



The NURED aligned curriculum for home care nurse and nurse education – a report on our project journey

Abstract

The aim of this research project is to develop two new curricula for home care nursing in the Baltic Sea Region. This project will illuminate and promote the factors that promote occupational health and stress management among nurses in the field of home care and to get a deeper understanding for which factors motivate the staff in their work. Furthermore, the aim is to describe the level of competence among the home care staff (both nurses and assistant nurses) while the work environment becomes all the more demanding. Finally, the results of this study will be used to develop the nursing education and further education for nurses in time- and stress management, e-learning skills, teamwork and work with elderly and clients with intellectual disability. Graduated students will be prepared to use their own resources, have higher self-esteem and increased motivation, and utilize new skills in education as well as future work, leading to efficient studies and preparedness for life-long learning. The developed curricula will, hopefully, have an impact through decreased amount of drop-outs, reduced stress, improved professional skills, motivated students and professional commitment.

The aim can be reached by answering the following questions:

- How does the home care and nursing staff describe their occupational health and wellbeing in Baltic Sea Region (BSR)?
- What are the challenges in home care education in BSR and what are the solutions?

- In which professional field should home care staff in BSR develop their competences?
- How does the collaboration between home care nurse and nurse education in BSR benefit the society in BSR?

This study is an EU-funded, Interreg Central Baltic-project called Nursing Education Development (NURED). Two new curricula (for levels EQF5 & EQF6) were developed in the Baltic Sea region within the home care nurse and nurse education (16 ECTS/curricula). The challenges are the same in the work field in all the participating countries (Finland, Sweden, Estonia and Latvia). Surveys were directed to both nursing students but also to nurses who have worked in the field of home care for 3-5 years. All project activities aim to illuminate the value and importance of working in this particular field of nursing, to highlight lifelong learning, and also to increase the educational level of home care staff as well as the motivation and commitment to the profession.

The subject of this research is highly relevant and a current matter as well, both in Finland but also in the other Nordic countries and the Baltic Sea region. More and more patients are treated at home and the patients need more demanding care than they have before in the home environment. That puts a lot of pressure on the workforce both mentally and physically, but it is also a challenge considering the competence level among the staff. Furthermore, this study will contribute to one of the most essential parts of the work in the field of home care, and that is the collaboration between the different professional groups.

Home Care in BSR

All over the Nordic countries, in the BSR and in Europe there is a big demographic change taking place. The population grows older and that also applies on the nursing workforce. The field of home care is especially at risk, since many nurses consider changing their workplace due to the demanding character of the work. The theoretical frame of reference consists of health promotion and workplace health promotion as a part of it. Health promotion is defined as the process of enabling people to increase control over, and to improve, their health (WHO 1986). This is a natural context for the topic of this research since one significant part of occupational health and wellbeing is the possibility to affect one's own work. Workplace health promotion (WHP) is defined as the combined efforts of employers, employees and society to improve the health and wellbeing of people at work (ENWHP 2011). This theoretical frame supports the overall aim of the study, which is to illuminate and promote wellbeing at work and factors related to it, by developing the education in different themes of home care nurses and nurses in BSR.

In **Finland**, 73,563 people were regular home care clients in the end of the year 2018 (THL 2019). Approximately 15 000 registered nurses and assistant nurses work in the field of home care in Finland (Kehusmaa et al. 2018). About 12 per cent of the workforce are nurses or public health nurses, the majority are thus assistant nurses or home aides. (Noro et al. 2015). There is an increasing need of employing more nursing

professionals to the homecare field, since the care needs of the clients living at home are all the more demanding, and as the total amount of clients is constantly increasing (Kehusmaa et al. 2018).

The **Latvian** long-term care system is available to anyone who is living permanently in Latvia. Long-term care is divided in health and welfare systems and they are financed by the state. Home care services are most commonly provided by the municipalities, although it can also be provided by the private sector (Ilves & Plakane 2011). What differs the workforce in Latvia from the other countries is that most of the home care workers are social workers. Of all social workers in Latvia more than half of them work in the field of home care. There are no figures on how many nurses work in home care. Nurses are employed in health care system and provide nursing care, while social carers and carers provide home care under welfare system. In 2009, 9291 people received home care in Latvia; in 2013 home care was already received by 11 325 clients (Ministry of Environmental Protection and Regional Development in the Republic of Riga, 2015). Many applicants were declined of home care due to a shortage of social work specialists in Latvia (Ilves & Plakane 2011). This might reveal something about the characteristics of the typical home care client in Latvia, and that institutional care still is the most common form of care.

In **Estonia**, the Estonian Health Insurance Fund, an agency of the Ministry of Social Affairs, is responsible for arranging home nursing services for the population (Eesti Haigekassa 2016). In 2007 7,4 per cent of the Estonian elderly dependent population received care in their homes. This means about 6,430 persons (Paat & Merilain 2010, OECD 2011). It is stated that Estonia has not yet been able to meet the demands of people living in their homes and far too few nurses work in that field (Paat & Merilain 2010). Home nursing services are provided in the patient's home, and it includes patient counseling regarding health maintenance and lifestyle, upon the doctor orders performance of certain medical procedures (oxygen therapy, wound care, injections and drip-making, bladder flush, skin assessment, urine analysis etc.). In cases of supportive home care for cancer patients in serious conditions, the aim is to alleviate the patient's discomfort and includes psychosocial counseling of the patient and loved ones – this service also includes home visits from a specialist doctor and nurse.

In **Sweden**, approximately 250,000 people receive regular home care services. There are no accurate statistics to be found on exactly how many nurses or assistant nurses work within the field of home care, since home care services are produced both by the municipalities and the county councils. Overall, approximately 160 000 nurses (registered nurses and assistant/enrolled nurses) work in municipal social care (includes homecare) in Sweden (SKL, 2018). As many other European countries, Sweden also faces the demographic challenge with a growing population of older adults and a staff shortage. This means there are challenges in recruiting students to the health care educations. In the Swedish welfare system, the municipalities are legally obliged to provide care and services for the citizens. Especially the care of older adults and people with disabilities is a growing area where the concept of aging in place is adapted. This means that homecare services are facing increased need of professionals trained in home care nursing. The majority of staff practicing homecare are assistant nurses with an upper secondary school education in caring. Therefore, to improve the homecare support and services the focus needs to be at this educational level. Registered nurses

are in a minority in this field of nursing. In Swedish homecare the field of intellectual disability practice is included as a part of social care practiced in citizens private homes. The intellectual disability practice dimension of homecare is neglected in terms of practice development, theory application and care models. Additionally, the education content for assistant nursing education is mirroring the same lack of focus on intellectual disability practice.

Home care education in BSR

The nursing education in **Finland** is conducted on two levels. In upper secondary schools the education is on EQF level 5 and consists of 180 ECTS. Students can conduct their studies in Finnish or Swedish, depending on the educational institution. In universities of applied science the education is on EQF level 6 and these students become registered nurses (RNs). The extent of an RN degree in Finland is 210 ECTS. Studies can be conducted in Finnish, Swedish or English, depending on the UAS. In 2014 there were approximately 80 000 registered nurses in Finland working in the field of nursing.

Nursing education system in **Latvia** consists of 3 levels. College level education – 3 years (first level higher professional education, EQF level 5, full time studies, 180 ECTS). Bachelor level - 4 years and 7 specializations (outpatient care, surgical care, medical care, anaesthesia-intensive-emergency care, mental health care, children care nurses and operating room nurses) obtained degree is professional bachelor and qualification (EQF level 6, full time studies, 240 ECTS). Master level - 2 years, obtained degree is academic master degree in Health Science (EQF level 7, full time studies, 120 ECTS). In 2017 there were 8484 practicing nurses, roughly 43.9 nurses per 10 000 inhabitants. Health care system in Latvia experiences shortage of nurses. Nevertheless, nursing education on all levels is provided by universities and colleges in Riga and the regions. However, not all graduates continue work in nursing field, as nursing work force emigration is very common. Since 2016 Latvian Nurses association and Ministry of Health of the Republic of Latvia in collaboration with higher education institutions were working on development of “Nurse” profession standard and changes in education and practice systems. The new title for general nurse will be general nurse or nurse in general care. Education level for this new standard will be EQF 6 (professional bachelor level), it will be the minimal and basic level for any nursing education. The continuing education (including home care) for nurses will be changed. These changes will take place in the next years and now it is unclear to mention an exact year of changes in system. It will be transitional period for at least 2-5 years.

There are two schools providing nursing education in **Estonia**: Tallinn Health Care College and Tartu Health Care College. However, there is no special curricula for home nurse. The same goes for assistant nurse or care worker at home care. They have some optional courses within their formal curricula. According to “OSKA: analyses the needs for labour and skills necessary for Estonia’s economic development over the next 10 years” there is an assessed need for approximately 194 additional home care nurses. Furthermore, the need for nurse assistants or care workers working at home is also increasing. Today there are approximately 630 care workers working at home, but the necessity is 10% higher.

Although care workers curricula is offered in two health care colleges as well as four vocational school, no one provides special training for care workers working at home. However, the work profile of care worker working at home differs from the work of those working either at hospitals or at nursing homes. The care workers working at home have more responsibilities and they have to implement more procedures.

In **Sweden**, the education needed for an employment as an assistant nurse or enrolled nurse is a three-year education/program at upper secondary school level for youth students, or a two-year vocational education for adult students, the health and care program. To be a registered nurse requires a three-year (180 ECTS) university education, a bachelor's degree. Registered nurses continue to study at master's degree (second cycle program) for specialisation in for example acute nursing, psychiatric nursing, midwifery nursing, primary care nursing and anaesthesia nursing. This far, no specialization education in homecare nursing is available for either assistant nurses or registered nurses. Homecare nursing, generally is included in different courses but do not have any specific courses.

Overall project description

The NURED Project began in autumn 2016, with preparatory tasks. In spring 2017, a QWC-survey (Quality-Work-Competence, copyrighted by Springlife in Sweden) was sent out in all partner countries to home-care staff with a minimum of 3-5 years of working experience (total n=685: FIN n=116; LAT n=432; EST n=62; SWE n=75). Based on the local and joint survey results, partners created pilot versions of the four different modules that build the new, aligned curricula. These modules were: 1. Teamwork and professional skills in the home care setting (Lead Partner, Arcada, Finland); 2. Occupational stress, stress and time management (Riga Stradins University, Latvia); 3. E-services and e-products (Tallinn Health Care College, Estonia) and 4. Pedagogical attitude and way of work (PFA) in intellectual disability practice in the home care context (Mälardalens Högskola, Sweden). All partners conducted pilot testing on the module they were responsible of (results in APPENDIX 2), after which the 1st draft of the aligned NURED curricula (EQF 5 & EQF 6) were created in collaboration in autumn 2018. These early drafts of the aligned curricula were assessed in focus group discussions in each partner country in winter 2019. Each focus group discussion was carried out with 3-10 participants including students, educators and other working life professionals. The results were first analyzed locally via SWOT-analysis, and then jointly by creating a SWOT-analysis based on all partner's focus groups (APPENDIX 1). With the help of the joint SWOT-analysis, the 1st draft of the aligned curricula was updated, thus creating the 2nd draft of the aligned curricula in April 2019. The 2nd drafts were thereafter tested in all partner countries in autumn 2019, by choosing certain learning outcomes and gathering student feedback and comparing these results to another group of students who had not participated in the NURED curricula (results in APPENDIX 3). After the student testing process the curricula were finalized, creating the final product of the NURED Project: two new, aligned curricula for EQF 5 &

EQF 6 level nursing students in the Baltic Sea Region. All partners also created short educational videos, which are available to anyone on the NURED website together with the final version of the NURED aligned curricula (<https://www.arcada.fi/en/research/project/nured>) .

Project description for Module 1: Teamwork and professional skills in the home care setting (5 ECTS)

Based on the results of the QWC-survey, an existing course in home care nursing at Arcada UAS (Finland) was updated in collaboration with local partners (Axxell and Novia, Upper Secondary Vocational Education providing nursing education on the EQF 5-level) and other project partners regarding both content, activities and pedagogical approaches. Module 1 was piloted twice at Arcada UAS, both in autumn 2017 and autumn 2018. To highlight teamwork, multi-professional simulations were conducted three times with local partners and were highly appreciated by the participating students. The students felt well prepared for their upcoming practical training in home care, both regarding their clinical decision making skills but also their teamwork skills, after these simulations. (APPENDIX 2)

Project description for Module 2: Occupational stress, stress and time management (3 ECTS)

The aim of this module, developed by the Latvian team, was to develop knowledge and practical skills in occupational health, stress impact to health, stress and time management in nursing context (for EQF 5 and EQF 6 levels). This course module content was piloted four times in total for 256 practicing nurses and nursing students. Participants were highly satisfied with the course (APPENDIX 2). As well as part of Module 1 “Teamwork and professional skills in the home care setting” was piloted by leading partner representative Anu Grönlund as “Simulation based educational experience in nursing” training 2 days course with 45 participants.

Interactive tool for nurse training in risk identification “Risk game” (risk detection in pictures) and nurse test tool “Risk ruler” (test questions and references to learning materials) were created. Risk game tool was used more than 1700 times in Latvia. Risk game and Risk ruler tool methodological description was made for all project partners’ use.

Project description for Module 3: E-services and e-products (5 ECST)

Relying on the feedback of present situation Estonian team has worked out a module for training both home care nurses and home care workers. As one member of the Estonian team was also the member of Estonian home nurse association, we had access to the database of Estonian home nurses and the QWC-survey could be sent to all home nurses. In addition, as Tallinn Health Care College is also a leading organization in training care workers, the same questionnaire was sent to care workers responsible for home care. The created module focuses on e-services and e-products available for the client.

Parallel to the survey, the Estonian team arranged one conference (e-services and e-products in health and social care) for home nurse and home care workers in order to disseminate the idea of the project and to get additional input for the following module. Later on, the presenters of the conference were also invited as trainers of the module. The module was implemented three times, twice to care workers and it was a part of one formal education curricula as an optional module and one for nurses and as in-service training course. Two training courses based on the module took place in Tallinn and one in Rapla (head of the county 50 km from Tallinn). There were five days (40 hours) contact lessons; 30 hours learning in Moodle environment and 60 hours individual work. All students (in teams) had to prepare ethic code for care workers and a leaflet for clients about the information to get e-services and e-products. A total of 60 students participated in the courses. Assessment was implemented after each course. Students were highly satisfied with the course (APPENDIX 2).

Project description for Module 4: Pedagogical attitude and way of work (PFA) in intellectual disability practice in the home care context (3 ECTS)

Swedish team were responsible for developing the part of the curricula covering the intellectual disability practice content in the aligned curricula. This was conducted in developing a web course in Pedagogical attitude and work (in Swedish Pedagogiskt Förhållnings- och Arbetssätt: PFA) in intellectual disability practice. We started with a survey exploring the value of PFA education in intellectual disability practice. The study was carried out as a web survey using a quantitative approach to investigate what employees reflect about their own knowledge and its sources. A total of 262 employees in intellectual disability practice answered a web survey. The results showed that PFA education has a significant effect and that a highly specified education (workplace training) could substitute for work experience in intellectual disability practice. The authors conclude that all workplaces should regularly examine employee's skills to meet the needs of people with ID (Olsson & Gustafsson, 2019 submitted). We have also published a paper about this study in the vocational journal INTRA (Olsson & Gustafsson, 2018).

Having these findings in mind, we in collaboration with Eskilstuna municipality, the department for care and services for people with disabilities, and two adult vocational educations and a consulting web production company have created a web education in PFA. The aim of Module 4 is to learn to practice PFA when supporting people with intellectual disability in the homecare context. Further, the aim is, by point of departure in knowledge and understanding of the brain, cognition, adaption cognitive skills, intellectual disability and autism to understand and grasp the basic practice of PFA founded in the theory of salutogenesis.

Ethical considerations

The research will follow the ethical guidelines of the WMA Helsinki Declaration (WMA 1964) during the whole process. The informants will be selected through the NURED project and will be asked for their informed consent before each part of the study. Furthermore, the research will

follow the ethical guidelines of the university. This study was approved in Finland by the Pääkaupunkiseudun ihmistieteiden eettinen komitea 6.7.2017

All partners had informed consent from participants for questionnaire and focus group participation.

Results

The NURED Aligned Curriculum: 16 ECTS/EQF 5 + 16 ECTS/EQF 6

Supplementary home care nursing practice

The course aim

The overall aim of the NURED aligned curricula is to develop vocational education training and higher education training students' knowledge and practical skills in the homecare and nursing context (elderly care and chronic conditions) about stress, time management, ergonomics, team work, ICT and pedagogical attitude and way of work in intellectual disability practice.

Teaching and learning methods

Teaching and learning methods to use are blended learning/flipped classroom inspired in a mixture of traditional lectures, short video recorded lectures, discussions, case study, seminars, group work, individual and group reflection sessions, simulations, on-line/web materials (for example attitude and self-evaluation tests, interactive tests, animations and chats) use and test of web applications, seminars and course literature reading.

Guidelines, assessments and grading

Teachers guidelines, course literature (and other learning material), assessments, grading procedures are worked out and the responsibility on the institutions being the host of the vocational and higher education training. The curricula require continuously revisions regarding rapid society and technology development and changes.

EQF5 and EQF6 refers to: <https://ec.europa.eu/ploteus/content/descriptors-page>

Overall aim for course module	Learning outcomes after completed course the student will (EQF 5)	Learning outcomes after completed course the student will (EQF 6)
<p>Module 1: Teamwork and professional skills in the home care setting (5 ECTS) The aim of the course module is that the student understands the meaning of prevention and health promoting actions in the field of homecare and outpatient care. The student gains a deeper understanding of and competence in the care for the patient. The student gains an understanding for the multi-professional collaboration between institutional care and outpatient care and the continuity of care. The student learns to collaborate in interprofessional teams in a person-centred way.</p>	<ol style="list-style-type: none"> 1. be familiar with the normal ageing process and can identify variations from normal ageing. 2. be familiar with the specific care needs of the patient, including medication administration, nutrition and rehabilitation. 3. be able to plan, implement and evaluate a patient's care in the home care setting. 4. know how to assess a patient's status over the phone and knows who to consult. 5. be familiar with the specific aspects of the multi professional team in home care. 	<ol style="list-style-type: none"> 1. have competence regarding the normal ageing process and can identify variations from normal ageing. 2. have clinical competence in the specific needs of the patient, including medication administration, nutrition and rehabilitation. 3. be able to plan, implement and evaluate a patient's care in the home care setting, and further to supervise other team members. 4. have competence in how to assess a patient's status over the phone and how to plan the care after consultation. 5. have competence in the specific aspects of the multi professional team in home care and knows how to plan and delegate the work accordingly
<p>Module 2: Occupational stress, stress and time management (3 ECTS) The aim of the course module is to develop knowledge and practical skills in occupational health, stress impact to health, stress and time management in nursing context.</p>	<ol style="list-style-type: none"> 6. be familiar with occupational health concept and be able to list occupational risk factors and common occupational diseases 7. know basics of ergonomics and use appropriate ergonomic techniques 8. know concept of stress and its definitions 9. know basics of non-specific adaptive reactions and general adaptation syndrome 10. be familiar with chronic stress effects on body and health related issues know burnout relation to chronic stress, its impact on health and professional performance 11. be familiar with professional quality of life concept, and well-being at work 12. be familiar with different levels of occupational risk factor prevention programs 13. use preventive methods to reduce stress impact 14. use more effective stress and time management and scheduling of work time 	<ol style="list-style-type: none"> 6. be familiar with occupational health concept and be able to evaluate and classify occupational risk factors, and explain health outcomes 7. know most common occupational diseases and be able to explain basic aetiology 8. be able to demonstrate advance knowledge in ergonomics and use appropriate ergonomic techniques 9. know concept of stress and its definitions and explain acute and chronic stress reactions 10. explain stress systems as non-specific adaptive reactions and general adaptation syndrome 11. demonstrate knowledge and understanding about chronic stress effects on body and psychosomatics 12. explain burnout relation to chronic stress, its impact on health and professional performance

		<ul style="list-style-type: none"> 13. be able to explain professional quality of life concept and assess well-being at work 14. know different levels of occupational risk factor prevention programs and choose most convenient in certain circumstances 15. use and can teach usage of preventive methods to reduce stress impact 16. use and integrate more effective stress and time management in every day work life
<p>Module 3: E-services and e-products (5 ECTS) The aim of the course module is to reorient at the market of e-products and e-services and support patients in applying and using the products and services.</p>	<ul style="list-style-type: none"> 15. be able to describe different e-products and e-services at the market 16. have knowledge to find information about e-services and e-products via internet 17. explain mutual connections between e-services and e-products 18. be able to notify possible problems and manage the identified problems/conflicts 19. co-operate with companies offering e-services and products according to special target group 20. supervise the patient on using e-services and products 	<ul style="list-style-type: none"> 17. be able to analyse connections between patients and different e-products and e-services at the market 18. have knowledge to find information about e-services and e-products via internet and by using suitable networking system 19. explain mutual connections between e-services and e-products and refer to possible problems 20. be able to notify possible problems and is able to manage the identified problems/conflicts 21. co-operate with companies offering e-services and products according to special target group 22. supervise the patient on using e-services and products 23. manage homecare teams
<p>Module 4: Pedagogical attitude and way of work (PFA) in intellectual disability practice in the home care context (3 ECTS) The aim of the course module is to learn to practice PFA when supporting people with intellectual disability in the homecare context. Further, the aim is, by point of departure in knowledge and understanding of the brain, cognition, adaption cognitive skills, intellectual disability and autism understand and grasp the basic practice of PFA founded in the theory of salutogenesis.</p>	<ul style="list-style-type: none"> 21. be able to reproduce PFA's history and the initiatives to develop PFA 22. be able describe cognition, mentalisation, perception and central coherence and applied in own daily life 23. know about intellectual disability (ID) and its influence on cognitive functions applicable in-home care context 24. have knowledge of how stress effects on functioning and how it affects people with ID 	<ul style="list-style-type: none"> 24. be able to reproduce PFA's history and the initiatives to develop PFA 25. be able describe cognition, metacognition (mentalisation), perception and central coherence and applied in own thinking 26. have knowledge about intellectual disability (ID) and its influence on cognitive functions applicable in-home care context and manage to solve complex and unpredictable problems 27. know how stress effects on functioning and how it affects people with ID and, manage to

	<p>25. have skills to create/develop adaptations compensating difficulties and increasing independency</p> <p>26. be able to discuss benefits of practising PFA in the home care context.</p>	<p>solve unpredictable problems that stress can create, further advanced understanding knowledge of the field of work or study how it is related to cognition and needs of control</p> <p>28. have an understanding of theories and principles of cognitive functions and ID, and skills to create/develop adaptations, compensating difficulties and increasing independency</p> <p>29. be able to discuss benefits of practising PFA in the home care context and take responsibility in increasing quality of life for the person with ID or autism</p>
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For more information, go to <http://rdi.arcada.fi/nured/en/>

Discussion

At least in Sweden and Finland, more and more patients are treated at home instead of hospitals and nursing homes and the pressure is on in Estonia and Latvia as well, and that has direct impact on the workload of the home care nurses. Already in the nineties it was stated that the home care as a field of work had changed considerably. According to the staff the work had become more interesting and independent, but yet they felt that the pressure of work was too heavy and the responsibility too heavy. (Laamanen et al. 1999). The shift in older people care from hospitals to community-based facilities and home care has had further implications for nursing practice. Lack of competence development, high levels of work strain and low levels of work satisfaction among nursing staff in both care settings have been associated with high turnover. (Hansson & Arnetz 2008) According to this study home care staff rate their knowledge as insufficient. The majority of home care staff are nurses' aides. On the other hand, Larsson et al. (2013) found out that nurses' aides and nursing assistants perceived their work as a high demand work that requires high levels of professional skills. The general health and self-efficacy in relation to their work was good, but there were difficulties in performing risk assessments and following safety instructions among these professional groups. (Larsson et al. 2013) This is something to be considered in this research project since nursing assistants are the largest professional group in the home care field and the work is very independent. Craftman et al. (2012) found out in their study that there is a discrepancy

between prevailing legislation and actual practice regarding the administration of medication to home care clients. Due to lack of time home care assistants are performing tasks that they aren't trained for because the district nurses have too a heavy workload. (Craftman et al. 2012). Also Nyström & Lützen (2002) came to the conclusion that the professionals with the least education seem to have a great responsibility of the practical care of people with different types of long-term care. (Nyström & Lützen 2012). This would imply that it would be imperative to investigate and strengthen the collaboration between the different professional groups in the home care setting and to develop proper education for them. Main themes that influence nurses' job satisfaction are spiritual feeling, work environment factors, and motivation. For motivation factors, task requirement, professional development and lack of clinical autonomy contribute to nurses' job satisfaction. (Atefi et al. 2014). The fact that home care staff have a good work ability can have a connection with the fact that working hours are flexible and that it is possible to work part-time. (Dellve et al. 2006). According to an OECD report (OECD 2015) most long-time care workers are women and they work part-time. In some countries more than 90 per cent of the workers are women. (OECD 2015) This fact might also be a factor that affects inequity among nursing staff especially looking at it from a gender point of view. There is a positive correlation between encouragement and a balanced work attendance among the nursing staff, while a high level of sick leave is associated with demands on the workplace. After a two-year follow up it was still obvious that a balanced work attendance was associated with a maintained health and performance, while sick attendance (in the meaning of contrary to sick leave) is associated with bad health, burnout, sick leave and worse performance at work (Dellve et al. 2011). Stress and time management in nursing is a challenge and challenge for the future as well, especially in nurse profession, where stress-related occupational health issues are highly common, and burnout rates are higher than in other occupations. During NURED module and learning outcome testing, practical seminars, focus group interviews and student testing feedback we got comments and appreciation from nurses about the crucial importance of stress and time management topics, as well as the related theoretical and practical knowledge and useful instruments and technics, to be implemented in nurse work everyday practice.

These previous studies show that there are some challenges regarding the wellbeing at work and also the competence level among home care nurses, partly because the character of the work has changed. According to the studies presented above competence and collaboration skills seem to play a significant part in how home care staff perceive their work and their ability to manage their work. It is shown that simulation can be an effective method to practice clinical skills but also to practice and develop skills in decision-making and collaboration. In this research project simulation will be used as a method to describe and develop competence and collaboration skills between nurses and assistant nurses in the field of home care. Clinical competence can, according to Lejonqvist et al. (2015), be made evident and developed by simulation. Simulation offers safe training of skills, problem solving, critical thinking, decision-making, communication and group- and teamwork. Clinical competence is a factor that has to be set evident in the field of homecare, since the patients in the homes require more demanding care. Therefore it is important to illuminate what the current level of competence among the staff is through simulations, and thus to develop appropriate further education for them. (Lejonqvist et al. 2015) Swedberg et al. (2015) studied the level of competence among home care

assistants that performed demanding caring tasks in the home care field and could state that the self-reported level of competence and responsibility were high among the nursing assistants. If the employees were given on-the-job training the level of self-reported competence was much higher. Clinical supervision was also associated with a higher sense of perceived responsibility. (Swedberg et al. 2015)

All these studies point out the importance of developing the education for both nursing assistants and nurses regarding competence, collaboration skills and communication, which can all be done for instance by simulations. The simulations will likely also help to understand how the nursing education could be developed so that it would give nurses sufficient competence to act in the field of homecare. Simulation as a research method can be very helpful when one wants to illuminate different behaviors among the participants and as an educational method. There might be some challenges with the method as well. In order for the simulations to be successful and reach the aims set for them the researcher has to be well prepared and plan for proper pre-briefing for all participants and try to make them as comfortable as possible.

Another challenge for the future is to pay more attention to training of care workers working at home. The training should also cover information and skill development of information technology. More and more smart devices are being used by clients and are available for them. Thus, the care worker should first of all be aware herself/himself about the possibilities provided by the e-service and e-products market, and then be able to supervise and help her/his client to use the devices and services.

Publications (traditional media)

PP3:

Reinhold, K., Tint, P., Traumann, A., Tamme, P., Tuulik, V., Voolma, S-R. Digital Support in Logistics of Home-Care Nurses for Disabled and Elderly People.

T. Ahram et al. (Eds.): Advances in Intelligent Systems and Computing. Human Interaction and Emerging Technologies IHIET 2019, Volume 1018, pp. 563–568, 2020. © Springer Nature Switzerland AG 2020 https://doi.org/10.1007/978-3-030-25629-6_87 6.3.2018

[Tamme, Piret; Tuulik, Viiu \(2018\). Info- ja kommunikatsioonitehnoloogia võimalused koduõenduses ja -hoolduses kuue riigi näitel. Ajakiri Sotsiaaltöö.](#)

Kapponen, J. Eendsalu – Lind, A, (2018). Koduõendusteenus on üks kiiremini arenenud tervishoiuteenus. Eesti Õde 4/2018

PP4:

Olsson, S., & Gustafsson, C. Employees' experiences of education and knowledge in intellectual disability practice. Journal of Policy and Practice in Intellectual Disabilities. (Resubmitted 2019).

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PP3

Presentations

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- Viiv Tuulik, “E-services and E-product in Estonia”, (NURED project), Conference on home care, September 2017

APPENDICES

APPENDIX 1: Overall SWOT-analysis of Curriculas

APPENDIX 2: Pilot testing student feedback

2a Module 1

2b Module 2

2c Module 3

2d Module 4

APPENDIX 3: Joint student testing feedback from students

3a combined

3b LP

3c PP2

3d PP3

3e PP4

APPENDIX 1: Overall SWOT analysis of the NURED aligned curricula

M 1=Team work and professional skills in home care settings/ M2= Occupational stress, stress and time management /M 3= E-services and E-products

M 4= Pedagogical attitude and way of work (PFA) in intellectual disability practice in the homecare context

<p>Strengths</p> <p>The widespread content, logical structure, Covers all important aspects Independent modules and outcomes even inside the modules – can be used by other partners as independent units Apparent that the NURED aligned curricula mirrors competence needs from home care context The aligned curricula have a content of generic competences needed in healthcare and home care Relevant learning outcomes. Compared to regular nurse education curricula (which is patient centred) NURED curricula includes nurse self-care and self-management topics. Communication and collaboration in team work is relevant for practice (M1) Critical thinking skills and abilities development during team work simulations (M1) For practicing nurses M2 is very important, and the aim of M2 seems appropriate. Self-assessment tools related to stress can be practically used. Practical instruments (M2, M3) Knowledge about e-products and services.(M3) Excellent complement with the e-learning in M4. Patients' with mental disabilities care is relevant in (home care) nursing, main point on communication skills not on disability itself (M4). All topics are generic and not completely dependent on the context, so the modules or parts of them can be divided into other courses as well.</p>	<p>Weakness</p> <p>Videos usually do not support the learning process – the presentation by video of one outcome is not sufficient (during piloting the curriculum, we'll stress out that videos about 1 LO is just one of the methods and should not be taken separately). Work – life balance as stress management is challenging to evaluate, in NURED it is included in learning outcomes: be familiar with professional quality of life concept, and well-being at work, (M2).</p> <p>In M3 CC must be continuously revised and information must be up to date, because amount of information regarding e-products and services develops rapidly In CC we mention most commonly used and acceptable e-products only. The implementation of PFA is explained in CC learning outcomes and content. Course is about knowledge, skills and understanding, detailed implementation is not described.</p>
<p>Opportunities</p> <p>Can choose to use parts from the aligned curricula to strengthen the national curricula The different modules complement each other Interesting content for work place education Modules and even outcomes can be used separately It is possible to arrange in-service training courses The target group can be wider – it even suits to relatives/ other members of the network and in broad nursing practice Content adaptation is flexible regarding national legislation and health care systems. Opportunity to get to know PFA method, not familiar previously. There is progress from EQF5 to EQF6. There is a clear progression from EQF5 to EQF6.</p>	<p>Threats</p> <p>A massive content, but all learning outcomes are relevant. In existing national nursing programs or courses it is not possible to implement all 16 ECTS, but parts will be used (courses or continuing education). Videos cannot be used at places where is no internet access. We need to take it into account in case of use of any internet based tools, videos, materials etc. There might be overlaps, with regular nursing curricula (EQF 6) content. but different aspects of the CC content are stressed in accordance to homecare context. PFA (M 4)It is not widespread in all countries, but from a teaching perspective it's relevant. E-services and products can't replace real communication, can just compliment (M3)</p>

APPENDIX 2: Student and teacher feedback of the aligned curriculum

2a. Module 1

Teamwork and professional skills in the home care setting (5 ECTS)

Course feedback/LP Arcada UAS academic year 2018-2019 (Module 1)

Of 64 participating students from Arcada UAS, 40 responded to the course feedback form (62% response rate).

Rating scale 1-6 (1= failed, 6= excellent)

- a. How do you rate the course as a whole) Average score: 4,52
- b. How do you rate your own engagement in the course? Average score: 4,35
- c. How do you rate the course material and study activities in the course? Average score: 4,5
- d. How do you rate the workload of the course considering the amount of ECTS? Average score: 5,0
- e. How do you rate the examinations in the course regarding the learning outcomes of the course? Average rate: 4,8
- f. How do you rate that you reached the learning outcomes of the course? Average score: 4,7
- g. What was good about the course? (Open-ended question, N= 25)
 - Case studies
 - All simulations (both the ones done only with nursing students and the ones done in collaboration with the vocational education students)
 - Home exam (8 students)
 - Lectures had good content
 - Good discussions during the lectures
- h. What would you change about the course? (Open-ended question, N= 17)
 - Nothing (5 students)
 - A lecture about end of life care in the homecare setting
 - The home exam could have been done in pairs; it felt lonely to complete it by oneself
 - My own participation in lectures, but luckily all materials from lectures could be found on the learning platform
 - The home exam could have been a traditional exam at school instead (2 students)
 - More practical skills and simulations because it is such a good way of learning (3 students)
 - The lecture about teamwork felt a bit repetitive (2 students)

2b. Module 2

Occupational stress, stress and time management (3 ECTS)

PP2, Rīgas Stradiņš University, 2018, 2019

Of 256 participating, 186 responded to the feedback form (72,7 % response rate).

Rating scale 1-5 (1 - poor, 2 - insufficient, 3 - average, 4 - good, 5 - very good)

1. Overall score of the seminar

1.1. What is your overall score of the seminar 5-point system? Average score: 4.7

1.2. Did the seminar was topically for you? Average score: 4.6

1.3. Did the seminar content met your expectations? Average score: 4.6

1.4. What did you think about organizational quality of the seminar? Average score: 4.8

2. Please score the below statements about the presentations from the seminar.

2.1. Overall the presentations were interesting. Average score: 4.7

2.2. Presentations were professionally prepared and delivered. Average score: 4.8

2.3. The lecture length was appropriate. Average score: 4.6

2.4. The information learned was useful. Average score: 4.7

3. What motivates you to attend seminars and trainings? (Open-ended question, N= 111)

- To gain new knowledge, information, experience and information on the newest trends in medicine (60 nurses)

- Qualification improvement, professional growth, education (38 nurses)
- Topic and topicality (19 nurses)
- Self-education (10 nurses)
- Free attendance (6 nurses)
- Personal experience with burnout syndrome and stress at work (4 nurses)
- Profession, carrying out work duties, understanding the profession better (4 nurses)
- Refreshing knowledge, repeating the forgotten (4 nurses)
- Knowledgeable lecturers, good organization (3 nurses)
- Useful information (2 nurses)
- Exchange of experience and views/opinions (2 nurses)
- Colleagues (2 nurses)
- Opportunity to look at things from a different perspective
- Hope to gain some conclusions and ideas to use in practice
- To look for answers on the opportunities of raising the quality of professional life and stress management skills

4. How do you think can motivate others/colleagues to attend seminars and training? (Open-ended question, N= 87)

- Topic and topicality (25 nurses)
- Qualification improvement, professional growth, education (20 nurses)
- Workplace management, to motivate with financial rewards, a paid day off and travel expenses for attending seminars and training (10 nurses)
- To gain new knowledge, information, experience and information on the newest trends in medicine (including psychiatric practice) (9 nurses)

- Free visit (9 nurses)
- Own motivation (9 nurses)
- To provide the information to colleagues and employees in a timely manner, to publish information of these seminars on several platforms, media involvement (5 nurses)
- Knowledgeable lecturers, good organization (5 nurses)
- Organization of seminars in the workplace or close to it (4 nurses)
- Profession, carrying out work duties (4 nurses)
- Self-education (2 nurses)
- Give more credit points (2 nurses)
- With talks, gaining interest with information (2 nurses)
- To organize seminars more, including in the regions (2 nurses)
- Suitability for nurses of different specializations
- Share knowledge with colleagues
- To organize priorities
- To inform more of the harmful risks of the work environment
- To explain that attending seminars and training is necessary in order to improve the quality of work
- Gaining experience by listening to the experience of other organizations
- To organize seminars and joining them with a creative activity, for example, a masterclass, creative workshop, entertainment
- Interest and necessity
- With gaining solutions to current problems
- To organize these during work days

- Coffee break
- Suitable time

2c. Module 3

E-services and -products in health care and welfare (5 ECTS)

PP3 Tallinn Health Care College

Training feedback (5-point scale)

General grade for the course

care workers: 4,43

nurses: 4.40

Comments:

- everything was fine
- a little bit unknown to use, but I will get used to it
- I was not satisfied with the second day
- it was fun, a lot of new ideas about innovations, about the work of home nurse
- a lot of good information, and a lot of new knowledge
- informative
- I was not satisfied with the second day, however the first lecture on that day was very good
- the second day somehow changed the overall value of the training. The subject on conflicts management. I expected that the topic would be presented by a specialist who deals with these problems daily. It was a little bit boring to attend a lecture where the text was read out loud.
- very thorough and a lot of new information
- all topics were interesting and useful
- very good additional material were in *Moodle*

- without exaggeration, the training was very good.

The actuality of topics

care worker: 4,5

nurse: 4,6

Comments:

- Yes, I think so, the next term will soon start, I hope it will be as interesting as the first one
- Yes, the topics were very actual (4 respondents)
- Yes, very useful
- Alarm buttons – new possibilities – help to patients and their families
- The topics were actual; the alarm button is now very clear. One lecture would have been enough
- Topics are actual, however there are. not enough e-solutions in Estonia
- Very actual, many possibilities are not used because we do not know about them.

Did the training meet your expectations

care worker: 4,5

nurse: 4,5

Comments:

- Yes, it was very interesting and inspiring
- Yes (2 respondents)
- It was very useful
- Enough informative
- Totally

- Yes, I received a lot of new information
- Yes, I received a lot of important information how to supervise clients and how to offer suitable solutions
- Yes, it met my expectations. Especially topics on ethics, legislation, health promotion. Glucometer, in fact everything was valuable.
- Topics were actual, however I would prefer specialist in case of each topic, the person who knows the topic more.
- I received a lot of new information, which I did not know before.
- Yes, I will wait for more information about conflicts, and also discussion. There was not enough discussion.
- The training overcome my expectations.

The practical arrangements of the training

care workers: 4.69

nurses: 4,75

Comments:

- Everything was very good. Whenever there was a problem or some conflict a solution was found quickly
- Well arranged (2 respondents)
- Good
- All lectures were professionally arranged
- Good place, coffee breaks
- Good, competent lecturers
- Through and interesting

How interesting were lectures

Care workers:4,64

Nurses: 4,6

Comments:

- Yes very, supervisors, teachers were super, and the guests were also very good

- The alarm button topic was very interesting
- Yes, were interesting (4 respondents)
- It depends on the teacher – who brought examples
- All topics were interesting
- The teacher from Social Insurance Fund and Paavo Ala
- Interesting topics – Social Insurance Fund, ethic, glucometer, health promotion

6. What could motivate others to participate

- The final result
- New things in the field of e-products an e-services
- a lot of important information
- interesting experience
- new knowledge that can be used daily work
- the course gives a lot of new information (3 respondents)
- Information that I received
- Knowledge about new possibilities
- The need to use in everyday work
- A lot of new information

2d. Module 4

Pedagogical attitude and way of work (PFA) in intellectual disability practice in the home care context (3 ECTS)

PP4 Mälardalens Högskola, Sweden

The PFA web education was scientifically evaluated in an intervention study design, where we examined the effects of using PFA web education as a complement to the Swedish national curriculum for vocational education in the course Special Pedagogics 1. The aim was to assess students' estimated effects of a PFA web education intervention in adult vocational education. The study

involved a quantitative intervention approach including two equivalent groups in an experimental design: an experimental group (n = 12) and a control group (n = 36). These groups took a pre-test and a post-test estimating their knowledge and experiences of the course. The results give empirical evidence that the informed and sustained use of knowledge building on complementary PFA web education supported students taking Special Pedagogics 1 significantly in improving their self-assessed knowledge acquired from learning about the intellectual disability practice. In general, the PFA model and PFA web education appear to be valuable tools to complement the national course, Special Pedagogics 1. Further, the PFA web education is considered to introduce guidelines and a theory for the ID practice. These findings indicate the value of the PFA web education for the Scandinavian ID practice and home care nursing educations (Olsson & Gustafsson, 2019 submitted). This study has an additional paper submitted to the vocational journal INTRA in July 2019 (Olsson & Gustafsson, 2019 submitted).

APPENDIX 3: Joint testing of learning outcomes – results

3a. Combined:

NURED: Combined results for outcomes in student testing process Autumn 2019 (total n=233)

1. Module 1:

Outcome 1./EQF 5 *be familiar with the normal ageing process and can identify variations from normal ageing* **4.81** (16 respondents)

Outcome 2./EQF 5 *be familiar with the specific care needs of the patient, including medication administration, nutrition and rehabilitation* **3.35** (20 respondents)

Outcome 3./EQF 6 *be able to plan, implement and evaluate a patient's care in the home care setting, and further to supervise other team members* **4.64** (11 respondents)

2. Module 2:

Outcome: 8./EQF5 *know concept of stress and its definitions* **4.47** (15 respondents)

Outcome 16./EQF6 *use and integrate more effective stress and time management in every day work life* **4.04** (23 respondents)

3. Module 3:

Outcome 15./EQF5 *be able to describe different e-products and e-services at the market* **3.75** (20 respondents)

Outcome 16./EQF5 *have knowledge to find information about e-services and e-products via internet* **3.65** (20 respondents)

Outcome 18./EQF6 *have knowledge to find information about e-services and e-products via internet and by using suitable networking system* **4.75** (12 respondents);

Outcomes 19./EQF6 *explain mutual connections between e-services and e-products and refer to possible problems* & 22. *supervise the patient on using e-services and products* **3.60** (30 respondents)

4. Module 4:

Outcome: 23./EQF5 *know about intellectual disability (ID) and its influence on cognitive functions applicable in home care context* **3.65** (17 respondents)

Outcome 25./EQF6: *"be able describe cognition, metacognition (mentalisation), perception and central coherence and applied in own thinking"* **4.34** (32 respondents)

Outcome 26./EQF6 *have knowledge about intellectual disability (ID) and its influence on cognitive functions applicable in-home care context and manage to solve complex and unpredictable problems* **3.60** (27 respondents)

3b. LP:

Module 2: Learning outcome feedback for outcome 16. *use and integrate more effective stress and time management in every day work life*

1. avg 4.04 (1-5 Likert scale, 23 respondents)
2. open question answers: one student thought the lecture included good points and things one maybe doesn't think about during the working day, several students wrote that this was repetition of something they learned before or already "knew this"

Module 3: Learning outcome feedback for outcomes 19. *explain mutual connections between e-services and e-products and refer to possible problems & 22. supervise the patient on using e-services and products*

1. avg 3.6 (1-5 Likert scale, 30 respondents)
2. open question answers: students asked for more actual examples of e-products, said that it was quite superficial, felt some parts of the lecture was irrelevant/unstructured and "wishy-washy".

Module 4: Learning outcome feedback for outcome 26. *have knowledge about intellectual disability (ID) and its influence on cognitive functions applicable in-home care context and manage to solve complex and unpredictable problems*

1. avg. 3.6 (1-5 Likert scale, 27 respondents)
2. only two open question answers: The student felt that the topic (PFA) and content (ID in the home care context) was very interesting, but would have needed to know more in order to implement it. Another student felt that the topic didn't quite fit in the course, or should have gained more time during the course to be a more clear part of the course. The student said that people suffering from ID is a topic that we talk too little about in the education and that it needs more focus.

3c. PP2:

In period from 1st of September till 15th of October 2019 students (professional bachelor programm "Nursing") were testing 3 outcomes from alignant curricula (NURED). In the process students also full filled feedback forms and we collect data. In general responses were positive, no comments about curricula itself. Detailed feedback in table bellow.

Module	Outcome	Evaluation			
M1	<i>be able to plan, implement and evaluate a patient' care in the home care setting, and further to supervise other team members.</i>	Number of respondents	Response rate (%)	Mean	Standard deviation
		11	92	4.64	0.50
Comments					
<ul style="list-style-type: none"> • In general, the lecture very well organized and systematized the information. However this information was already partially known from other study courses. Still it was good that it was in the context of home care. • I hope that during practice we will be able to see how the nurses plan their work and coordinate care in the context of home care. • I don't know how this will work in practice, but it looks very good in theory. 					

Module	Outcome	Evaluation			
M3	<i>have knowledge to find information about e-services and e-products via internet and by using suitable networking system.</i>	Number of respondents	Response rate (%)	Mean	Standard deviation
		12	100	4.75	0.45
Comments					
<ul style="list-style-type: none"> • I learned from the lecture a lot of new information about e-products that patients and nurses can use in their daily work and care. • I hope that during practice we will also be given examples of the practical application of these products. • It is positive that the program includes questions about e-products as it is very important nowadays. • It is desirable to include it in other courses as well. • Very interesting course, practically useful. 					

Module	Outcome	Evaluation			
		Number of respondents	Response rate (%)	Mean	Standard deviation
M4	<i>be able describe cognition, metacognition (mentalisation), perception and central coherence and applied in own thinking.</i>	32	89	4.34	0.79
Comments					
<ul style="list-style-type: none"> • Thank you for an interesting lecture! I learned a new definition and explanation of terms. • A lesson or more practical examples would have been very helpful. • I believe that I learned the basics about metacognition and mentalisation from this lecture. I hope that this knowledge will be useful for further study courses. • Interesting! 					

3d. PP3:

Module 1: Teamwork and professional skills in the home care setting (5 ECTS)

Outcome: 1. be familiar with the normal ageing process and can identify variations from normal ageing.

It was assessed by 16 students

Results:

- Strongly agreed: 13 students
- Agreed: 3 students

Module 2: Occupational stress, stress and time management (3 ECTS)

Outcome: 8. know concept of stress and its definitions

It was assessed by 15 students

Results:

- Strongly agreed: 7 students

- Agreed: 8 students

Module 4: Pedagogical attitude and way of work (PFA) in intellectual disability practice in the home care context (3 ECTS)

Outcome: 23. know about intellectual disability (ID) and its influence on cognitive functions applicable in home care context

It was assessed by 17 students:

Results:

- Strongly agreed: 0
- Agreed: 11
- Neutral: 6 students

3e. PP4:

The evaluation was conducted after a lecture on health and welfare technology based on the NURED curricula learning outcomes from module 1 and 3:

Module 1:

2. be familiar with the specific care needs of the patient, including medication administration, nutrition and rehabilitation.

Module 3:

15. be able to describe different e-products and e-services at the market

16. have knowledge to find information about e-services and e-products via internet

There were 20 participants who answered the questionnaire. The questionnaire contained three questions with a scale of 1 = No not at all to 5 = Yes, altogether.

The first question: After listening to the lecture, I got to know about special care needs of people with home care, and the need for support in drug administration, nutrition and rehabilitation had an average value of 3.35.

The second question: After listening to the lecture, I can describe different and welfare technology products / robots that are available for the home service area had an average value of 3.75

The third question: After listening to the lecture, I have knowledge and knowledge of where information on health and welfare technology is available had an average of 3.65

Free text comments from the participants/students and teachers after the lecture:

-I think it is fun to have a robot in home service but people need a lot of education to know what to do and their task.

-Very interesting!

-I was pretty negative about the whole idea of robots in healthcare but was pleasantly surprised. It was a very interesting lecture where I find that there are very smart and good ideas.

-" Easy "to understand lecture. Good language. Very informative and a good time for duration.

-Clear information. Good with examples showing how robots can be used in healthcare.

-That was interesting!

-It was a great lecture. Robots help a lot when people get sick, tired and lazy.

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