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RESEARCH ARTICLE

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# Mentors' competence in mentoring nursing students in clinical practice: Detecting profiles to enhance mentoring practices

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## Abstract

**Aims:** To describe the mentoring competence of clinical practice nurse mentors and identify different mentor profiles.

**Design:** Cross-sectional research design, secondary analysis.

**Methods:** An international, cross-sectional study design was performed in five European countries. A total of 1 604 mentors from 33 healthcare organizations participated in the study between 2016–2019. The Mentors' Competence Instrument (MCI), which includes seven sub-dimensions and 44 items, was used to collect data. K-means cluster and binary regression analyses were performed to detect mentor profiles and determine how various factors affect competence, respectively.

**Results:** The K-means cluster analysis identified three distinct profiles: A ($n = 926$); B ($n = 566$); and C ($n = 85$). The profiles showed significantly different values ($p < .001$) across all seven areas of mentoring competence. In comparison with the other profiles, nurses in profile A were older, had more work experience and were more probably to have completed mentoring-specific training.

KEYWORDS

clinical practice, competence, mentor, mentoring, nurse, student

## 1 | INTRODUCTION

Nursing education in the European Union is harmonized according to Directive 2013/55/EU (2013). As the nursing profession evolves, the content of nursing education must be periodically updated to reflect the needs of individuals and society. The implementation of changes in Directive 2013/55/EU into national nursing curricula is covered in the European Federation of Nurses Associations competency framework, which also takes into account existing documents from the International Council of Nurses, World Health Organization and

Tunning project. This framework is particularly concerned with the development of competences (EFN Guidelines for the implementation of Article 31 on mutual recognition of professional qualifications under Directive 2005/36/EC, supplemented by Directive 2013/55/EU, 2015), so that nursing students will be able to deliver safe, high-quality and patient-centred care when they enter a professional environment. At present, the European nursing curriculum requires that up to 50% of the studies must be clinically based (Hart, 2019). The need for change in mentorship methods has become evident in recent years; for example, the *Nursing and Midwifery Council* in the UK is willing to publish new standards for supporting and assessing students in clinical placements (Hunt, 2019). Clinical placements enable students to understand and experience theoretical knowledge in a "clinical classroom." The clinical learning environment includes a complex social climate due to the interactions between students, mentors, nurse teachers and patients (Saarikoski, 2018). Flott and Linden (2016) defined the clinical learning environment based on four main attributes—physical space, psychosocial and interaction factors, organizational culture, and teaching and learning components—as well as described how each of these aspects affect student learning.

Mentors have a key role in the clinical setting, and an effective mentorship programme is pivotal to ensuring successful learning among nursing students (Karacay & Karadag, 2019). In previous evidence, two systematic reviews of 37 international studies defined mentor competence as having the ability *to create an interactive relationship with the student*, *develop mentor's characteristics and cooperation with stakeholders*, *provide goal-oriented mentoring*, *support students' development to nurse profession and support the student's learning process* (Pramila-Savukoski et al., 2020; Tuomikoski et al., 2020). Mentor's role had to be found in mentoring practice in the workplace with assigned recourses and required education of nursing students' clinical practice (Pramila-Savukoski et al., 2020). Mentor's motivation to be involved in students' learning process and provide needed support was found to be associated with an education enhancing their mentor competence development (Tuomikoski, Ruotsalainen, Mikkonen, & Kääriäinen, 2020a). However, mentors lack competence in the field of teaching (Čuk et al., 2014) and have reported that they do not have enough time to provide quality mentoring (Čuk et al., 2014). Furthermore, nurses have demonstrated an inability to grasp the cultural diversity of mentoring and patient care (Mikkonen et al., 2020a; Oikarainen et al., 2018). The mentorship models applied in different European countries vary in terms of the profile, responsibilities and professional requirements of a clinical mentor (Dobrowolska et al., 2016). Mentorship can be considered as a dynamic psychosocial intervention that includes educative and supportive interactions between students, mentors and nurse teachers at the clinical training site. These interactions are based on the professional behaviour of mentors, which includes aspects such as teaching relevant skills, applying theoretical knowledge to clinical practice, and providing students with adequate support and encouragement (Foster et al., 2015; Saarikoski, 2018).

Nurse teachers *(lecturers of professional people)* are an important part of the clinical environment due to their interaction with clinical mentors. Their cooperation with mentors reinforces the transfer of advanced clinical knowledge to nursing students. However, according to previous evidence, the nurse teacher role is being phased out from nursing clinical practice (Mikkonen et al., 2017; Warne et al., 2010), which means that mentors will have to be highly competent in supporting nursing students. The clinical setting should be student-centred in that nursing students have an active role in the learning, and must include an environment that enables students to acquire advanced practical skills. which they can connect to their theoretical knowledge. In this way, the primary purpose of mentoring is supporting a less experienced individual in acquiring the knowledge and competencies that are necessary to provide professional, responsible and high-quality nursing care (Pramila-Savukoski et al., 2020; Tuomikoski, Ruotsalainen, Mikkonen, & Kääriäinen, 2020a). Mentoring also involves discussing and overcoming problems, as well as focussing on strategies to achieve goals.

Because mentors are so pivotal to ensuring that nursing students have the right mix of skills to work in registered practice, educational institutions must provide mentors with adequate education and support (Tuomikoski et al., 2019). Previous research has shown that nurses who completed mentoring education were more skilled at mentoring nursing students and supporting their learning processes (Tuomikoski et al., 2019). Nevertheless, numerous countries still do not require clinical practice mentors to have formal preparation and/or a certain amount of years of experience as a qualified nurse (Dobrowolska et al., 2016). This study provides new knowledge on the mentoring practices that are common in five European countries representing southern and central Europe as well as the Scandinavian and Baltic regions. This knowledge can be used to identify mentoring practices, and more importantly, areas of mentoring education, that require further development in the near future.

## 2 | METHODS

### 2.1 | Aim

This study aimed to describe nurse mentors' competence in mentoring clinical practice students and identify different mentor profiles by performing a cluster analysis. The profiling of mentor characteristics according to competence is important because this knowledge can be used to create tailored mentoring education, which will ensure that nurse mentors are highly proficient at supporting the clinical learning of students.

### 2.2 | Study design

The presented research applied an international, cross-sectional study design and was performed in five European countries: Finland; Italy; Lithuania; Slovenia; and Spain. This is a secondary data analysis.

## 2.3 | Participants

A total of 4 980 mentors were invited to participate, with 1,604 taking part (32% response rate) in the study between 2016–2019. The only inclusion criterion was that the participant is a Registered nurse who is involved in the mentoring of undergraduate nursing students during their clinical practice. A power analysis was performed using a two-tailed *t* test to calculate Cohen's d, including statistical power of 80% and significance set at $p < .05$ (1-Beta err prob). The result indicated that at least 500 nurses per country (a total of 2 500 for the five countries) would have to participate to reach a large effect size (d = 0.8). The data were checked for missing data using missing at random (MAR), missing completely at random (MCAR) and missing not at random (MNAR) values, with the cut-off for listwise deletion set at ≥5% missing values. After these preliminary analyses were performed, the final sample consisted of 1,577 participants: 576 from Finland; 290 from Italy; 334 from Lithuania; 268 from Slovenia; and 109 from Spain.

## 2.4 | Instrument

The Mentors' Competence Instrument (MCI) was used to collect data in the five European countries. The psychometric validation of the instrument in all five participating countries was reported earlier (Mikkonen, Tomietto, et al., 2020). The MCI used in the current research includes seven sub-dimensions and 44 items: mentor characteristics (7 items); mentor motivation (5 items); mentoring practices in the workplace (6 items); reflection during mentoring (6 items); constructive feedback (4 items); goal-oriented mentoring (7 items); and student-centred evaluation (9 items). The Cronbach´s alpha values for these factors ranged from 0.83–0.94. The confirmatory factor analysis reported in Mikkonen, Tomietto, et al. (2020) demonstrated satisfactory fit indices: RMSEA=0.050 (root mean square error of approximation); SRMR=0.038 (standardized root mean residual); CFI=0.933 (comparative fit index); and TLI = 0.927 (Tucker–Lewis index) (Kline, 2010).

## 2.5 | Data collection

Data were collected from 33 European healthcare organizations. An electronic survey questionnaire was used in Finland and Spain, whereas a paper version was employed in Italy, Lithuania and Slovenia. Mentors were recruited by a trained research assistant employed in each organization. Background information was also collected to describe sample characteristics. Participants received one invitation and two reminders in a timeframe of a few weeks to complete the MCI with the aim of improving the response rate in each country.

## 2.6 | Ethical considerations

National and European laws were followed to ensure confidentiality in data collection and treatment. Data acquired in each country were stored and protected at the participating university in that country. Data will be stored for 50 years in accordance with the European Union's General Data Protection Regulation (Information Commisioner's Office, GDPR, 2018). Participants received a letter providing information about the study and an invitation to participate. Voluntary participation was interpreted as informed consent to participate.

## 2.7 | Data analysis

The preliminary analyses, reliability analyses, descriptive and inferential statistics, and K-means clustering were performed using IBM SPSS (V25.0; IBM Corporation). K-means cluster analysis was performed to identify clusters of similar mentors based on data describing the various MCI factors. Cluster analysis is useful for exploring and describing underlying patterns in the sample distribution. The number of clusters needed to be over the 5% of the sample and, according to this, it could be tested and decided by the researchers (Bejarano et al., 2011). Descriptive statistics were then performed to present the characteristics of each cluster. Statistical differences between clusters were tested with a one-way ANOVA (with Bonferroni correction), along with chi-squared and Fisher's exact tests, with a *p*-value <.05 chosen as the threshold for statistical significance. Binary regression analysis was performed to explore how various background factors affect mentoring competence, with the results reported as odds ratios (ORs) with 95% confidence intervals. Each of the seven factors was dichotomized into lower competence (0 = 1.00–2.49) and higher competence (1 = 2.50–4.00) groups. The fit indices used in this research included the log likelihood ratio (2LL), Omnibus model coefficient, Hosmer-Lemeshow test, along with Cox and Snell and Nagelkerke R square tests (Munro, 2005).

## 2.8 | Role of the funding source

The funders of the study had no role in the study design, data collection, data analysis, data interpretation or writing of this report. The corresponding author had full access to all of the collected data and made the final decision to submit the article for publication.

# 3 | RESULTS

## 3.1 | Participant characteristics

A total of 1 577 mentors completed the MCI during the data collection phase: 576 from Finland; 290 from Italy; 334 from Lithuania; 268 from Slovenia; and 109 from Spain. The participants had a mean age of 43 (*SD* 19) years, and a majority of them were female (74%). Most of the mentors worked as Registered nurses, were currently employed in an inpatient work unit and had an average work experience of 19 years. All of the Registered nurses acted as mentors,

with large variation in the frequency at which they mentored students; more specifically, 32%, 24%, 33% and 9% of the respondents reported mentoring students weekly, monthly, annually and even less frequently than once a year, respectively. However, only 52% of mentors had previous education in mentoring, with 48% reporting that they had not completed any mentoring-specific education.

### 3.2 | Mentor profiles

K-means clustering identified three distinct profiles from the data: profile A ($n$ = 926); profile B ($n$ = 566); and profile C ($n$ = 85) (see Table 1 and Figure 1). The differences between profiles for each of the seven mentoring competence areas demonstrated a significance level of $p$ <.001. Nurses in profile A had higher mean scores in each mentoring competence area than nurses in the other two clusters; as such, profiles A, B and C could be categorized as high mentoring competence (mean 3.73, *SD* 0.30), average mentoring competence (mean 3.15, *SD* 0.43) and low mentoring competence (mean 2.30, *SD* 0.62), respectively. Mentors in each profile evaluated their competence in reflection the highest (profile A: mean 3.89, *SD* 0.19; profile B: mean 3.39, *SD* 0.39; profile C: mean 2.32, *SD* 0.62). Nurses in profile A were least confident with their mentoring practices in the workplace (mean 3.58, *SD* 0.42), while nurses in profile B scored their student-centred evaluation the lowest (mean 2.97, *SD* 0.41) and nurses in Pprofile C reported goal-oriented mentoring (mean 2.17, *SD* 0.61) as the weakest aspect of their mentoring.

There was a statistically significant difference ($p$ <.001) in the ages of nurses who belonged to profile A (mean 43.95, *SD* 9.7) and profile B (mean 41.36, *SD* 10.32) (see Table 2). In terms of frequency, profile A was most often represented by nurses from Finland (34%) and Lithuania (24%), and profile B was most often represented by nurses from Finland (43%) and Italy (23%), while profile C was most often represented by nurses from Italy (49%) and Finland (18%). The nurses in profile A had the most extensive work experience (mean 20.00 years, *SD* 10.75). A majority of the mentors in profile B (58%) had not completed mentoring-specific training, while the corresponding percentages in profiles C and A were 48% and 42%, respectively.

Additionally, a binary regression analysis was performed to explore whether background factors affected mentoring competence (see Table 3). In general, Italian mentors showed lower competence in mentor characteristics (OR = 0.09, 95% CI = 0.02, 0.36, $p$ < .001), mentor motivation (OR = 0.53, 95% CI = 0.29, 0.97, $p$ = .042), mentoring practices in the workplace (OR = 0.29, 95% CI = 0.17, 0.49, $p$ < .001), reflection during mentoring (OR = 0.04, 95% CI = 0.01, 0.17, $p$ < .001), constructive feedback (OR = 0.02, 95% CI = 0.01, 0.09, $p$ < .001) and goal-oriented mentoring (OR = 0.19, 95% CI = 0.10, 0.36, $p$ < .001) than Finnish mentors. Finnish mentors generally scored lowest in student-centred evaluation, especially when compared to nurses from Lithuania (OR = 2.33, 95% CI = 1.14, 4.75, $p$ = .019) and Slovenia (OR = 2.33, 95% CI = 1.08, 5.02, $p$ = .030). The analysis revealed that work experience positively affects mentors' confidence in student-centred evaluation (OR = 1.03, 95% CI = 1.01, 1.05, $p$ = .002). Less frequent mentoring when comparing to weekly, monthly or yearly mentoring has supported mentors in having competence to provide constructive feedback (OR = 0.36, 95% CI = 0.13, 0.99, $p$ = .049) and perform goal-oriented mentoring (OR = 0.31, 95% CI = 0.13, 0.74, $p$ = .008).

## 4 | DISCUSSION

This study aimed to describe mentoring competence among clinical practice nurse mentors from five European countries and identify distinct mentor profiles by performing a cluster analysis. We believe that profiling mentor characteristics according to competence clusters can help educational institutions provide tailored mentoring

**TABLE 1** Mentor profiles ($n$ = 1,577)

| Mentor competence area | Profile A ($n$ = 926) Mean (Standard Deviation) | Profile B ($n$ = 566) Mean (Standard Deviation) | Profile C ($n$ = 85) Mean (Standard Deviation) | F[a] | $p$-value |
|---|---|---|---|---|---|
| Mentor characteristics | 3.81 (0.25) | 3.36 (0.39) | 2.61 (0.70) | 649.67 | **<.001** |
| Mentor motivation | 3.70 (0.32) | 3.19 (0.44) | 2.26 (0.58) | 720.44 | **<.001** |
| Mentoring practices in the workplace | 3.58 (0.42) | 3.00 (0.51) | 2.24 (0.65) | 494.35 | **<.001** |
| Reflection during mentoring | 3.89 (0.19) | 3.39 (0.39) | 2.32 (0.62) | 1229.64 | **<.001** |
| Constructive feedback | 3.72 (0.34) | 3.13 (0.44) | 2.32 (0.64) | 707.57 | **<.001** |
| Goal-oriented mentoring | 3.74 (0.29) | 3.07 (0.45) | 2.17 (0.61) | 1026.64 | **<.001** |
| Student-centred evaluation | 3.68 (0.33) | 2.97 (0.41) | 2.20 (0.59) | 998.90 | **<.001** |

*Note:* The mean difference is statistically significant at the $p$ <.05 level (marked in bold). The mentoring competence score was based on a four-point Likert scale (scores 1–4).

[a]One-way ANOVA $F$ test, including multiple comparisons conducted with Bonferroni correction; each comparison demonstrated a $p$-value <.001.

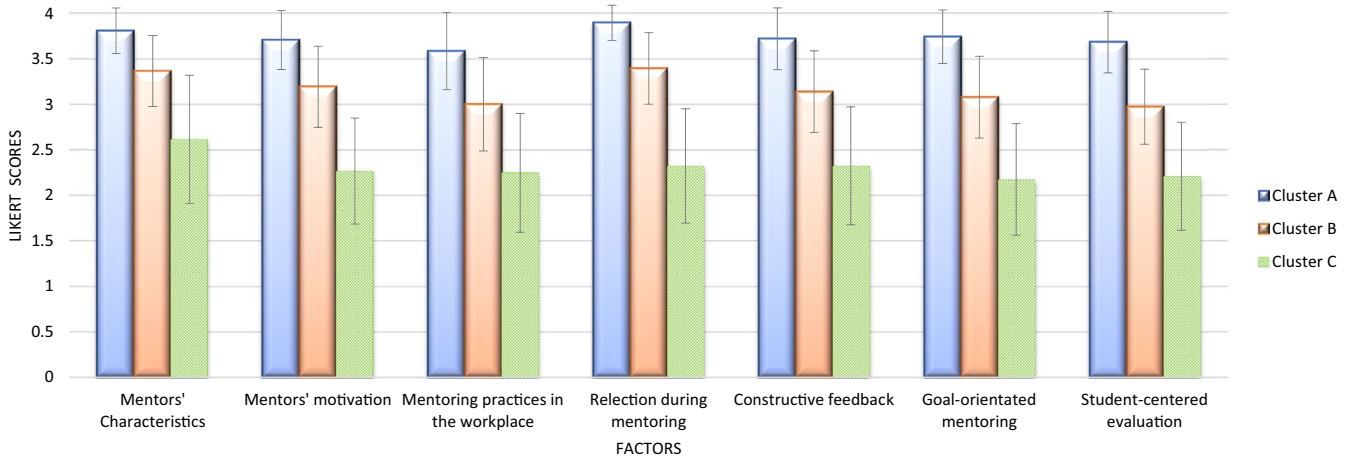


**FIGURE 1** Mentor competence according to K-means clustering (profiles A, B, C ($n$ = 1,577))

**TABLE 2** Mentor ($n$ = 1577) characteristics, according to their distribution to profiles A, B and C

| Characteristic | Profile A ($n$ = 926) | Profile B ($n$ = 566) | Profile C ($n$ = 85) | $F^a/\chi^{2b}$ | $p$-value |
|---|---|---|---|---|---|
| Age in years, mean (*SD*) | 43.95 (9.97) | 41.36 (10.32) | 42.06 (8.76) | $F$ = 11.85 | **<.001*** |
| Missing values, *n* (%) | 5 (0.53) | 5 (0.88) | 1 (1.17) | | |
| Gender, *n* (%) | | | | | |
| Female | 659 (71.2) | 441 (77.9) | 59 (69.4) | $\chi$2=8.66 | **.013** |
| Male | 265 (28.6) | 125 (22.1) | 26 (30.6) | | |
| Missing values | 2 (0.2) | | | | |
| Country, *n* (%) | | | | | |
| Finland | 316 (34.1) | 245 (43.3) | 15 (17.6) | $\chi$2=125.52 | **<.001** |
| Italy | 120 (13.0) | 128 (22.6) | 42 (49.4) | | |
| Lithuania | 221 (23.9) | 103 (18.2) | 10 (11.8) | | |
| Slovenia | 198 (21.4) | 63 (11.1) | 7 (8.2) | | |
| Spain | 71 (7.7) | 27 (4.8) | 11 (12.9) | | |
| Work experience in years, mean (SD) | 20.00 (10.75) | 17.03 (10.49) | 17.84 (9.31) | $F$ = 13.86 | **<.001*** |
| Missing values | 29 (3.13) | 9 (15.9) | | | |
| Mentored student last time, *n* (%) | | | | | |
| Last week | 312 (33.7) | 172 (30.4) | 24 (28.2) | $\chi$2=6.10 | .422 |
| Last month | 229 (24.7) | 128 (22.6) | 19 (22.4) | | |
| During this year | 291 (31.4) | 205 (36.2) | 22 (25.9) | | |
| Less frequently | 84 (9.1) | 52 (9.2) | 10 (11.8) | | |
| Education in mentoring, *n* (%) | | | | | |
| Yes | 534 (57.7) | 240 (42.4) | 44 (51.8) | $\chi$2=32.78 | **<.001** |
| No | 392 (42.3) | 326 (57.6) | 41 (48.2) | | |

*Note:* The mean difference is statistically significant at the $p$ <.05 level (marked in bold).

[a]One-way ANOVA $F$ test, including multiple comparisons conducted with Bonferroni correction.

[b]Chi-square test and Fisher exact test performed if the expected frequency of cells was less than 20%.

*Clusters A and B differed significantly ($p$ <.001) in age and work experience variables based on the one-way ANOVA $F$ test including multiple comparisons with Bonferroni correction.

education that will enhance mentors' abilities to support nursing students in the clinical learning environment. The results showed that age, work experience, frequency in mentoring and having completed mentoring-specific training were associated with higher scores across all seven aspects of mentoring competence. Mentors with less work experience and younger age had less confidence in

**TABLE 3** Results of the regression analysis of associations between background factors and mentors' competence ($n = 1577$)

| Independent variable | Outcome variable | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Mentor characteristics** LC $n = 35$ HC $n = 1542$ OR (CI95%), $p$-value | **Mentor motivation** LC $n = 95$ HC $n = 1482$ OR (CI95%), $p$-value | **Mentoring practices in the workplace** LC $n = 127$ HC $n = 1450$ OR (CI95%), $p$-value | **Reflection during mentoring** LC $n = 43$ HC $n = 1534$ OR (CI95%), $p$-value | **Constructive feedback** LC $n = 73$ HC $n = 1504$ OR (CI95%), $p$-value | **Goal-oriented mentoring** LC $n = 91$ HC $n = 1486$ OR (CI95%), $p$-value | **Student-centred evaluation** LC $n = 118$ HC $n = 1459$ OR (CI95%), $p$-value |
| Age in years | 0.97 (0.89, 1.05), .496 | 1.02 (0.96, 1.08), .382 | 1.03 (0.98, 1.09), 145 | 1.00 (0.92, 1.08), .947 | 1.02 (0.95, 1.10), .474 | 0.99 (0.94, 1.04) .856 | |
| Gender | | | | | | | |
| Female (ref.) | | | | | | | |
| Male | 0.56 (0.22, 1.43) .232 | 0.43 (0.24, 0.76) **.004** | 0.62 (0.73, 1.05) .078 | 0.86 (0.36, 2.02) .731 | 0.96 (0.47, 1.97) .931 | 0.50 (0.28, 0.89) **.020** | |
| Country | | | | | | | |
| Finland (ref.) | | | | | | | |
| Italy | 0.09 (0.02, 0.36), **<.001** | 0.53 (0.29, 0.97), **.042** | 0.29 (0.17, 0.49) **<.001** | 0.04 (0.01, 0.17), **<.001** | 0.02 (0.01, 0.09), **<.001** | 0.19 (0.10, 0.36), **<.001** | 0.78 (0.48, 1.29), .347 |
| Lithuania | 0.32 (0.06, 1.59) .166 | 1.06 (0.50, 2.23) .875 | 0.65 (0.35, 1.23) .190 | 0.34 (0.05, 2.10), .246 | 0.14 (0.03, 0.70), **.016** | 0.99 (0.41, 2.38), .987 | 2.33 (1.14, 4.75), **.019** |
| Slovenia | 0.82 (0.11, 5.84) .846 | 1.74 (0.74, 4.07), .201 | 1.57 (0.67, 3.67) .290 | 0.20 (0.03, 1.33), .098 | 0.13 (0.02, 0.74), **.021** | 1.11 (0.43, 2.85), .825 | 2.33 (1,08, 5.02), **.030** |
| Spain | 0.09 (0.02, 0.44) **.002** | 0.63 (0.28, 1.42), .270 | 0.51 (0.24, 1.12) .096 | 0.04 (0.01, 0.23), **<.001** | 0.04 (0.01, 0.24), **<.001** | 0.34 (0.14, 0.81), .343 | 0.66 (0.32, 1.34), .253 |
| Work experience in years | 1.05 (0.97, 1.13) .202 | 0.97 (0.92, 1.02), .346 | 0.98 (0.93, 1.03) .559 | 1.03 (0.95, 1.12), .438 | 0.96 (0.90, 1.03), .362 | 1.02 (0.97, 1.08), .343 | 1.03 (1.01, 1.05), **.002** |
| Mentored student last time | | | | | | | |
| Last week (ref.) | | | | | | | |
| Last month | 0.79 (0.27, 2.29), .669 | 0.95 (0.52, 1.70), .868 | 0.74 (0.44, 1.24) .259 | 1.03 (0.38, 2.82), .942 | 0.87 (0.40, 1.91), .746 | 0.92 (0.48, 1.77), .814 | |
| During this year | 1.18 (0.45, 3.11), .727 | 1.36 (0.77, 2.40), .278 | 1.27 (0.77, 2.10) .345 | 1.21 (0.53, 2.78), .640 | 1.02 (0.53, 1.95), .945 | 1.04 (0.58, 1.84), .888 | |

(Continues)

TABLE 1 (Continued)

| Independent variable | Outcome variable | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Mentor characteristics LC *n* = 35 HC *n* = 1542 OR (CI95%), *p*-value** | **Mentor motivation LC *n* = 95 HC *n* = 1482 OR (CI95%), *p*-value** | **Mentoring practices in the workplace LC *n* = 127 HC *n* = 1450 OR (CI95%), *p*-value** | **Reflection during mentoring LC *n* = 43 HC *n* = 1534 OR (CI95%), *p*-value** | **Constructive feedback LC *n* = 73 HC *n* = 1504 OR (CI95%), *p*-value** | **Goal-oriented mentoring LC *n* = 91 HC *n* = 1486 OR (CI95%), *p*-value** | **Student-centred evaluation LC *n* = 118 HC *n* = 1459 OR (CI95%), *p*-value** |
| Less frequently | 0.38 (0.09, 1,59), .188 | 0.61 (0.27, 1.39), .244 | 0.60 (0.28, 1.26) .170 | 0.28 (0.08, 1.02), .055 | 0.36 (0.13, 0.99), **.049** | 0.31 (0.13, 0.74), **.008** | |
| Education in mentoring | | | | | | | |
| Yes (ref.) | | | | | | | |
| No | 1.33 (0.59, 2.96) .483 | 0.72 (0.45, 1.14), .166 | 0.69 (0.46, 1.04) .082 | 1.17 (0.57, 2.38), .665 | 0.84 (0.49, 1.45), .553 | 0.78 (0.48, 1.27), .330 | |
| Omnibus | *p* =**.003** | *p* =**.037** | *p* <**.001** | *p* <**.001** | *p* <**.001** | *p* <**.001** | *p* <**.001** |
| Hosmer and Lemeshow | *p* =.298 | *p* =.473 | *p* =.667 | *p* = 822 | *p* =.333 | *p* =.522 | *p* =.063 |
| Cox and Snell, Nagelkerke $R^2$ | 1.9% to 11.0% | 1.4% to 3.8% | 2.7% to 6.4% | 3.2% to 15.8% | 5.2% to 17.6% | 3.3% to 9.6% | 2.5% to 6.3% |
| Classification | 98.1% | 94.2% | 92.3% | 97.6% | 95.8% | 94.6% | 92.9% |

*Note:* *p* <.05 (marked in bold). Outcome variables classified into lower competence—LC (0 = 1 – 2.49 Likert scores) and higher competence—HC (1 = 2.50 – 4 Likert scores).

goal-oriented mentoring and student-centred evaluation, which plays an important role in providing support to students' learning process. The results have shown that with the experience in mentoring, mentors' competence in goal-orientation and student-centred evaluation increased as well as the frequency of mentoring students on a daily basis. According to our results and previous research examining the impact of mentors' competence development and education, we suggest that mentors would be provided not only primary education on mentoring practices in the workplace but also, to more extent, education on supporting students' learning process with the setting of learning goals, conducting reflection during mentoring, providing constructive feedback and conducting student-centred evaluation (Tuomikoski, Ruotsalainen, Mikkonen, & Kääriäinen, 2020a; 2020b). We further suggest that mentoring practice would be integrated into the clinical learning environments of healthcare organizations. Mentoring of clinical practice can build a positive pedagogical atmosphere providing support and space for students to learn (Saarikoski, 2018). A clinical environment that is conducive to student learning will include positive, supportive relationships between mentors and students, an atmosphere of trust and a ward climate in which students can participate as active members of the nursing team. Factors that negatively influence clinical learning include inflexible ward routines, the lack of team spirit or commitment to teaching, inadequate mentoring, student perceptions that mentors do not trust them and not being allowed to actively participate in patient care (Arkan et al., 2018; Saarikoski, 2018). Previous evidence has shown that nursing students often feel anxious and vulnerable during their clinical placements. Furthermore, students may experience fatigue or burnout for various reasons, and all of these factors have negative consequences for their learning (Houghton, 2014; Sun et al., 2016). Hence, it is essential that experienced and educated mentors are chosen to support nursing students during their clinical placements. Furthermore, healthcare organizations must provide nurse mentors with sufficient resources—most importantly, opportunities for continuous education—so that mentors feel valued and adequately supported in their important role.

The binary regression analysis of how background factors influence mentoring competence performed in this study revealed that having completed mentoring-specific education did not significantly affect the nurses' competence in any of the seven areas of mentoring competence. However, it is important to point out that the sample size of nurses who reported low competence scores was small. When looking into the mentor characteristics according to the distribution of profiles, those mentors with the higher evaluation in mentoring competence (profile A) had a higher percentage of previous education in mentoring. In previous research, mentor education had a strong impact upon mentor competence and their motivation to practice mentoring in their daily nursing work (Tuomikoski, Ruotsalainen, Mikkonen, & Kääriäinen, 2020). Additionally, previous studies have emphasized that Benner's model of competence development (from novice to experts) and Duchscher's theory of transition from the graduate to Registered nurse role are both important for nurses' professional development (Murray et al., 2019). For this reason, the clinical practice environment is especially important, as it enables nurses to develop the knowledge, skills and attributes they will need when transitioning to registered practice. Previous research has shown that a positive clinical working environment will improve care quality and job satisfaction among Registered nurses (Niskala et al., 2020). Ward team motivation and a supportive mentoring culture are essential to ensuring that nurses have adequate mentoring competence, which, subsequently, translates to a high-quality clinical learning environment for nursing students (Tomietto et al., 2016).

The country in which a nurse worked played an important role in how they perceived their mentoring competence. Profile C was most represented (49%) by Italian nurses. According to recent evidence, Italy has had a slow transition from non-academic to academic education (Sasso et al., 2019), which can be expected to negatively affect the comprehensive preparation of nurses for their professional careers during clinical practice. Moreover, Sasso et al. (2019) also reported that the programme for doctoral nursing students in Italy has rarely been modified to include evidence-based practices that could improve clinical learning and mentoring. For this reason, it was not surprising that Italian nurse mentors generally scored lowest in the mentor characteristics, mentor motivation and mentoring practices aspects of mentoring competence. This is a worrying result and could have noticeable adverse impacts on the professional development of Italian nurses (Bressan et al., 2016). The investment in advanced education, up to the doctoral level, and the involvement of the most qualified nurses in mentors' education and in designing clinical learning strategies should be a key milestone to further enhancing Italian mentors' competencies.

According to recent evidence, Lithuania and Slovenia have also experienced recent shifts from non-academic to academic education. As a result, these countries have provided resources to the education of nurse educators, improved their international doctoral education programmes and expert exchange, and developed new academic curricula (Antohe et al., 2016). This approach differs noticeably from what is commonplace in Italy that is, most nurse educators hold a Master's or Bachelor's degree (Humar & Sansoni, 2017), and doctoral students are not adequately supported in developing advanced competences, such as clinical practice mentoring (Watson et al., 2016).

The organizational and educational changes linked to mentoring in Slovenia and Lithuania could have a large impact due to the small number of organizations and nurses in these countries (Antohe et al., 2016). We argue that changes to mentoring culture and nursing education have a more noticeable impact in countries that provide resources to the education nursing educators (Humar & Sansoni, 2017) and have a limited number of clinical settings and universities. In this way, smaller countries (when resources per capita remain fixed) may have an easier time implementing changes because the collaboration between institutions does not have as many barriers, whether bureaucratic, organizational or distance-related.

Canova et al. (2016) describe how the shift to academic education in Italy had a paradoxical effect of decreased clinical competence among nursing students, which may be explained by a lack of formal education concerning clinical practice and mentoring. For this reason, we would recommend Italian universities to track the competence development of nurses through extensive data collection. According to Eurostat, 5 937, 265 588, 166 352, 3 798 and 14 636 nurses and midwives work in Finnish, Italian, Spanish, Slovenian and Lithuanian hospitals, respectively (Eurostat, 2020). Each of the countries that were included in this study differ in terms of the ratio of mentors to students, which may further influence how the culture towards mentoring-specific education has developed in these countries since the Bologna Declaration.

Finally, we would like to emphasize that improving clinical nurses' abilities to mentor nursing students is pivotal to both enhancing undergraduate education and ensuring that newly graduated nurses can successfully transition to registered practice. The long-term effects of both these factors include improved retention rates among new nurses and enhanced organizational stability and quality of care (Baumann et al., 2019).

### 4.1 | Limitations

This study disclosed new highlights on mentors' profiling and competencies from an international perspective; however, some limitations affected the results. In detail, our sample size calculation recommended 500 participants for each country, but it was possible to achieve this goal in one country only. Further studies should test our findings by enrolling a broader sample to consolidate the evidence on the topic. Even if this study detected a statistically significant pattern, a more balanced sample among countries could enhance these findings. Moreover, this study compared different educational systems and timing among the countries concerning the transition from non-academic to academic nursing education. The organizational environments in which mentoring takes place also could have affected our findings; for example, different organizational cultures, different nurse-to-patient ratios, different skill mixes could impact mentoring. Further studies could address these issues to track the evolution of mentoring competencies overtime at the European level and the quality of clinical learning by considering the educational and organizational differences among countries.

## 5 | CONCLUSIONS

Our results show that age, work experience, frequency of mentoring and having completed mentoring training were associated with higher competence across seven different areas of mentoring. Additionally, the country in which nurses worked impacted how the nurse mentors perceived their mentoring competence. Italian mentors generally had lower competence in mentor characteristics, mentor motivation, mentoring practices in the workplace, reflection during mentoring, constructive feedback and goal-oriented mentoring when compared to the competences of nurse mentors from other countries. The presented results highlight that experienced and educated mentors need to be chosen to conduct the important task of mentoring nursing students. Comparisons between mentoring practices in various European countries can help identify countries in which nursing education programmes must be further developed.

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### CONFLICT OF INTEREST

The authors have no conflict of interests to declare.

### AUTHOR CONTRIBUTIONS

KM, MT, AMT, BMK, OR, FVM, RPC, BF, GB, GC and MK made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; involved in drafting the manuscript or revising it critically for important intellectual content; and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

### DATA AVAILABILITY STATEMENT

All data generated during this study are included in this published article.

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