



NURSING

Advancing nursing in Italy through the development and evaluation of an innovative postgraduate programme in Family and Community Nursing - A pilot study

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Keywords

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Summary

Introduction. Due to the impact on the public health systems of the ageing and the increasing frailty of the population, the European Union and the World Health Organisation have emphasised how family and community nurses (FCNs) could play an important role in supporting the ageing process through prevention, promotion, and protection in the territory.

Methods. This study describes the first experience in Italy of a one-year postgraduate blended-learning master course divided into 5 modules for FCNs piloted as part of the European curriculum for Family and Community Nurse (ENhANCE) 2018-2020 project, funded by the European Commission. The 5 modules focused on: Epidemiology and Prevention (14 ECTS); Fundamentals of care (19 ECTS); Organisational Models and Priority Health Problems (12 ECTS); Communication Models and Continuity of Care (5 ECTS); and Nursing Research (10 ECTS).

Participants included a total of 45 students and 23 lecturers and a team of clinical tutors.

Results. The Italian pilot course for the FCNs proved to be a successful example of innovative teaching methods using blended didactic methods, which enabled participants to achieve high-standard learning outcomes and competencies in the field of family and community nursing.

Conclusions. The pilot course is well suited to preparing competent family and community nurses to meet the growing healthcare needs of the population. Therefore, we have planned to replicate this course to increase the workforce of family and community nurses, who through their healthcare services aimed at prevention, promotion and protection, will ensure high quality services to the public and consequently relieve the burden on acute hospitals.

Introduction

Increase in life expectancy is one of the greatest achievements of modern medical and technological progress. According to the 2019 Eurostat Report, in 28 European countries, almost one fifth (19.7%) of the population was over the age of 65 and, by 2050, the older population is expected to rise to 149.2 million, equivalent to 28.5% of the entire population [1]. Economic progress has also played an important role in allowing a significant improvement in general living conditions.

In this context of our modern society, it is possible to contemplate a new and stronger sensitivity towards individuals with disabilities and frailties who, as suggested by the United Nations Convention on the Rights of Persons with Disabilities, have the right to live and be socially involved in the community, in complete safety, autonomy and comfort (United Nations, 2006). The European Union highlights the important role that

the family and community can play in preventing frailty, and promoting primary health care (PHC), education, and early diagnosis [1]. Several WHO (World Health Organization) documents identify the family and community nurse (FCN) in playing a key role in the new health model focused on primary care [3, 4].

Currently, there is no standardised professional profile for the Family and Community Nurse (FCN) at a European level which, in line with the European Standards of Skills/Competences, Qualifications and Occupations (ESCO) [5] and the European Credit System for Vocational Education and Training [6], can meet the demands of the frail population in the European Union, a long-term process which poses significant health challenges at all levels.

The ENhANCE project, therefore, aimed to fill this gap by developing a standardised professional curriculum for FCNs at a European level.

To identify the core competencies for family and community nurses, an e-Delphi study was conducted

involving a panel of experts from various European countries [7]. Through the development of this project the level of specialisation of FCN nurses will increase, focusing on specific primary health care competencies and enhancing the transition from the old model of primary health care to a more innovative and advanced model, based on evidence.

The European core FCN curriculum developed on the competencies identified through the e-Delphi study, was localized and piloted in Finland, Greece, and Italy. This led to the implementation of 3 national curricula, each preceded by a local teacher training course, which involved guidelines and methodological advice on how to effectively use the online tools and blended learning methodologies proposed by the ENHANCE Project, and support the sharing of good practices among nurses. The three pilot courses all aimed at bridging the gap between currently available nursing competences and the competences required by both public institutions and private service providers.

In Italy, the pilot course was the first experience of postgraduate education based on blended learning delivered through a one-year pilot Master Course for Family and Community Nurses (FCNs), organised and implemented by the Department of Health Sciences of the University of Genoa (Italy) as part of the European curriculum for Family and Community Nurse (ENhANCE) 2018-2020 project, funded by the European Commission. Starting from the European Core Curriculum, this pilot Master course was adapted to target the healthcare needs and priorities of the Italian population.

The Italian pilot course was based on a blended learning approach, alternating e-learning and face-to-face activities.

The face-to-face activities were conducted at the University of Genoa, while the work-based learning activities were conducted in various community settings in the Liguria Region. However, it should be noted that the pilot course was held during the COVID-19 pandemic, raising many problems due to the lockdown imposed by the Italian government. Within each module, different levels of learning were identified, which could be achieved through complementary learning strategies, such as gamification [8-10]. Learning strategies were designed to ensure consistency between theory and practice. Classroom learning was supported by active teaching methods (i.e., Problem Based Learning and Case Studies) linked with laboratory activities. Internships, described as work-based learning, were conducted in person and involved introductory workshops.

STUDY DESIGN

A pilot course organised by the Department of Health Sciences of the University of Genoa in collaboration with the Istituto Tecnologico Didattico (ITD) of the National Research Council of Italy. This pilot course was based on a blended learning approach (i.e., alternating e-learning and face-to-face activities) and was divided into 5 modules.

The face-to-face activities of the Italian pilot were

conducted at the University of Genoa, while the “Work-based learning” activities (or internships) were conducted in various community settings throughout the Liguria Region.

Participants

Students

Participants included a total of 45 students. Students had to have at least one of the following qualifications (equal to EQF 6):

- a) Degree or University Diploma in General Nursing;
- b) University Degree or Diploma in Paediatric Nursing;
- c) University Degree or Diploma in Midwifery.

According to Italian legislation, university nursing degrees and diplomas are equivalent qualifications (Law n.42 of 26th February 1999).

The participants in the pilot course were predominantly female nurses (91%), with an average age of 40 years, and an average working experience as registered nurses of 12 years. All, except one, were working as nurses at the time of the course.

Students could apply to participate in the course by responding to a public announcement by Rectoral Decree of the University of Genoa (Italy).

A maximum of 50 students could be admitted to the pilot course. If the applicants exceeded the maximum number of places available, the selection would have included a written test on nursing related to the topics covered in the course, and an interview.

All the students completed the Italian pilot course for its entire duration, from January to December 2020.

Teachers

A total of 23 academic teachers were enrolled in the Italian pilot of the Family and Community Nursing Curriculum. Work-based learning was supported by a team of academic tutors experienced in community nursing.

THE PILOT COURSE STRUCTURE

Based on the 53 learning outcomes defined in the ENHANCE European Family and Community Nurse (FNC) reference curriculum, the Department of Health Sciences at the University of Genoa, delivered the FNC localised curriculum in the format of a 12-month postgraduate master course, consisting of 60 ECTS (European Credit Transfer and Accumulation System), for a total of 1500 hours of study. The ECTS system is an instrument of the European Higher Education Area (EHEA) that provides transparency to study courses by facilitating the recognition of qualifications and the valorisation of study periods abroad for students transferring from one country to another.

The modular structure of the FNC master course was designed according to the educational academic guidelines established by the Italian national legislation on professional practice and population health needs.

Five key areas of community and family nursing were used as a reference to structure the pilot course into 5 modules:

- module 1: Epidemiology and prevention (14 ECTS);
- module 2: Fundamentals of care (19 ECTS);

- module 3: Organisational Models and Priority Health Problems (12 ECTS);
- module 4: Communication Models and Continuity of Care (5 ECTS);
- module 5: Nursing Research (10 ECTS).

Module 0 (zero): The Florence Nightingale Role Model

Since this was the first time ever that in Italy a similar postgraduate course was being provided, before starting the 5-module FCN pilot course, module 0 was added to help the students familiarise with the innovative educational strategy of this course, with the new tools, such as the Open Online Tool (OOT), and with the other students attending the course.

THE OPEN ONLINE TOOL FUNCTIONALITIES

Due to the specific theoretical and practical nature of the professional profile of the family and community nurse, the teaching and learning methods involved blended learning activities, including face-to-face lectures and workshops, online learning activities supported by the use of the ENhANCE Open Online Tool (OOT) functionalities. Considering the instrumental importance of clinical training, Work-Based Learning was conducted entirely face-to-face.

The pilot course-integrated various innovative teaching and learning methods, supported by technological features, such as webinars, online forums, an online community, uploading and sharing individual tasks, gamification using “Level up” and digital badges.

The OOT also enabled gamification techniques within the pilot course to direct students towards the content by engaging them, motivating them to action, promoting learning and problem solving [8-10]. Gamification refers to the “use of game design elements (levels, badges, point systems, scores and time constraints) in non-game contexts” [8] as a powerful approach to motivate and engage learners. Challenge, curiosity, interactivity, feedback, freedom to fail are typical elements of gamification techniques [9]. The design of a pilot course promoting Self-Regulated Learning (SRL) had to meet some basic requirements, such as online learning and assessment, sharing of practices and collaboration, evaluation of online activities,

a social dimension and community building, self-regulated learning, recognition, and validation of non-formal/informal prior learning, personalisation, and openness. This was made possible using the Online Open Tool (OOT), which enabled students to practice and monitor the 4 actions of the so-called “4Cs model” (their behaviours in terms of Create, Connect, Consume, and Contribute), track and reflect on their learning progress, discuss and reflect on it with other students and teachers, plan and/or monitor and/or self-reflect on their learning journey.

The 4Cs framework for Self-Regulated Learning (SRL) can be effectively applied in knowledge-intensive domains [11, 12] of the different OOT functionalities are suited to support specific activities.

Module 1: Epidemiology and Prevention

This module included learning outcomes related to the health determinants of the population and provided an epidemiological background about the population and a general overview of the topic involved in this specific system of care. It also offered tools and methods to assess families’ health status and health needs. The learning outcomes were related to how the students competently performed their skills and activities in this field. At the end of the first module, students were awarded 14 ECTS (Tab. I).

Module 2: Fundamentals of Care

The second module on fundamentals of nursing care, focused on the values and ethics of nursing to support the safe provision of nursing care in the community. It was based on the essential needs of patients, whether they were physical, psychological or relational, and it drew students’ attention on the respective nursing sensitive outcomes. This was the key module of the entire Master course, comprising 19 ECTS (Tab. II).

Module 3: Organizational models and Priority health problems

The third module focused on organizational models, interprofessional work and nursing leadership. It aimed to develop students’ ability to work and collaborate within a multidisciplinary team, but also knowledge and

Tab. I. Module 1: Epidemiology and prevention.	
EU Core Curriculum Learning Outcomes	
LO 1a	Identify and assess individuals’ health status and health needs
LO 1b	Identify and assess families’ health status and health needs
LO 1c	Contextualize and apply needs assessment taking into account cultures and communities
LO 3a	Plan nursing care to meet the needs of individuals, families, and the community within their scope of competence
LO 3c	Assess nursing care to meet the needs of individuals, families, and the community within their scope of competence
LO 19a	Assess community health needs in a multidimensional perspective
LO 19b	Identify the appropriate clinical interventions and care management strategies for communities
LO 17a	Know community health promotion goals
LO 17b	Carry out health promotion programs and activities that meet the community’s goals
LO 18a	Evaluate policies for health promotion at family and community level
LO 18b	Effectively coordinate, develop, and implement policies for health promotion at family and community level

Tab. II. Module 2: Fundamentals of care.	
EU Core Curriculum Learning Outcomes	
LO 21a	Assess the social, cultural, and economic context of patients and their families
LO 2a	Know the main professional ethical standards
LO 2b	Take decisions based on professional ethical standards
LO 23a	Know and apply communication, counselling and negotiation strategies and techniques with different actors
LO 25a	Know strategies and techniques for mentoring students and apply them in daily practice
LO 6a	Know the main communication strategies and techniques which can be adopted by a FCN and apply them to specific contexts and needs
LO 15a	Know professional standards and act in compliance with them
LO 20a	Know the main ethical principles to manage disparity and diversity and apply them in daily practice
LO 27b	Effectively address problems related to health and illness through the multidisciplinary team
LO 9a	Know the main guidelines, procedures and tools for the monitoring and the definition of the outcomes and apply them in daily practice
LO 12a	Know the main standards about nursing activities in people's homes and apply them in daily practice
LO 12b	Know the main standards about nursing activities in the community and apply them in daily practice
LO 12c	Evaluate the outcomes related to nursing activities in people's homes
LO 12d	Evaluate the outcomes related to nursing activities in the community
LO 7a	Know the main guidelines and procedures for palliative care and apply them in daily practice
LO 7b	Know the main communication and counselling techniques to manage relations with patients (and families) in palliative care

skills on how to apply leadership techniques, decision making, advanced strategies and teamworking skills. At the end of this module the students were able to:

- recognize the main characteristics of chronic and rare diseases that could be remotely monitored;
- apply main guidelines regarding the monitoring process and the expected outcomes;
- plan and prioritize the activities of the multidisciplinary team to address problems related to health and illness;
- after completing the third module, the students were awarded 12 ECTS (Tab. III).

Module 4: Communication Models and Continuity of Care

The fourth module on communication focused on the management of the healthcare processes to ensure care continuum between the hospital setting and

the community, as well as educational strategies for individuals and families. It included learning outcomes related to the main educational strategies, which could be adopted to promote health and safety of individuals and families, as well as the main educational strategies for patient education and for building an effective therapeutic relationship with patients and families and applying them in daily practice. The module also explained how to engage individuals and families in the decision-making process, and how to apply strategies and techniques to motivate health workers and engage them in the promotion of community healthcare (Tab. IV).

Module 5: Nursing Research

The fifth module was developed to support evidence-based nursing practice, ensure the safety and appropriateness of nursing care, and provide the appropriate knowledge and skills to maintain the level achieved. It included

Tab. III. Module 3: Organizational models and priority health problems.	
EU Core Curriculum Learning Outcomes	
LO 3b	Implement nursing care to meet the needs of individuals, families, and the community within their scope of competence
LO 22a	Know and apply leadership techniques that ensures clinical and healthcare effectiveness and appropriateness
LO 22b	Know and apply decision-making techniques that ensure clinical and healthcare effectiveness and appropriateness
LO 4b	Know unique needs of sub-populations and detect and contrast the main inequities which affect them
LO 15b	Know advanced strategies and techniques of team working and professional collaboration and apply them to specific contexts and needs
LO 8a	Know and evaluate the main problems and needs which could affect workers in a specific community context.
LO 14a	Know which changes are needed to improve FCN practice and act in order to target and reach them
LO 13a	Work and collaborate in a multidisciplinary team to address problems related to health and illness
LO 13b	Plan and prioritize the activities of the multidisciplinary team in order to address problems related to health and illness
LO 27a	Work and collaborate in a multidisciplinary team to prevent disease and to promote and maintain health
LO 24b	Know the main characteristics of chronic and rare diseases which could be monitored at distance and apply the main guidelines about the monitoring process and the expected outcomes

Tab. IV. Module 4: Communication models and continuity of care.	
EU Core Curriculum Learning Outcomes	
LO 11a	Involve individuals and families in decision-making process
LO 5a	Know and apply the main educational strategies which can be adopted to promote health and safety of individuals and families
LO 16a	Know the main educational strategies for patient education and apply them in daily practice
LO 16b	Know the main strategies and techniques for building an effective therapeutic relation with patients and families and apply them in daily practice
LO 8b	Know and apply strategies and techniques to motivate workers and to engage them in community healthcare promotion

learning outcomes related to the main elements/guidelines/procedures/theories to enhance and promote health and prevent disease and injuries in individuals, families, and communities, to foster inclusiveness, and effectively use scientific evidence. It also focused on learning outcomes related to the knowledge and use of standardized and validated tools in order to evaluate their own practice, and the main monitoring and reporting procedures to document their own practice. This module also focused on learning outcomes related to knowing the main computer technologies that enable to support health promotion, education, and treatment of patients remotely and how to use the most common digital tools. At the end of the fifth module, students were awarded 10 ECTS (Tab. V).

THE PILOT COURSE AND THE APPLIED LEARNING STRATEGIES

The learning strategies and outcomes were designed to foster continuity between theory and practice; classroom learning is supported by active teaching methods (e.g., practice-based learning and case studies), which allow to link with laboratory activities (e.g., role playing in the simulation lab). Work-based learning (e.g., through placements in community care centres) are always provided in presence and require introductory workshops. In addition, an Open Online Tool was available, which served as a platform for sharing information, learning, teaching and assessing students’ progress. “Online Collaborative Learning” involves learning processes based on computer-mediated interactions between members of a learning community. This

educational approach emphasises the active and collective participation and interaction of both students and teaching staff, mainly through communication via the Internet [12].

The structure of the Italian pilot course for Family and Community Nurses (FCN) was built considering the “Learning Designer (LD)” tool. The Learning Designer is a web-based tool created by the London Institute of Education to integrate technology into the teaching and learning process. It can be used in any educational sector and for any learning context: traditional classroom, online or mixed.

When designing learning and defining which methodologies to use, the following elements need to be taken into account: the size and composition of the student cohort, the students’ background and preferred learning styles, the teachers’ skills and preferences, the students’ self-regulation skills, the technological skills of teachers and students, the time available, the resources available (human, material and digital) and the nature of the content. The interplay between these elements guides teachers’ decision-making to create a coherent learning plan that effectively addresses students’ needs. The preparation of Technology-Enhanced Learning (TEL) interventions is the most challenging part of the process [14].

Different teaching methodologies are generated by the different orchestration of the 4 fundamental elements (4Ts) of collaborative online learning: the script/scenario (TASK), the cast (TEAM), the duration of each scene (TIME) and the set (TECHNOLOGY) [15].

Below are some of the methodologies used in the Italian pilot course.

Tab. V. Module 5: Nursing research.	
EU Core Curriculum Learning Outcomes	
LO 4a	Know the main elements/guidelines/procedures/theories to enhance and promote health and prevent disease and injuries in individuals, families and communities and to be able to apply them in daily practice
LO 20b	Know the main guidelines to foster inclusiveness and apply them in daily practice
LO 10a	Know and use standardized and validated tools in order to evaluate their own practice
LO 10b	Know and use the main monitoring and reporting procedures in order to document their own practice
LO 26a	Know the main scientific evidence databases and make an effective search
LO 26b	Use the best scientific evidence properly and apply them in daily practice
LO 24a	Know and use the main procedures and tools for monitoring people affected by chronic and rare illnesses
LO 28a	Know the main ICTs supporting health promotion and education and use the most common ones
LO 28b	Know the main ICTs supporting the treatment of patients at distance and use the most common ones
LO 28c	Know the main ICTs supporting distance health monitoring and use the most common ones

The Jigsaw methodology

Jigsaw, one of the techniques used in the implementation of cooperative learning, offers support to help students work together, replacing competition with cooperation. It is often considered as an alternative to traditional teaching methods [16]. The Jigsaw technique can be applied in different areas of science, including social and medical sciences [17, 18].

It consists of two phases and enables knowledge construction through collaboration, such as collaborative problem solving [19], provides equal learning opportunities and facilitates communication between students with different learning experiences [20].

Individuals need to cooperate with others to complete learning tasks that are not based on a predetermined set of answers and solutions. In this way, cooperative learning becomes meaningful (logical) for individuals [21].

Students exhibit different learning and social behaviours while seeking information and identifying possible solutions to questions or problems. In this process, students change their views about a topic, expand their understanding, and discuss how to combine the data they have collected with their plans to perform a task [22]. As a result of this active participation, each group member is able to learn the concepts they are focusing on [23].

The Peer Review methodology

The potential benefits of peer learning have long been recognised. In the academic world, various forms of peer, collaborative or cooperative learning, particularly small group activities, have increasingly been used to help students meet a variety of learning outcomes [24]. Therefore, the “Peer Review” methodology has been used for decades in across a wide range of disciplines, from Architecture to Music and Computer Science or Mathematics [25].

This methodology is associated with collaborative learning because it requires students to evaluate the work of their peers and provide them with feedback and effective feedback can increase students’ motivation, change their behaviour, and improve their learning.

However, the application of peer assessment entails a change in the traditional assessment modelling the sense that students play a more active role, managing their own learning and participating in it. Peer review is one way of doing this. Since peer review reduces dependence on “experts”, it could be useful also in the workplace [26].

The Learning Pyramid methodology

The “pyramid of learning”, sometimes referred to as the “cone of learning”, developed by the National Training Laboratory, suggests that most students remember only about 10% of what they read from textbooks, but retain almost 90% of what they learn through teaching others. The pyramid of learning model suggests, therefore, that some study methods are more effective than others and that varying study methods results in deeper learning and longer-term retention [27].

The pyramid technique usually has at least three phases and it is used when there is a need for convergence of a

large group on a shared solution for a wicked problem (i.e., one that does not have only one right solution). In the first phase, each student devises a solution to the problem. In the second phase, dyads or groups of three work together by comparing the individual solutions and working out a better one by negotiating between the individual solutions. In the subsequent phases, groups merge and participants build new “shared” solutions based on those elaborated during the previous phase, until the whole cohort of students produces a single solution progressively built on top of the pre-existing ones.

Therefore, this usually involves the teacher or lecturer providing students with a learning task that they can observe, where active learning leads to a greater understanding. The key to mastering a concept is to teach it to others. In order to be able to teach or explain a topic to others requires an excellent grasp of the concepts, and superior retention.

The “Debate” and “Role Play” methods

Debate and Role Play are increasingly used in various undergraduate medical schools around the world, as they have proven to be particularly effective for learning critical thinking and communication skills [28]. Since these techniques are easily adaptable for use in the nursing profession and to be combined with other approaches, they enabled to integrate case studies, simulations, and PBL in the present Italian pilot course. The “Debate” technique has a low degree of structuredness and involves two main phases: in the first phase students are asked to study learning materials concerning a given problem (or case or theme) assigned by the teacher or tutor, while in the second phase they work in groups to negotiate their solution to the problem and produce an artefact reflecting the negotiation results. The debate technique lends itself to tackling complex problems such as, for example, case studies, where critical thinking, reflection and creativity need to be fostered and reflection is fostered by the asynchronous nature of the interactions.

The “Role Play” technique requires participants to “play a role”, putting themselves in the shoes of someone else, whose perspective of a situation or an issue is different from their own, so that they better understand and appreciate their point of view. There are two phases to this technique: the first phase entails role uptake and study of materials (keeping an eye on the role taken), the second entails producing a common artefact by negotiating with peers its content from the perspective previously assumed. This technique has been used to recreate meaningful and realistic simulations.

Using a combination of the “Role Play” and “Debate” learning modes, students are encouraged to reflect on their progress towards their professional roles and responsibilities.

In debates, students argue two or more sides of an issue by bringing in important facts and points. Role-playing is a technique in which students are presented with roles in the form of a case or scenario, and then act out the roles,

in order to experience them for educational purposes and is, therefore, a spontaneous human interaction involving realistic behaviour in artificial or imagined conditions. If used correctly, role-play and debate can create educational memories that could last a lifetime and offer students to opportunity to step out of their role of learners, which often tends to be passive. This brings diversity, fun, motivation, and a change of pace in teaching and learning. In the end, students gain a better understanding of the topic simply because they play an active role along the learning process [28].

Problem-based Learning methodology

Problem-based learning (PBL) is an educational approach that is increasingly used by many health professional training programs around the world [28]. The PBL approach promotes the use of social learning principles, which prompts group discussion and therefore contributes to the development of interpersonal, communication, and presentation skills, increased knowledge retention, improved problem-solving skills and better integration of basic science and clinical skills. Factors proposed to influence the effectiveness of PBL include the problems presented, facilitators, students, and the small group discussion process [29].

Instead of requiring students to study content knowledge and then context-free problems, PBL incorporates students' learning processes into real-life problems. The effectiveness of PBL in facilitating students' problem-solving and self-directed learning skills has been widely reported in medical education [30, 31]. PBL has also become increasingly popular across all disciplines in higher education [32, 33].

In PBL classes, students encounter the problem before learning, which contrasts with centuries of formal education practice, where students are expected to master the content before encountering a problem and attempt to apply the content. PBL is supported by theories of situated learning, which assume that learning is most effective when embedded in authentic tasks that are anchored in everyday contexts. In everyday life and professional life, people are constantly solving unstructured problems, those that have multiple or unknown objectives [34, 35].

Knowledge construction is stimulated by the problem and applied back to the problem. This teaching methodology is student-centred and self-directed, so that students individually and collaboratively take responsibility for generating questions and learning processes through self- and peer assessment and access to their own learning materials. In this context, teachers are not disseminators of knowledge, but facilitators who support and shape reasoning processes, group processes and interpersonal dynamics, probe students' knowledge in depth, and never intervene in the content or provide direct answers to questions.

The PBL learning process normally involves the following steps:

- students in groups of five to eight meet and discuss about the problem. They try to define and

articulate the problem and set learning objectives by identifying what they already know, what hypotheses or conjectures they have, and what learning activities are required and who will perform them;

- during self-directed study, individual learners complete their own learning tasks. They collect and study resources and prepare reports to the group;
- students share their learning with the group and revisit the problem, generating further hypotheses and rejecting others based on their learning;
- at the end of the learning period, which is usually one week, students summarise and integrate their learning [36, 37].

The Italian pilot course, by making use of Self-regulated Learning, also enabled students to control their own learning actively and consciously in terms of cognition, motivation and behaviour through experience and self-reflection [38, 39]. Teachers, as suggested by Pintrich (1995), stimulated and helped students to take responsibility for their own learning by offering instructional activities that provided opportunities for self-regulation.

Work-Based Learning

Work-Based Learning (WBL) activities are instrumental for the professional preparation of Family and Community Nurses, and in fact these were implemented throughout the pilot to achieve 11 specific learning outcomes (Tab. VI).

COURSE OUTCOMES

Twelve months after its inception, the first Italian blended learning Master Course for FCN was completed, highlighting a number of important outcomes that are described below.

Module 0

As already mentioned, the 0 module was introduced into the course structure to allow students to become familiar with the innovative teaching methods used and the functionalities of OOT.

Online activities were initiated by drawing from the story of Florence Nightingale's life, which was used as a virtual exemplar that the students could use while learning about family and community nursing during the pilot course.

After all the students had practised using the OOT, Florence (one of the Pilot's tutors) launched the first Forum to facilitate socialising. All the students introduced themselves to the others and talked about their professional experiences, skills, and expectations after the successful completion of the one-year pilot course. This also facilitated the recognition of prior learning.

This activity was completed in 2 weeks, and all the 45 students actively participated by posting their contributions on the Forum. At the end of this activity, Florence (the tutor) summarised the students' presentations and described their most relevant characteristics. The students' work experiences varied greatly, thus increasing the richness of their skill mix and potential as Family and Community Nurses. Many of the students demonstrated

Tab. VI. General outline targeted learning outcomes, Work-Based Learning topics, and learning assessment tools.

Targeted learning outcomes	WBL topics	Tools for assessment
LO1b Identify and assess families' health status and health needs	Nursing assessment and plan of care in community and family setting	OSCE
		WBL-REPORT
LO3a Plan nursing care to meet the needs of individuals, families, and the community within their scope of competence	Nursing assessment and plan of care in community and family setting	OSCE
		WBL-REPORT
LO19b Identify the appropriate clinical interventions and care management strategies for communities	Ageing and chronic disease processes	OSCE
		WBL-REPORT
LO21a Assess the social, cultural, and economical context of patients and their families	Fundamentals of care in community and family nursing care	OSCE
		WBL-REPORT
LO23a Know and apply communication, counselling and negotiation strategies and techniques with different actors	Communication patterns and family relationship in community and family setting	OSCE
		WBL-REPORT
LO27b Effectively address problems related to health and illness through the multidisciplinary team	Diagnostic therapeutic care pathways	OSCE
		WBL-REPORT
LO12c Evaluate the outcomes related to nursing activities in people's homes	Nursing-sensitive outcomes in community and family nursing care	OSCE
		WBL-REPORT
LO12d Evaluate the outcomes related to nursing activities in the community	Fundamentals of care in community and family nursing care	OSCE
		WBL-REPORT
LO13a Work and collaborate in a multidisciplinary team.	Team building in the community and family setting	OSCE
		WBL-REPORT
LO13b Plan and prioritise the activities of the multidisciplinary team in order to address problems related to health and illness	Organisational models in community and family setting	OSCE
		WBL-REPORT
LO10b Know and use the main monitoring and reporting procedures in order to document their own practice	Evidence-based nursing in community and family setting	OSCE
		WBL-REPORT

OSCE: Objective Structured Clinical Examination; WBL: Work-based learning.

significant levels of competence, which enabled to improve the quality of the group activities. By sharing their competencies with all their peers, these students became the key facilitators of all the group activities implemented in the 5 modules of the Italian pilot course.

The impact of the Open Online Tool on students

An *ad hoc* questionnaire was developed to evaluate the impact of the OOT on the students at the end of the course. Of the 45 students, 23 completed the questionnaire on a voluntary basis.

The questionnaire was composed of 43 items, the first 19 investigated personal experience with the OOT tool, a second section consisting of 12 items investigated the functionality of the tool in terms of ease of use, and the last 12 items, which constituted the third section of the questionnaire, investigated the functionality of the tool in terms of usefulness.

Each question asked respondents to express their level of agreement on a 5-point Likert scale (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). For the data analysis, the responses were categorised into three levels: positive (strongly agree and agree), neutral (neither agree nor disagree, no response), negative (disagree, strongly disagree).

In general, no items reported a negative evaluation, 2 items (4.7%) reported a neutral evaluation, 41 items reported a positive evaluation (95.3%) of the OOT tool.

First section students' "general experience with the instrument"

Overall values of the section: for 51.9% of the students their general experience with the instrument was positive, neutral for 39.1%, and negative for 8.9%.

The items with the best ratings were the following:

- “In general, I could complete any desired task with the OOT if I had specific training on it” (73.9%);
- “The OOT has good functionalities (e.g. those that support participation, sharing, evaluation of students’ previous skills, etc.) (65.2%);
- “The use of the OOT in my vocational training has increased the effectiveness of my learning process” (56.5%);
- “As an overall evaluation at the end of the training, I can say that navigation within the OOT was intuitive”(56.5%);
- “As an overall evaluation at the end of the training, I can say that it was easy to remember how to perform tasks using the OOT”(56.5%);
- “In general, I could complete any desired task with the OOT if I could ask someone to help me when I get stuck”(56.5%);
- “In general, I could complete any desired task with the OOT because I saw someone else using it before I tried it myself” (56.5%).

All the items in the section related to experience with the Open Online Tool (OOT) received a positive evaluation, except for two items “The use of OOT in my professional training made me to save time” and “As an overall evaluation at the end of the training, I can say that interacting with the OOT was effortless” which received a neutral evaluation.

Second section, “Ease of using the Open Online Tool (OOT)”

Overall results of the section: for 61.2% of the students, the OOT was perceived as easy to use, moderately difficulty for 33.7%, and difficult for 5.1%.

“Group Webinar” was found to be the easiest section to use (82.6%), followed by “Webinar” (78.3%) and “Forum” (73.9%); no functionality was rated as not useful, while the “Nurse Sally” functionality was rated as easy to use for 50% and neutral for the remaining 50%.

Third section, “Usefulness of the Open Online Tool (OOT)”

In general, this section is the one that reported the highest positive values; overall, 63.4% of the students found the OOT useful, 34.10% expressed a neutral opinion, while 2.5% found it useless or not very useful.

More specifically, “Group Choice” and “Group Webinar” were the activities evaluated as most useful (78.3%), followed by “Forum” (73.9%) and “Quiz” (69.6%).

All activities were evaluated as useful except “Digital Badges”, which was assessed as neutral.

STUDENTS’ WORK-BASED LEARNING EXPERIENCE

To complete the work-based learning experience envisaged in the Italian pilot course project all students were assigned to a specific location, where they mainly conducted observation activities to collect information about the geography of their area and conduct a general description of their district, such as boundaries, land mass, traffic patterns, amenities, and services available

in the community using a validated community profile template.

They also collected data describing the socio-economic characteristics of their area, such as, type of family and networks, main religious beliefs, health literacy, language, types and rates of employment, type of housing, deprivation index, specific community development projects, and cases of self-neglect. Students were also asked to collect data on public, private and voluntary health services available in their assigned area. Then they collected data regarding health status indicators for the summarised care groups, including caseload data (all care groups) and target data (i.e., key performance indicators) at local, regional and national levels, as well as data regarding (a) the number of families connected to social workers, the number of people with disabilities, in mental health services, groups of adults living in the area under and over 65 years and the age decades (65, 75, 85, 95 years), the number of people with respite or home care packages, and the number of people with clinical needs. Finally, their Work-Based Learning activities included describing existing and proposed workloads based on the information they had collected.

Once the students had collected all these data using a dedicated template on a mobile device (e.g., iPad, laptop, iPhone, etc.), they uploaded their templates with this information and shared them with other students and their teachers using the OOT Forum feature, through which they conducted a discussion to identify the top 3 priorities that were needed to meet the needs of the population living in their community. This process will enable them to identify, design and deliver the most appropriate interventions to address the priorities they identify.

Community Profiling is the collection of data about a particular community as described above that can be used as a resource for change, where practice can be managed, measured, and evaluated [40] and is the tool through which FCNs can proactively meet the needs of the population by developing appropriate services.

Through the “Community Profile Template” tool, the needs of the following districts in Liguria were analysed: Pedemonte (Serra Riccò), Mezzanego, Savona, Murialdo (SV), Calice al Cornoviglio, Carcare (Val Bormida), Lumarzo (Tab. VII, Fig. 1). For each of these districts, the “Community Profile Template” enabled to identify the priorities useful for meeting the needs of the population in line with regional and national objectives.

LIMITATIONS

The Italian pilot course was held during the COVID-19 pandemic, raising many problems due to the lockdown imposed by the Italian government, especially regarding face-to-face teaching sessions and work-based learning modules. Furthermore, the use of an *ad hoc* unvalidated questionnaire to investigate students’ satisfaction with the OOT may have undermined the quality of the data collected with this instrument.

Tab. VII. The healthcare needs of the population in the Liguria Region.

Areas	Priorities to meet the needs of the population in line with regional and national targets
Pedemonte di Serra Ricco'	Set up home care services and/or outpatient clinics to provide services (those provided by local health authorities were insufficient) Open a new nursing home for older people (the closest ones are in Sant'Olcese, Bolzaneto, Pontedecimo)
Mezzanego	Reduce the fragmentation of services (facilitating accessibility) Increase communication between the hospital and the community Introduce FCNs
Savona	Strengthen cooperation between local public authorities and the headquarters of the respective Ministries and Institutes Reinforcing the exchange of knowledge and information specific to each of the sectors involved Implementing the development of organisational arrangements
Murialdo	Organising activities aimed at identifying apparently healthy people with increased risk for metabolic syndrome and introducing them to specific programmes to decrease future adverse outcomes of hypertension and hyperglycaemia Intervene with activities to promote greater adherence to organised screening programmes, with a focus on the cervix uteri and colon-rectum Designing actions to increase participation in flu vaccination campaigns by people with at least one chronic disease in the 18-69 age bracket, given the importance of this indication, especially during the current COVID-19 pandemic, and contrasting misinformation on the subject Strengthening public transportation by providing alternative means of transport for a specific category of users who have difficulty walking and are therefore unable to use the few available public means of transport with stairs, and for all the disabled: setting up a time bank involving associations and social services Delivering hot meals at home for the inhabitants of the hamlets or for those who cannot move with details to be defined with the social services (family income, multimorbidity, unable to walk) using the kitchen of the Al Ponte di Murialdo restaurant, already offers this service privately on a daily basis for villagers who can leave their homes
Calice al Cornoviglio	Collaboration with the Municipality and local health authority to introduce the Family & Community Nurses and their mandate to the population, by sending out information leaflets Create a meeting place at the local ACLI association for possible recreational/sports activities Have a means of transport (e.g. minibus) to help to gather the population for meetings at a pre-established location and other needs (e.g. Adaptive physical activity, recreational activities)
Carcare (Val Bormida)	A nursing outpatients' clinic next to the office of the GP, to preventively intercept chronic diseases, such as diabetes, hypertension and obesity Improve transportation network for older people Healthcare education in the community regarding chronic diseases, like diabetes, hypertension, and obesity
Lumarzo	Increase involvement, awareness-raising of the population Increase the involvement of the population in public interventions concerning health status and its determinants: increase information and educational for individuals and groups Go from the "FCN interview" to the relationship of trust to build the reliability that the FCN role requires

Fig. 1. Map of the territories of the Liguria Region where the work-based learning sessions were carried out.



Discussion

The strengthening of an integrated care network among all social and health workers has been recognised as a common need throughout the Liguria Region. This is where the new professional figure of the family and community nurse (FCN) plays a key role. The geological characteristics of the Ligurian territory also brought to light the need to invest in a dedicated transportation network for disabled people, currently lacking in several areas of the Region, so that social and healthcare services are easily accessible also to the older population.

The pilot course described in this paper is well suited to the growing healthcare needs of the population and to appropriately address the important public health challenges also in the near future. Therefore, there is a great demand for highly competent family and community nurses also in the long term. Consequently, we plan to refine and replicate this course to prepare a highly skilled and competent workforce of family and community nurses, ready to provide their high-quality services to the public and at the same time relieve the healthcare burden on acute hospitals. This new generation of family and community nurses will also have the skills and knowledge to collect essential data to create a community profile, which will be essential for defining, designing, and delivering targeted interventions that effectively address the needs and health priorities of the community, and which could be used by nursing leaders to help public health policymakers make informed decisions.

FCNs will need to stay united and collaborate to share a path of progressive growth to unleash the potential of this “new” professional through measurable and verifiable results.

Conclusions

This study describes an innovative model for defining a postgraduate course based on a validated European core curriculum of the Family and Community Nurse, a new and emerging key professional to practising prevention, promotion, and protection of the public more extensively in the territory.

The Italian pilot course for the FCNs was a successful example of innovative teaching which, by using blended didactic methods achieved high levels of participant involvement and effective teaching and learning tools and activities. In fact, the OOT was perceived as a useful tool especially regarding group activities (choice of groups, group webinars) demonstrating that group work and debate generate professional growth.

The Family and Community Nurse is an emerging professional figure that needs to develop, consolidate, and establish itself. This process can be facilitated and enhanced through inter-professional teamwork. The

OOT, which was set up during the pilot course and remained alive even after the end of the training course, constitutes the virtual commonplace where to build professional unity, debate, and exchange to establish this new type of nurse professional.

Furthermore, the structure of the pilot course proved to be effective in conveying the educational contents of the FCN curriculum, in fact new editions of this master course are being planned for the future. This will increase the number of highly competent FCNs and consequently improve the fulfilment of community needs.

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Conflict of interest statement

The authors declare that there are no existing or potential conflicts of interest of financial, personal or any other nature that could affect or bias the results of this study.

Authors' contributions

The individual contributions of authors to the manuscript are as follows:

AB, LS, FP, GC, MZ, RC, and LV contributed to the conception and the design of this study.

AB, LS, LV, RC, MB, MG, MS, LB, GR, GS, LB, MZ, GC, and FM contributed to data collection, analysis, and interpretation.

MEM, GA, AB, and LS have been involved in drafting, editing and revising critically this manuscript.

All authors have read and approved the final manuscript

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