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Research article

Educational courses on non-pharmacologic complementary interventions for nurses across Europe: The INES mapping pilot study

Marianne J.E. van der Heijden [a,*], Martine Busch [b], Thora Jenny Gunnarsdottir [c], Anita Lunde [d], Torkel Falkenberg [e], Monique van Dijk [a]

[a] Department of Internal Medicine, Division of Nursing Science, Erasmus Medical Center, Rotterdam, the Netherlands
[b] Van Praag Institute, Utrecht, the Netherlands
[c] Faculty of Nursing, University of Iceland, Reykjavik, Iceland
[d] Department of Nursing, VIA University College, Horsens, Denmark
[e] Department of Neurobiology, Care Sciences and Society, Division of Nursing, Karolinska Institute, Stockholm, Sweden

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ABSTRACT

Background: Pharmacological interventions still form the mainstay of the management of pain, anxiety, sleep problems and discomfort. In Europe, an estimated 100 million people use complementary non-pharmacological interventions (NPIs) for these conditions. In their pre-registration education, nurses do not generally learn about the various types of NPIs and how patients and health care professionals can include NPIs complementary to their standard care. Some nursing schools in Europe offer elective courses on NPIs, often relying on individual initiatives. Little is publicly available about the content of these programmes and how they relate to the current nursing curriculum for EU countries.

Objectives: This pilot study aims to explore and map the field of nursing education with regard to complementary NPIs for nurses in Europe.

Design: A web-based open-access questionnaire administered through the online survey tool LimeSurvey® was designed by the authors.

Participants: The questionnaire was sent to a purposive sample of 49 experts on nurse education and complementary NPIs from 16 European countries. All levels of education were eligible for inclusion.

Methods: The questionnaire consisted of 35 items regarding course content, teaching material, teaching methods and methods of assessment. In addition, respondents were invited to perform a strengths, weaknesses, opportunities and threats (SWOT) analysis in relation to their education programme. Qualitative data was analyzed using a directive content analysis approach.

Results: Between January and May 2020, thirty-one completed questionnaires from ten different countries were returned (response rate 63.3%). Massage, meditation, mindfulness and relaxation are the most taught interventions. Anxiety, stress, chronic pain, depression and sleep problems are the most common symptoms addressed.

Conclusions: Currently, a consistent and European approach to education for nurses on complementary NPIs and integrative nursing is lacking. Although taught at regular nursing educational institutes, the courses discussed here are not yet embedded in mainstream education for nurses.

1. Introduction

Nurses are crucial pillars of health care as they provide and manage sick persons' care and treatment and try to meet the needs of these persons and their families. The role of the nurse is becoming increasingly important, especially because chronic illness and an ageing population form the basis of Europe's current and future public health problems. Pharmacological interventions still form the mainstay of the management of pain, anxiety, sleep problems and discomfort. However, with the increased use of medication comes the risk of more adverse effects and opioid dependency (Bosetti et al., 2019; Tick et al., 2018). More and more, both health care professionals and patients call for de-

* Corresponding author at: Department of Internal Medicine, Division of Nursing Science, Erasmus Medical Center, Rotterdam, the Netherlands.
E-mail address: m.j.e.vanderheijden@erasmusmc.nl (M.J.E. van der Heijden).

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medicalization and show greater interest in the complementary use of non-pharmacological interventions (NPIs) (Breivik et al., 2013; Fjaer et al., 2020; Greenlee et al., 2017; Hall et al., 2018; Qaseem et al., 2017; Rogge et al., 2021; Stie et al., 2020).

There is no well-defined terminology for interventions that are considered complementary to biomedical practice and nursing (Falkenberg et al., 2012; Frisch and Rabinowitsch, 2019; Witt et al., 2017). Historically, interventions that did not originate from the biomedical paradigm were considered 'alternative'. Later, terminology was changed to 'complementary and alternative medicine' (CAM) and most recently 'integrative medicine' (IM). In this study we use the terms 'complementary non-pharmacological interventions' (NPIs) and 'integrative nursing' (IN) to describe the non-pharmacological interventions that are considered as complementary to biomedical practice and are applicable in nursing practice (Kreitzer, 2015). However, considering that these terms are subject to historical and cultural subtexts, in this questionnaire we applied the still widely used term CAM alongside the term non-pharmacological and complementary interventions.

In Europe, an estimated 10 to 40% of the population uses some form of complementary NPIs (Fischer et al., 2014; Kemppainen et al., 2018). These may include massage, music therapy and relaxation exercises, amongst other things, both used privately and in health care settings varying from hospitals to care facilities to nursing homes (Eardley et al., 2012; Gunnarsdottir et al., 2018; Jong and Baars, 2019a, 2019b; Kemppainen et al., 2018). In their pre-registration education, nurses do not generally learn about the various types of NPIs and how patients and health care professionals can use NPIs complementary to standard care. The EU directive 2013/55/EU that describes the requirements for the training of general nurses does not mention education about NPIs (Union, 2013). As a strategic framework is lacking, the individual nursing schools are bound to develop their own programmes. Furthermore, nurses should also be able to discuss health seeking behaviour and self-management with their patients, including their use of complementary interventions, and also know whether NPIs would be beneficial or harmful for a particular patient (Hall et al., 2018; Stie et al., 2020; Tenner et al., 2019). Some nursing schools in Europe offer elective courses at (post-)graduate level. However, these programmes are often initiated by individual teachers and have limited impact. Little is known about the content of these programmes and how they relate to the current nursing curricula.

The ways in which NPIs and IN are introduced to nurses in their education programmes in Europe have not been systematically evaluated. This study maps the field of educational programmes on complementary NPIs for nurses in Europe. Through this study we aim to provide an overview of the different approaches in the curricula regarding teaching methods, materials, educational goals and what the course developers consider as strengths and weaknesses of their course. This study is part of a larger EU-funded project: *The Integrative Nursing Education Series (INES)* (Erasmus+ 2019-1-NL01-KA203-060478). The overall goal of the INES project is to lay the groundwork for a teacher's manual on nursing education modules on complementary NPIs that can be adapted per education facility and per country. This questionnaire study, in which we map the current curricula on complementary NPIs on diploma, Bachelor and Master level, serves as the first step.

2. Methodology

2.1. Developing and finalizing the questionnaire

We performed an exploratory study to map the field of nursing education on the current curricula considering complementary NPIs and IN. To this end, we systematically developed a questionnaire aiming to retrieve specific characteristics, teaching methods, teaching materials and educational goals of the courses in various European countries.

To our knowledge, this is the first attempt to systematically gather information about educational programmes for nurses regarding complementary NPIs/IN. Therefore, this questionnaire could not be developed based on published evidence – and hence we adopted a more pragmatic approach. All members of the INES consortium contributed to developing the questionnaire. Researchers and nurse educators from the Erasmus University Medical Center, Rotterdam, the Netherlands and the Van Praag Institute, Utrecht, the Netherlands developed the first draft. This was pretested by the consortium members from VIA University College, the University of Iceland and Karolinska Institute. They are all experts in nursing education and have ample experience in teaching about complementary NPIs. Based on the pretest results, a second draft was developed, which was again pilot tested and assessed by experts from the above-mentioned institutes. In both rounds we tested for content validity and face validity.

2.2. The final questionnaire

The final questionnaire consisted of five sections with in total 35 items (see Appendix 1 for full questionnaire). Section 1 dealt with contact details and consent to use the data within the scope of the INES project; Section 2 with course specifics; and Section 3 with the organization of the course. Section 4 consisted of items regarding teaching materials and methods of assessment. Section 5 consisted of three open-ended questions reflecting on points of improvement for the course (Strengths – Weaknesses – Opportunities - Threats analysis). The language of the questionnaire was English.

2.3. Method of administration

We designed the survey as a web-based open-access survey administered through the online survey tool LimeSurvey®. We made the survey open-access, which means that respondents could share the survey with others. The selected respondents received a personal invitation per email explaining the background of the INES project and the purpose of the survey. Furthermore, we urged them to spread the questionnaire to colleagues and other experts in the field and to other nursing educational institutes in their country – the so-called snowball technique. The link in the email provided the respondent with unlimited access to the survey.

2.4. Data collection

From January to May 2020, we conducted a pragmatic questionnaire pilot study amongst a purposive sample of experts on nurse education and complementary NPI/IN. Respondents were selected based on their experience and expertise as nurse educators teaching about NPIs and IN in a European country. They were contacted through the network of the INES consortium, the network of a previously carried out EU-funded project CAMbrella (Weidenhammer et al., 2011), the snowballing technique for which we asked confirmed respondents to suggest other eligible participants, and internet searches for eligible participants. We performed purposive sampling in the Netherlands, Denmark, Iceland, Sweden, Norway, Hungary, Italy, Finland, Spain, Baltic States, Belgium, Portugal, Turkey, Ireland, Germany. Excluded were nurse educators from the United Kingdom, which by then had left the European Union. Respondents were reminded of the survey six weeks after the initial invitation to join.

Included were courses embedded in a curriculum as well as standalone courses at a diploma, Bachelor and Master level. Courses aimed at teaching nurses about complementary NPIs, complementary care and IN were included. Excluded were interdisciplinary courses that did not address nursing, as well as courses that aim at educating for a new profession, e.g. acupuncturist, chiropractor etc. There were no restrictions for types of NPI, nursing fields, specializations and diagnoses. The questionnaire consisted of multiple-choice questions, closed questions with numerical answers, and free text. At the end of the questionnaire we asked participants in an open question about their course's

strengths and weaknesses.

2.5. Data analysis

Quantitative data was screened in SPSS and is presented as descriptive data. Qualitative data was analyzed using a directive content analysis approach (Hsieh and Shannon, 2005). This is an approach in which the research findings serve as guidance for initial coding of the data. Data analysis of the open comments about strengths and weaknesses of the courses was divided into two phases. Two members of the project team analyzed the data using constant comparisons, out of which a list of key themes and illustrative quotes emerged. This provided the basis for a SWOT (strengths, weaknesses, opportunities, threats) model. The key themes and quotes used in the SWOT analysis were presented to the other project team members for critical appraisal and consensus. The educational goals were analyzed according to the revised learning goals defined by Bloom in 1965, which today still serve as a standard for learning goals (Adams, 2015).

2.6. Ethical considerations

At the end of the questionnaire we asked for the respondent to provide informed consent to either use the data within the scope of the INES project including the respondents' professional details or to use the data anonymously. For this study we did not require ethical approval. According to the Dutch Medical Research in Human Subject Act (WMO), this study was exempt from ethical approval as it is a voluntary non-interventional study in healthy subjects and it does not include sensitive or confidential information.

3. Results

The questionnaire was sent to 49 experts in nurse education and complementary NPIs. No new respondents were recruited through the snowball technique. The response rate was 63.3% (N = 31).

3.1. Characteristics of the NPI/IN courses

Courses started as early as 1989 and as recent as 2020. Most are offered as an elective course (74.2%). In Europe, levels of education are defined by the European Qualifications Framework (EQF). Education for nurses ranges from EQF level 4 to level 7. Almost half of the courses (48.8%) were offered at Bachelor level or EQF level 6. The other courses were offered on EQF level 6 or higher, such as post-graduate, masters of post-bachelor diploma level.

The courses were mostly taught by a nurse or lecturer with CAM competencies (74.2%), but in some cases also by a CAM practitioner (35.5%). The total duration of the courses varied from 4 school hours to 240 school hours. In 80.6% of the courses, students would receive accreditation from either the institute (67%) or an external accreditation body such as a nursing association (31%). Course promotion strategies included the organizations' website (64%), a nursing association (45.2%), a study catalogue (41.9%), and more informal strategies such as social media, word of mouth and flyers (25.6%).

3.2. Educational goals, competencies and methods of assessment

We asked respondents to define the educational goals of their course and specify these in three categories: knowledge, skills and attitude (Table 1).

Four types of competencies are taught in the courses: knowledge (90.3%), hands-on skills (80.6%), attitude (74.2) and communication skills (61.3%). The competencies were assessed through an assignment (41.9), a test (38.7) or through peer assessment (12.9%).

Table 1
Educational goals defined according to Bloom's terminology.

Knowledge 'to know what'	Skills 'to know how'	Attitude 'to know why'
The student *can describe and identify* CAM/NPI's in general	The student *shows* relevant study and working methods for seeking, assessing and interpreting empirical, theory and research methods in CAM/NPI's, in relation to (self-selected) clinical nursing problems	The student is *sensible* for human integrity and *able to meet* a person's individual need
The student *can relate* caring concepts and CAM theory to nursing and (public) health and *can explain* the significance of NPI's for health and wellbeing	The student *can provide information* and *give advice* about NPI options to patients and/or other healthcare professionals	The student *demonstrates* the importance of the caring relation and applies this insight into caring situations
The student *can describe* practice and research in CAM/NPIs relevant to the nursing profession in terms of quality, safety, effectiveness, and usage pattern	The student *can use* clinical reasoning and (shared) decision making on NPI options for symptom relief	The student *can reflect* on ethical, legal, hygiene issues in relation to CAM/NPI's
The student *recognizes* theories and concepts of selected NPI's (e.g. reflexology, therapeutic touch, essential oils, anthroposophic methods)	The student can safely and effectively *apply* selected NPIs in specific healthcare settings (e.g. hospice) and in a number of application methods (e.g. massage, AquaCare)	The student *can reflect* on opportunities and barriers to implementation into nursing profession and the entire healthcare system
The student *can describe* indications/contra indications for selected NPIs	The student *has experienced* the effects of NPIs for self-care and knows how to perform them	The student *can discuss* the significance of NPIs for self-care

3.3. Teaching methods and materials

The course teachers used predominantly a combination of traditional teaching methods such as lectures (90.3%), dialogue-based training in which the teacher makes use of conversation and active listening skills (77.4%), and direct instruction (71%). Furthermore, cooperative student-centered approaches to learning were applied, such as kinesthetic hands-on teaching (45.2%), personalized learning (38.7%), and inquiry-based learning (32.3%). Fewer courses used teaching methods such as flipped classroom (7.8%), e-learning or game-based learning (4.7%). Teaching materials consisted of a course handbook (80.6%), scientific articles (77.4%), handouts (67.7%), video material (45.3%) and E-learning modules (35.5%).

3.4. Course content

The questionnaire addressed five different aspects of the course content: area of nursing, interventions included in the teaching material, interventions included in the hands-on teaching, clinical symptoms addressed and whether the course used any theories of nursing. The courses addressed twelve major areas of nursing, predominantly general nursing and palliative care. About 45% addressed self-care (see Table 2).

The top five interventions included in the course content aimed at providing relaxation: massage, meditation, mindfulness, relaxation techniques and music (see Fig. 1). In total 22 different interventions were included in the teaching material. The rationales for including these interventions were: clinical expertise (77.4%), level of evidence (58.1%), personal interest of the lecturer (38.7%) and social relevance (29%).

Table 2
Areas of nursing addressed in the courses N = 31.

Areas of nursing	Courses N (%)
General	18 (58.1)
Palliative care	16 (51.6)
Mental health	14 (45.2)
Oncology	14 (45.2)
Pain	14 (45.2)
Self-care	14 (45.2)
Chronic disease	13 (41.9)
Geriatrics	12 (38.7)
Pediatrics	7 (22.6)
Neurology	6 (19.4)
Women's health	5 (16.1)
Intensive care	4 (12.9)

The top five interventions for hands-on teaching differ slightly from those taught in general: massage, aromatherapy, meditation, mindfulness and relaxation techniques (see Fig. 1). The rationales for including these interventions were similar to those for inclusion in general teaching. Other interventions for hands-on teaching varied from music interventions (19.4%) and therapeutic touch (16.1%) to herbal medicine (9.7%) and tai chi (6.5%).

In total, 13 different medical conditions were mentioned. The top five addressed in the courses are anxiety, stress, chronic pain, depression and sleep problems, with additional to the top 5, more specific symptoms such as nausea, trauma, procedural/acute pain and dyspnea, ranging from 51.6% to 35.5%. Constipation, end-of-life care and skin and wound care were mentioned only once.

The final question was an open question regarding the use of any theoretical nursing models. Sixteen courses addressed either a general nursing model, such as caring science or person-centered care, or a whole systems approach such as the Total Pain model, a holistic model, the Life World Perspective or the Anthroposophical nursing model. Other courses addressed classification systems such as the Nursing Interventions Classification (NIC) and the North American Nursing Diagnoses Association (NANDA). Eleven respondents answered negatively or blankly, three answered positively but did not give any specific information.

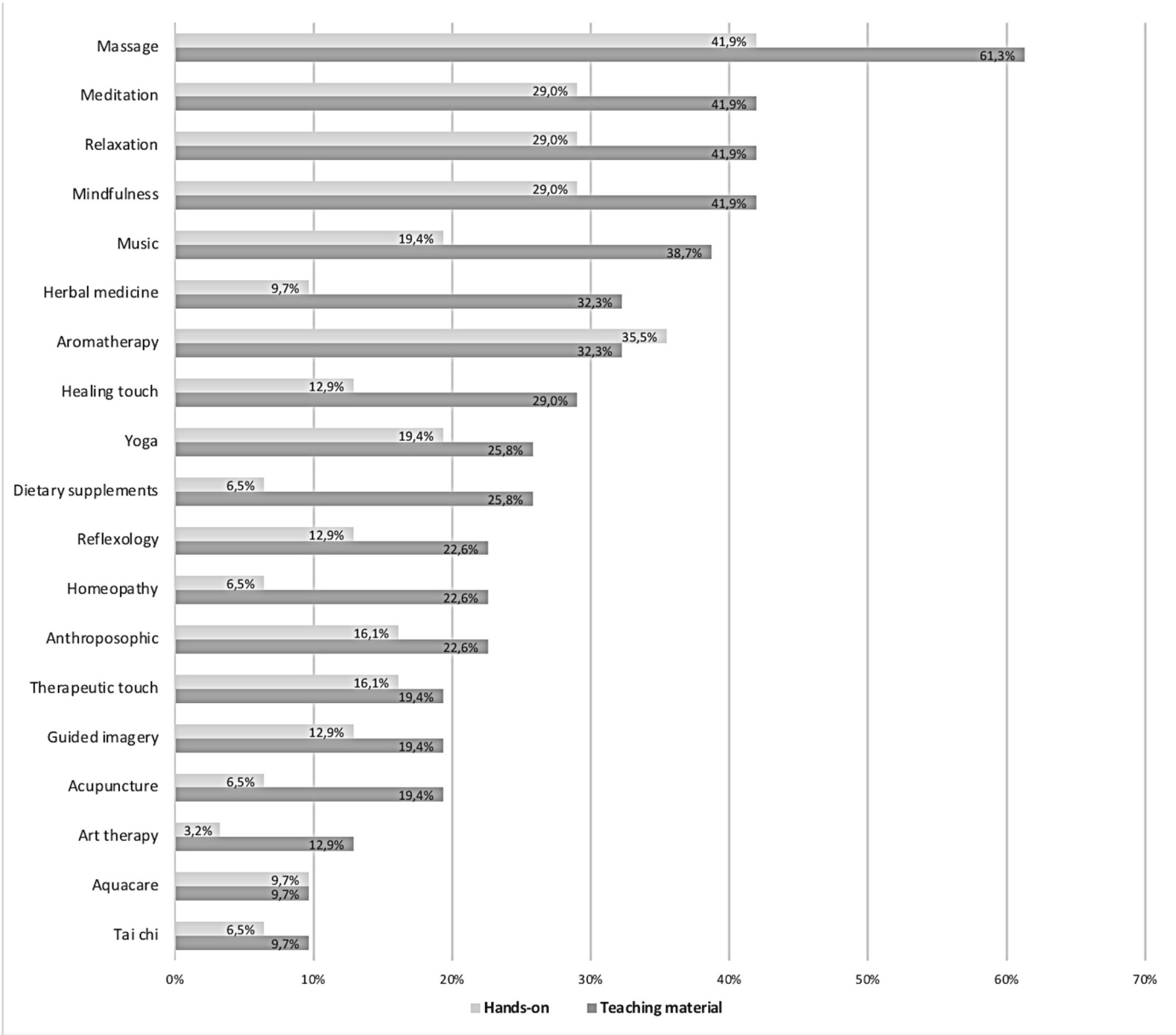

Fig. 1. Interventions included in teaching material and in hands-on teaching.

3.5. Findings from the content analysis: SWOT analysis

Respondents were invited to reflect on their courses in terms of strengths, weaknesses, opportunities and threats (SWOT). Through content analysis we summarized the SWOTs. Respondents found strengths and opportunities in the teaching methods and the generalizability of the course content; e.g., NPIs can be applicable across nursing settings. Furthermore, respondents considered their courses to provide an opportunity for enrichment of the nursing profession and empowerment of nurses. Specific aspects of the course content were considered both a strength and a weakness; e.g. the diversity of content is attractive but also challenging in terms of focus. Other weaknesses and threats were related to the course conditions such as the lack of financial, institutional and political support and the lack of formal qualification for practice in clinical nursing (Table 3).

4. Discussion

To our knowledge, this is the first questionnaire study exploring and mapping education for nursing students on complementary non-pharmacological interventions and integrative nursing (NPIs/IN) in a European context. The results show that the courses in which these topics are taught vary greatly in level of education, duration, educational goals, areas of nursing and course content. Despite the well-documented wise use of complementary NPIs in Europe with well-described implications for patient health and safety, there is a lack of recognition in the EU directive 2013/55/EU. Hence, it does not come as a surprise that on a European level, a systematic approach in teaching nurses about NPIs/IN is lacking. Integrative nursing has been argued to provide a mean to facilitate nurses' contribution to the UN Sustainable Developmental Goals (SDGs) within their daily practice and to create holistic plans of care for patients, families, communities and nations (Dossey et al., 2019). Here, NPIs may play an important role, provided upscaling of the NPIs/IN teaching curriculum across European nursing schools. In our study, it appears that the reported courses have been developed to suit the local education practices and needs, which makes it difficult to make generalizations based on the educational material reported. However, despite the variety in courses, we have learned a number of lessons that could be of value for educators interested in this topic, which we will briefly discuss below.

Table 3
Analysis of the courses: strengths, weaknesses, opportunities and threats (SWOT).

Strengths	Course content
	- Based on scientific evidence - High academic standard - Using best practices - Using clinical examples - Inclusion of self-care, spiritual aspects of health care and personal development - Hands-on, practical relevance and interventions that are easy to use
	Teaching methods
	- Enthusiastic, creative and skilled teachers - Using a combination of teaching methods such as lectures, experiential exercises, group reflections and distant learning - Interaction between nurses and physicians, study group and multidisciplinary classes - Assignments that are relevant for nursing practice
Weaknesses	Course content
	- Not enough embedded in nursing theory or the nursing curriculum, not enough embedded in general concepts of Integrative Nursing - A need for more specific connection to nursing specializations (from neonatology to elderly care) - The content and interventions are too diverse - Need for mentored practice
	Course conditions
	- It is an elective course - Lack of experts who can teach - Not enough time per course - Not supported financially
Opportunities	Generalizability: NPIs are applicable for all chronic conditions Enrichment: education in NPIs can offer an extension of nursing expertise and provides nurses with relatively simple tools Empowerment: education in NPIs offers opportunities in personal and professional leadership
Threats	Professionalism: lack of formal qualification for practice in clinical nursing Accessibility: Lack of financial support for students and professionals Controversiality: lack of institutional/political support by the nursing school or department Applicability: lack of institutional support for implementation of NPIs in the clinical setting

Firstly, we found that generally there was an aim for evidence-informed course content and a high academic standard. The courses were normally offered at EQF level 6 or higher. However, nurses with education level EQF 4 or 5 might be employed in nursing homes, which seemingly use complementary NPIs more than hospitals do (Gunnarsdottir et al., 2018; Jong and Baars, 2019a, 2019b). Although this high academic standard is commendable, the question arises whether highly trained and specialized nurses should be the only ones to perform complementary NPIs. Given the nursing staff shortages worldwide, it might be practical to teach other staff or family members to provide complementary NPIs as well. This might be achieved by providing courses on lower EQF levels as well. Secondly, the reported courses exceed the level of introductory courses and have a strong focus on nursing practices and common conditions experienced by patients, such as (chronic) pain, anxiety, stress and sleep problems. Focusing on these common conditions can have the advantage to appeal to nurses from all fields of medicine. Thirdly, the top five interventions taught in the courses are all considered non-invasive mind-body interventions: massage, meditation, mindfulness, relaxation techniques and music interventions. These are interventions that focus on care and can be considered non-invasive. Basic elements of these interventions, such as a relaxing hand massage, are relatively simple and quick to teach (Suchy et al., 2020; Zhang and Wang, 2019). Fourthly, a perceived strength of teaching integrative nursing to nursing students is the emphasis that the IN principles place on self-care (Kreitzer, 2019). Teaching nurses how to use of NPIs for their own self-care might help them creating a sustainable work environment, which is beneficial given the high burn-out rates amongst healthcare professionals in general (Salvagioni et al., 2017). Fifthly, because there is no common standard for optimal course content, courses often lack a consistent expert approach to the teaching content and material. Instead, there is an emphasis on the teachers' personal interests. Sixthly, our respondents reported they lacked financial and institutional support. This resulted in the courses often being classified as an elective course with limited time to teach and a lack of formal qualification.

This current questionnaire study is part of the larger INES project to develop a nursing teacher's manual on complementary NPIs and IN for Europe. The results from this study will be fundamental to our approach in designing the teacher's manual. In addition, our results may facilitate similar ambitions to improve nursing education in the area of NPIs/IN.

Our questionnaire study was subject to a number of limitations. Although we aimed to collect data from a purposive sample of nurse educator experts in the field of NPI/IN, we were not able to enroll respondents from all countries in Europe. One explanation could be that we conducted the questionnaire in English and therefore did not appeal to all respondents. Due to Brexit, we could not include the United Kingdom. Another limitation was the relatively small sample size. The INES consortium consists of nurse educators and nurse scientists who also have a large network of colleagues working in research and policy-

making on NPIs/IN, including the network from the previously EU-funded programme CAMbrella, the European Congress for Integrative Medicine (ECIM) and the International Society of Traditional, Complementary and Integrative Medicine Researchers (ISCMR). Despite these advantages, we found it difficult to find eligible respondents and were often told: "although this is my area of (research) expertise, I am not in charge of the educational programme". We tried to include more respondents through the snowball technique, but found that this did not lead to more respondents. It may mean that this field of education is still led by individual 'early adopters' who see the relevance of this topic and who want to give it a place in nurse education. Although there are international networks for IN, which we have also reached out to, there is not yet an organized network of nurse educators in IN, neither on national levels nor on a European level. The questionnaire we used was not a validated questionnaire for education innovation. A strength is that we did develop the questionnaire and performed informal content validity rounds with experts from the field. Lastly, in hindsight the questionnaire did not specifically address certain aspects of the content and implementation of the teaching material. We did not ask which intervention is taught for which condition. Also, this questionnaire does not provide insight in the implementation of the teaching material in nursing practice. This study was conducted in the first months of 2020, at the beginning of the Covid-19 pandemic. Since then, educationalists all over the world have been forced to adapt their face-to-face teaching to online teaching modules. The information regarding teaching methods may therefore have been altered accordingly.

5. Conclusion

This pilot study has mapped the field and presents data from institutes from sixteen different European countries. Although taught at regular nursing educational institutes, the courses discussed here are not yet embedded in mainstream education for nurses. Teaching nurses to apply simple interventions such as massage, meditation, mindfulness, relaxation and music can strengthen nurses in caring for their patients. In line with the scientific evidence, there is merit in addressing a non-pharmacological approach to anxiety, stress, chronic pain, depression and sleep problems. Currently, a consistent and European approach to education for nurses on complementary non-pharmacological interventions and integrative nursing is lacking. Considering the wide use of complementary NPIs in Europe and the escalating need for fulfilling the UN Sustainable Development Goals, nurses may play an essential role provided upscaling of evidence-informed NPIs/IN teaching curriculum across European nursing schools.

Disclaimer

This study is part of a larger EU-funded project called the Integrative Nursing Education Series (INES). The INES project is a European consortium between the Erasmus Medical Center Rotterdam, the Netherlands; the van Praag Institute, the Netherlands; VIA University College, Denmark; the University of Iceland and Karolinska Institutet, Sweden. The INES consortium aims to strengthen nurses' knowledge, attitudes, competencies and skills on complementary NPIs such as mindfulness, massage and relaxation exercises.

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Declaration of competing interest

None.

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Appendix A. Supplementary data

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