Educational intervention to support development of mentors' competence in mentoring culturally and linguistically diverse nursing students: A quasi-experimental study

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ABSTRACT

Background: Those who mentor nursing students from diverse backgrounds should be educationally prepared to provide safe, culturally appropriate mentoring in clinical learning environments.
Objective: To evaluate the effects of an educational intervention on mentors' competence in mentoring culturally and linguistically diverse nursing students during clinical placement.
Design: Nonrandomised, quasi-experimental study.
Settings.
The study was conducted at two hospitals located in Finland.
Participants: Mentors responsible for mentoring nursing students during clinical placements.
Methods: The intervention group ($n = 49$) completed blended learning mentoring education containing a cultural competence component. The control group ($n = 62$) completed online mentoring education lacking a cultural competence component. Data were collected from both groups at baseline, immediately after education, and at six-months follow-up using the Mentors' Competence Instrument and Mentors' Cultural Competence Instrument. Wilcoxon signed-rank test and Mann-Whitney *U* test were used to determine differences before and after education. Mixed model for repeated measures was used to compare the differences between the two groups.
Results: Pretest-posttest results revealed statistically significant improvements in both groups on general mentoring competences. Both groups evaluated their competence in cultural sensitivity and awareness highly throughout the study period. Following education, competence in cultural interaction and safety and cultural skills increased statistically significantly in the intervention group. The intervention group was statistically significantly more satisfied with mentoring education, and reported that it had statistically significantly higher impact on their ability and willingness to mentor students. Comparison between groups revealed statistically nonsignificant differences in mentors' competence in mentoring culturally and linguistically diverse nursing students following education.

Conclusions: The study provides evidence on the development and evaluation of education designed to improve mentors' competence in mentoring, which may help nursing students from diverse backgrounds overcome challenges faced during clinical placements. Reinforcement strategies following education are needed in order to facilitate the maintenance of competence over time.
Trial Registration.
ClinicalTrials.gov (ID:NCT04280172).

1. Introduction

The patient population and nursing workforce of health systems worldwide are increasingly diverse due to globalization along with trends in nurse migration and international migration in general. Attainment of greater diversity within the nursing workforce can potentially bring forth benefits such as development of health professionals' cultural competence and improvement in accessibility of health services for underserved minority populations (Jones and Sherwood, 2014). Recruitment and retention of culturally diverse nursing students serves as a component in promoting culturally congruent care. Nurses and nursing students who come from diverse backgrounds should be mentored in a culturally sensitive manner that promotes effective clinical learning so that required quality and safety competences of the hosting health system are met (Jones and Sherwood, 2014).

Culturally and linguistically diverse (CALD) nursing students often face cultural, language, academic and personal barriers to success during completion of clinical placements (O'Reilly and Milner, 2015; Mikkonen et al., 2017). Students may experience emotional stress related to diversity during interactions with patients, clinical staff and other students. Edgecombe et al. (2013) list threats to students' clinical learning including isolation, loneliness, discrimination and stereotyping. Students' lack in language skills is a major limitation in students' success in clinical placements (Mikkonen et al., 2017). The role of a mentor for nursing students from diverse backgrounds is challenging and mentors feel unprepared to meet responsibilities (Oikarainen et al., 2018). Students can overcome challenges and take responsibility of their learning when mentored by competent mentors (Oikarainen et al., 2018). Organisation-wide strategies to enhance socialisation for all students, and implementation of policies on cultural awareness, anti-discrimination, inclusivity and equal opportunity are needed (Edgecombe et al., 2013).

It is important to provide effective educational programmes to mentors to prepare them for the mentoring role and also to students to prepare them for clinical placements (O'Reilly and Milner, 2015). Wu et al. (2018) found that online programmes for nurse preceptors were effective and increased knowledge, skills, self-efficacy and confidence. Mentoring education should address mentors' competence in cultural and linguistic diversity (O'Reilly and Milner, 2015; Oikarainen et al., 2018) and cultural competence development (Campinha-Bacote, 2010; Blanchet Garneau, 2016).

2. Background

Clinical placements are a major part of nursing education during which students apply theory learned in classrooms into clinical settings (Flott and Linden, 2016). According to European Union Directive 2013/55/EU, clinical training must be completed under supervision of qualified nursing staff and account for at least one half of the minimum duration of the nursing programme. Following clinical placements, students can achieve learning outcomes, develop necessary skills, knowledge and behaviour needed for clinical practice, and develop self-confidence and satisfaction with the nursing profession (Flott and Linden, 2016). Mentors assist students in the achievement of pre-determined goals, model the reality of practice to students and guide students in the provision of safe nursing care. Mentors act as role models and promote nursing students' professional identity and their

organisational socialisation into healthcare organisations (Tomietto, 2018). In this study, mentors are licensed practical nurses, registered nurses or advanced practice nurses who have been given the responsibility to teach and support nursing students during clinical placements.

Bachelor's level nursing programmes in Finland are provided by universities of applied sciences and comprise of a total of 210 ECTS (European Credit Transfer and Accumulation System). In Finland, universities of applied sciences place emphasis on strengthening international collaboration through facilitation of exchange programmes and providing opportunities for nursing students from diverse backgrounds to complete nursing programmes taught in Finnish language which are designed to specifically meet the needs of immigrant students and, alternatively, nursing programmes taught in English language. In this study, we refer to nursing students whose background differ from that of the mainstream culture and language of the country they live in as CALD students. These students study in nursing programmes taught in either Finnish or English language, or then in exchange programmes.

To our knowledge, there is little known on the effects of education on mentors' competence in mentoring CALD nursing students during clinical placement. This study was designed to develop mentors' competence in mentoring diverse nursing students through newly developed mentoring education which contained a cultural competence component. The content of the educational intervention was designed based on the evidence-based clinical mentors' competence model, which identifies key components of mentoring competence including 1) mentors' individual competences along with mentors' interaction in the workplace and resources for mentoring, 2) mentors' cultural competence in mentoring, and 3) competence in supporting students' learning process (Mikkonen et al., 2019).

Cultural competence has been defined through a constructivist perspective as a "complex know-act grounded in critical reflection and action, which the health professional draws upon to provide culturally safe, congruent, and effective care in partnership with individuals, families, and communities living health experiences, and which takes into account the social and political dimensions of care" (Blanchet Garneau and Pepin, 2015, p.12). Campinha-Bacote's (2010) culturally conscious model of mentoring provided theoretical framework for the intervention. Cultural competence in mentoring is defined as "the process in which the faculty mentor continually strives to achieve the ability and availability to effectively mentor within the cultural context of the student mentee" (Campinha-Bacote, 2010, p.131). This definition involves integration of cultural awareness, cultural knowledge, cultural skill, cultural encounters, and cultural desire into the mentoring process.

3. Methods

The study aimed to evaluate the effects of an educational intervention on mentors' competence in mentoring CALD nursing students during clinical placement.

The research question was:

What are the effects of the educational intervention on the development of mentors' competence in mentoring CALD nursing students when compared to the control group?

The hypothesis was:

The intervention group will have statistically significantly ($p < 0.05$) superior competence in mentoring CALD nursing students compared to

the control group immediately following the educational intervention and at six-months follow-up.

3.1. Design

A nonrandomised, quasi-experimental study design was used. The intervention was guided by the Medical Research Council (MRC) framework for complex interventions, which contains four phases: development, pilot and feasibility, evaluation and implementation (Craig et al., 2019). During the development phase, a model of the intervention was constructed based on theory behind the intervention. First, a cross-sectional study was conducted in Finland to describe mentors' competence in mentoring CALD nursing students during clinical placement and identify the factors that affect mentoring. Mentors reported positive evaluations of their overall mentoring competence and competence in cultural diversity but faced challenges specific to competence in linguistic diversity (Oikarainen et al., 2018). Then, a systematic review was conducted to identify evidence on educational interventions that have been developed to improve nurses' self-assessed cultural competence (Oikarainen et al., 2019). The review provided a comprehensive summary of components in previously conducted educational interventions, facilitating planning of this intervention.

Key components of the intervention were identified during the modelling process and were defined in the protocol, which was registered prior to recruitment of participants. Major protocol deviations were not made. Pilot and feasibility testing were performed. The intervention was then administered and evaluated for its effectiveness. An implementation strategy was created to enhance the transfer of evidence into practice (Craig et al., 2019).

3.1.1. Participants and setting

Study inclusion for mentors participating in the intervention and control groups included: to be currently employed in any professional nursing role on any unit, have the skills to read and understand the Finnish language, and consent to participate in the study. Both groups completed mentoring education offered at two hospitals located in two separate cities in Finland. Participants in both groups were recruited via internal recruitment methods by clinical facilitators. Clinical facilitators were employed at the participating hospitals and involved in practical issues related to organizing and developing mentoring practices, but not directly involved in mentoring students during clinical placements.

Mentoring education was offered to the intervention group at one hospital for a total of two rounds (fall 2020, spring 2021). Emails were sent eight weeks prior to the start date of each round to hospital employees requesting voluntary participation. The education contained a cultural competence component and was taught through blended learning using both online and contact teaching. Whenever it was possible to gather according to national Covid-19 guidelines, the education was offered in a classroom setting at the participating hospital. Whenever gathering was not possible, teaching was offered as planned using Zoom Cloud Meetings.

At the other hospital, the control group was offered mentoring education that lacked a cultural competence component. This education was offered in an online learning environment on a continuous basis during the study period (January 2020–May 2021). Mentors could register for and complete the education wherever feasible and according to their own schedule. Hospital employees were encouraged to participate through regular newsletters and email reminders. Education was not mandatory and it was to be completed outside of work time due to limited resources. In order to increase adherence, participants in both groups were awarded two ECTS credits upon completion of mentoring education.

3.1.2. Educational intervention

The educational intervention consisted of three teaching days covering three themes: foundation of mentoring, assessment of students'

learning and cultural competence in mentoring (supplementary file 1). Content of each theme was presented in three online modules created in collaboration with a company specialising in development of online education for nurses. Flipped learning was used meaning that participants were asked to familiarize themselves with the content in the online modules prior to contact teaching. This facilitated application of knowledge to mentoring practice during contact teaching. Mentors were provided with opportunities to share experiences through group discussions and to practice skills in simulation exercises. Teaching methods were guided by the social constructivist view of learning, which views learning as an active, social process where learners construct their own understanding through reflection on past experiences. Technology-oriented strategies were integrated in order to facilitate active learning, critical thinking, and accommodation of different learning styles.

The cultural competence component of the mentoring education is presented in detail in supplementary file 2. In the systematic review conducted during the developmental phase, five main components of cultural competence arose in the content of cultural competence interventions (Oikarainen et al., 2019). The educational content in this study was organised according to these five components: cultural awareness, cultural knowledge, cultural skill, cultural encounter, and cultural desire. The content and video materials were developed together with researchers, educators, nursing students, healthcare professionals and a linguistic expert.

During the first teaching day, mentors were given information on the study and on practical issues related to the education. Mentors who met eligibility criteria were enrolled into the study. This day was followed by a 3–4 week self-study period during which mentors were asked to complete online modules 1 and 2. The second teaching day was followed by a 4–6 week self-study period during which mentors were to complete the online module covering cultural competence in mentoring. The final eight-hour teaching day focused on the mentoring of culturally diverse students.

3.1.3. Comparison intervention

The control group completed online mentoring education at a separate hospital and did not receive any component of the intervention. The education did not cover cultural competence in mentoring. Instead, it contained overlapping themes with the mentoring education provided to the intervention group related to mentoring in general (supplementary file 1). The education was offered in an online environment without virtual tutoring or contact teaching. Prior to beginning the online education, participants were given information on the study and asked for their informed consent. Successful completion of the education required a passing grade on an online, multiple-choice exam.

3.1.4. Providers of the intervention and control

The principal researchers were responsible for providing support and collecting data from the intervention group, and for choosing and training educators to provide the educational intervention according to the intervention protocol. Educators were selected if they met the following criteria: hold a professional healthcare-related degree, have pedagogical competence and expertise in healthcare education, and have completed or are in the process of completing an accredited health science teacher programme. The 19 educators (fall 2020 $n = 12$, spring 2021 $n = 7$) were split into groups of two or three and conducted the education using team-teaching. All educators were trained in administrating the educational intervention prior to the start of each round of education.

Clinical facilitators who were employed by the hospital offering the comparison intervention were responsible for delivering the comparison mentoring education, recruiting participants, providing support to participants as needed, and collecting data from participants at the set time periods.

3.1.5. Data collection

Data were collected from both groups prior to beginning education (T0), immediately after education (T1), and at six-months follow-up (T2) using the Mentors' Competence Instrument (MCI) (Tuomikoski et al., 2018; Mikkonen et al., 2020) and Mentors' Cultural Competence Instrument (MCCI). A combination of paper-based and online (Webropol) questionnaires were used to collect T0 and T1 assessments from the intervention group. The T2 questionnaire was sent to participants' home addresses in sealed envelopes. Data during T0 and T1 were collected from the control group via online (Surveypal) questionnaires, which were integrated into the online learning environment. The T2 questionnaire was sent to participants' work email addresses.

Both the MCI and MCCI used a four-level Likert scale (1 fully disagree, 2 disagree to some extent, 3 agree to some extent, 4 fully agree). Changes in mentors' competence in mentoring was measured using the MCI seven-factor model, which contained 43 items: (1) mentoring practices in the workplace; (2) characteristics of the mentor; (3) motivation of the mentor; (4) goal orientation in mentoring; (5) reflection during mentoring; (6) student-centred evaluation; and (7) constructive feedback (Tuomikoski et al., 2018; Mikkonen et al., 2020). Changes in mentors' cultural competence in mentoring was measured using the MCCI, which contained 21 items covering four themes: (1) cultural sensitivity and awareness; (2) cultural knowledge; (3) intercultural communication and interaction; and (4) cultural skills and safety. The following demographic data was gathered: gender; age; educational and professional background; time when last mentored a student; and experience mentoring CALD students. Following education, participants were asked how satisfied they were with the education. Participants were asked if the education had impact on their ability to mentor students as well as on their willingness to mentor students. Finally, they were given opportunity to provide open feedback on the education.

3.1.6. Sample size

Sample size determination was based on normality assumptions related to the primary outcome using the psychometrically validated instrument MCI (Tuomikoski et al., 2018). Sample size was calculated using a power analysis for an effect size based on the assumptions of Cohen's d, two tail-test, significance at $p < 0.05$, power of 80% (1- Beta err prob). The estimated sample size needed to achieve study objectives was 30 participants per group. The final sample size was set at 60 participants per group to adjust for a potential 50% attrition rate.

3.2. Pilot and feasibility

Two expert panels met regularly to discuss and assess the feasibility of the design of the intervention. The first expert panel consisted of researchers, university staff members, along with clinical facilitators and a nurse manager from the hospital participating in the intervention. The second expert panel consisted of nursing students, mentors, and a nurse educator from a university of applied sciences. In fall 2019, the cultural competence related online module was tested and evaluated by a group of experts. Also, the newly developed content and teaching methods of the cultural competence component of mentoring education were tested with mentors ($n = 30$) attending traditional mentoring education offered at a hospital.

The educational intervention was conducted according to the intervention protocol and pilot tested by 28 mentors in spring 2020. Due to the emerging Covid-19 epidemic, the planned eight-hour final contact teaching day related to cultural competence in mentoring was conducted as a shortened three-hour online teaching day using Zoom. The online teaching day was well-received by mentors, and therefore, it was decided that the educational intervention would be offered as planned but online whenever gathering face-to-face was not possible. In the pilot study, assessment of the outcome measures was conducted at the set time periods. The majority ($n = 26$) of mentors completed the education,

and conducted T0 ($n = 28$) and T1 (n = 26) assessments. Loss to follow-up at six months was a challenge with only eight mentors responding to the T2 assessment despite email reminders encouraging completion. Based on feedback from mentors and educators conducting the education, no need to change the intervention protocol arose following pilot testing.

3.3. Intervention evaluation

The CONSORT flow diagram in Fig. 1 shows the flow of participants in both groups through each stage of the study (Schulz et al., 2010). At the hospital participating in the intervention, a total of 64 mentors were registered to partake in the newly developed mentoring education during the study period. Out of these mentors, 51 met inclusion criteria and were enrolled into the study. The majority of the participants in the intervention group completed the online modules prior to contact teaching. Participants who were unable to attend were asked to watch the lecture recordings following the teaching days. Forty-nine mentors successfully completed mentoring education. All 51 mentors responded to the baseline assessment, 49 mentors to the T1 assessment and 22 mentors to T2 assessment.

At the hospital offering the comparison intervention, 144 mentors registered to partake in the online mentoring education during the study period. A total of 111 mentors met inclusion criteria, were enrolled in the study, and responded to the baseline assessment. Mentoring education was successfully completed by 62 mentors. Out of these mentors, 26 responded to the T1 assessment and nine to T2 assessment.

3.4. Intervention implementation

An implementation strategy was created following the intervention to facilitate getting evidence into practice (Craig et al., 2019). Throughout the entire research process, active dissemination of information was employed on the importance of supporting development of mentors' cultural competence and of integrating a cultural competence component to mentoring education. The topic of cultural competence in mentoring was included as an important component of mentoring education in the European level guidelines on clinical nurse mentors' mentoring competence development (Oikarainen et al., 2021). The course framework of the cultural competence component outlined in this study was translated into multiple EU languages and made freely accessible (Oikarainen and Mikkonen, 2021). The intervention was developed in collaboration with experts in mentoring from Finland, other EU countries and countries outside of the EU facilitating implementation in new contexts.

3.5. Ethical considerations

Standards of the responsible conduct of research (RCR, 2012) set by the Finnish Advisory Board on Research Integrity were followed. Research permissions from the hospitals were obtained. Formal approval from an ethics committee was not required. Participants were informed on the study aim, their right to withdraw from the study at any time, and that participation was voluntary prior to gathering informed consent. Participants' confidentiality and anonymity was protected (Regulation 2016/679 of the European Parliament and of the Council). Questionnaires were coded according to specific identification numbers of each participant. All paper documents were kept in a locked file cabinet. Electronic data was stored on computers that were protected by a password and only researchers involved in the research project were given access to the data (RCR, 2012).

3.6. Data analysis

IBM SPSS (V26) was used to analyse data. Descriptive and multivariate statistical methods were used. Differences in demographic data
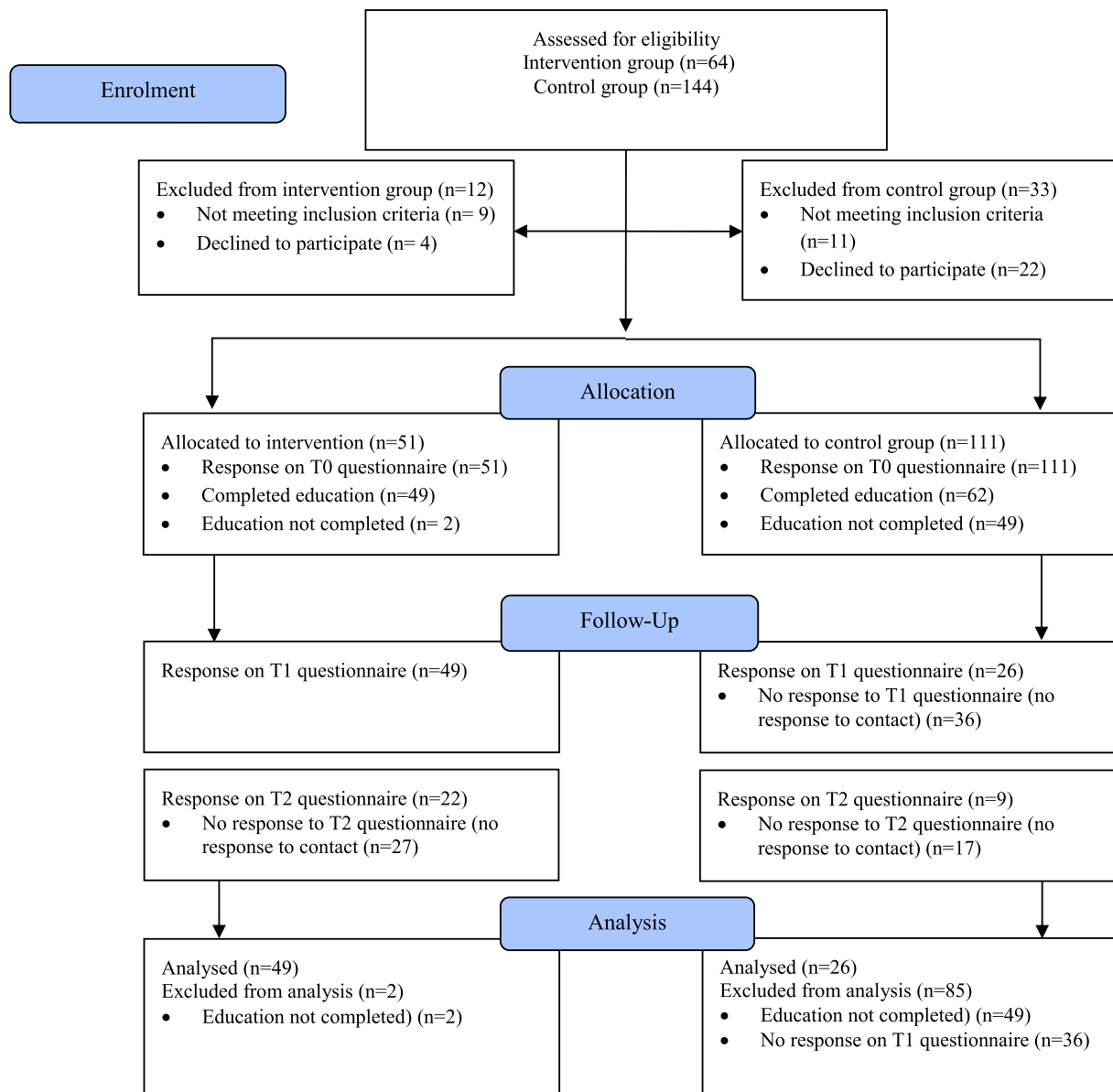
Questionnaire = Mentors' Competence Instrument and Mentors' Cultural Competence Instrument, T0 = baseline, T1 = immediately following education, T2 = 6-months follow up

Fig. 1. The study CONSORT flow diagram (Schulz et al., 2010)
Questionnaire = Mentors' Competence Instrument and Mentors' Cultural Competence Instrument, T0 = baseline, T1 = immediately following education, T2 = 6-months follow up.

between the groups were analysed using Chi-square test for categorical data and independent samples *t*-test for continuous data. Wilcoxon signed-rank test was used to determine differences on the MCI and MCCI before, immediately after the educational and comparison interventions, and at six-months follow-up. Mann-Whitney *U* test was used to test the effect of the intervention between the groups. Chi-square test was used to analyse differences between the groups in regard to their satisfaction with education, and evaluation of the impact of education on ability and willingness to mentor students. In order to account for missing data, mixed model for repeated measures (MMRM) was performed to compare changes in outcome variables between groups over time (T0, T1). Threshold for statistical significance was set at $p < 0.05$.

3.7. Validity and reliability

Reliability of the MCI and MCCI were tested using data gathered in the pilot and intervention of this study ($n = 190$). The Cronbach's alpha values of the MCI varied between 0.78 and 0.92 and between 0.80 and 0.91 for the MCCI (Table 1).

The MCCI was developed based on a systematic review (Oikarainen et al., 2019). Four items were derived from the previously developed Cultural and Linguistic Diversity in Mentoring scale (Oikarainen et al., 2018). The instrument was sent to a panel of eight experts for two rounds of evaluation of content and face validity. Experts were asked to assess the relevancy and clarity of each item of the instrument according to Content Validity Index method. Two items were deleted, one was added, and minor changes were made to the wording of the items. The instrument was interpreted to have excellent content validity with a

Table 1

Exploratory factor analysis of Mentors' Cultural Competence Instrument (*n* = 185).

3-factor model subdimensions and items[a]	Factor 1	Factor 2	Factor 3	Alpha
Factor 1. Cultural interaction and safety				0.91
I am able to guide culturally diverse students according to their learning needs.	0.972			
I know how to recognize when culturally diverse students need additional support.	0.790			
I am able to assess the learning needs of culturally diverse students.	0.768			
I have the skills to solve possible cultural misunderstandings that occur during mentoring.	0.637			
I have the ability to ensure that nursing environments are culturally safe for both students and patients.	0.592			
I have the skills to overcome communication barriers in situations where the student lacks sufficient language skills.	0.589			
I am able to interact with students from different cultures.	0.582			
I know how to build a good mentoring relationship with students from different cultures.	0.531			
Factor 2. Cultural sensitivity and awareness				0.86
I accept cultural diversity while mentoring students.		0.768		
I recognize that culturally diverse students have unique backgrounds.		0.754		
I do not stereotype culturally diverse students.		0.684		
I am aware of my own cultural background.		0.589		
I want to familiarize myself with the cultural background and practices of students.		0.580		
I understand that adaptation to a new culture can take time.		0.480		
I am able to identify cultural practices that differ from my own culture.		0.477		
I intervene when there is discrimination against culturally diverse students.		0.421		
I help culturally diverse students feel welcomed into the clinical placement.		0.370		
Factor 3. Cultural skills				0.80
I seek knowledge on different cultures.			0.704	
I support students in learning the Finnish or Swedish language.			0.645	
I am comfortable communicating with students who have limited Finnish or Swedish proficiency.			0.544	
I continuously strive to develop my cultural competence.			0.535	
Eigenvalue	8.966	1.905	1.229	
Percentage of variance	42.7%	9.1%	5.9%	
Total percentage of factor model	57.7%			

[a] Extraction methods: Principal Axis Factoring with Promax rotation. Factor loading cutoff ≥0.30.

scale-level CVI of 1.00 for relevance and 0.93 for clarity. No changes were made to the instrument following testing by 13 mentors employed at a hospital.

Following delivery of the intervention, the construct validity of the MCCI was tested using exploratory factor analysis with principal axis factoring with Promax rotation. Data selected for the analysis consisted of 185 valid responses from participants to the baseline MCCI during the pilot and intervention study. Data were found fit for analysis based on the Bartlett Test for Sphericity (2048.252, df = 210, $p < 0.01$) and the

Kaiser–Meyer–Olkin test 0.92. The cut-off value for factor loadings was an absolute value of 0.30 or higher. The eigenvalues and proportion of variance explained by the factors were analysed. Exploratory factor analysis supported the three-factor model which accounted for 57.6% of the total variance (Table 1). The first factor, "Cultural interaction and safety", had an eigenvalue of 8.966 and total item variance of 42.7% explained by the factor. The second factor, "Cultural sensitivity and awareness", had an eigenvalue of 1.905 and total item variance of 9.1% explained by the factor. The third factor, "Cultural skills", had an eigenvalue of 1.229 and total item variance of 5.9% explained by the factor.

4. Results

4.1. Participant demographics

In the intervention (IG) and control groups (CG), participants were mostly female (IG = 90%, CG = 89%), with an educational level of a bachelor's degree (IG = 84%, CG = 89%), and practicing as either Registered Nurses, Public Health Nurses or Emergency Nurses (IG = 86%, CG = 85%). Participants' mean age was 36 years in the intervention group and 37 years in the control group. Mean scores in healthcare-related work experience was eight years in both groups. Less than half of participants (41%) in the intervention group reported no experience in

Table 2

Baseline demographics of participants (*n* = 75).

Baseline variable (n,%)	Intervention group (n = 49)	Control group (n = 26)	*p*-value
Gender			*p* = 0.86
Female	44 (89.8%)	23 (88.5%)	
Male	5 (10.2%)	3 (11.5%)	
Age in years[a]	35.53 (7.43)	36.88 (9.57)	*p* = 0.50
Educational background			*p* = 0.46
Associates	2 (4.1%)	2 (7.7%)	
Bachelors	41 (83.7%)	23 (88.5%)	
Masters	6 (12.3%)	1 (3.8%)	
Healthcare related work experience in years[a]	7.71 (6.82)	7.81 (8.26)	*p* = 0.95
Job title			*p* = 0.66
Licensed Practical Nurse	2 (4.1%)	2 (7.7%)	
Registered Nurse, Public Health Nurse or Emergency Nurse	42 (85.7%)	22 (84.6%)	
Midwife	2 (4.1%)	0	
Radiology nurse	2 (4.1%)	2 (7.7%)	
Nurse manager	1 (2%)	0	
Current work unit			*p* = 0.40
Outpatient clinic	10 (20.4%)	3 (11.5%)	
Inpatient unit	20 (40.8%)	12 (46.2%)	
Inpatient and outpatient clinic	6 (12.2%)	1 (3.8%)	
Other (surgery, emergency, home health)	13 (26.5%)	10 (38.5%)	
Previous time when mentored student last time			***p* = 0.03**
Last week	16 (32.7%)	6 (23.1%)	
Last month	15 (30.6%)	6 (23.1%)	
During the past 6 months	11 (22.4%)	11 (42.3%)	
During the past year	5 (10.2%)	0	
Over a year ago	0	3 (11.5%)	
No experience mentoring	2 (4.1%)	0	
Frequency mentoring culturally and linguistically diverse students			*p* = 0.09
Monthly	1 (2%)	0	
Yearly	10 (20.4%)	6 (23.1%)	
Less frequently	18 (36.7%)	3 (11.5%)	
No experience	20 (40.8%)	17 (65.4%)	

[a] Mean (standard deviation), differences between groups tested using independent samples t-test (continuous data) and Chi-square test (categorical data). Bold = statistically significant value.

mentoring CALD nursing students, whereas the majority (65%) of participants in the control group reported no experience ($p = 0.09$). There was statistical difference ($p = 0.03$) between groups in regard to when participants had mentored students last. Sixty-three percent of the mentors in the intervention group reported mentoring the past week or month, whereas 46% of mentors in the control group reported mentoring during this same time period (Table 2).

4.2. Effects of the intervention

When comparing pre- and post- measurements separately for the intervention and control groups, there were statistically significant differences in both groups immediately following mentoring education on six general mentoring competence areas (Mentoring practices in the workplace, Motivation of the mentor, Goal orientation in mentoring, Reflection during mentoring, Student-centred evaluation, Constructive feedback) (Table 3). In the control group, there was an additional statistically significant ($p = 0.01$) change in the competence area of "Characteristics of the mentor" pretest (mean 3.66) and immediately following the education (mean 3.84). In both groups, mentoring competence was maintained or dropped at six-months follow-up without showing statistically significant increase except for one area of competence in the intervention group (Mentoring practices in the

workplace, T1 mean 3.62 vs T2 mean 3.76, $p = 0.03$).

On the MCCI instrument, both groups had high evaluations at baseline and throughout the study period in the competence area of "Cultural sensitivity and awareness" (Table 3). In the intervention group, changes in "Cultural interaction and safety" increased statistically significantly ($p < 0.01$) pretest (mean 2.83) and immediately following the education (mean 3.20). Changes in "Cultural skills" increased statistically significantly ($p < 0.01$) between the pretest (mean 2.95) and immediately following the education (mean 3.30), but decreased statistically significantly at six-months follow-up (mean 3.10, $p = 0.02$).

When comparing the effectiveness of the educational intervention between the intervention and control groups, no statistically significant differences were found (supplementary file 3). The results on MMRM, which accounted for missing data, verified that there were no statistically significant results between the two groups over time in any of the outcomes (supplementary file 4).

4.3. Evaluation and feedback

The intervention group reported statistically significantly higher satisfaction with education than the control group ($p = 0.01$), statistically significantly higher impact of education on their ability to mentor

Table 3

Results of statistical analysis (Wilcoxon signed-rank test) of changes in self-assessment on MCI and MCCI over three measurements.

Outcomes: Mentors' Competence Instrument	Group, # of participants[a]	Baseline, T0 Mean (SD)	After, T1 Mean (SD)	6-mo FU, T2 Mean (SD)	Wilcoxon Signed Ranks	p-value
Mentoring practices in the workplace	IG, n = 49	3.17 (0.49)	3.54 (0.59)		Z = −4.20	**p < 0.01**
6 items, alpha 0.85	n = 22		3.62 (0.38)	3.76 (0.31)	Z = −2.20	**p = 0.03**
	CG, n = 26	3.17 (0.50)	3.61 (0.55)		Z = −3.11	**p < 0.01**
	n = 9		3.41 (0.78)	3.56 (0.38)	Z = −0.41	p = 0.69
Characteristics of the mentor	IG, n = 49	3.61 (0.37)	3.65 (0.50)		Z = −1.05	p = 0.29
7 items, alpha 0.89	n = 22		3.70 (0.33)	3.81 (0.24)	Z = −1.91	p = 0.06
	CG, n = 26	3.66 (0.35)	3.84 (0.20)		Z = −2.53	**p = 0.01**
	n = 9		3.89 (0.10)	3.95 (0.07)	Z = −1.41	p = 0.16
Motivation of the mentor	IG, n = 49	3.70 (0.46)	3.85 (0.30)		Z = −2.27	**p = 0.02**
5 items, alpha 0.84	n = 22		3.84 (0.37)	3.78 (0.35)	Z = −0.81	p = 0.42
	CG, n = 26	3.71 (0.38)	3.86 (0.22)		Z = −2.70	**p < 0.01**
	n = 9		3.87 (0.22)	3.89 (0.20)	Z = −0.27	p = 0.79
Goal orientation in mentoring	IG, n = 49	3.43 (0.54)	3.68 (0.38)		Z = −3.14	**p < 0.01**
6 items, alpha 0.89	n = 22		3.62 (0.46)	3.54 (0.45)	Z = −0.75	p = 0.46
	CG, n = 26	3.42 (0.48)	3.63 (0.38)		Z = −2.31	**p = 0.02**
	n = 9		3.69 (0.39)	3.59 (0.50)	Z = −1.28	p = 0.20
Reflection during mentoring	IG, n = 49	3.77 (0.31)	3.84 (0.32)		Z = −1.94	**p = 0.05**
6 items, alpha 0.89	n = 22		3.83 (0.38)	3.84 (0.27)	Z = −0.30	p = 0.76
	CG, n = 26	3.81 (0.28)	3.92 (0.14)		Z = −2.02	**p = 0.04**
	n = 9		3.85 (0.19)	3.93 (0.17)	Z = −1.13	p = 0.26
Student-centred evaluation	IG, n = 49	3.04 (0.60)	3.42 (0.44)		Z = −4.73	**p < 0.01**
9 items, alpha 0.92	n = 22		3.35 (0.54)	3.28 (0.51)	Z = −1.32	p = 0.19
	CG, n = 26	3.24 (0.48)	3.45 (0.46)		Z = −2.29	**p = 0.02**
	n = 9		3.40 (0.62)	3.46 (0.49)	Z = −0.68	p = 0.49
Constructive feedback	IG, n = 49	3.45 (0.41)	3.62 (0.39)		Z = −3.01	**p < 0.01**
4 items, alpha 0.78	n = 22		3.58 (0.45)	3.53 (0.41)	Z = −0.461	p = 0.65
	CG, n = 26	3.55 (0.42)	3.72 (0.35)		Z = −1.97	**p = 0.05**
	n = 9		3.67 (0.38)	3.72 (0.34)	Z = −0.74	p = 0.46
Outcomes: Mentors' Cultural Competence Instrument						
Cultural interaction and safety	IG, n = 49	2.83 (0.52)	3.20 (0.52)		Z = −4.49	**p < 0.01**
8 items, alpha 0.91	n = 22		3.20 (0.57)	3.08 (0.58)	Z = −1.20	p = 0.23
	CG, n = 26	2.94 (0.54)	3.14 (0.56)		Z = −1.68	p = 0.09
	n = 9		3.19 (0.54)	3.11 (0.73)	Z = −0.74	p = 0.46
Cultural sensitivity and awareness	IG, n = 49	3.61 (0.35)	3.60 (0.39)		Z = −0.23	p = 0.82
9 items, alpha 0.86	n = 22		3.54 (0.43)	3.62 (0.36)	Z = −1.32	p = 0.18
	CG, n = 26	3.62 (0.40)	3.60 (0.38)		Z = −0.55	p = 0.58
	n = 9		3.68 (0.26)	3.59 (0.43)	Z = −0.88	p = 0.38
Cultural skills	IG, n = 49	2.95 (0.59)	3.30 (0.51)		Z = −1.32	**p < 0.01**
4 items, alpha 0.80	n = 21		3.30 (0.57)	3.10 (0.55)	Z = −2.29	**p = 0.02**
	CG, n = 26	2.93 (0.64)	3.12 (0.67)		Z = −1.90	p = 0.06
	n = 9		3.28 (0.63)	3.17 (0.70)	Z = −1.00	p = 0.32

CG = control group, IG = intervention group, mo = month, FU = follow up.
[a] Total number of participants in IG and CG varied between T1 and T2 measurements due to dropout. Bold = statistically significant value.

Table 4
Chi-Square test results on mentors' evaluation of the educational and comparison interventions (n = 75).

Outcomes (n,%)	Intervention group (*n* = 49)	Control group (*n* = 26)	*p*-value[a]
Satisfaction with education			**p = 0.01**
Very satisfied	32 (65.3%)	7 (26.9%)	
Somewhat satisfied	16 (32.7%)	18 (69.2%)	
Somewhat dissatisfied	1 (2.0%)	1 (3.8%)	
Very dissatisfied	0	0	
Impact of education on ability to mentor students			**p = 0.01**
Very significant	25 (51.0%)	4 (15.4%)	
Somewhat significant	21 (42.9%)	16 (61.5%)	
Not very significant	3 (6.1%)	5 (19.2%)	
Not at all significant	0	1 (3.8%)	
Impact of education on willingness to mentor students			**p < 0.01**
Very significant	28 (57.1%)	5 (19.2%)	
Somewhat significant	14 (28.6%)	9 (34.6%)	
Not very significant	7 (14.3%)	10 (38.5%)	
Not at all significant	0	2 (7.7%)	

[a] Bold = statistically significant value.

students ($p = 0.01$) and statistically significantly higher willingness to mentor students following education ($p < 0.01$) (Table 4).

Twenty-two participants from the intervention group provided feedback on mentoring education. Participants felt the education was comprehensive, useful, well-structured, provided tools and broadened their perspective on mentoring. They felt more supportive and competent in mentoring students in a student-centred manner. Participants reported that the content of the education was versatile, appropriate and thorough. Participants would have preferred face-to-face teaching, but felt that online teaching days were carried out well. Teaching methods in both the online modules and teaching days supported learning. Participants reported that completing the online modules prior to teaching days gave a good foundation for discussions during teaching days. Small group discussions facilitated sharing of personal experiences in mentoring. Feedback on the simulation exercises was positive, although some mentors found these challenging in online environments.

Two participants provided feedback on the comparison education, stating that the online education was too long and suggesting that the education contain more audiovisual materials to support learning.

5. Discussion

Following mentoring education, pretest-posttest results revealed statistically significant improvements in both groups on general mentoring competences. The control group, which received education that lacked a cultural competence component, showed no statistically significant improvement in cultural competence in mentoring. At baseline, both groups had high evaluations of their competence in *cultural sensitivity and awareness*, and competence was maintained throughout the study period. Both groups had low evaluations at baseline on their competence in *cultural interaction and safety* and *cultural skills*. These outcomes increased statistically significantly in the intervention group immediately following the intervention, but changes in cultural skills dropped at six-months follow-up. This finding supports the need for appropriate organisational structures and continuous education in order to enhance the competencies over time. The intervention group reported statistically significant a higher level of satisfaction with mentoring education, higher level of competence to mentor students following the education, and higher impact of mentoring education on participants' willingness to mentor students compared to the control group.

Our results were statistically nonsignificant when the intervention and control group were compared, but the results are nonetheless promising in that mentors' cultural competence outcomes increased

following mentoring education containing a cultural competence component. There continues to be very few interventional studies evaluating the effect of strategies designed to improve CALD students' learning during clinical placements. Recently conducted interventional studies designed to test effectiveness of education on health professionals' cultural competence development show that although there is positive change following education in the intervention group, the change is mostly statistically nonsignificant when compared to the control group (Filmer and Herbig, 2020; Lin and Hsu, 2020). Cultural competence development is complex and education alone may be insufficient to improve cultural competence related outcomes (Filmer and Herbig, 2020; Lin and Hsu, 2020). Lin and Hsu (2020) advocate for follow-up reinforcement strategies following education, that allow participants to appropriately address topics related to diverse cultures in clinical practice.

We encourage researchers develop mentoring education containing a cultural competence component and allocate resources to offer education to a broader target group such as to nurse leaders, educators and nursing students. Participation in mentoring education should be made a mandatory requirement for those who mentor nursing students. The course framework which was integrated into the mentoring education described in this study can be freely accessed and used in the development of future mentoring education (Oikarainen and Mikkonen, 2021). Further technological solutions could be integrated into education such as the use of virtual simulation (Chae et al., 2021) or mobile app-based education (Sung and Park, 2021). Providing additional opportunities for mentors to interact with CALD nursing students could be offered to support continuous development of mentors' competence.

Filmer and Herbig (2020) reported that participants had high evaluation of their cultural competence at baseline prior to education. This same phenomenon was found in our study. Participants in both groups had high evaluation of their *cultural sensitivity and awareness* at baseline, and the same level was maintained but did not increase following education. Filmer and Herbig (2020) present a potential explanation of this result by the presence of social desirability bias, where participants are aware of the relevance of cultural competence but potentially have a tendency to over-report socially desirable attitudes and behaviours. Larson and Bradshaw (2017) identified in a systematic review that there is a significant association between cultural competence and social desirability bias. The authors suggest open discussion in education on social desirability as it relates to cultural competence, development of observational tools to measure cultural competence, and use of or development of self-assessment tools that are less sensitive to social desirability bias.

Environmental influence or certain personal factors may influence individuals' behaviour and achievement of cultural competence outcomes (Larson and Bradshaw, 2017). Our previous study identified factors that positively influenced mentors' competence such as experience living or working abroad, frequency of mentoring exchange students, sufficient knowledge on students' cultural background and time spent discussing cultural differences with students (Oikarainen et al., 2018). Clinical environments could benefit from an organisational climate that fosters cultural competence. Ongoing support and positive incentives should be offered to nurses to encourage development of cultural competence. Also, focus on leaders' role in enhancing organisations' capacity in implementing culturally competent services is needed (Guerrero et al., 2017).

5.1. Limitations

Due to limited resources, it was not feasible to randomly allocate participants to different forms of treatment. Instead, mentoring education offered at two separate hospitals were compared, one of which did not contain a cultural competence component. Since participants were from different organisations located in different cities, there is decreased likelihood that individuals from the groups were exposed to the different

treatments. A limitation was that it was not possible to ensure that participants, educators and researchers were blinded to study group allocation. An independent researcher handled anonymisation and preparation of the data for data analysis, but independent assessors were not used to conduct blinded assessment.

There was a high risk of bias in the intervention effect estimate from incomplete outcome data. Despite strategies to encourage participation in the study, the rates of loss to follow-up were very high in the control group (77%) compared to the intervention group (4%). Participants in both groups discontinued mentoring education or did not reply to the follow-up questionnaires for reasons that remained unknown. The difference in dropouts between the groups can potentially be explained by the fact that mentoring education was offered online on a continuous basis without virtual tutoring to the control group and through blended learning to the intervention group. It is possible that mentors are potentially more satisfied and more motivated to successfully complete education offered during a set time period and that is offered through online and contact teaching. Also, due to financial reasons, the control group was not offered work time to complete the education, whereas the intervention group was. Analysis of the effect of missing data on the outcomes led to a similar interpretation of the effectiveness of the intervention. A potential explanation for lack of statistically significant difference in mentors' competence between the intervention and control groups may be that both groups were offered mentoring education. The mentoring education offered to the control group lacked a cultural competence component, but the education itself could have nonetheless impacted mentors' evaluation of their competence to mentor CALD students in a student-centred, safe manner. The study was conducted in the Finnish context and due to high levels of dropouts, generalisations of the results are not able to be made.

6. Conclusions

Our study shows that educational preparation of mentors has the potential to support mentors in fulfilling their role in supporting, teaching and assessing nursing students from diverse backgrounds. Education could be offered to a broader target group, such as nursing students, nurse educators, mentors, healthcare staff and leaders, to ensure the comprehensive preparation of professionals to deliver culturally competent and safe mentoring practices. Appropriate organisational structures and continuous education is needed in order to enhance competencies over time. Longitudinal and experimental research is needed to validate the effectiveness of strategies developed to facilitate culturally competent and safe mentoring practices in clinical learning environments.

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CRediT authorship contribution statement

Ashlee Oikarainen: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Resources, Writing – original draft, Visualization. **Veera Kaarlela:** Formal analysis, Data curation, Writing – review & editing. **Marjut Heiskanen:** Conceptualization, Investigation, Data curation, Writing – review & editing. **Minna Taam-Ukkonen:** Conceptualization, Investigation, Data curation, Writing – review & editing. **Inkeri Lehtimaja:** Conceptualization, Resources, Writing – review & editing. **Taina Kärsämänoja:** Conceptualization, Investigation, Resources, Writing – review & editing. **Anna-Maria Tuomikoski:** Conceptualization, Resources, Writing – review & editing. **Maria Kääriäinen:** Conceptualization, Methodology, Writing – review & editing, Supervision. **Marco Tomietto:** Conceptualization, Methodology, Resources, Writing – review & editing, Supervision. **Kristina Mikkonen:** Conceptualization, Methodology, Investigation, Resources, Writing – review & editing, Supervision.

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