

The competence of nurse mentors in mentoring students in clinical practice – A cross-sectional study

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Abstract

Background

Nurses play an important role in developing the competence of nursing students and acting as role models for students during clinical practice placements. Nurses need diverse competence to successfully mentor nursing student.

Objectives

This study aimed to describe and explain nurse mentor competence in mentoring nursing students in clinical practice settings based on self-evaluation, as well as identify different mentor profiles.

Design

This study employed a cross-sectional, descriptive design involving a self-administered electronic version of the Mentor Competence Instrument.

Settings

The study population included nurse mentors from all five university hospitals in Finland.

Participants

Through random sampling, 3,355 nurse mentors were invited to take part in the study in 2016.

Methods

Data was collected **using** Mentors Competence Instrument, which consists of 63 items structured in 10 mentoring competence categories.

Results

Mentors (n=576) evaluated their level of competence in various categories as middle- to high-level. They evaluated reflection during mentoring and identifying a student's need

for mentoring the highest, whereas student-centered evaluation and supporting a student's learning process were rated lowest. Three distinct profiles of mentor competence were identified. These profiles differed in evaluation of mentoring competence level, previous participation in mentoring education, and time spent on reflective discussions with students.

Conclusions

According to their profiles, mentors have diverse needs for support in building their mentoring competence. We suggest that healthcare organizations should provide nursing mentors with education that is based on their individual levels of mentoring competence. Nurses should also be encouraged to use time for reflective discussion with students during clinical practice.

Keyword: Clinical practice, Competence, Mentors, Mentoring, Nurses

Introduction

Nurses play a significant role in developing the competence of nursing students, and further serve as a source of support in the clinical practice setting to strengthen students' professionalism (Hilli et al. 2014; McIntosh et al. 2014; Jokelainen et al. 2011; Omansky, 2010). There is empirical evidence that mentoring is a complex and dynamic educational perspective that can have both positive and negative aspects (Omansky, 2010). A positive mentor experience can affect a student's decision to remain in the nursing profession (Hilli et al. 2014, Flott and Linden, 2016). In this way, it is important to assess mentoring competence as a mentor can significantly impact a student's learning (Mårtensson et al. 2013; Walker et al. 2012). Nursing education research has mostly focused on students and their learning; thus, clinical learning has not been extensively studied in Finland or on the international level (Vierula et al. 2016). Therefore, a study that evaluates how mentors perceive their own mentoring competence in the clinical learning environment is relevant.

Mentors can also be defined as facilitators, peer instructors, preceptors (Walker et al., 2012), clinical guides (Quattrin et al. 2010), clinical instructors (Glynn et al. 2017) and supervisors (HWA, 2010). In this study, a mentor is defined as a registered nurse who supports undergraduate students in their learning and is responsible for teaching and assessing students in clinical practice. The mentor is not an employee of the education provider. The mentoring takes place in a clinical learning environment, a dynamic that can strongly influence students' learning experiences. The clinical learning environment includes a physical space, psychosocial and interaction factors, the organizational culture and teaching and learning components (Flott and Linden, 2016).

Communication and interaction between the student and mentor is an important part of the clinical learning environment (Flott and Linden, 2016). Moreover, a mentor's personal characteristics and motivation are pivotal to effective mentoring (Gidman et al. 2011; McIntosh et al. 2014), creating a supportive, caring relationship, and enabling the individual learning process (Hilli et al. 2014; Jokelainen et al. 2011; McIntosh et al. 2014). Mentors can strengthen students' professionalism by treating them as equals and nursing colleagues, nurturing a co-operative relationship, and promoting commitment to the nursing profession (Jokelainen et al. 2011). A previous study showed that a majority of nursing students are satisfied with their clinical learning environment and report positive clinical learning experience (Lamont et al. 2015) However, students also perceive clinical practice to be stressful, and in these situations mentors were shown to play an important role in the students' experiences of stress (Blomberg et al. 2014). Organizational culture includes managerial and organizational views on the importance of nursing education, organizational policies that determine the scope of practice for nursing students, and emphasis on providing quality patient care (Flott and Linden, 2016; Jokelainen et al. 2011).

Teaching and learning components include effectiveness of instruction provided by the mentor, variation in patient care opportunities, and student engagement in the learning process (Flott and Linden, 2016). The mentor is expected to assess and evaluate students, as well as provide feedback on their performances. A mentor also needs to help a student feel connected to the clinical placement (Myall et al. 2007) by serving as

a role model and promoting learning through reflection (Hilli et al. 2014). According to Hilli et al. (2014), mentors need more pedagogical education and tools to be able to support the professional growth of a student and handle the tension between theory and praxis. Mentors should be available for quality time with students and should additionally initiate reflective discussions (Hilli et al. 2014; Myall et al. 2007). Jokelainen et al. (2011) further proposed that mentors play a significant role in guiding students through their personal goal-oriented learning processes as well as helping students assess their learning development and achieve the desired learning outcomes.

In European Union (EU) countries, clinical practice makes up a significant part of the pre-registration nursing program, accounting for 50% of the entire program (with the minimum being a three-year program covering 180 ECTS credits) (EU Directive 2005/36/EU, 77/453/EEC). In Finland, nursing education is a three-and-a-half-year Bachelor's degree program (210 credits), resulting in a Bachelor's of Nursing. As in other EU countries, clinical education is an essential part of the program. During the past few decades, the nurse educator responsibility of teaching has been transferred to nurse mentors in the clinical practice. Registered nurses that work as student mentors are simultaneously directly responsible for patient care. Finnish registered nurses are not required to act as mentors and no obligatory mentoring education exists; rather, recommendations are defined by the Ministry of Social Affairs and Health. Every nursing student is assigned a reference nurse, who is named as their mentor for the clinical practice. These nurses have no contractual relationship with the university and their purpose is to teach, guide and facilitate students' integration into the clinical learning environment. Nurse mentor education varies between different countries and there is currently no consensus regarding the minimum qualifications or required competencies of a mentor.

This study aimed to evaluate the mentoring competence of Finnish nurse mentors through self-evaluation and identify distinct mentor profiles.

Methods

Study Design

This was a cross-sectional, descriptive study, involving a self-administered electronic version of the scale.

Population and setting

The study population comprised mentors from all five university hospitals in Finland, located in the five biggest cities in the country.

Study sample

A study population of 3,355 mentors, of which 576 (17.2%) participated in the survey, was selected by random sampling (Grove et al. 2013). This study population represents 25% of the total registered nurse population (N=13,342) in Finland. The inclusion criteria for participation were as follows: a registered nurse, an employee of a university hospital and experience of mentoring students.

Data collection

The questionnaire was sent via email using the Webropol online survey tool during spring 2016. Two weeks after the initial survey, two reminder emails were sent to nurses from three of the participating hospitals while one reminder was sent to nurses from the other two university hospitals.

Instrument

The instrument used in this study was the Mentors Competence Instrument (MCI) (Names blinded 2018). The MCI was developed for nurses who mentor nursing students in clinical practice. The MCI consists of 63 items structured in 10 mentoring

competence categories: student-centered evaluation (10 items); goal-oriented mentoring (nine items); mentoring practices in the workplace (six items); reflection during mentoring (six items); mentor characteristics (seven items); supporting the student's learning process (eight items); mentor motivation (five items); identifying the student's need for mentoring (four items); constructive feedback (four items); and mentoring practices between student and mentor (four items). Each item is scored on a four-point Likert rating scale (1 = totally disagree, 2= disagree to some extent, 3= agree to some extent, and 4 = totally agree). In addition to 63 MCI items, the survey included 16 background questions covering factors such as education, discussion time with students, and role of mentoring.

Ethical considerations

Research permission was obtained from all five university hospitals, with each hospital granting permission based on their own research approval protocol. The study was carried out according to the guidelines for ethical research conduct (RCR 2012). Formal ethics committee approval was not required for this cross-sectional study (Medical Research Act 2010/794) since participants were not exposed to any psychologically and/or physically harmful influences. All of the selected nurses received an email with information about the study objectives, methodology and a statement clarifying that participation would be anonymous. Respondent confidentiality was maintained throughout the study.

Data analysis

Descriptive statistics, including frequency (f), percentage (%), mean, median, and standard deviation (SD) values, were generated using SPSS 23.0 (IBM, Armonk, NY). The scores for the items included in the ten distinct factors of the MCI instrument were summated and averaged to provide values for each component of mentoring competence (Name blinded. 2018). These 10 factors of mentoring competence were then used to test the reliability of the scale with Cronbach's alpha (Polit & Beck 2011), after which these measures of mentoring capacity served as inputs for the K-mean

cluster algorithm to identify mentor profiles. The participating mentors were classified into mentor profiles according to their overall mentoring competences, which were divided into low- (<2.49), middle- (2.5-3.49), and high-level (>3.5). This was based on the nurses' self-evaluations of mentoring competence.

Several runs of cluster formation were performed to identify the optimal cluster configuration. Our criterion for cluster solutions was reasonable sample representation, i.e. every cluster should contain at least 5% of the study sample. Skewness, kurtosis and Kolmogorov-Smirnov tests were used to evaluate the skewness of the overall competence values and clusters. Dependence between classified background variables, overall competence and clusters were analyzed with cross-tabs, Chi-square and Kruskal Wallis tests. Any detected differences between groups were considered to be statistically significant when the p-value < 0.05 (Polit & Beck 2012). When a statistically significant difference between the investigated groups was identified, a Bonferroni correction was applied to evaluate whether each group differed significantly from the others.

Results

Sample Characteristics

A total of 576 mentors participated in this study. The age of the respondents ranged from 23 to 66 years (mean 41.7, SD 10.9), and most of the participants (87%) were female. Participants' work experience in health care ranged from 0-42 years (mean 15.9, SD 10.) with 55% of participants describing their mentoring role as being a "named mentor". The nurses' responses showed that 39% had completed mentoring education and 71% used more than 10 minutes for reflective discussions with students each day (see Table 1).

<table 1.> Mentoring competence

The level of competence reported for the 10 distinct MCI categories ranged from middle-level (mean 3.1) to high-level (mean 3.7). Over 50% of participants evaluated their competence as high-level in seven categories: reflection during mentoring (77% of participants); identifying the student's need for mentoring (77%); mentoring practices between mentor and student (65%); mentor characteristics (63%); constructive feedback (60%); supporting the student's learning process (60%); and goal-oriented mentoring (52%). Most mentors (64%) evaluated their competence in student-centered evaluation as middle-level, while 10% reported low-level competence in the same area. Competence in student-centered evaluation received the lowest evaluation among all of the competence categories. Most mentors evaluated their competence in constructive feedback as high-level (mean 3.5) even though nearly 40% of mentors evaluated their competence as middle-level. In this study, less than half of the mentors (49%) were highly motivated in mentoring nursing students, with 45% of mentors evaluating their motivation as middle-level. Only five percent of mentors evaluated their motivation of mentoring nursing students as low-level. Over half of the mentors (52%) evaluated their competence in goal-oriented mentoring as high-level, while 44% evaluated their competence in this component of mentoring as middle-level (see Table 2).

<table 2.>

Mentor profiles

We identified three distinct mentor profiles. The mean values and proportions for the MCI mentoring characteristics are presented according to cluster membership (see Table 3). Profile A included 48 % of the participants. Profile A nurses had average ages and work experiences of 43 and 17 years, respectively. One third of mentors in profile A mentored students weekly and half of the participants had received mentoring education. Regarding strengths and weaknesses, profile A mentors evaluated their competence in reflection with students during mentoring the highest (mean 3.9) but competence in student-centered evaluation the lowest (mean 3.4). Profile A mentors evaluated their competence in each category of mentoring as high level, excluding competence of student-centered evaluation.

Profile B included 34% of participants, and the average ages and work experiences for this group were 41 and 15 years, respectively. One fourth of mentors in profile B mentored students weekly and one third of mentors had mentored students in the last week. Half of the mentors had participated in mentor education. Profile B mentors evaluated their competence as high level in the categories of supporting the student's learning process and identifying the student's need for mentoring. Profile B nurses evaluated their competence as middle-level for all of the other mentoring categories. Profile B mentors evaluated their competence in identifying the student's need for mentoring the highest (mean 3.7) and student centered-evaluation competence the lowest (mean 2.8).

Profile C included 17% of participants, and the average ages and work experiences for this group were 40 and 15 years, respectively. Less than half of the mentors in this group used over 10 minutes for reflective discussion with students during the mentoring day, and only 21% of mentors had participated in mentoring education. Profile C mentors evaluated their competence as middle level in each mentoring category, with the highest level of competence reported for reflection during mentoring (mean 3.2). The lowest competences were reported for student-centered evaluation, mentor motivation, mentoring practices in the workplace and mentoring practices between mentor and student (all mean values scoring under 3.0).

There were statistically significant differences between the three mentor profiles. The profile A mentors had participated in mentoring education more often and evaluated their competence across all MCI sections higher than profile B and profile C mentors ($p < 0.01$). Moreover, a higher proportion of profile A mentors (78%) used more than 10 minutes for reflective discussions with students than profile B (73%) or profile C (46%) mentors ($p < 0.01$). The largest competence differences between profile A and C nurses were found in goal-oriented mentoring ($p < 0.01$), mentoring practices in the workplace ($p < 0.01$) and mentor motivation ($p < 0.01$). Furthermore, there were statistically significant differences between profiles A and B ($p < 0.01$) and profiles A and C ($p < 0.01$) across many areas of mentoring competence. Profiles B and C significantly differed in all areas of mentoring competence ($p < 0.01$) except for student-centered evaluation.

There were no significant differences in a mentor's age, gender, work experience, or mentoring frequency between profiles.

<table 3.>

Discussion

A majority of the participating mentors evaluated their mentoring competence as middle- or high-level. Mentors belonging to profile A were the most competent in mentoring nursing students, and were the most likely to have participated in mentoring education. Mentor age, gender or work experience did not affect self-evaluated competence or inclusion to a specific mentoring profile, a finding that agrees with previously reported results (O'Brien et al. 2014).

Mentors from all three competence profiles evaluated their competence in student-centered evaluation the lowest. This result can be considered in light of earlier studies that suggest clinical assessment to be a complex process (Dobrowolska et al. 2015, Helminen et al. 2015). Several studies have stated that the assessment of practice outcomes is both a major challenge and critical element in mentoring (McIntosh et al. 2014, Myall et al. 2007, Moseley et al. 2007). It has been shown that mentors need additional information about the evaluation requirements of students (Ford et al. 2016) and nursing professional competence to complete the evaluation process correctly. In this study, mentors ranked competence in supporting the student's learning process second lowest. McIntosh et al. (2014) reported that mentors see their main responsibility as supporting student's learning and ranked themselves as the most important source of support to students in clinical practice. It is essential that mentors provide students with opportunities for learning during clinical practice (Myall et al. 2007). Our results also agreed with a study by Omer et al. (2016), in which mentors reported having a protector role and being responsible for protecting patients from healthcare errors. Mentors have also recognized that their role is pivotal to supporting student's in their learning (Ford et al. 2016).

Participating nurse mentors ranked their competence regarding mentoring practices in the workplace the third lowest. In earlier studies, mentors have identified a lack of understanding of the curriculum (Ford et al. 2016) and difficulty grasping the cognitive aspects of the mentor role (Moseley et al. 2007) as barriers to effective mentoring. In this study, mentors generally reported middle-level motivation, with profile C mentors reporting the lowest motivation levels. Mentor motivation is an important aspect of student mentoring, and mentors are generally motivated to mentor students (Gidman et al. 2011).

Most of the participating mentors reported high-level competence in reflection with students during mentoring. Dube and Jooste (2006) identified that mentors feel that they acknowledge and understand students' feelings of frustration, have appropriate communications skills and a good interpersonal relationship with their students. Additionally, according to Ford et al. (2016), mentors understand that developing the relationship between student and mentor can influence a student's sense of professional responsibility. Meaningful learning occurs within environments that foster a culture of mutual respect, reciprocity and transparency regarding expectations. However, Mårtensson et al. (2013) noted that nurse mentors do not have access to the power structures that are needed to provide reflective discussions and train students' scientific knowledge.

The participating mentors evaluated their competence of identifying the student's need for mentoring second highest and their characteristics (i.e. acting as a supportive mentor) third highest. Earlier studies have shown that mentors have a pivotal role in guiding students' learning needs and facilitating the learning opportunities that are integral to successful placement experience (Ford et al. 2016). Furthermore, mentors feel that they are able to clarify topics to the level of student understanding (Dube and Jooste 2006), and mentors have previously identified that their personal attributes are the most important part of being an effective mentor (McIntosh et al. 2014). Another study found that a majority of mentors respect their students (Dube and Jooste 2006).

Although the mentors in this study generally evaluated their mentoring competence at a high level, there are certain components of mentoring competence in which nurse

mentors should improve. Student-centered evaluation was evaluated the lowest, and all three mentor profiles rated their competence in this area of mentoring as middle-level. Profile C mentors represent 17 % of the total participants, and they reported the lowest competence levels in all 10 categories of mentoring. It is important to note that profile C mentors were generally not motivated to act as mentors. Thus, mentoring competence should be further developed through education, which should especially focus on student-centered evaluation and supporting the student's learning process.

Only 39 % of the participating nurses had participated in mentoring education even though they act as mentors in Finnish university hospitals. This result agrees with a study by O'Brien et al. (2014) in which 36% of nurses had completed mentoring education. In this study, mentors who had completed mentoring education evaluated their competence statistically significant higher than mentors who had not completed the education. Furthermore, Wu et al. (2018), O'Brien et al. (2014), and Ward and McComb (2017) indicated that participation in mentoring education increases mentor competence and positive attitudes towards mentoring, as well as prepares nurses for taking on the role of mentor. Our results also indicate that mentors who use over 10 minutes for reflective discussions during a mentoring day evaluate their competence higher than mentors who use less than this amount of time for reflective discussions.

The results from this study verify that mentoring education should establish a mentoring competence base from which nurse mentors can further improve their skills. In this way, Profile C mentors require education that will motivate them to mentor students and provide them with tools for creating a permissive atmosphere for reflective discussions between student and mentor. On the other hand, profile B mentors need to increase their competence in goal-oriented mentoring and improve their ability to provide students with constructive feedback. The education for profile A mentors should adopt a comprehensive focus to the deepen a nurse's understanding of mentoring, especially regarding student-centered evaluation based on outcomes of learning.

Limitations

This study was conducted in all five university hospitals of Finland, which provides a national perspective but, at the same time, indicates a need for further empirical studies, particularly in different contexts and cultures of clinical practice. Nurses evaluated their mentoring competence through self-evaluation, and this may have influenced the results. More studies are needed to examine the consistency of mentor competence of mentoring assessed by nursing student.

The low response rate may have also influenced the results because the nurse mentors who participated in this study may have been more interested, motivated and had higher competence than the mentors who did not participate. On the other hand, the study sample seemed representative of the Finnish nurse population as the characteristics of the study participants (gender, work experience and age) correlated well with what has been reported for nurses working in Finnish university hospitals (National Institute for Health and Welfare).

Conclusion

The findings from this study indicate three distinct profiles of mentor in Finnish university hospitals. The findings confirm that mentors who report lower levels of competence are more likely to be less motivated than mentors who report higher levels of competence. Also mentors who report higher levels competence had participated in mentoring education more often than who reported lower levels of competence. For this reason, mentoring education should take into account nurses' competence levels so that all nurses obtain a basis from which to build mentoring competence. Mentoring education should also include more focus on the student evaluation process and supporting students' learning processes. This could increase the proportion of nurses who provide students with enough time for meaningful reflective discussions. Collaboration with education providers can strengthen a student-centered evaluation process. Teachers' involvement in clinical evaluation can help mentors by providing them with additional knowledge of the requirements needed for a correct and didactically accommodating

evaluation process. Additionally, the collaboration can provide mentors with a better understanding of the curriculum and enhance better communication in mentoring.

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Nurses play a significant role in developing the competence of nursing students, and further serve as a source of support in the clinical practice setting to strengthen students' professionalism (Hilli et al. 2014; McIntosh et al. 2014; Jokelainen et al. 2011; Omansky, 2010). There is empirical evidence that mentoring is a complex and dynamic educational perspective that can have both positive and negative aspects (Omansky, 2010). A positive mentor experience can affect a student's decision to remain in the nursing profession (Hilli et al. 2014, Flott and Linden, 2016). In this way, it is important to assess mentoring competence as a mentor can significantly impact a student's learning (Mårtensson et al. 2013; Walker et al. 2012). Nursing education research has mostly focused on students and their learning; thus, clinical learning has not been extensively studied in Finland or on the international level (Vierula et al. 2016). Therefore, a study that evaluates how mentors perceive their own mentoring competence in the clinical learning environment is relevant.

Mentors can also be defined as facilitators, peer instructors, preceptors (Walker et al., 2012), clinical guides (Quattrin et al. 2010), clinical instructors (Glynn et al. 2017) and supervisors (HWA, 2010). In this study, a mentor is defined as a registered nurse who supports undergraduate students in their learning and is responsible for teaching and assessing students in clinical practice. The mentor is not an employee of the education provider. The mentoring takes place in a clinical learning environment, a dynamic that can strongly influence students' learning experiences. The clinical learning environment includes a physical space, psychosocial and interaction factors, the organizational culture and teaching and learning components (Flott and Linden, 2016).

Communication and interaction between the student and mentor is an important part of the clinical learning environment (Flott and Linden, 2016). Moreover, a mentor's personal characteristics and motivation are pivotal to effective mentoring (Gidman et al. 2011; McIntosh et al. 2014), creating a supportive, caring relationship, and enabling the individual learning process (Hilli et al. 2014; Jokelainen et al. 2011; McIntosh et al. 2014). Mentors can strengthen students' professionalism by treating them as equals and nursing colleagues, nurturing a co-operative relationship, and promoting commitment to the nursing profession (Jokelainen et al. 2011). A previous study showed that a majority of nursing students are satisfied with their clinical learning environment and report positive clinical learning experience (Lamont et al. 2015) However, students also perceive clinical practice to be stressful, and in these situations mentors were shown to play an important role in the students' experiences of stress (Blomberg et al. 2014). Organizational culture includes managerial and organizational views on the importance of nursing education, organizational policies that determine the scope of practice for nursing students, and emphasis on providing quality patient care (Flott and Linden, 2016; Jokelainen et al. 2011).

Teaching and learning components include effectiveness of instruction provided by the mentor, variation in patient care opportunities, and student engagement in the learning process (Flott and Linden, 2016). The mentor is expected to assess and evaluate students, as well as provide feedback on their performances. A mentor also needs to help a student feel connected to the clinical placement (Myall et al. 2007) by serving as

a role model and promoting learning through reflection (Hilli et al. 2014). According to Hilli et al. (2014), mentors need more pedagogical education and tools to be able to support the professional growth of a student and handle the tension between theory and praxis. Mentors should be available for quality time with students and should additionally initiate reflective discussions (Hilli et al. 2014; Myall et al. 2007). Jokelainen et al. (2011) further proposed that mentors play a significant role in guiding students through their personal goal-oriented learning processes as well as helping students assess their learning development and achieve the desired learning outcomes.

In European Union (EU) countries, clinical practice makes up a significant part of the pre-registration nursing program, accounting for 50% of the entire program (with the minimum being a three-year program covering 180 ECTS credits) (EU Directive 2005/36/EU, 77/453/EEC). In Finland, nursing education is a three-and-a-half-year Bachelor's degree program (210 credits), resulting in a Bachelor's of Nursing. As in other EU countries, clinical education is an essential part of the program. During the past few decades, the nurse educator responsibility of teaching has been transferred to nurse mentors in the clinical practice. Registered nurses that work as student mentors are simultaneously directly responsible for patient care. Finnish registered nurses are not required to act as mentors and no obligatory mentoring education exists; rather, recommendations are defined by the Ministry of Social Affairs and Health. Every nursing student is assigned a reference nurse, who is named as their mentor for the clinical practice. These nurses have no contractual relationship with the university and their purpose is to teach, guide and facilitate students' integration into the clinical learning environment. Nurse mentor education varies between different countries and there is currently no consensus regarding the minimum qualifications or required competencies of a mentor.

This study aimed to evaluate the mentoring competence of Finnish nurse mentors through self-evaluation and identify distinct mentor profiles.

Methods

Study Design

This was a cross-sectional, descriptive study, involving a self-administered electronic version of the scale.

Population and setting

The study population comprised mentors from all five university hospitals in Finland, located in the five biggest cities in the country.

Study sample

A study population of 3,355 mentors, of which 576 (17.2%) participated in the survey, was selected by random sampling (Grove et al. 2013). This study population represents 25% of the total registered nurse population (N=13,342) in Finland. The inclusion criteria for participation were as follows: a registered nurse, an employee of a university hospital and experience of mentoring students.

Data collection

The questionnaire was sent via email using the Webropol online survey tool during spring 2016. Two weeks after the initial survey, two reminder emails were sent to nurses from three of the participating hospitals while one reminder was sent to nurses from the other two university hospitals.

Instrument

The instrument used in this study was the Mentors Competence Instrument (MCI) (Names blinded 2018). The MCI was developed for nurses who mentor nursing students in clinical practice. The MCI consists of 63 items structured in 10 mentoring

competence categories: student-centered evaluation (10 items); goal-oriented mentoring (nine items); mentoring practices in the workplace (six items); reflection during mentoring (six items); mentor characteristics (seven items); supporting the student's learning process (eight items); mentor motivation (five items); identifying the student's need for mentoring (four items); constructive feedback (four items); and mentoring practices between student and mentor (four items). Each item is scored on a four-point Likert rating scale (1 = totally disagree, 2= disagree to some extent, 3= agree to some extent, and 4 = totally agree). In addition to 63 MCI items, the survey included 16 background questions covering factors such as education, discussion time with students, and role of mentoring.

Ethical considerations

Research permission was obtained from all five university hospitals, with each hospital granting permission based on their own research approval protocol. The study was carried out according to the guidelines for ethical research conduct (RCR 2012). Formal ethics committee approval was not required for this cross-sectional study (Medical Research Act 2010/794) since participants were not exposed to any psychologically and/or physically harmful influences. All of the selected nurses received an email with information about the study objectives, methodology and a statement clarifying that participation would be anonymous. Respondent confidentiality was maintained throughout the study.

Data analysis

Descriptive statistics, including frequency (f), percentage (%), mean, median, and standard deviation (SD) values, were generated using SPSS 23.0 (IBM, Armonk, NY). The scores for the items included in the ten distinct factors of the MCI instrument were summated and averaged to provide values for each component of mentoring competence (Name blinded. 2018). These 10 factors of mentoring competence were then used to test the reliability of the scale with Cronbach's alpha (Polit & Beck 2011), after which these measures of mentoring capacity served as inputs for the K-mean

cluster algorithm to identify mentor profiles. The participating mentors were classified into mentor profiles according to their overall mentoring competences, which were divided into low- (<2.49), middle- (2.5-3.49), and high-level (>3.5). This was based on the nurses' self-evaluations of mentoring competence.

Several runs of cluster formation were performed to identify the optimal cluster configuration. Our criterion for cluster solutions was reasonable sample representation, i.e. every cluster should contain at least 5% of the study sample. Skewness, kurtosis and Kolmogorov-Smirnov tests were used to evaluate the skewness of the overall competence values and clusters. Dependence between classified background variables, overall competence and clusters were analyzed with cross-tabs, Chi-square and Kruskal Wallis tests. Any detected differences between groups were considered to be statistically significant when the p-value < 0.05 (Polit & Beck 2012). When a statistically significant difference between the investigated groups was identified, a Bonferroni correction was applied to evaluate whether each group differed significantly from the others.

Results

Sample Characteristics

A total of 576 mentors participated in this study. The age of the respondents ranged from 23 to 66 years (mean 41.7, SD 10.9), and most of the participants (87%) were female. Participants' work experience in health care ranged from 0-42 years (mean 15.9, SD 10.) with 55% of participants describing their mentoring role as being a "named mentor". The nurses' responses showed that 39% had completed mentoring education and 71% used more than 10 minutes for reflective discussions with students each day (see Table 1).

<table 1.> Mentoring competence

The level of competence reported for the 10 distinct MCI categories ranged from middle-level (mean 3.1) to high-level (mean 3.7). Over 50% of participants evaluated their competence as high-level in seven categories: reflection during mentoring (77% of participants); identifying the student's need for mentoring (77%); mentoring practices between mentor and student (65%); mentor characteristics (63%); constructive feedback (60%); supporting the student's learning process (60%); and goal-oriented mentoring (52%). Most mentors (64%) evaluated their competence in student-centered evaluation as middle-level, while 10% reported low-level competence in the same area. Competence in student-centered evaluation received the lowest evaluation among all of the competence categories. Most mentors evaluated their competence in constructive feedback as high-level (mean 3.5) even though nearly 40% of mentors evaluated their competence as middle-level. In this study, less than half of the mentors (49%) were highly motivated in mentoring nursing students, with 45% of mentors evaluating their motivation as middle-level. Only five percent of mentors evaluated their motivation of mentoring nursing students as low-level. Over half of the mentors (52%) evaluated their competence in goal-oriented mentoring as high-level, while 44% evaluated their competence in this component of mentoring as middle-level (see Table 2).

<table 2.>

Mentor profiles

We identified three distinct mentor profiles. The mean values and proportions for the MCI mentoring characteristics are presented according to cluster membership (see Table 3). Profile A included 48 % of the participants. Profile A nurses had average ages and work experiences of 43 and 17 years, respectively. One third of mentors in profile A mentored students weekly and half of the participants had received mentoring education. Regarding strengths and weaknesses, profile A mentors evaluated their competence in reflection with students during mentoring the highest (mean 3.9) but competence in student-centered evaluation the lowest (mean 3.4). Profile A mentors evaluated their competence in each category of mentoring as high level, excluding competence of student-centered evaluation.

Profile B included 34% of participants, and the average ages and work experiences for this group were 41 and 15 years, respectively. One fourth of mentors in profile B mentored students weekly and one third of mentors had mentored students in the last week. Half of the mentors had participated in mentor education. Profile B mentors evaluated their competence as high level in the categories of supporting the student's learning process and identifying the student's need for mentoring. Profile B nurses evaluated their competence as middle-level for all of the other mentoring categories. Profile B mentors evaluated their competence in identifying the student's need for mentoring the highest (mean 3.7) and student centered-evaluation competence the lowest (mean 2.8).

Profile C included 17% of participants, and the average ages and work experiences for this group were 40 and 15 years, respectively. Less than half of the mentors in this group used over 10 minutes for reflective discussion with students during the mentoring day, and only 21% of mentors had participated in mentoring education. Profile C mentors evaluated their competence as middle level in each mentoring category, with the highest level of competence reported for reflection during mentoring (mean 3.2). The lowest competences were reported for student-centered evaluation, mentor motivation, mentoring practices in the workplace and mentoring practices between mentor and student (all mean values scoring under 3.0).

There were statistically significant differences between the three mentor profiles. The profile A mentors had participated in mentoring education more often and evaluated their competence across all MCI sections higher than profile B and profile C mentors ($p < 0.01$). Moreover, a higher proportion of profile A mentors (78%) used more than 10 minutes for reflective discussions with students than profile B (73%) or profile C (46%) mentors ($p < 0.01$). The largest competence differences between profile A and C nurses were found in goal-oriented mentoring ($p < 0.01$), mentoring practices in the workplace ($p < 0.01$) and mentor motivation ($p < 0.01$). Furthermore, there were statistically significant differences between profiles A and B ($p < 0.01$) and profiles A and C ($p < 0.01$) across many areas of mentoring competence. Profiles B and C significantly differed in all areas of mentoring competence ($p < 0.01$) except for student-centered evaluation.

There were no significant differences in a mentor's age, gender, work experience, or mentoring frequency between profiles.

<table 3.>

Discussion

A majority of the participating mentors evaluated their mentoring competence as middle- or high-level. Mentors belonging to profile A were the most competent in mentoring nursing students, and were the most likely to have participated in mentoring education. Mentor age, gender or work experience did not affect self-evaluated competence or inclusion to a specific mentoring profile, a finding that agrees with previously reported results (O'Brien et al. 2014).

Mentors from all three competence profiles evaluated their competence in student-centered evaluation the lowest. This result can be considered in light of earlier studies that suggest clinical assessment to be a complex process (Dobrowolska et al. 2015, Helminen et al. 2015). Several studies have stated that the assessment of practice outcomes is both a major challenge and critical element in mentoring (McIntosh et al. 2014, Myall et al. 2007, Moseley et al. 2007). It has been shown that mentors need additional information about the evaluation requirements of students (Ford et al. 2016) and nursing professional competence to complete the evaluation process correctly. In this study, mentors ranked competence in supporting the student's learning process second lowest. McIntosh et al. (2014) reported that mentors see their main responsibility as supporting student's learning and ranked themselves as the most important source of support to students in clinical practice. It is essential that mentors provide students with opportunities for learning during clinical practice (Myall et al. 2007). Our results also agreed with a study by Omer et al. (2016), in which mentors reported having a protector role and being responsible for protecting patients from healthcare errors. Mentors have also recognized that their role is pivotal to supporting student's in their learning (Ford et al. 2016).

Participating nurse mentors ranked their competence regarding mentoring practices in the workplace the third lowest. In earlier studies, mentors have identified a lack of understanding of the curriculum (Ford et al. 2016) and difficulty grasping the cognitive aspects of the mentor role (Moseley et al. 2007) as barriers to effective mentoring. In this study, mentors generally reported middle-level motivation, with profile C mentors reporting the lowest motivation levels. Mentor motivation is an important aspect of student mentoring, and mentors are generally motivated to mentor students (Gidman et al. 2011).

Most of the participating mentors reported high-level competence in reflection with students during mentoring. Dube and Jooste (2006) identified that mentors feel that they acknowledge and understand students' feelings of frustration, have appropriate communications skills and a good interpersonal relationship with their students. Additionally, according to Ford et al. (2016), mentors understand that developing the relationship between student and mentor can influence a student's sense of professional responsibility. Meaningful learning occurs within environments that foster a culture of mutual respect, reciprocity and transparency regarding expectations. However, Mårtensson et al. (2013) noted that nurse mentors do not have access to the power structures that are needed to provide reflective discussions and train students' scientific knowledge.

The participating mentors evaluated their competence of identifying the student's need for mentoring second highest and their characteristics (i.e. acting as a supportive mentor) third highest. Earlier studies have shown that mentors have a pivotal role in guiding students' learning needs and facilitating the learning opportunities that are integral to successful placement experience (Ford et al. 2016). Furthermore, mentors feel that they are able to clarify topics to the level of student understanding (Dube and Jooste 2006), and mentors have previously identified that their personal attributes are the most important part of being an effective mentor (McIntosh et al. 2014). Another study found that a majority of mentors respect their students (Dube and Jooste 2006).

Although the mentors in this study generally evaluated their mentoring competence at a high level, there are certain components of mentoring competence in which nurse

mentors should improve. Student-centered evaluation was evaluated the lowest, and all three mentor profiles rated their competence in this area of mentoring as middle-level. Profile C mentors represent 17 % of the total participants, and they reported the lowest competence levels in all 10 categories of mentoring. It is important to note that profile C mentors were generally not motivated to act as mentors. Thus, mentoring competence should be further developed through education, which should especially focus on student-centered evaluation and supporting the student's learning process.

Only 39 % of the participating nurses had participated in mentoring education even though they act as mentors in Finnish university hospitals. This result agrees with a study by O'Brien et al. (2014) in which 36% of nurses had completed mentoring education. In this study, mentors who had completed mentoring education evaluated their competence statistically significant higher than mentors who had not completed the education. Furthermore, Wu et al. (2018), O'Brien et al. (2014), and Ward and McComb (2017) indicated that participation in mentoring education increases mentor competence and positive attitudes towards mentoring, as well as prepares nurses for taking on the role of mentor. Our results also indicate that mentors who use over 10 minutes for reflective discussions during a mentoring day evaluate their competence higher than mentors who use less than this amount of time for reflective discussions.

The results from this study verify that mentoring education should establish a mentoring competence base from which nurse mentors can further improve their skills. In this way, Profile C mentors require education that will motivate them to mentor students and provide them with tools for creating a permissive atmosphere for reflective discussions between student and mentor. On the other hand, profile B mentors need to increase their competence in goal-oriented mentoring and improve their ability to provide students with constructive feedback. The education for profile A mentors should adopt a comprehensive focus to the deepen a nurse's understanding of mentoring, especially regarding student-centered evaluation based on outcomes of learning.

Limitations

This study was conducted in all five university hospitals of Finland, which provides a national perspective but, at the same time, indicates a need for further empirical studies, particularly in different contexts and cultures of clinical practice. Nurses evaluated their mentoring competence through self-evaluation, and this may have influenced the results. More studies are needed to examine the consistency of mentor competence of mentoring assessed by nursing student.

The low response rate may have also influenced the results because the nurse mentors who participated in this study may have been more interested, motivated and had higher competence than the mentors who did not participate. On the other hand, the study sample seemed representative of the Finnish nurse population as the characteristics of the study participants (gender, work experience and age) correlated well with what has been reported for nurses working in Finnish university hospitals (National Institute for Health and Welfare).

Conclusion

The findings from this study indicate three distinct profiles of mentor in Finnish university hospitals. The findings confirm that mentors who report lower levels of competence are more likely to be less motivated than mentors who report higher levels of competence. Also mentors who report higher levels competence had participated in mentoring education more often than who reported lower levels of competence. For this reason, mentoring education should take into account nurses' competence levels so that all nurses obtain a basis from which to build mentoring competence. Mentoring education should also include more focus on the student evaluation process and supporting students' learning processes. This could increase the proportion of nurses who provide students with enough time for meaningful reflective discussions. Collaboration with education providers can strengthen a student-centered evaluation process. Teachers' involvement in clinical evaluation can help mentors by providing them with additional knowledge of the requirements needed for a correct and didactically accommodating

evaluation process. Additionally, the collaboration can provide mentors with a better understanding of the curriculum and enhance better communication in mentoring.

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Table 1. Characteristics of participants

Characteristic	(n=576)		
	n	%	
Gender	male	73	13
	female	503	87
Age†	< 31 years	122	21
	31-40 years	156	27
	41-50 years	150	26
	51-60 years	128	22
	> 60 years	20	4
Education	bachelor's degree	563	98
	master's degree	13	2
Work experience in health care‡	less than 7 years	133	23
	7-14 years	143	25
	15-24 years	160	28
	25 years and over	140	24
Workplace	outpatient clinic	95	17
	ward or intensive care unit	306	53
	ward and outpatient clinic	48	8
	Surgery	127	22
Role of mentor	named mentor	319	55
	mentor	257	45
Frequency in mentoring students	weekly	174	30
	monthly	230	40
	less than monthly	172	30
Last case of mentoring a student	during the last week	201	35
	during the last month	188	33
	during the last 6 months	137	24
	over 6 months ago	50	9
Mentoring education		222	39
No mentoring education		354	62
Discussion time with students	< 10 mins	169	29
	over 10 mins	407	71
Location	hospital 1	225	40
	hospital 2	79	14
	hospital 3	132	23
	hospital 4	82	14
	hospital 5	58	10
† Mean value: 41.7 years (SD=10.9, range 23–66 years),			
‡ Mean value: 15.9 years (SD=10.3 range 0–42 years)			
‡3 Mean value: 36.0 mins (SD=53.9, range 0–480 mins)			

Table 2. Level of mentoring competence

		low-level (< 2.49)	middle-level (2.5-3.49)	high-level (≥ 3.5)	Mean	SD	Cronbach's Alpha	Skewness	Kurtosis
Student-centered evaluation	f	58	371	147	3.1	0.52	0.90	-0,49	0,77
	%	10	64	26					
Goal-oriented mentoring	f	28	251	297	3.4	0.49	0.89	-1,09	1,39
	%	5	44	52					
Mentoring practices in the workplace	f	32	278	266	3.3	0.55	0.88	-0,97	1,44
	%	6	48	46					
Reflection during mentoring	f	2	128	446	3.7	0.38	0.90	-1,16	0,18
	%	0	22	77					
Mentor characteristics	f	3	213	360	3.6	0.39	0.86	-0,61	-0,74
	%	1	37	63					
Supporting the student's learning process	f	4	228	344	3.2	0.39	0.84	-0,51	-0,61
	%	1	40	60					
Mentor motivation	f	33	261	282	3.4	0.54	0.85	-1,17	1,72
	%	6	45	49					
Identifying the student's need for mentoring	f	6	125	445	3.7	0.46	0.82	-1,83	5,42
	%	1	22	77					
Constructive feedback	f	2	229	345	3.5	0.44	0.76	-0,63	0,67
	%	0	40	60					
Mentoring practices between mentor and student	f	13	187	376	3.5	0.50	0.79	-1,21	2,16
	%	2	33	65					

Table 3. Mentor profiles

Characteristics	Profile A (n=278)	SD	Profile B (n=198)	SD	Profile C (n=100)	SD	p-value
Age, years	43 (24-66)	11.02	41 (23-63)	11.15	40 (24-64)	10.10	0.10**
Female, %	87		88		87		0.96*
Work experience, years	17 (0-42)	10.36	15 (1-40)	10.41	15 (1-38)	9.49	
Frequency (%) in mentoring students							
Weekly	35		25		27		0.07*
Monthly	39		41		41		
Yearly	26		34		32		
Most recent case of mentoring (%)							
During last week	34		36		35		
During last month	39		29		24		
During last 6 months	20		26		31		
Over 6 months	8		9		11		
Mentoring education, %	50		32		21		<0.01*
Providing over 10 min of reflective discussion time, %	78		73		46		<0.01*
Higher education (Master's degree), %	6		5		2		0.25*
Mentoring place is in unit, %	60		65		64		0.45*
Evaluation of student-centered evaluation (mean)	3.44	0.34	2.78	0.35	2.58	0.45	<0.01 ¹
Evaluation of goal-oriented mentoring (mean)	3.74	0.25	3.31	0.35	2.78	0.47	<0.01 ²
Evaluation of mentoring practices in the workplace (mean)	3.58	0.40	3.19	0.42	2.67	0.55	<0.01 ²
Evaluation of reflection during mentoring (mean)	3.94	0.12	3.66	0.34	3.17	0.36	<0.01 ²
Evaluation of their mentoring characteristics (mean)	3.81	0.24	3.49	0.35	3.10	0.32	<0.01 ²
Evaluation of supporting the student's learning process (mean)	3.78	0.22	3.34	0.29	3.04	0.33	<0.01 ²
Evaluation of their motivation as a mentor (mean)	3.68	0.34	3.35	0.43	2.76	0.60	<0.01 ²
Evaluation of identifying the student's need for mentoring (mean)	3.83	0.32	3.67	0.37	3.13	0.53	<0.01 ²
Evaluation of providing constructive feedback (mean)	3.80	0.25	3.31	0.36	3.06	0.41	<0.01 ²
Evaluation of mentoring practices between mentor and student (mean)	3.82	0.26	3.37	0.45	2.94	0.49	<0.01 ²
* Chi Square							
** Kruskal Wallis test							
¹ between profiles A-B, A-C							
² between profiles A-B, A-C, B-C							