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Conflict or connection? A feasibility study on the implementation of a training based on connecting communication in a nursing curriculum

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Abstract

Background: Nursing students frequently experience offensive behaviour and communication problems with patients, clinical supervisors, and nursing and faculty staff. A communication training was developed based on connecting communication to prevent and manage conflict, and build interpersonal trust-based relationships.

Objectives: Feasibility study to evaluate the acceptability, demand, implementation, integration, and limited efficacy of a training based on connecting communication within a nursing curriculum.

Design: Mixed method design. Participants: Third-year nursing students (n = 24). Setting: A Dutch Bachelor of Nursing degree programme in Rotterdam.

Methods: Between November 2019 and March 2020, data were collected from students and trainers, using quantitative and qualitative methods. Feasibility aspects, including

limited efficacy testing, were measured with pre- and post-training surveys. Descriptive statistical analyses and (non)parametric tests were used to analyse feasibility aspects and baseline and follow-up scores for empathy, self-compassion, and exposure to violence. In addition, reflection reports of students and two paired interviews with the two trainers were analysed using qualitative content analysis with a deductive approach. *Results*: The post-training survey and reflection reports showed a positive assessment of the training on acceptability, demand, and integration. Students rated the training as helpful in improving their communication skills and in dealing with conflict situations. Furthermore, they recommended to implement the training in earlier years of the educational programme. According to the trainers, miscommunication, students' lack of preparation for lessons, and the timing of the training prohibited full participation in the training. The pretestposttest survey results show statistically significant improved self-compassion (3.77 vs. 4.10; $p = 0.03$) and decreased self-judgement (4.21 vs. 3.50; $p = 0.03$). Empathy and exposure to violence did not change. *Conclusions*: From the perspective of nursing students and trainers involved, this 10-week training based on connecting communication is feasible to implement in the Bachelor of Nursing degree programme, preferably before clinical placements.

1. Background

High prevalence of offensive behaviour at the workplace against nurses and nursing students is associated with impaired mental health and well-being, intention to leave and actual dropout, as well as with a decline in quality of care and patient safety (Spector et al., 2014; Bambi et al., 2019; Magnavita et al., 2020). According to Pejtersen et al. (2010), offensive behaviour includes verbal and physical violence, bullying, unpleasant teasing, conflicts and quarrels, gossip and slander and sexual harassment. Offensive behaviour in the workplace can take place between patients, and patients' relatives, students and healthcare professionals.

During clinical placements, nursing students are a potentially vulnerable group for offensive behaviour by patients and patients' relatives, because of their limited experience, high client contact time, frequent ward changes, and the challenge to work and build up relationships in a new environment (Ferns and Meerabeau, 2009; Magnavita and Heponiemi, 2011). Besides, spending much time in clinical practice environments with known high work pressure (Bakker et al., 2021) and strong hierarchical relationships (Eick et al., 2012), makes them vulnerable to offensive behaviour by nursing staff, clinical supervisors and physicians. In a study among 1394 nursing students, Birks et al. (2017) found that students identified nursing staff as the main perpetrators, and patients were a source of physical acts of bullying too.

The impact of offensive behaviour on mental health and intention to leave nursing education was studied in observational research in Italy among 346 nursing students by Magnavita and Heponiemi (2011). They revealed that verbal violence was associated with high levels of psychological problems, job strain, low social support, and little organisational justice. In addition, a recent prospective cohort study among 363 Dutch nursing students (Bakker et al., 2021) revealed frequent exposure to violence as a risk factor for distress. In that study, nursing staff's support was a protective factor for intention to leave nursing education in the last stage of the programme. Improving the psychosocial working and learning environment for nursing students may reduce distress, the intention to leave at a late stage in nursing education, and hence actual late dropout.

Effective interventions for nurses and nursing students to deal with occupational violence in the clinical setting is lacking (Spelten et al., 2020). However, a systematic review by Stagg and Sheridan (2010) showed that bullying and violence prevention programmes, based upon principles of cognitive rehearsal of responses, can be effective in reducing bullying at work. Furthermore, Kang et al. (2017) showed in a randomised controlled trial among South Korean nurses that a cognitive rehearsal

training programme including a training in 'nonviolent communication', simulations and role plays with various scenarios of bullying, had a positive effect on interpersonal relationships and turnover intention. Nosek et al. (2014) tested a 'nonviolent communication training' on its ability to improve empathy in baccalaureate nursing students and found a statistically significant increase in empathy (Davis, 1983) post training.

We hypothesised that a training based on nonviolent communication would be a promising educational intervention to strengthen nursing students' communication skills for preventing and managing conflict situations, and for improving interpersonal relationships with patients, patients' relatives, co-students, clinical supervisors, and nursing and faculty staff. 'Nonviolent or empathic communication', described as 'connecting communication', was developed by Rosenberg and Molho (1998) and Rosenberg (2003) to build personal and professional relationships grounded in mutual respect, compassion, and emotional safety through empathic listening, using a conversation technique in a four-step process: observation–feeling–need–request. These four steps enable users to: 1) make objective observations of situations while avoiding judgement; 2) describe the emotional response (i.e. feeling) to the situation without blaming one another; 3) investigate what needs may or may not have been met; and 4) formulate a non-demanding request. Connecting communication contributes to an important aspect of nursing work called 'emotional labour' (Theodosius, 2008), which means managing the emotional demands of relating with patients, family, and colleagues. It supports important aspects of emotion regulation, such as i) conscious processing and being aware of emotions, ii) identifying and labelling emotions, and iii) accepting and tolerating emotions (Berking et al., 2008; Torre and Lieberman, 2018). To build trustful relationships with patients and patients' relatives in difficult situations, nursing students must learn to regulate their own emotions, understand others' emotions, and not taking patients' and patients' relatives emotional expressions personally (Delgado et al., 2017).

No previous studies have been conducted on the feasibility of a training programme on connecting communication within nursing education. Hence, this study aims to evaluate to what extent: (1) a training programme on connecting communication is suitable, satisfying, attractive and educational for nursing students (acceptability and demand); (2) the training can be successfully delivered to students and integrated within a nursing curriculum (implementation and integration); (3) students acquire the knowledge, skills and attitudes, necessary to prevent and manage conflict (limited efficacy).

2. Methods

2.1. Design

A mixed-method feasibility study was conducted, focusing on five feasibility aspects as described by Bowen et al. (2009): acceptability, demand, implementation, integration, and limited-efficacy testing, combined with the four levels of Kirkpatrick's evaluation model of learning events (Table 1). These four levels concern: 1) Reaction: the degree to which participants find the training favourable, engaging and relevant to their jobs; 2) Learning: the degree to which participants acquire the perceived knowledge, skills and attitude based on their participation in the training; 3) Behaviour: the degree to which participants apply in practice what they learned during training; and 4) Results: the degree to which targeted outcomes occur as a result of the training (Kirkpatrick, 1996, Kirkpatrick and Kirkpatrick, 2006).

2.2. Participants and setting

The training was offered to third-year students during the first semester of their Bachelor of Nursing degree programme at the Rotterdam University of Applied Sciences. During this 20-week semester, students combine three days of clinical placement with two days of academical training per week.

The planning service centre team randomly assigned two of the 18 classes of third-year nursing students (N = 35) to the training. The students of the other 16 classes received the regular programme; professional communication lessons in misunderstood behaviour, which were available for the two intervention classes at a later date. Criteria for inclusion in the study were: (i) conducting the clinical placement in the Netherlands, (ii) attendance at least one of the five training sessions, and (iii) participation in both baseline and follow-up measurements.

2.3. Description of the training

The overall aim of the training was to enable nursing students to use the principles of connecting communication at the university and at clinical placement, with knowledge, skills, and attitudes as learning outcomes (Table 2).

This training programme was developed, piloted, and offered by a faculty member with a Ph.D. in health sciences who is a candidate for International Nonviolent Communication (NVC) Certification, and a senior NVC-certified trainer with a background in education. Experiential learning theory (Brunero et al., 2010) and reflective practice (e.g., Schön, 1983; Rolfe, 2002, 2014) were used for designing the learning activities.

The training contained five 100-min sessions; Table 3 presents a full description. Students used a smartphone-sized booklet with the connecting communication core principles, elements, and examples to practise with during and after the training (Supplementary files 1 and 2). Besides, students were asked to bring examples of conflict situations experienced during clinical placements, at the university, or in their private lives. Students finished the training with an assignment. This was a reflection report in which students evaluated their personal learning objectives regarding professional communication, and analysed a conflict situation using processes and elements of connecting communication.

[Table 1] [Tabel 2]

2.4. Data collection

The inclusion and the data collection started in November 2019, and follow-up was concluded in March 2020. Data was collected from participating students using: (i) a digital post-training survey, containing self-formulated closed and open-ended questions on feasibility aspects (Table 5), (ii) a digital pretest-posttest survey containing validated questionnaires on targeted outcomes, and (iii) reflection reports. Besides that, we held semi-structured interviews in two paired interview sessions with the two trainers, using a topic list addressing two feasibility aspects (acceptability and implementation; supplementary file 3). The two interview sessions lasted 60 and 73 min, respectively, and took place after the training. In addition, data on the students' participation and reasons for non-participation were collected using an attendance list, which had been completed by the trainers.

The post-training survey was developed guided by the feasibility aspects, and tested for face validity by the research team and trainers. In the pretest-posttest survey, the following background characteristics were measured before the training: age, gender, migration background, Dutch as the native language, prior education, study route, clinical placement setting, housing situation, professional support regarding mental health problems (from a general practitioner, psychologist, university counsellor or study career coach) and previous training in connecting communication.

In addition, three outcomes were measured: empathy, self-compassion, and exposure to violence. To measure empathy, we used the Dutch translation of the 16-item Brief Interpersonal Reactivity Index (Davis, 1983; De Corte et al., 2007; Ingoglia et al., 2016), with a 5-point Likert scale from 0 ('never') to 4 ('always'). The internal consistency of the scale is good with Cronbach's alpha ranging from 0.88 (baseline) to 0.91 (follow-up). Self-compassion was measured with the Dutch

translation of the 12-item Self-compassion Scale short version (Neff, 2003; Neff and Vonk, 2009; Raes et al., 2011), using a 7-point Likert scale from 1 ('not applicable at all') to 7 ('very applicable'). The Cronbach's alpha (0.75) showed good internal consistency of the scale at baseline and follow-up. To measure exposure to aggression, we used an item of the Copenhagen Psychosocial Questionnaire II (Pejtersen et al., 2010) [Have you been exposed to threats of or physical violence at your clinical placement the last two weeks?], with answers scored on a 5-point scale ranging from 'no' to 'yes, daily'.

[Table 3]

2.5. Data-analysis

Quantitative survey data were analysed using SPSS version 26 (SPSS, Inc., Chicago, IL, USA) for Windows. Descriptive statistics were used to analyse the data from the post-training and pretest-posttest survey.

For empathy, a total score and scores for each of the subscales were calculated. To calculate the total empathy score, scores on the personal distress subscale were reversed (Duarte et al., 2016). For self-compassion, scores for each of the positive scales (self-kindness, mindfulness, and common humanity) and for each of the negative scales (over-identification, isolation, self-judgement) were calculated. To calculate the total self-compassion score, scores on the negative subscales had to be reversed (Neff et al., 2018). For reasons of statistical power, the five answer categories for violence were merged into three categories: (1) 'never', (2) 'occasionally', and (3) 'frequently'.

Outcomes from the pretest-posttest survey were checked for normal distribution. The pretest-posttest survey data were compared to detect any statistically significant changes, using paired t-test for the empathy and self-compassion scales, and Fisher's exact test for exposure to violence. The statistical significance was set at $p < 0.05$.

The recorded and verbatim transcribed interviews, the reflection reports and the answers to the open survey questions were analysed using qualitative content analysis with a deductive approach (Elo and Kyngäs, 2008), applying codes related to the feasibility aspects (Table 1).

2.6. Ethical considerations

This study was conducted in accordance with the Dutch Medical Research Involving Human Subjects Act. The Medical Ethical Review Committee of Erasmus Medical Center, Rotterdam approved the study (Ref. MEC-2019-0638). The study complies with the Dutch Code of Conduct for Scientific Practice drawn up by the Dutch Association of Universities. All participants were informed about the study orally and in writing, before being approached for participation, and gave written informed consent.

3. Results

3.1. Characteristics of the study population

From all 35 enrolled students, 28 participated in the training and 24 completed the pretest-posttest survey (Fig. 1). From the latter group, 23 students responded to the post-training survey and 20 completed the training with a reflection report.

On average, the participant students were 22 years old, mostly Dutch females living with their parents, studying fulltime and did their clinical placement in a hospital setting (Table 4).

3.2. Acceptability

3.2.1. Satisfaction

The post-training survey (Table 5) showed that most students were satisfied with the training. It contributed to preparing for difficult situations, clarity about what was important to themselves, and improvement of interpersonal relationships with patients, patients' relatives, clinical supervisors, nursing staff and co-students at their clinical placements, and with faculty staff of the university. The training itself was rated with an average score of 6.0 (SD \pm 1.7) on a scale from 0 to 10.

The interviews with the trainers revealed that students were somewhat reluctant to participate in this feasibility study; they preferred to continue professional communication lessons with their regular teacher with whom they had built up rapport. It was insufficiently clear to them that they could follow the regular programme later.

[Figure 1]

3.2.2. Perceived appropriateness

Most students considered the processes and elements of connecting communication appropriate to apply in their clinical placements, and educational programme. All students confirmed that the training provided basic communication skills for nurses, and almost all that the training must be offered to all nursing students. Suggestions for improvement of the training included: i) the timing of the training, indicating to provide it in year 1 or 2 of the curriculum, ii) more emphasis on application of connecting communication in real-life nursing practice (illustrated by video material or own cases), iii) adding patient simulation sessions, iv) more concrete instead of vague language, v) a more flexible programme focussing on the needs of students, vi) clearer communication about the feasibility study, and vii) less assignments.

“In year 1, I think it would be better to use this as a basis, rather than in year 3 wherein the professional communication lessons are very instructive.”

(female student, age 20, clinical placement in homecare)

“In the second year. This way you are prepared for conflict situations at your clinical placements.”

(female student, age 22, clinical placement in academic hospital)

With regard to Kirkpatrick's Level 1 ('Reaction'), most of the students judged the training as suitable, satisfying, attractive, favourable, engaging, and relevant to apply during nursing education.

[Table 4]

3.3. Demand

3.3.1. Actual use

Most students (n = 18) stated the training improved their communication skills.

“I have learned an additional conversation technique that I can put into practice. By really listening to others.”

(female student, age 19, clinical placement in homecare)

“I now know better how to express my feelings and wishes in unpleasant situations.”

(female student, age 23, clinical placement in general hospital)

According to the reflection reports students applied connecting communication with nursing staff, clinical supervisors, patients and patients' relatives during clinical placements. They used it to understand angry, irritated, sad or anxious patients and to reflect in case of unpleasant or unfair statements of nursing staff or co-students. Taking into account the underlying feelings and needs of a person's behaviour also helped them to find connection and deal with their own feelings of anger, insecurity or disappointment.

3.3.2. Intent to continue use

In the post-training survey, most of the students reported that the training encouraged them to continue to apply what they learned about connecting communication.

In all reflection reports students stated the intention to continue using connecting communication. Students formulated new learning objectives regarding (i) identifying feelings and needs to understand themselves and others and (ii) listen empathically to improve relationships, collaboration, patient care, and (iii) prevent escalation and conflicts in future clinical placements. Some stated to first practice this in a safe environment such as their private lives.

With regard to Kirkpatrick's learning level 3 ('Behaviour'), the results show that most students used the learned communication methods and techniques during clinical placements, and sometimes at the university. The majority reported the intention to continue using connecting communication in future clinical placements.

[Table 5]

3.4. Implementation

3.4.1. Degree of execution

In both classes all five planned training sessions were delivered.

3.4.2. Success or failure of execution

The average number of sessions attended was 3.7 sessions per student (SD ± 1.2). Half of the students attended 3 or 4 sessions and the majority completed the training with a final assignment. In the open-ended questions students explained they did not attend all classes or prepare assignments due to high study load. The trainers confirmed this; since the training was not mandatory, some students gave priority to other assignments or duties.

With regard to Kirkpatrick's Level 1 ('Reaction'), the participation of students in the training showed suboptimal implementation, as a minority of the students (n = 8; 33.3%) attended all five training sessions and students did not always prepare for lessons.

3.5. Integration

3.5.1. Perceived fit with nursing curriculum

Most students stated that the training fitted well in the curriculum about professional communication. However, nearly all expressed that the training should be offered as an elective in year 3. The main principles of connecting communication could best be taught in year 1 and 2, as confirmed in the answers to the open question's:

“You learn to better observe and listen to other people. This is especially important for the nursing profession, so in my opinion you can teach this course as early as possible in the study. This also pays off for your first clinical placement in year 2.”

(male student, age 20, clinical placement in general hospital)

“As [third-year, [EB]] students we have already built up our own coping mechanism, so to speak, so this training has been a bit redundant for us in my opinion.”

(female student, age 19, clinical placement in general hospital)

3.5.2. Perceived sustainability

In the post-training survey, most students confirmed that for them to use connecting communication, also faculty staff, nurses with a mentor role in clinical practice, and clinical supervisors should be trained. The trainers confirmed the need to educate faculty staff and clinical supervisors in connecting communication to enable them to be role models and to practice what they teach.

With regard to Kirkpatrick's Level 1 ('Reaction'), most participants were positive about integrating the training in the educational programme, preferably in the first or second year of the programme, at least before their first 20-week clinical placement.

3.6. Limited-efficacy testing on learning outcomes

The mean mark for the assignment – the written reflection reports – was 7.2 (SD ± 0.9; min-max 4.7 to 8.5) on a scale from 0 to 10 (poor-excellent). One student, who had attended 2 training sessions, received an insufficient mark (4.7). These marks reflect that the training was effective on learning outcomes regarding the knowledge and skills of connecting communication (Table 2). Since attitude was not tested in the reflection reports, it remains unclear to what extent these are achieved.

Most students confirmed that the training had improved their communication skills. They also expressed the most important things they learned. Some responded in general terms, such as becoming more aware of the importance of communication. Others mentioned they had more knowledge about connecting communication and that they learned to understand their own emotions and needs in conflict situations. Some expressed they learned empathic listening without judgement of other persons. In addition, some had become aware of their interpersonal relationships in nursing practice, education and their private lives.

“I am better able to empathise with people and I don't judge them quickly, I first try to ask myself why they react the way they do.”

(female student, age 22, clinical placement in mental health care)

“Talking, communicating with a colleague if you notice certain irritations that make you feel uncomfortable.”

(female student, age 20, clinical placement in general hospital)

“Looking at your own emotions and those of another person and how these can be evoked.”

(female student, age 21, clinical placement in general hospital)

Three of the participant students stated that the training contributed very little to their communication skills.

“Nothing new. However, repetition...This may be useful in the 2nd semester of year 1 and in year 2.”

(female student, age 23, clinical placement in academic hospital)

However, in the reflection reports, two of the three underlined the value of connecting communication:

“As a nurse, it is important to provide a listening ear to patients. Patients are very vulnerable and can show many emotions. Patience, LSA [listening - summarising – asking further questions, [EB]], and reflecting feelings are important aspects that a nurse must use, but we must not forget about ourselves and that is why the four aspects of connecting communication are important.”

(female student, age 23, clinical placement in academic hospital)

With regard to Kirkpatrick's Level 2 ('Learning'), students' grades and views showed that the training was effective in learning the knowledge and skills of connecting communication. Regarding attitude, this remains unclear.

3.7. Limited-efficacy testing on targeted outcomes

There were no statistically significant differences in empathy and exposure to violence between T0 and T1 (Table 6). However, the total score of self-compassion increased significantly (3.77 vs. 4.10; $p = 0.03$). Self-judgement, one of the self-compassion scales, decreased significantly (4.21 vs. 3.50; $p = 0.03$).

With regard to Kirkpatrick's Level 4 ('Results'), the pretest-posttest survey results showed significantly improved self-compassion and decreased self-judgement scores, possibly occurring as a result of the training. No significant changes were found in the empathy and exposure to violence scores.

[Table 6]

4. Discussion

This study shows that students regarded the training on connecting communication to prevent and manage conflict situations in clinical placements and at the university, acceptable, applicable, and feasible to implement and integrate in the nursing curriculum, preferably for the start of clinical placements. Concerning learning outcomes, the training was positively evaluated on knowledge and skills. In addition, the reflection reports showed that students used the knowledge and skills in their clinical placements, and to a lesser extent in the academic setting. Finally, the training significantly improved self-compassion, decreased self-judgement, but did not influence empathy and exposure to violence. This represents a positive outcome on Kirkpatrick's levels 1 ('Reaction'), 2 ('Learning') and 3 ('Behaviour'), and a mixed outcome on level 4 ('Results').

Notable is the relatively low mean rating of the training; 6.0 on a scale from 0 to 10 (poor-excellent). This was not in line with the results from the post-training survey and the reflection reports in which most students stated the training contributed to their communication skills. This incongruence might be explained by the timing of the training, experienced as too late in the

curriculum, the miscommunication at the start of the training, the lack of simulation training, insufficient opportunities for case-based learning (see e.g., Thistlethwaite et al., 2012), as well as the timing of the follow-up survey (coinciding with the students' clinical placement assessments).

Previous research is partly in line with our results, but supports the possibility of offering this training early in the educational programme. Nosek et al. (2014) investigated a connecting communication training with two 105-minute sessions – which is a less intensive course – among mainly first-year baccalaureate nursing students (N = 55). The qualitative results demonstrated a positive impact in empathising with self (self-compassion) and others. The quantitative results showed, unlike our study, a significant increase on empathy. An explanation for this difference in effect might be the extensive role playing in the Nosek study. Another explanation for not finding an effect on empathy in our study was the lack of simulations during training. In the systematic review of Levett-Jones et al. (2019), immersive and experiential simulations were found to be effective in improving empathy in nursing students. Another explanation is the relatively low training participation.

Our study showed that the self-compassion total score significantly improved, and the self-judgement subscale significantly declined between T0 and T1. The application of connecting communication possibly enabled students to analyse conflict situations without taking the blame. This might also contribute to self-compassion and an improvement in mental health, since in previous studies among medical students self-compassion was negatively associated with burnout (Godthelp et al., 2020; Alkema et al., 2008; Dev et al., 2020). However, our study did not show significant differences in exposure to violence before and after the training. This can be explained by the small number of students in the study, resulting in even smaller numbers actually exposed to violence. Besides, this outcome measure is questioned in other studies (e.g., Heckemann et al., 2015), since an increase of incidents can also be the result of lower barriers in reporting and more consciousness about violent events. Lastly, to diminish exposure to violence in nursing students, an organisational multi-component approach, rather than a single intervention (i.e., a training) is recommended by Heckemann et al. (2015). The Cochrane review of Spelten et al. (2020), however, did not produce clear evidence for this.

4.1. Strengths and limitations

A strength of this study is that we used two evaluation models on feasibility and behavioural change. These models were useful for studying different feasibility aspects of the training and the extent to which behavioural change has been achieved. Another strength of this study is the use of quantitative and qualitative methods and data. The qualitative data contributed to the interpretation and understanding of the outcomes measured in the survey.

A limitation of this study is that learning on Kirkpatrick's Level 3 and 4 ('Behaviour' and 'Results') was measured on self-reported and not observed behaviour. Furthermore, a limitation is that our study did not involve a control group, which hampers firm conclusions about limited efficacy. Another limitation concerns the small sample of 24 students participating in the study. Finally, the feasibility was mainly studied from the perspective of students. The perspective from clinical supervisors and faculty members other than the trainers remains underexposed.

4.2. Implications

To offer the training in the first educational years, as preferred by the students to be better prepared for clinical placements, the training needs further development. It can be improved by adding sessions with a simulated patient, in order to train the skills in situations close to real-life. To enhance case-based learning, conflict scenarios can be developed based on situations as described in students' reflection reports and in other assignments such as reflective case studies. To improve implementation and integration, it might be useful, as confirmed in the post-training survey, to

provide training in connecting communication also to faculty staff and clinical supervisors. However, before integrating the training in the regular educational programme and in clinical placement settings, we recommend to further study the applicability, feasibility, and efficacy of this training in a larger and more diverse group of students, i.e. with more male nursing students and students of older age, and from the perspective of clinical supervisors and faculty staff.

Because our study was characterised by a pretest-posttest design it is not clear whether the improved self-compassion and declined self-judgement levels are the result of the training, although qualitative data point in that direction. Therefore, it is recommended to conduct a future study with a control group. It might also be relevant to investigate the effects of the training on other forms of offensive behaviour besides verbal and physical violence, such as conflicts and quarrels, sexual harassment, and bullying (Pejtersen et al., 2010). Furthermore, the effect of the training can be evaluated by measuring the effect on interpersonal relationships, as studied by Kang et al. (2017). The feasibility including limited-efficacy testing of the training should be further explored through fine-tuning the contents, including more case-based learning, and through integration in the curriculum, training of the faculty staff, and setting up an implementation study with a stepped-wedge design early in the curriculum, preferably before the first internship.

5. Conclusions

A 10-week communication training based on connecting communication is suitable, satisfying, attractive and likely to be applied by nursing students. It can be successfully delivered to students and integrated within the curriculum, preferably before their clinical placements. Nursing students acquired the intended knowledge and skills. A significant improvement of self-compassion and decline of self-judgement was established post-training, but no influence on empathy and exposure to violence was observed. Due to the research design, however, it remains uncertain whether these changes occurred as a result of the training. Therefore, a controlled study is recommended.

Author statement

We confirm that:

- we don't have any financial or other relationships that might lead to a conflict of interest.
- all authors have read and approved the manuscript for submission to *Nurse Education Today*.
- all authors state that the requirements for authorship have been met and each author believes that the manuscript represents honest work.
- the undersigned authors warrant that the article is original, is not under consideration by another journal, and has not been previously published.

Author contributions

EB, PR, CD, HM, and JK initiated and designed this study. EB collected the data and performed all the analyses with guidance of PR, and CD. EB wrote the article with guidance from CD, PR and AF. All authors (EB, CD, JK, HM, AF, PR) contributed substantially to the manuscript and critically revised the content. All authors read and approved the final version of the manuscript.

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Declaration of competing interest

No conflict of interest has been declared by the authors.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.nedt.2022.105302>.

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Tables and figures

Table 1 Evaluation model based on Bowen et al. (2009), Kirkpatrick (1996) and Kirkpatrick and Kirkpatrick (2006).

Area of focus	Research questions	Outcomes of interest	Research instruments	Research population	Four levels of Kirkpatrick's model
Acceptability	To what extent is the training judged as suitable, satisfying, or attractive to students?	1. Satisfaction 2. Perceived appropriateness	Post-training survey; semi-structured paired interviews	Students and trainers	Level 1: Reaction
Demand	To what extent is training likely to be used or applied by students?	1. Actual use 2. Intention to continue use	Post-training survey; reflection reports	Students	Level 3: Behaviour
Implementation	To what extent can the training be successfully delivered to intended participants in some defined, but not fully controlled, context?	1. Degree of execution 2. Success or failure of execution	Post-training survey; attendance lists; semi-structured paired interviews	Students and trainers	Level 1: Reaction
Integration	To what extent can the training be integrated within the curriculum?	1. Perceived fit with infrastructure 2. Perceived sustainability	Post-training survey	Students	Level 1: Reaction
Limited-efficacy testing on learning outcomes	To what degree students acquire the intended knowledge, skills and attitudes based on their participation in the training?	1. Perceived and demonstrated knowledge 2. Perceived and demonstrated skills 3. Perceived and demonstrated attitudes	Reflection reports; post-training survey	Students	Level 2: Learning
Limited-efficacy testing on targeted outcomes	To what degree targeted outcomes occur as a result of the training?	4. Effects of the training on empathy, self-compassion, exposure to violence	Pretest-posttest survey measuring: empathy (Brief Interpersonal Reactivity Index [IRI]) (De Corte et al., 2007); self-compassion short form (SCS-SF) (Neff and Vonk, 2009); Raes et al., 2011); exposure to violence (Pejtersen et al., 2010)	Students	Level 4: Results

Table 2 Intended learning outcomes of knowledge, skills, and attitudes.

Learning objectives	
Knowledge	The students can explain: (i) the elements and aspects of the process of connecting communication; (ii) the concepts of sympathy, empathy and self-compassion and supporting others (e.g., supporting self-management and self-direction (Duprez et al., 2018), 'the presence approach' (Baart, 2002), listening empathically in relation to connecting communication and building interpersonal and trust-based relationships.
Skills	The students can: (iii) define their own objectives in applying connecting communication in their professional communication; (iv) apply connecting communication to their own case histories (regarding clinical placements and at the faculty) and reflect on this; (v) recognise what triggers their emotions and reactions and find connection-focused alternatives to use; (vi) identify (potential) conflict situations, use connecting communication to prevent and deal with conflict and build interpersonal and trust-based relationships.
Attitude	The students can recognise: (vii) the main principle of connecting communication, that all people in the world have the same needs, regardless of gender, age, religion, culture, or race; (ix) can recognise that dialogue is a communication form in which differences can exist.

Table 3 Training components, guided and unguided study time, and intended learning activities.

Week	Training components	Study time (hours)		Intended learning activities
		Guided	Unguided	
1/2	Interactive lecture	1	0.5	(1) Understanding the concept of mental, physical, and moral resilience in relation to the SPRiNG (Studying Professional Resilience in Nursing students and Graduates) study (Bakker et al., 2018); (2) Discussing the relevance of the feasibility study for the nursing curriculum and nursing competency framework; (3) Recognizing the relevance of the training for developing resilience for nursing students; (4) Describing how to participate in the SPRiNG study.
3	Training session 1 The process and elements	2	2	Preparation and self-study: read literature, prepare assignment, bring assignment to class. Group meeting: (1) introduction to the process of connecting communication through teaching cases and students' own examples; (2) learning to translate judgements into feelings and needs, e.g. become aware what is going on in yourself and to clearly express yourself using the elements of connecting communication (learning self-compassion).
4	Training session 2 Listen empathically	2	2	Preparation and self-study: read literature, make processing assignment 1, bring assignment to class. Group meeting: discussing empathic listening, the pitfalls and practice it.

Table 3 (continued)

5	Training session 3 Four ways to listen to messages	2	2	Preparation and self-study: read literature, make processing assignment 2, take elaboration to class. Group meeting: discussing and practising four different ways of listening to messages using statements and case histories.
6	Training session 4 Dealing with anger and 'No'	2	2	Preparation and self-study: read literature, make processing assignment 3, bring assignment to class. Group meeting: practising with triggers from yourself and others. Dealing with anger and receiving or saying: "No".
7	Training session 5 Integration; the dialogue	2	2	Preparation and self-study: read literature, make processing assignment 4, bring assignment to class. Group meeting: practicing the dialogue in which the processes of self-compassion, clear expressing feelings and requests, and empathic listening alternate.
9/10	Assignment		4	Write a reflection report in which you: (1) evaluate your personal learning objectives in the field of professional communication, resilience and dealing with conflict situations; (2) analyse and rewrite a case history from nursing education applying processes and elements of connecting communication.
	Subtotal	11	15	
	Total hours (hrs)	26 h + 2 h for contributing to research = 28 h = 1 European Credit (EC)		

Figure 1 Flow chart of participants.

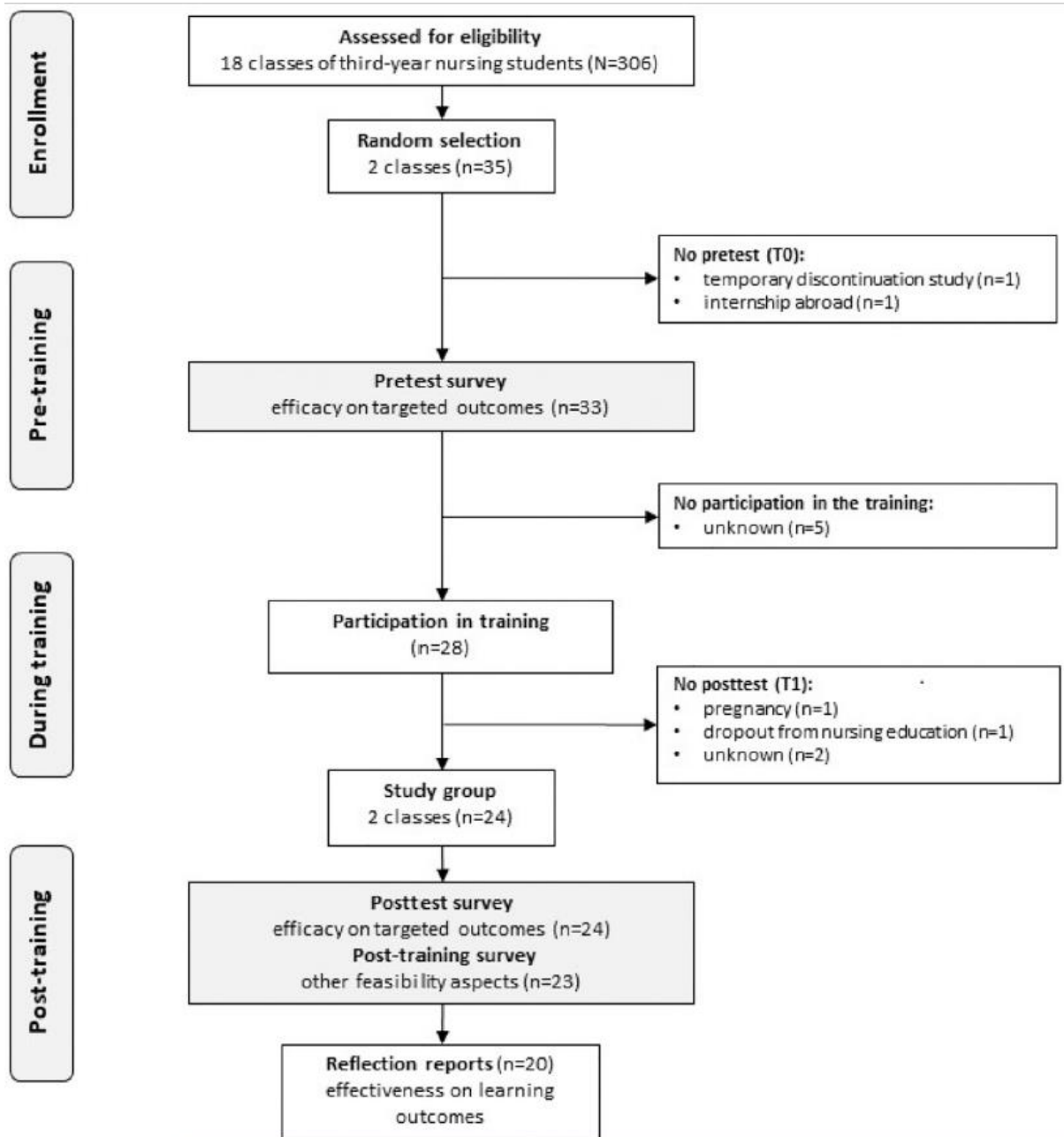


Table 4 Background characteristics of the study group (n = 24).

Background characteristics	Median (mean \pm SD) min-max
Age	21.0 (21.9 \pm 4.2) 19–39 % (n)
Gender (% female)	95.8 (23)
Dutch or migration background	
% Dutch, no migration background	75.0 (18)
% Western migration background	4.2 (1)
% Non-Western migration background	20.8 (5)
Dutch as native language (% yes)	91.7 (22)
Housing situation	
% Living with parents	70.8 (17)
% Living with roommates, partner (with or without children), or alone	29.2 (7)
Prior education	
% higher general secondary education	62.5 (15)
% secondary vocational nursing training	25.0 (6)
% pre-university education, higher vocational education, university education or other	12.5 (3)
Educational route	
% full-time	79.2 (19)
% study-work trajectory	20.8 (5)
Type of clinical placement	
% general hospital	50 (12)
% academic hospital	16.7 (4)
% nursing home	4.2 (1)
% community-based home care setting	16.7 (4)
% mental health facility	12.5 (3)
Mental support in past year (% yes)	37.5 (9)
Followed a training based on connecting communication before (% yes)	8.3 (2)

Table 5 Evaluation of the feasibility aspects measured with the post-training survey (n =23).

Feasibility aspects	Median (Mean ± SD) min-max
Acceptability	
<i>Satisfaction</i>	
I rate this training with the mark (0–10):	6.0 (6.0 ± 1.7) 3–8
The training based on connecting communication.....: has useful, educational and activating methods.	% agree (n) 78.3 (18)
I experience...:	
• the approach of the teacher / trainer as inspiring and motivating	69.6 (16)
• the trainer as an expert	91.3 (21)
• the trainer's approach as supporting in learning CC processes and elements	65.2 (15)
• the atmosphere during the training as safe.	91.3 (21)
The training 'Conflict or Connection' contributes to:	
• preparing for difficult situations	78.3 (17)
• clarity about what is important to me	87.0 (20)
• improvement of relationships with my patients and their relatives	87.0 (20)
• improvement of relationships with clinical supervisors	78.3 (18)
• improvement of relationships with nursing staff and co-students at clinical placements	78.3 (18)
• improvement of relationships with nurse faculty members of the university	69.6 (16)
<i>Open question</i>	
1. What is the most important improvement you would like to suggest for the training?	
<i>Perceived appropriateness</i>	
The processes and elements of the training 'Conflict or Connection' based on connecting communication:	% agree (n)
• are applicable to my clinical placement	91.3 (21)
• are applicable within nursing education	91.3 (21)
The connecting communication training must be offered to all nursing students	95.7 (22)
Connecting communication is a basic communication skill for nurses	100 (23)
Demand	
<i>Intent to continue use</i>	
The training 'Conflict or Connection' based on connecting communication:	% agree (n)
• encourages me to continue to apply what I have learned	65.2 (15)
Integration	
<i>Perceived fit with infrastructure</i>	
The training 'Conflict or Connection' fits within professional communication lessons	69.6 (16)
The fundamentals of connecting communication must be provided in year 1 and 2.	95.7 (22)
The training 'Conflict or Connection' must be offered as an elective in year 3	82.6 (19)
To be able to apply connecting communication:	
• faculty staff from the Bachelor of Nursing degree programme should be trained as well;	100 (23)

Table 5 (continued)

Feasibility aspects	Median (Mean ± SD) min-max
<ul style="list-style-type: none"> mentors in clinical practice should be trained as well; clinical supervisors should be trained as well; faculty members that guide students at their clinical placement should be trained as well. 	<p>95.7 (22)</p> <p>82.6 (19)</p> <p>91.3 (19)</p>
Open question	
2. What place should communication trainings based on connecting communication have in the curriculum?	
Implementation	
<i>Degree of execution (n=24)</i>	
Median (Mean ± SD) min-max	
Average amount of sessions followed) (1–5)	4.0 (3.7 ± 1.2) 1–5
Number of training sessions attended by participants	% and number (n) of participants
<ul style="list-style-type: none"> 1 training session 2 training sessions 3 training sessions 4 training sessions 5 training sessions 	<p>4.2 (1)</p> <p>12.5 (3)</p> <p>25.0 (6)</p> <p>25.0 (6)</p> <p>33.3 (8)</p>
Number of students that completed the training with a reflection report	83.3 (20)
Limited-efficacy testing on learning outcomes	
<i>Perceived and demonstrated knowledge and skills</i>	
Median (Mean ± SD) min-max	
Grade point assignment (reflection reports; n = 20) (0–10)	7.5 (7.2 ± 0.9) 4.7–8.5
Open questions	
3. What did the training ‘Conflict or Connection’ contribute to your communication skills?	
4. What is the most important thing you learned in the training ‘Conflict or Connection’?	

Table 6 Differences between means regarding empathy, self-compassion, and exposure to violence before and after the training (n = 24).

Limited-efficacy testing on targeted outcomes	Pretest (T0)		Posttest (T1)		MD**	SD	p-value***
	Mean	SD*	Mean	SD			
Empathy ^a total (0–4; low-high)	2.21	0.44	2.22	0.45	0.01	0.25	0.92 ^d
Perspective taking	2.31	0.67	2.14	0.81	−0.18	0.56	0.13 ^d
Fantasy	1.90	1.16	2.01	1.16	0.11	0.61	0.37 ^d
Empathic concern	2.47	0.67	2.49	0.61	0.02	0.49	0.83 ^d
Personal distress	1.83	0.97	1.77	1.01	−0.06	0.74	0.68 ^d
Self-compassion ^b total (1–7; low-high)	3.77	0.97	4.10	0.95	0.33	0.71	0.03 ^d
Positive scales							
Self-kindness	3.96	1.21	4.20	1.21	0.24	1.11	0.37 ^d
Mindfulness	4.13	1.22	4.31	1.22	0.19	1.01	0.38 ^d
Common humanity	3.88	1.10	4.29	1.10	0.42	1.09	0.07 ^d
Negative scales							
Self-judgement	4.21	1.59	3.50	1.59	−0.69	1.50	0.03 ^d
Over-identification	4.69	1.52	4.48	1.52	−0.21	1.27	0.43 ^d
Isolation	4.46	1.66	4.19	1.65	−0.27	0.90	0.15 ^d
Exposure to violence ^c in past two weeks	% (n)		% (n)				
None	79.2 (19)		62.5 (15)				0.473 ^e
Occasionally	12.5 (3)		33.3 (8)				
Frequently	8.3 (2)		4.2 (1)				

* SD = standard deviation.

** MD = difference between means.

*** p-value < 0.05 indicates a statistically significant difference.

^a Brief Interpersonal Reactivity Index (IRI).

^b Self-compassion Scale Short Form (SCS-SF).

^c Copenhagen Psychosocial Questionnaire (COPSOQ).

^d Paired t-test.

^e Fisher's Exact Test.