent subscales, we submitted the questionnaire to closer inspection. Twelve items were removed based on open discussions of their intended meaning and group consensus, resulting in eighteen items for inclusion for further analysis. Two core concepts were clearly differentiated: Nursing Agency and Advocacy & Empathy (Ten Hoeve et al., 2016). We tested the factorial structure of the reduced NAQ, and the results of the Exploratory Factor Analysis and the Confirmatory Factor Analysis showed that the reduced NAQ was suitable for further analyses (Ten Hoeve et al., 2016). A forwards-backwards translation process was performed for both instruments (the NOT and the NAQ) to ensure content and semantic equivalence and applicability to the Dutch cultural context.

The background questions were related to gender, age, past problems with study programmes, preliminary training, living status and nursing experience. Moreover, students were asked whether they chose nursing as their first-choice programme, and whether they had decided to make a career in nursing. At the end of the second year of their programme, students were also asked whether they had considered withdrawing from the programme, and their reasons for withdrawal. Students who had considered withdrawing but remained were asked what their motivations were for continuing.

### 3.3. Data Collection

The data for this study were collected at the beginning of the educational programme (September 2011), after six months' study (March 2012), at the beginning of the second year (October 2012) and at the end of the second year (June 2013), which is halfway through their course. Arrangements were made with the deans and Faculty Boards of each nursing university to permit teachers to use 15 min of their class time to distribute and collect the questionnaires.

### 3.4. Data Analysis

The continuous variables were non-normally distributed and non-parametric repeated measures tests were therefore used to test students' changing orientation and attitudes towards nursing. Chi-square tests were used to compare the categorical variables, and Mann-Whitney *U* tests captured differences in scores on the NOT and the NAQ between the longitudinal group ( $n = 123$ ) and the rest of the initial large group ( $n = 1121$ ) at baseline (T0). A Friedman test was used to test changes in scores on the NOT and the NAQ over time, followed up by post-hoc Wilcoxon Signed Rank Tests to test when significant differences in orientation and attitudes occur. A conventional significance level of  $p < 0.05$  was used.

### 3.5. Ethical Issues

Permission to execute this study was obtained from the deans and Faculty Boards of each university. Students were informed in the covering letter about the purpose and the confidentiality of the study, that participation was strictly voluntary and that they could withdraw from the study at any moment without consequences.

## 4. Results

At T0 (September 2011), a total of 1244 completed questionnaires were returned, which is a response rate of 88%. However, the follow-up responses were substantially lower, with 583 questionnaires returned at T1 (March 2012), 463 at T2 (September 2012), and 403 at T3 (June 2013). Of the initial 1244 students, 123 completed the survey

each time, which also means that they managed to complete the first two years of their programme. This group ( $n = 123$ ) was used for the further analyses of orientation and attitude changes over time, withdrawal and motivations for remaining in the programme.

### 4.1. Demographics

At baseline, the longitudinal group ( $n = 123$ ) did not differ from the rest of the initial large group ( $n = 1121$ ) with regard to background characteristics, except for gender (Table 1). This is also true of the scores on the NOT and NAQ. A Mann-Whitney *U* test revealed no difference between the NOT scores of the longitudinal group ( $Md = 3.3$ ;  $n = 123$ ) and the rest of the initial large group ( $Md = 3.3$ ;  $n = 1121$ ,  $U = 631,185$ ;  $z = -1.53$ ;  $p = 0.13$ ). Nor were differences found between the NAQ scores of the longitudinal group ( $Md = 3.9$ ;  $n = 123$ ) and the rest of the initial large group ( $Md = 3.9$ ;  $n = 1120$ ,  $U = 66,935$ ;  $z = -0.515$ ;  $p = 0.61$ ) (Table 1).

### 4.2. Changes Over Time on the NOT and the NAQ

The results of the Friedman tests revealed a significant change over time in the students' scores on the NOT (except for the Nursing Expertise subscale) and the NAQ. Mean rank scores, standard deviations and significance are reported in Table 2.

### 4.3. Nursing Orientation Tool

The results over time on the NOT showed a significant time effect,  $\chi^2(3, n = 123) = 13.23$ ;  $p < 0.01$ . Follow-up analyses showed that the scores on the NOT did not change between T0 → T1,  $z = -0.10$ ;  $p > 0.05$ ;  $r = -0.00$ . Between T1 → T2 there was a significant increase,  $z = -2.71$ ;  $p < 0.01$ ;  $r = -0.17$ . Between T2 → T3 the results showed no significant time changes,  $z = -0.50$ ;  $p > 0.05$ ;  $r = -0.03$  (Fig. 1).

#### 4.3.1. Caring

The results over time on the Caring subscale indicated a significant effect,  $\chi^2(3, n = 123) = 19.68$ ;  $p < 0.001$ . Follow-up analyses showed a significant decrease T0 → T1,  $z = -2.33$ ;  $p < 0.05$ ;  $r = 0.15$  and a significant increase T1 → T2,  $z = -3.62$ ;  $p < 0.001$ ;  $r = 0.23$ . From T2 → T3 the scores decreased again, but not significantly,  $z = -0.82$ ;  $p > 0.05$ ;  $r = 0.05$  (Fig. 1).

#### 4.3.2. Nursing Expertise

The scores on the Nursing Expertise subscale showed no significant time effect,  $\chi^2(3, n = 123) = 1.021$ ;  $p > 0.05$  (Fig. 1).

#### 4.3.3. Life Orientation

The scores on the Life Orientation subscale indicated a significant effect over time,  $\chi^2(3, n = 123) = 91.75$ ;  $p < 0.001$ . Follow-up analyses showed a significant increase T0 → T1,  $z = -6.63$ ;  $p < 0.001$ ;  $r = 0.42$ . The scores showed a continuous increase T1 → T2,  $z = -0.79$ ;  $p > 0.05$ ;  $r = 0.07$ ; and T2 → T3,  $z = -0.12$ ;  $p > 0.05$ ;  $r = 0.00$ , but these changes were not significant (Fig. 1).

### 4.4. Nursing Attitude Questionnaire

The results over time on the total NAQ showed a significant time effect,  $\chi^2(3, n = 123) = 10.20$ ;  $p < 0.05$ . Follow-up analyses did not show significant changes T0 → T1,  $z = -1.07$ ;  $p > 0.05$ ;  $r = 0.06$ , nor T1 → T2,  $z = 1.59$ ;  $p > 0.05$ ;  $r = 0.10$ . The difference in scores T2 → T3 indicated a significant decrease,  $z = -0.240$ ;  $p < 0.05$ ;  $r = 0.15$  (Fig. 2).

#### 4.4.1. Nursing Agency

The results over time on the Nursing Agency subscale indicated a significant time effect,  $\chi^2(3, n = 123) = 11.52$ ;  $p < 0.01$ . Follow-up analyses showed a significant increase T0 → T1,  $z = -2.09$ ;  $p < 0.05$ ;  $r =$

**Table 1**  
Student characteristics at baseline (T0).

	Initial large group	Longitudinal group	P-value difference
	Mean $\pm$ SD, N (%) or median [25th; 75th percentile] (n = 1121)	Mean $\pm$ SD, N (%) or median [25th; 75th percentile] (n = 123)	
Age	19.92 $\pm$ 4.3	19.83 $\pm$ 4.8	0.280
Gender (female)	913 (81.4)	110 (89.4)	0.038*
Living independently	324 (28.9)	35 (28.5)	0.986
Preliminary vocational training	230 (20.5)	16 (13.0)	0.062
Nursing experience	564 (50.3)	57 (46.3)	0.459
Nursing as first choice	739 (65.9)	86 (71.1)	0.317
Nursing as future career	901 (80.4)	100 (81.3)	0.892
Problems with study	534 (47.6)	48 (39.0)	0.085
NOT	3 [3; 4]	3 [3; 3]	0.127
NAQ	4 [4; 4]	4 [4; 4]	0.606

Abbreviations: NOT: Nursing Orientation Tool; NAQ: Nursing Attitude Questionnaire.

\* P-value becomes significant at 0.05.

0.13. Scores T1  $\rightarrow$  T2 remained unchanged,  $z = -0.64$ ;  $p > 0.05$ ;  $r = 0.04$ , and increased T2  $\rightarrow$  T3, but not significantly,  $z = -1.29$ ;  $p > 0.05$ ;  $r = 0.08$  (Fig. 2).

#### 4.4.2. Advocacy & Empathy

The results over time on the Advocacy & Empathy subscale showed a significant time effect,  $X^2(3, n = 123) = 97.04$ ;  $p < 0.001$ . Follow-up analyses did not show significant changes T0  $\rightarrow$  T1,  $z = -0.88$ ;  $p > 0.05$ ;  $r = 0.06$ ; or T1  $\rightarrow$  T2,  $z = -1.47$ ;  $p > 0.05$ ;  $r = 0.09$ . The changes from T2  $\rightarrow$  T3 showed a significant decrease,  $z = -7.39$ ;  $p < 0.001$ ;  $r = 0.47$  (Fig. 2).

#### 4.5. Motivations for Withdrawal and Continuation

At the end of the second year of their programme, students were asked whether they had ever considered withdrawing from the programme, and if so what their reasons for withdrawal were. The results showed that nearly a quarter of the students in the longitudinal group ( $n = 123$ ) had considered withdrawing from their educational program during their first 2 years (24%). The majority of these students ( $n = 30$ ) mentioned reasons related to the educational programme (80%), such as the academic level of education being too high, the academic level of education being too low, learning too much theory, and unsatisfying clinical placements. They also considered leaving for personal reasons (60%) such as illness, financial problems and lack of motivation to study. At the end of the second year the number of students who considered stopping decreased to 3%. These students ( $n = 4$ ) all mentioned experiencing problems related to the programme, such as the academic level of education being too low, learning too much theory and the clinical placement too difficult. Only one student mentioned personal problems, such as a lack of motivation to study and incompatibility with family commitments.

Students who had considered withdrawing but nevertheless remained were asked what their motivations were to continue their

programme. They all mentioned ( $n = 30$ ) intrinsic motivations to stay in the programme (100%), such as wanting a nursing diploma at all costs, really wanting to become nursing professionals and perseverance. Extrinsic factors were mentioned by 33% of these students ( $n = 10$ ), such as support from family and friends, and support from tutors and school staff.

## 5. Discussion

### 5.1. Changes in Orientation and Attitudes towards Nursing

The first aim of this study was to examine changes in orientation and attitudes of nursing students towards their future profession from the beginning of their educational programmes to the end of their second year. The results of the analyses showed significant changes over time in students' orientations related to the items of the total NOT and of its Caring and Life Orientation subscales; the scores on the items in the Nursing Expertise subscale showed no time effect. Students' attitudes towards the items of the total NAQ and the items of the Nursing Agency and Advocacy & Empathy subscales also showed significant changes over time. However, the changes over time showed non-linear patterns. The patterns fluctuated over time for both orientation and attitude, which is consistent with the study by Cowin and Johnson (2015). The results of their longitudinal study on the qualities of nurses also showed great fluctuations in changes over a period of four years. In our study the patterns showed an increase in both orientation and attitudes between T1 (at six months) and T2 (at twelve months). This implies that the perceptions of nursing in this cohort of nursing students became more positive after they completed their first year of study. However, at the end of year two their evaluation of most of the scale and subscale items decreased again.

The results of this study showed that orientation and attitudes towards items related to knowledge, skills and the professional roles of

**Table 2**  
Students' orientation and attitudes towards nursing over time ( $N = 123$ ).

Scale	T0 mean rank (SD)	T1 mean rank (SD)	T2 mean rank (SD)	T3 mean rank (SD)	Sig
NOT	2.33 (0.27)	2.26 (0.27)	2.72 (0.30)	2.69 (0.32)	0.004**
Caring	2.51 (0.47)	2.11 (0.44)	2.78 (0.48)	2.59 (0.52)	0.000**
Nursing Expertise	2.45 (0.46)	2.50 (0.38)	2.59 (0.39)	2.46 (0.53)	0.796
Life Orientation	1.58 (0.63)	2.77 (0.53)	2.88 (0.53)	2.77 (0.70)	0.000**
NAQ	2.36 (0.27)	2.50 (0.29)	2.80 (0.34)	2.35 (0.31)	0.017*
Nursing Agency	2.25 (0.31)	2.38 (0.39)	2.64 (0.37)	2.73 (0.40)	0.009**
Advocacy & Empathy	2.83 (0.43)	2.67 (0.38)	2.91 (0.39)	1.59 (0.35)	0.000**

≠ Friedman test.

\* P-value becomes significant at 0.05.

\*\* P-value becomes significant at 0.01.

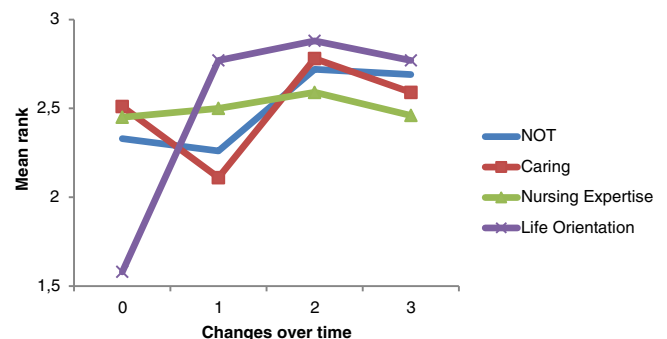


Fig. 1. Changes over time NOT and subscales in nursing students (first two years of study).



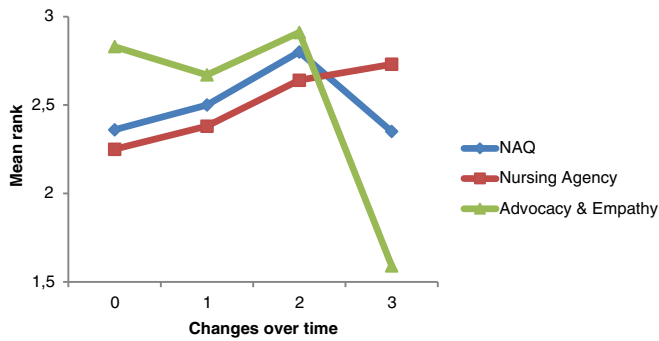


Fig. 2. Changes over time NAQ and subscales in nursing students (first two years of study).

nurses, such as 'nurses participate in the development of healthcare policies', and 'nurses integrate health teaching into their practice', showed significant increases. The orientations and attitudes towards items related to empathic behaviour, such as 'nurses in general are kind, compassionate human beings', and 'nurses value time at the bedside caring for patients' showed significant decreases. Exposure to the process of nurse education seemed to shift students' focus, especially at the end of the second year of education, once all students had completed their first internship in clinical practice. This is in line with the results of previous studies which showed that classroom and clinical experiences enhance the professional features of nursing and ensured that students recognized more fundamentally what nursing really entails (Cowan and Johnson, 2015; Day et al., 2005; Tseng et al., 2013). The first-year students in the study by Grainger and Bolan (2006) saw nurses as nice people who feel good about what they are doing, while fourth-year students were more focused on the professional roles of nurses.

With regard to caring, previous studies found that the desire to work with people, human wellbeing and health promotion were seen as important aspects of nursing by students at every phase of education (Karaoz, 2003; Miers et al., 2007; Vanhanen and Janhonen, 2000b). This is in accordance with the findings of our study, which showed that the scores on the caring subscale at the beginning of education and at the end of year two remain quite stable, despite some fluctuations over time. Students' perceptions of items related to life orientation showed an increase from the beginning to the end of year two, with the largest change being between T0 (at the beginning of the programme) and T1 (after six months). Students were significantly more oriented towards finding a balance between their studies and private lives as they progressed in their programmes. Vanhanen and Janhonen (2000a) found that life-oriented students were the ones who intended to stay in nursing.

## 5.2. Motivations for Withdrawal and Continuation

In our cohort of students, the dropout rate during the first two years was extremely high (45%). Our results showed that even in the completers group, 24% had considered withdrawing during the first two years of their studies. However, intrinsic and extrinsic motivations were strong enough to cause them to decide to stay. At the end of year two, the number of students who considered leaving dropped to 3%, indicating that the first 12 to 18 months are decisive for whether students complete their programmes. Reasons for attrition were related to both the educational programme and to personal problems. This is in accordance with the findings of Hamshire et al. (2013b) and Vanhanen and Janhonen (2000b), who found that students consider leaving because of motivational problems, personal problems and dissatisfaction with the curriculum. Our findings showed that unsatisfying clinical placements were identified as reasons for withdrawing. Research from other countries suggests that students do not always feel supported by mentors who demonstrate lack of time to support them (Brodie et al.,

2004; Hamshire et al., 2013a; Last and Fullbrook, 2003). Additional qualitative research could shed more light on this important issue.

Students' motivations for completing their programme were influenced by both intrinsic and extrinsic factors. At baseline, students in the longitudinal group ( $n = 123$ ) more often mentioned that nursing was their first choice programme than students in the rest of the initial large group ( $n = 1121$ ). This is consistent with the findings of Safadi et al. (2011) and Salamonson et al. (2014) that students who selected nursing as their first choice were nearly twice as likely to complete their nursing compared to those who did not. Our study showed that an important intrinsic motivation for students to remain in their programmes was their passionate desire to become nurses, suggesting that the desirable elements of a nursing career outweighed the problems they encountered. This desire can manifest itself at a very young age, and for some students nursing had always been a career goal (Day et al., 2005; Stomberg and Nilsson, 2010). Support from family and friends, and support from tutors and school staff proved to be extrinsic factors which really influenced their decision to pursue nursing. Students in the study by Bowden (2008) and Cameron et al. (2011) stated that family members and friends who were also nurses offered encouragement and practical support, enabling them to cope with the demands of the programme. Support from personal tutors could help students deal with academic pressures. These findings may have implications for Schools of Nursing with regard to the educational level of beginning students, the academic level of teachers, the support from mentors, and the tracking of students through their programme. Given the attrition rates, since 2012/2013 at several Universities of Applied Sciences in the Netherlands, teachers have a short appraisal (10 min) with students before admission, focusing on their conceptualization of the nursing profession and their motivations to choosing a nursing career. Moreover, all teachers in the Bachelor's programme must be highly qualified with regard to education (at least a Master's Degree) combined with accurate experience in clinical practice. These first cautious changes may be of great importance to increase retention in nursing students.

## 5.3. Study Strengths and Limitations

The strength of this longitudinal study is that we performed our research at four universities of applied sciences in the Netherlands. The data were also collected at four time points within a two-year period from the same student cohort. A limitation of this study is that 123 out of the 1244 students completed the survey at all four time points, which could suggest that their perceptions are not representative of the whole study group. However, comparison between the characteristics of this longitudinal group and the rest of the large initial group at baseline (T0) showed no significant differences, except for gender. Comparisons between the scores on the NOT and the NAQ at baseline also showed no differences between the two groups. This could imply that the current results may hold true for the whole study group.

## 6. Conclusions

The aim of this study was to gain insight into the changing orientations and attitudes of nursing students towards nursing and their motives for completing their educational programmes. The results show that in the longitudinal group ( $n = 123$ ), student perceptions changed from being idealistic and empathic to being more professional with a focus on knowledge, skills and role development. The majority of students begin their nursing programmes with altruistic views on nursing and they may run the risk of being disappointed and discouraged by the high academic demands placed on them during education and clinical placements. Students' grades at the time of their second year might have an impact on their attitudes towards nursing. It is not entirely inconceivable that their ability to adopt altruistic attitudes towards caring for people is influenced by low self-confidence in clinical practice as a

result of academic failure. Additional qualitative research may give more insight into the interaction between students' academic performance and their attitudes towards the caring aspect of nursing.

The students' changing perceptions of nursing is an important issue, as they may be predictive of withdrawal from the programme. Student attrition is a major problem globally. In our cohort of students, the drop-out rate during the first two years of education was extremely high (45%). The reasons for attrition proved complex and both institution and student-centred. This study showed that the first two years of education are decisive for students' completion of their programmes. It is therefore essential that tutors and mentors pay more attention to the individual perceptions and problems of first and second-year students both in the classroom and during clinical placements. Knowledge of the perceptions of students from the very beginning may be vital to study success. To solve student attrition it is of great importance to closely monitor students and guide them during their educational programme, particularly in the first two years.

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### Conflict of Interest

None.

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### Appendix A. Supplementary data

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.nedt.2016.09.009>.

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