



**BeEmTel - Beyond the Emergency:
Telecare for Non-Communicable Diseases
through Simulation Techniques**

DIGITAL TOOLKIT



Co-funded by
the European Union

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BeEmTel PARTNERSHIP



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INTRODUCTION

The European Erasmus+ Key Action 2 Strategic Partnership project BeEmTel - Beyond the Emergency: Telecare for Non-Communicable Diseases through Simulation Techniques was conceived in response to the recent pandemic crisis. The COVID-19 pandemic exposed the vulnerabilities of both the healthcare system (Italian and European), particularly in relation to the care of frail patients, and the professional training system, which remains unable to address the significant challenge of reforming the methods of treating and monitoring chronic patients.

Various chronic diseases are associated with a progressive decline in functional capacity, leading to a persistent need for long-term care. At the European level, these diseases account for approximately 80% of deaths in people over 65 years of age. By 2050, the proportion of older adults in Europe is likely to double from 11% to 22% of the total population. Most non-communicable diseases (NCDs) are closely linked to aging, including type 2 diabetes, obesity, respiratory and heart diseases, and dementia, to name a few. NCDs are gaining increasing attention in the EU due to their impact on premature mortality, as well as the levels of social and economic care they require. The efforts to contain the COVID-19 pandemic have highlighted the need to improve the quality of care for NCD patients and to mitigate the negative impact they have not only on patients but also on their families and society in general.

To ensure consistent and high-quality support for NCD patients, their families, and caregivers, it is necessary for medical care to be increasingly decentralized at the local level. In the future scenario, we expect that the new profile of a healthcare and social care professional will need to include additional advanced skills. Doctors, nurses, psychologists, and psychiatrists will increasingly require multidisciplinary training that includes digital skills and more specific practical and clinical competencies. However, there is no widespread availability of specific courses and exams on the characteristics of telecare at the European level, which, in practice, is not taught during the ordinary academic degree course in medicine or nursing. Specialized training, when possible, is filled in later in a phase of working life that is already professionalized.

We strongly believe that by integrating telemedicine into degree curricula, medical schools can enhance learners' education by equipping them with essential competencies for patient care. This approach not only provides valuable training but also has the potential to significantly reduce healthcare costs and improve patient access to care.

The pilot e-course proposed by the BeEmTel project seeks to fill this serious and educational gap.

The BeEmTel partnership consists of 7 partners (5 countries), including 5 university institutions: the University of Eastern Piedmont (UPO) which is the lead organization (Italy), Ludwig-Maximilians Universitaet Muenchen (LMU) (Germany), the University of Thessaly (UTH) (Greece), the University of Applied Health Sciences Zagreb (ZVU) (Croatia), the George Emil Palade University of Medicine, Pharmacy, Science and Technology of Targu Mures (Romania), and two national public bodies, the Higher Institute of Health (Italy) and the Ministry of Internal Affairs - Bucharest (Romania).

The Partnership is convinced that there is an urgent need to promote strategies to improve teaching methods in clinical practice, both face-to-face and remotely. This is essential in order to meet the needs and ongoing attention required by the most vulnerable subjects with NCDs, and at the same time address the need for support from family members and caregivers. The pandemic crisis has accelerated the adoption of remote simulation (i.e., live simulation of clinical observation scenarios), enabling inclusive and high-quality multidisciplinary training aimed at a variety of recipients with social and economic difficulties, educational differences, and physical impairments. BeEmTel is in line with the requirements of the Digital Education Action Plan 2021-2027, as digital technology, together with innovative education programs, can help prepare university students and future professionals to develop advanced digital and technological skills.

Objectives The general objective of the BeEmTel partnership is to create an innovative European curriculum dedicated to Telecare for chronic diseases through educational tools based on remote simulation techniques. BeEmTel believes that remote simulation techniques - such as Telesimulation - should be implemented by university students as early as undergraduate courses. Telesimulation refers to a new teaching methodology in which telecommunication and healthcare simulation are combined to provide effective educational support. One of the aims of the advanced training project is precisely to disseminate theoretical and applied knowledge through high-fidelity simulations. This knowledge will be useful for developing a new clinical and decision-making approach as future professionals.

The specific objectives of the project are two:

1. The creation of the course (divided into 2 parts, each of 80 hours).
2. Creation of the freely downloadable Digital Toolkit.

Methods The course is completely free and was initially designed for 250 participants, which was extended to 385 at the completion of the registration process on April 25, 2023. The course was delivered online through a dedicated platform managed by UPO in collaboration with the Simnova Simulation Center. Officially launched on May 15, 2023, the course concluded with a final multiple-choice test on January 15, 2024. The total duration amounts to 80 hours, to which must be added another 80 hours of practice in the Italian (Simnova di Novara) and German (INM-HSC di Monaco di Baviera) simulation centers. However, the 80 hours of practice were reserved only for 50 students who were selected at the end of the course. The BeEmTel learners who actually left for the immersive experiences in Novara and Munich were 45 (22 in Novara and 23 in Munich): 6 students from the Greek partner (UTH), 5 from UMFST, 5 from ZVU, 2 from LMU and 4 from UPO as regards Novara, while 6 students from the Greek partner (UTH), 5 from UMFST, 5 from ZVU, 2 from LMU and 5 from UPO as regards Munich.

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The Transferability Perspective

The Transferability Digital Toolkit (TDT) aims to support public and private institutions that wish or need to design, develop, implement, and promote teaching-learning strategies on Teleassistance, applied to chronic diseases and emergencies, through both traditional and innovative Medical Simulation methodologies.

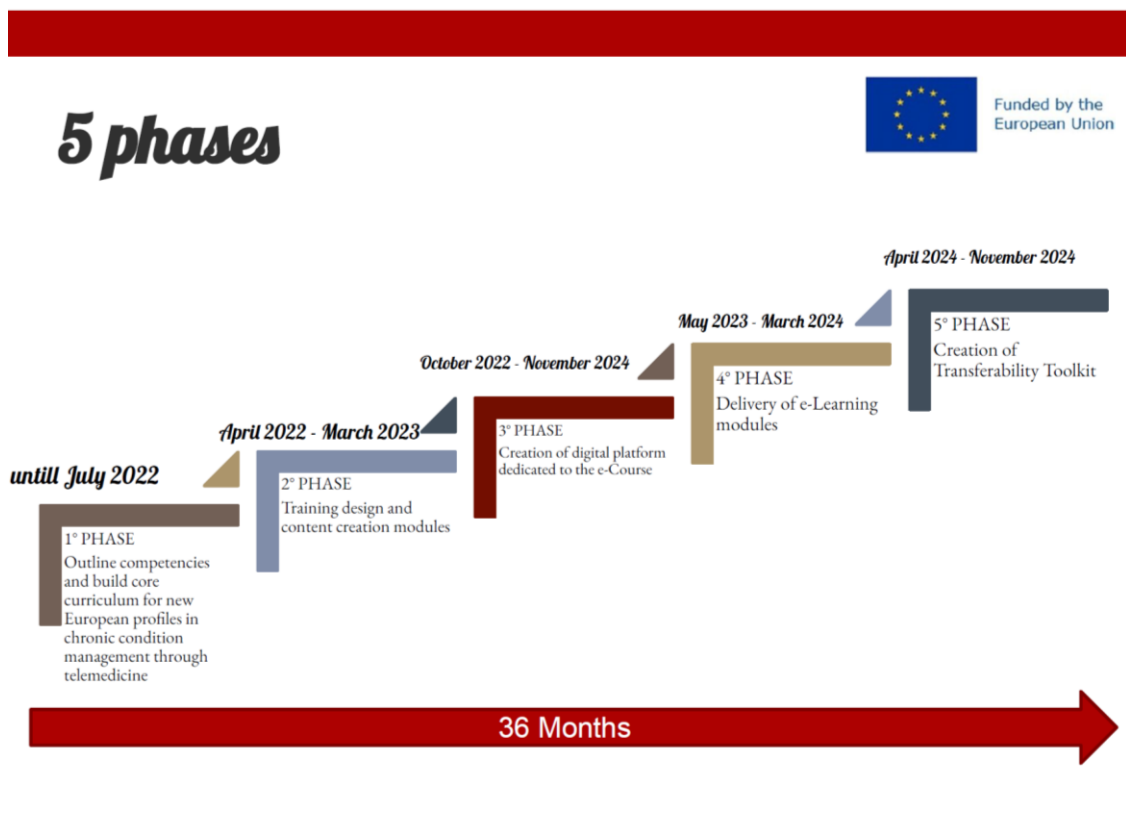
The current TDT, in particular, provides tools, models, best practices, and specific case studies derived from the pilot educational experience delivered by the BeEmTel project, focusing on chronic disease management through the use of proven technologies in the educational field. The TDT contains numerous qualitative and quantitative resources from the BeEmTel project e-Course, representing a valuable educational and content-rich repository of the latest evidence on telemedicine practices and telesimulation in the management of chronic diseases.

The educational measures presented offer academic institutions and Life Sciences associations guidance, suggestions, and a successful and positive model for both online courses and in-person teaching-learning experiences, leveraging the advanced and cutting-edge equipment of leading European Simulation Centres.

The TDT can serve as inspiration for exploring a wide range of educational approaches aimed at individuals with no prior experience (such as undergraduate university students) in a Medical Simulation Centre, or for delivering impactful distance education practices in collaboration with Simulation Centres by adopting Telesimulation educational strategies.

This online resource is available free of charge, as recommended by Erasmus project policies.

BeEmTel project overview



COMPETENCIES, DELPHI STUDY AND FOCUS GROUPS

Chronic diseases are a major public health problem, significantly affecting all aspects of the sufferers' lives, as well as society in general. Telemedicine, whose functionality consists of various methods, such as consultation, diagnosis, mentoring, and monitoring, has great potential to contribute to the management of these diseases. In particular, telemedicine is a reliable technology that comes with a number of advantages in the management of chronic diseases for both patients and health professionals.

One of the BeEmTel project aims was to identify the necessary competencies that future professionals must obtain to manage patients with chronic conditions effectively. In order to determine the necessary competencies, a literature review, Delphi study and focus groups with the students were conducted. Based on identified competencies The Partnership defined the main topic areas and learning outcomes that were applied in the planning and delivering of the e-course and training modules.

Literature review and Delphi study

Firstly, a database search for peer-reviewed papers published in English between 2011 and 2021 was conducted using CINAHL, Scopus, and PubMed. Using a variety of search criteria, relevant literature that addressed the subject from the viewpoints of patients, educators, and healthcare professionals was reviewed. The search turned up 54 studies that were used in the synthesis, showing a variety of abilities and competencies needed to manage chronic patients, including interpersonal and intrapersonal abilities, communication skills, teamwork and collaboration skills, humanistic abilities, professionalism, clinical abilities, technical and technological abilities, evidence-based practice abilities, and the capacity to recognize and address ethical and legal issues.

The skills gathered were combined into a list of 35 core competencies following the completion of the literature review. When developing the competencies, the Association of American Medical Colleges' and the ESCO Taxonomy's curricula for classifying European Skills, Competences, Qualifications, and Occupations were taken into consideration. Three-round Delphi study was conducted using these 35 competences that were taken from the literature as a starting point.

Thirty-seven specialists in chronic diseases from the clinical and educational fields, representing 5 European nations (Romania, Croatia, Germany, Greece, and Italy), were asked to produce a list of the abilities they believed were essential for the care of chronic illnesses through telemedicine. Participants were asked to rank the importance of each of the 35 competency topics in the first round which started in May 2022. Additionally, participants were asked for supplementary thoughts on these subjects, which were added as new statements in the second round. Participants revised their evaluations in Rounds 2 and 3 in light of the consensus. The competences with 75% participant agreement made the cut-off list. By the end of Round 3, participants had reached consensus on the scores for 22 of the 37 core competencies that had been produced by the process. These competencies covered a wide range of competences, including respect for others, technical, legal, and ethical knowledge, health promotion and disease prevention, patient education, management, culture,

communication skills, teamwork, and collaboration. The level of agreement across all competences was between 92.4 and 100%.

Final results of the e-Delphi study			
#	Competence	Score	Agree n (%)
1	Respect for human dignity, self-determination, informed consent, and patient confidentiality, which are only a few of the moral norms and processes, ethical questions, and obligations unique to healthcare jobs	4.89	26 (100%)
2	Assess the level of urgency in case of medical problem registered through telecare devices or sessions, provide emergence response and raise appropriate alarms	4.89	25 (96.2%)
3	Act according to laws, regulations, ethical standards (such as data protection) and apply ethical principles while practicing in the context of remote care	4.85	26 (100%)
4	Identify and assess the health status and health needs of chronic patients by interpreting data registered through telecare devices and monitors	4.67	26 (100%)
5	Develop prevention plans from distance in order to avoid potential risks for health and safety of chronic patients	4.67	25 (96.2%)
6	Awareness of ethical issues and actions arising in providing care remotely	4.63	26 (100%)
7	Understand and respect different cultural backgrounds and respond effectively and respectfully to them	4.63	26 (100%)
8	Collaborate as a team and manage self-management, self-service, understanding skills	4.63	26 (100%)
9	Educate and empower chronic patients for self-management and wellness from distance with the use of technology	4.63	26 (100%)
10	Priorities patients' needs, integrating and applying sophisticated knowledge, skills, and expertise to diagnose a patient's condition and provide appropriate care and treatment from a distance	4.63	26 (100%)
11	Identify and assess the health status and health needs of chronic patients by interpreting verbal and non-verbal expressions during the videoconferencing	4.63	26 (100%)
12	Educate patients and their families on basic digital and computer competency and for the proper use of computer hardware telecare equipment and telecare software programs	4.52	26 (100%)
13	Guaranteeing a prompt response to patients' needs through a telecare system (according to the severity of the patients' issues)	4.48	25 (96.2%)
14	Be able to initiate, maintain and close the conversation in a	4.48	26 (100%)

	telecare session, in order to draw and provide information related to health information		
15	During telecare sessions, provide psychological and emotional support to patients and family members	4.48	25 (96.2%)
16	Through a telecare session, show empathy to ensure careful attention to patients and family members	4.48	25 (96.2%)
17	Training of the intervention team (health professionals) in an interdepartmental training program for the acquisition of knowledge and common skills regarding monitoring through telemedicine systems	4.44	25 (96.2%)
18	Develop a collaborative relationship with patients and their families, creating connection and earning their trust and cooperation	4.44	25 (96.2%)
19	Apply specialized knowledge related to chronic diseases	4.44	25 (96.2%)
20	Awareness of telemedicine value, capabilities and limitations. Devotion and responsibility so as not to underestimate the value of telemedical sessions	4.44	26 (100%)
21	Use and apply communication techniques, specifically adapted to the telehealth context, for therapeutic reasons in order to support patients during a telecare session	4.44	26 (100%)
22	Create an “healthcare network” among all professionals involved in patient’s care (general practitioner, nurses, caregivers, etc.)	4.41	26 (100%)
23	Ability to determine and evaluate individual health requirements and state of health via telecare sessions	4.41	26 (100%)
24	Plan, implement and assess personalized-individualized health care to meet the needs of chronic patients by using telecare technology	4.41	26 (100%)
25	Use mobile health technologies and e-health (online applications and services) in order to enhance the provided healthcare	4.41	26 (100%)
26	Involve the family in the care process to facilitate communication	4.41	26 (100%)
27	Understand and respect social inequalities	4.37	25 (96.2%)
28	From a distance, make shared clinical decisions based on shared knowledge, skills, and experience	4.37	24 (92.4%)
29	Demonstrate flexibility and open-mindedness to changes in healthcare conditions	4.37	26 (100%)
30	Adopt and maintain a professional image, attitude and communication in a telecare session	4.33	26 (100%)
31	Consider motivation for treatment and the stage of change the patient is currently in, in order to offer support as needed	4.33	26 (100%)
32	Be aware of the implications of chronic disease as far as caregivers’ burden is concerned, and consider the involvement of patients’ caregivers	4.33	26 (100%)

33	Perform chronic patient observation by using telecare technology	4.30	25 (96.2%)
34	Educate and empower caregivers to help the patients using telecare services and technologies	4.30	26 (100%)
35	Understand the meaning that the chronic disease has for each patient and target patient's needs accordingly	4.30	25 (96.2%)
36	Perform chronic patient observation by using telecare technology	4.30	25 (96.2%)
37	Offer palliative care, including emotional support using telecare systems	4.30	24 (92.4%)

Learners focus group

Two focus groups, one in Greece and one in Italy, with the aim of exploring the students' opinion about the teaching of Telemedicine in their curriculum and the introduction of the e-course on management of chronic diseases with the use of telemedicine were conducted.

The focus groups took place on May 2022 in Greece and on 6 June 2022 in Italy and used a qualitative design (semi-structured interviews were applied). Nine Greek and nine Italian undergraduate students made up two groups of nine, totaling 18. The focus groups were subjected to thematic analysis. The participants note that there is little instruction in telecare in the present curricula and no exposure to telecare practices during clinical placement.

After thematic analysis summary of the focus group is:

1. To date, in the basic curricular courses, both for the Bachelor of Medicine and Surgery and for the Bachelor of Science in Nursing and Midwifery (5-year degree), both Bachelor of Science in Nursing, telemedicine is not taught, but only mentioned when talking about taking care of chronic patients, but without going into detail about the various modalities, tools, etc.
2. During clinical placements, the students who took part in the focus group stated that they had not seen it put into practice, except in a few exceptions, such as diabetic patients and neuropathic patients undergoing peritoneal dialysis.
3. Knowledge of telemedicine is seen as an advanced, specialized skill, as it requires digital competence in addition to clinical and communication skills. The students emphasized this communicative aspect very much, as not having the patient in front of their eyes, they must be able to capture the correct observations made by the patient. The focus is on the operator's experience.
4. The students taking part in the focus group agreed that telemedicine undoubtedly brings numerous advantages, first not having to make the patient travel, especially if he/she lives far from the hospital of reference. This entails a reduction in expenses and time off work. Then being visited and monitored at home allows the patient and family member to be more compliant with treatment and follow-up monitoring, precisely because they do not have to move from their home environment.

5. It is important for patients and their caregivers to acquire digital skills because the future of care will increasingly foresee this type of care, so health professionals must also transfer basic skills to patients and their families.
6. Students find the opportunity to learn telemedicine skills through protected environments such as simulation very interesting. Imagining themselves using virtual scenarios would allow them to experiment and develop clinical judgment and decision-making skills useful for when they work in the real world.
7. Another element suggested by the students is to have these skills acquired at the management level, as both the university and practice organization must become aware of and embrace this type of specialized knowledge.

DESIGNING AND IMPLEMENTATION OF THE E-COURSE

For the purpose of the e-course, experts from all partner institutions prepared 80 hours of lectures followed by 80 hours of practical LTTA training, which took place in the Italian (Simnova di Novara) and German (INM-HSC di Monaco di Baviera) simulation centers.

46 teachers from partner institutions were involved in preparing the e-course. 57 lectures have been prepared, and each lecture is accompanied by an abstract and questions for evaluating the acquired knowledge. In addition to English, all abstracts were translated into national languages and were available in Italian, Romanian, Croatian, German and Greek.

The prepared lectures included topics on chronic diseases and emergencies, health simulation, telecare and telemedicine, and new forms of proximity, and were prepared in the form of traditional lectures and telesimulations. At the end of the course, students took the final exam.

The e-course was available on the Moodle Simnova Platform.

Simnova Platform

The Moodle platform is the world's most widely adopted open-source Learning Management System (LMS). To ensure maximum security and reliability, a specialized company is required to manage the platform's usability and technical aspects.

The BeEmTel project benefits from the expertise and operational support of the Interdepartmental Centre for Innovative Didactics and Simulation in Medicine and Health Professions (Simnova). For Moodle technology management, Simnova partners with Mediatouch, an external company.

Developing and operating the BeEmTel project platform for both learners and instructors necessitates a professional hosting service, providing the following key services:

- **Proactive version updates** for Moodle, ensuring weekly version builds and immediate implementation of any available security fixes, all without service disruption;
- **Round-the-clock data center management** (24x7x365), including continuous system monitoring and prompt response in case of service unavailability;
- **Antivirus, utility installations, and configurations**, including Clam antivirus, zip utilities, language packs, and time zones;
- **Quarantine and statistics folder configuration;**
- **Optimized cron-service execution** from the command line, with execution logs maintained for 60 days to ensure optimal performance;
- **Dedicated email ticket system** for UPO system administrators, providing technical support and addressing any server or Moodle-related issues.

Mediatouch is responsible for platform privacy and backend management, while the administrative oversight is handled by UPO-SIMNOVA.

The partners invited students from their universities to participate in the e-course, and it was planned that 250 students would participate. The technological capabilities of the SIMNOVA platform allowed for the inclusion of all European students from Partner Universities who requested participation within the deadlines established by the Partnership. 385 students attended the e-course.


The online course, which ran from May 15, 2023, to January 15, 2024, was a pilot program and not previously integrated into the curricula of the partner universities. At the lead university, UPO, completion of the course was recognized as practical training hours, with academic credits awarded to certain students. Other partner universities adopted additional forms of recognition or incentives to encourage enrolment and participation.

The selection process for participation in LTTA experiences (i.e., 1 immersive week for 25 Learners in the Simulation Centre of Novara - SIMNOVA, and 1 immersive week for other 25 Learners in the Simulation Centre of Munich - INM) focused on those learners who demonstrated sustained interest and engagement throughout the extended period during which the e-course was available on the Simnova Platform. Learners who did not complete the e-course, those who completed it without responding to the survey and feedback test, or those who accessed the Platform only in the final days of availability were not considered. Once a qualified pool of candidates was identified, individual University Partners selected learners who were genuinely interested and able to travel to Novara or Munich. This was necessary due to cases where, despite being selected and interested in the immersive LTTA week's educational content, certain Learners were unable to commit to the six-day absence required for participation.

Management of Chronic Conditions through Telemedicine - Overview of e-course content

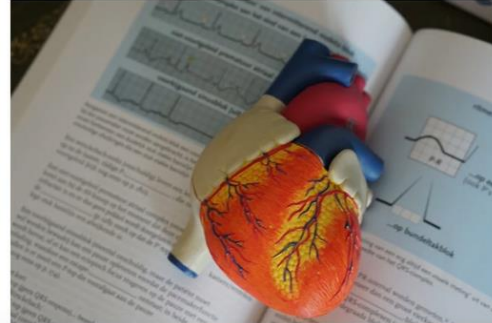
Regarding the management of Chronic Conditions through Telemedicine and Emergencies, 15 lectures were prepared. Lecturers from all partner countries participated in the preparation of the lectures. Below in the text is a list of lectures, links to selected lectures as well as selected abstracts.

Non-Communicable Diseases and Emergency

NON-COMMUNICABLE DISEASES			
N°	Lesson title / Teacher	Affiliated partner	Type of lesson
1	Obesity as chronic disease , Paolo Marzullo	UPO	Traditional Lesson
2	Heart failure as chronic condition: a multidisciplinary medical perspective , Manuela Bocchino	ISS/NCT	Traditional Lesson
3	The nursing management of patients with heart failure: new perspectives , Michela Barisone	UPO	Traditional Lesson
 <p>The screenshot shows a presentation slide with the following content:</p> <ul style="list-style-type: none"> Logos: BeEmTel, Co-funded by the European Union, and a small video inset of Michela Barisone. Title: The nursing management of patients with heart failure: new perspectives Author: Michela Barisone, RN, MSN, PhD, University of Piemonte Orientale Role: Quality Management Committee Coordinator, Progetto Erasmus+ BeEmTel (DIMET) Project: Beyond The Emergency Project, Telecare for non-communicable disease through Simulation Techniques Department: Department of Translational Medicine, University of Piemonte Orientale Contact: michela.barisone@uniupo.it, beemtel@uniupo.it Website: www.beemtel.eu Project Website: https://www.agingproject.uniupo.it/ URL: https://beemtel.eu/ Footer: Barisone Lesson 			
4	Heart Failure Nursing Management: from Tele-simulation to reality , Michela Barisone	UPO	Telesimulation Lesson
5	Secondary prevention of acute coronary syndrome in the post-Covid era , Ivica Benko	ZVU	Traditional Lesson

Gender

- *around age 55 relatively same risk
- *the estimated lifetime risk of CVD
 - men 67,1%
 - women 66,4%
- *first manifestation of CVD:
 - men 27,2%
 - women 16,9%



Leaming M, L. C., Fordat D, F., Stoyesberg F, W., et al. Sex differences in lifetime risk and first manifestation of cardiovascular disease: Prospective population based cohort study. 2014;34

25:11 / 44:32

Dubrava University Hospital Zagreb

Secondary prevention ACS COVID

6	Clinical and radiological manifestations of COVID and long COVID , Klaudija Višković	ZVU	Traditional Lesson
7	Telemedicine and telerehabilitation in the management of chronic neurological diseases , Alessio Baricich	UPO	Traditional Lesson
8	Long Covid Syndrome , Mattia Bellan	UPO	Traditional Lesson
9	Frailty and health maintenance in the elderly: strategies for fall prevention , Mattia Bellan	UPO	Traditional Lesson
10	Inflammatory Bowel disease , Alina Boeriu	UMFST	Traditional Lesson
11	Importance of patient safety in clinical environment , Sanja Ledinski	ZVU	Traditional Lesson
12	Nursing consideration for New Advances in Prostate Cancer, Vissarion Bakalis	UTH	Traditional Lesson

EMERGENCY

13	Essential health services during disasters and emergencies: can telemedicine make the difference? , Marta Caviglia	UPO	Traditional Lesson
14	Resilient Emergency Units, Raed Arafat	DSU	Traditional Lesson
15	Emergency in Romania, Raed Arafat	DSU	Telesimulation Lesson

Selected abstracts

(In the Simnova Platform Abstracts were translated in the Partnership languages)

Obesity as a Chronic disease Obesity

Paolo Marzullo, UPO

Obesity is a disorder that has reached epidemic proportions according to international organizations, provoking considerable clinical, social and economic burdens, as well as major negative impacts on human health. It is generally driven by exogenous (i.e., obesogenic environment) and endogenous (i.e., genetic predisposition and central appetite dysregulation) factors coexisting with sedentary and unfavorable lifestyles. Biological studies extensively documented the deleterious effect of unhealthy fat compartments and ectopic fat accumulation, which provide evidence to the argument that overweight and obesity should better be defined by body composition rather than indirect measures of fatness.

While a small number of people diagnosed with obesity have none of the disorders generally associated with being overweight, and they are classified as having metabolically healthy obesity, the overgrowth of adipose tissue is associated with proinflammatory adipokine production and macrophage infiltration. These phenomena contribute to a proinflammatory and insulin-resistant milieu and, together with increased mechanical stress due to increased adipose tissue mass, they constitute pathophysiological mechanisms responsible for the development of multiple medical conditions. Obesity is, as such, strongly related to a large array of diseases that are often interconnected, with increased risks of simple and complex multimorbidity when compared to people with healthy weight. The association between obesity and diabetes as well as increased incidence of cardiovascular diseases such as heart failure, coronary heart disease and stroke has long been documented. Further, obesity poses established risks for several forms of cancer, sleep apnea, fatty liver disease and functional disabilities. Epidemiologically, the resulting risk of simple multimorbidity is 5-fold higher while that of complex multimorbidity is 10-fold higher than normal, with a dose–response relationship between obesity and multimorbidity.

Many people with obesity may not perceive their weight to be a significant problem and less than half of patients with obesity are advised by their physicians to lose weight, a prerequisite for achieving significant improvements in obesity-related health issues. While lifestyle treatments and low-calorie intake remain mainstays of the medical approach to obesity, they have had limited success in the majority who experience weight regain, with some even relapsing to or above baseline weight. In such cases, the treatment algorithm encompasses anti-obesity pharmacological approach and bariatric surgery as highly effective treatments, leading to sustained lower body weight in the long term, which is not yet achievable with conservative approaches. There are adverse health and economic consequences of obesity and it is importance to urgently work together towards prevention and management of obesity to reduce the burden of people's lifespan and quality of life.

Heart failure (HF) is a clinical syndrome with current or prior symptoms or signs caused by structural or functional cardiac abnormality and corroborated by one or more than one of the following: elevated natriuretic peptide levels or objective evidence of pulmonary or systemic congestion. Sixty four million cases of heart failure worldwide are estimated, with 80% of hospitalisations occurring in those patients more than sixty-five years old. HF patients may experiment with different staging criteria that can provide complementary information about disease severity and identify patients at high risk of disease progression, rehospitalization and mortality. Frequently HF patients experiment multimorbidity, i.e. the coexistence of two or more long-term conditions: other cardiovascular diseases, such as ischaemic heart disease, atrial fibrillation and hypertension or non-cardiovascular comorbidities, such as chronic kidney disease, anaemia, diabetes and chronic obstructive pulmonary disease. Patient takes many medications too and frequently he is a fragile patient.

Different stages, comorbidities, medications and frailty require a multidisciplinary approach, involving various medical professionals who work together to provide optimal care for the patient, because HF is a journey that can be rapidly degenerative, and our goal is to give the patients a Fairly good quality of life. Hospitalisation, decongestion and stabilisation need frequent communication between in patient specialties (i.e. cardiologists, nephrologists, or other professional figures), also to improve patient's progression toward decongestion and discharge. Also discharge needs some important components: the summary of patients' medical courses and treatments, an appropriate education for patients and the identification of continuing health care needs.

Many professionals should be included in the multidisciplinary care team: cardiologists, pharmacists, nephrologists, diabetologists, pneumologists, endocrinologists, haematologists and dieticians, but also physical therapists, psychologists and social workers, a palliative care team, nurses and technicians of cardiovascular pathophysiology. A multidisciplinary HF management program is needed, so we have to identify necessary skills, implement strategies to reduce readmissions, and promote patient self-management. To develop it, we can establish a work group that will meet regularly to monitor and improve patient outcomes. We need to outline care objectives, define team roles and responsibilities and determine the number of visits per week and required staffing. By working together, using a collaborative and multidisciplinary approach, medical professionals can provide comprehensive care that improves patients' quality of life and reduces their risk of complications.

The nursing management of patients with heart failure: new perspectives

Michela Barisone, UPO

This lecture focuses on the management of the patient with heart failure from a nursing perspective. The contents of the lecture concern the core competences of the nurse working in cardiology settings with a special focus on the core activities in the management of the patient with heart failure. Particular emphasis is given to the new update of the Core Curriculum just published in April 2023 in the European Journal of Cardiovascular Nursing.

During the lecture, some peculiar aspects of the management of the patient with heart failure will be discussed, such as the epidemiology, the definition and explanation of the main aspects of multidimensional assessment necessary for the management of these patients. A main and strongly emphasised element concerns the significance of monitoring vital parameters and any changes in the quality of life that could worsen the patient's outcome. The lecture is supported by literature studies, latest reference ESC guidelines and the main references regarding the declination of the core competencies of the heart failure nurse. Useful elements provided in the lesson also concern educational and reinforcement strategies for the heart failure patient and the need, in the context of a change in the care paradigm that will increasingly see the involvement of territorial and community pathways, to define a new mode of care that is supported by telemedicine and artificial intelligence systems. The lesson, in coherence with the objectives of the BeEmTel project, aims to provide the students included in this project with useful information and knowledge in the field of cardiovascular nursing, in order to meet at an early stage, the health needs of the population affected by heart failure, regarding the management of their disease.

Inflammatory Bowel Diseases (IBD)

Alina Boeriu, UMFST

Inflammatory bowel diseases are idiopathic inflammatory disorders of gastrointestinal (GI) tract with chronic evolution, consisting in periods of exacerbation and remission. The main types are ulcerative colitis (UC) and Crohn disease (CD). In UC inflammation involves colonic mucosa and the lesions progress inside of the colon in an uninterrupted pattern, starting from the rectum. CD may affect any part of GI tract and the inflammation involves the entire thickness of the intestinal wall, leading to severe complications (strictures, fissures, fistulas, abscesses). Rectal sparing, skip lesions, and perianal lesions are specific features of CD.

The inappropriate immune response to intestinal microbiota in a genetically susceptible host plays an important role in IBD pathogenesis. Given the increasing incidence of IBD worldwide, the progressive nature of inflammation and the potential evolution towards irreversible intestinal damage, the early diagnosis and therapy are mandatory. Diarrhea or constipation, rectal bleeding, abdominal pain, weight loss, and fever are mainly complaints in IBD patients. IBD patients may present extraintestinal manifestations. The endoscopic and the histopathological assessment represent the gold standard for IBD diagnosis. Inflammatory markers (erythrocyte sedimentation rate, C-reactive protein, fibrinogen, fecal calprotectin) and imagistic evaluation (abdominal X-ray, barium studies, abdominal ultrasonography, computed

tomography and magnetic resonance imaging) are useful to assess disease severity and extension, to detect complications (such as abdominal abscesses, fistulas, toxic megacolon or perforation), and to monitor the efficacy of therapy.

The therapeutic goals in IBD have been evolved over the time, from steroid-free clinical remission and improvement of quality of life, to mucosal healing, control of inflammation, and changing of the disease course. The therapeutic approach should be based on the assessment of severity of the disease, the extent of the lesions, and the individual risk of severe evolution. The step-up approach, starting with aminosalicylates, corticosteroids to control flares, followed by immunosuppressive medication, is recommended in mild to moderate IBD. Early biologics and immunomodulators (the top-down approach) are recommended in high-risk patients and in severe disease. Surgery is reserved for severe complications or medically refractory disease. Continuous monitoring of clinical, imagistic, endoscopic, and inflammatory parameters during the treatment is recommended to achieve disease control.

Health Simulation & Telecare - Overview of e-course content

The second part of the e-course included lectures on Health Simulation & Telecare, which included content related to chronic diseases and telecare, health simulation, telemedicine and e-Health governance. This part included 26 traditional lectures and six telesimulations. Below in the text is a list of lectures, links to selected lectures as well as selected abstracts.

CHRONIC DISEASE AND TELECARE			
N°	Lesson title, teacher	Affiliated partner	Type of lesson
16	Telemedicine. Theoretical Foundments , Manuela Bocchino	ISS	Traditional Lesson
17	Telemedicine services and tools for monitoring diabetic patients, Tommaso Daffara	UPO	Traditional Lesson
18	Heart failure as chronic condition: best practices for remote treatments , Manuela Bocchino	ISS/NCT	Traditional Lesson
19	Heart Telemonitoring, Manuela Bocchino	ISS (with UPO)	Telesimulation
20	Telenursing at home and in nursing home (difficult discharge from hospitals) , Alberto Dal Molin, Erica Busca, Erika Bassi, Ines Basso, Daiana Campani	UPO	Traditional Lesson
21	Telenephrology: state-of-the-art and future perspectives for remote treatments , Valentina De Nicolò	ISS/NCT	Traditional Lesson
22	Telecare in chronic respiratory diseases , Foteini Malli	UTH	Traditional Lesson
23	Telemedicine and telerehabilitation in the management of chronic neurological diseases , Marco Invernizzi	UPO	Telesimulation

UPO UNIVERSITÀ DEL PIEMONTE ORIENTALE

STEP APP APPLICATION: GAIT CALIBRATION

1. Device support belt positioning

Invernizzi M Telemedicine and telerehabilitation in the management of chronic neurological d

Telemedicine and Telerehabilitation_ Invernizzi (UPO)

Nije javno dostupno

Selected abstracts

(In the Simnova Platform Abstracts were translated in the Partnership languages)

Telemedicine. Theoretical Foundations

Manuela Bocchino, ISS

E-Health indicates the use of digital communication and information technologies (ICT) in the health sector for dissemination, storage and retrieval of data, for prevention, diagnosis, care, monitoring, education and administrative organization, both in presence and distance. It comprehends telehealth that indicates remote services, including telemedicine. Telemedicine is the provision of health services by all actors using ICT for the exchange of valid information for diagnosis, treatment and prevention of diseases, where distance is a critical factor, in the interest of improving the health of individuals and their communities. Telemedicine's services are Televisit, Telemonitoring, Remote control, Telerefertation, Teleconsultation, Teleassistance and Telerehabilitation.

Digitisation requires some fundamentals:

- New organisational models and work processes;
- Any technology should be tested to verify that it is useful for the patient, it must not be the cause of unequal services, it must provide quality services, the doctor is responsible for the treatment must decide on a patient-by-patient basis which tool is most appropriate;
- Necessary rules;

- Staff training and skills, and information to patients.

Telemedicine requires an interdisciplinary team, with a telemedicine operational centre to coordinate activities. Education is important for all stakeholders: general managers, doctors, technicians, nurses, other professionals, bioengineers, pharmacist, patients and students.

Necessary skills are:

- General: adherence to ethical, regulatory and procedural rules, knowledge of best practice, Knowledge limits of telehealth, organisation and coordination of the team, communication (empathy and support during the session);
- Technological: use of the necessary technology and ability to guide the patient to use the necessary technology, what to do when technology does not work, handling digital patient data for clinical and research purposes;
- Clinical: combining clinical experience with technology for making clinical decisions at a distance, interpreting verbal expressions and not at a distance, performing objective examination in telehealth environment.

There are some critical issues in the field of telemedicine. About professional responsibility, telematics and traditional approaches differ in the way they are carried out, but are regulated by the same legal framework and require necessarily appropriateness and effectiveness of the treatment. For what concern privacy and data processing, it is necessary to comply with the provisions of the General Data Protection Regulation (GDPR) and the code on the protection of personal data. A double opt-in is required: consent to the processing, the insertion and dissemination on the network of personal data, and the willingness to adhere to the service. About the use of free-access platforms, they must be secure against cyber risks, and in accordance with the principles and measures provided for by the General Data Protection Regulation (GDPR).

Empowerment and engagement of the patient and family members have a central role. Empowerment is the awareness of the patient, who appropriates his health by adopting informed choices of care and prevention. The engagement concept is about the active patients participation in their care process and in the management of their health, through strong collaboration with healthcare providers. It can be facilitated by the use of healthcare technologies, apps and tools that enable patients to monitor their health and communicate with healthcare professionals. So, patient education is fundamental and should be provided in simple language, individualized to support communicative preferences and adapted to the patient's educational needs.

Each centre has its own internal resource potential (specific policies), so it is necessary to calibrate the response that the centre is able to give on available resources, avoiding wrong expectations from patients. A vademecum for the patient and an operative protocol for health professionals can be useful and fundamental.

Heart failure as chronic condition: best practises for remote treatments

Manuela Bocchino, ISS

Many scientific work in literature demonstrated that a virtual multispecialty team is associated with savings of time, travel and cost and a significant reduction in interspecialty referrals or outpatient clinic attendances.

Telemedicine uses technological innovations and devices capable of transmitting clinical data and vital parameters at a distance. So, first, such systems can help to prevent many factors favoring early detection of signs of instability or to diagnose in advance comorbidity such as anaemia, infections or deterioration of kidney function; secondly, they can detect and correct poor adherence to pharmacological and non-pharmacological therapy, then they can stimulate early therapeutic interventions or appropriate behavioral changes. And finally telemedicine can provide tools to give a second opinion and allow a multidisciplinary comparison.

The goal is to intercept the very early stages of clinical deterioration and then modify the intervention strategy, so that therapeutic changes are undertaken based on changes in the monitored clinical parameters in that phase in which the patient is still asymptomatic, some weeks before the acute event.

We can use different services: televisit, teleconsultation or teleconferencing, telemonitoring and telecontrol, telenursing by health professionals (nurses and technicians) and telerehabilitation. About telemonitoring, it is important to remember that devices used are medical devices, so they must necessarily have some features: it must be certified according to European community legislation, it must be GDPR compliant, therefore adhere to the rules of privacy and security and above all must be validated by robust scientific research. Using devices which are not certified and have not been validated by scientific research makes telemonitoring not only unreliable but also dangerous.

We have wearable devices and implantable devices, such as pacemaker with biventricular resynchronization or implantable cardioverter defibrillator, but also loop recorders. Remote control of these heart devices, as well as providing information on the device itself, can also provide information about the patient's clinical condition. These devices can in fact allow the monitoring of different vital parameters in patients with HF, through motion sensors, position, temperature, respiratory rate, thoracic impedance, heart rate and its variability and contraction rate. The collected information is periodically sent to computer platforms that send alarms about predetermined events and can be consulted by technicians of cardiovascular cardiology and cardiologists themselves.

There are still some barriers: reimbursement, standardization of procedures, the problem of data protection, security and privacy, and deficiencies of accessibility to services and other technologies in some countries. Concerning patients and caregivers adherence, we may improve patient education, as well as patients and medical team technological training, for example also using telecounselling itself; this will result in a heightened perception of benefit and so a better adherence. Finally the concept of teamwork returns: we started from the need for a multidisciplinary approach to the care of the patient suffering from heart failure, we can do it with telemedicine, but also telemedicine needs teamwork. There must be a telemedicine health operative center.

Telenursing at home and in nursing home (difficult discharge from hospitals)

Alberto Dal Molin, Erica Busca, Erika Bassi, Ines Basso, Daiana Campani, UPO

Telenursing is a promising approach for reducing hospitalization of older adults, by improving access to care, empowering patients, and enhancing patients' education and medical conditions. Various definitions of telenursing are present in the literature. In one concept analysis telenursing was defined as "... the delivery of care at a distance, using information and communication technologies within the nursing scope of practice¹"

The research group of "nursing science" of the University of Eastern Piedmont is carrying out the following projects:

- i. a prospective, two arms, randomized controlled study to assess the effectiveness of a nurse-led home telemonitoring program for patients with chronic diseases. The 6-month intervention will consist of 2 components conducted by nurses: a) regularly scheduled telephone coaching to collect information regarding the health status and presence of symptoms and educate about healthy lifestyles and b) home telemonitoring of vital signs.
- ii. a cross-border Interreg IT-CH REACtion project, whose main objective is to help the frail older adults remain healthy, in their own home, through the development of a network between health care providers (family and community nurses) and local communities and the use of innovative technologies. The technology intervention, as a strategy that enhances nursing activities, includes implementation of wearable devices for fall management and a system of monitoring of daily activities in lonely elderly patients.
- iii. a fall prevention project in patients with Parkinson's disease with in-home monitoring using a wearable system. This pilot study aims to investigate the feasibility of a full-scale research project that uses the TED bracelet to identify whether individuals with Parkinson's disease are at risk of falling. The following outcomes will be considered: a) the number of falls and near-falls that occurred during the study b) consistent use of the TED devices c) the gait characteristics associated with falls and near-falls in Parkinson's patients.
- iv. a project conducted in a nursing home, whose main goal is implementing a nursing home care model using innovative technological systems. The first step will be to validate a wearable device (smartwatch) for safety functions, assessing its ability to track nursing home residents' falls, wandering and nighttime agitation. Then the project will explore the nursing home residents and staff perspective of using wearable devices.

¹ Caitlin McVey, Telenursing: A Concept Analysis *Comput Inform Nurs*. 2022 Oct 10. doi: 10.1097/CIN.0000000000000973

Health Simulation

HEALTH SIMULATION			
24	Safety Culture * Marc Lazarovici	LMU/INM	Traditional Lesson
25	The Role of Simulation in Healthcare Education *, Marc Lazarovici	LMU/INM	Traditional Lesson
26	Simulation – a tool to strengthen interprofessional collaboration *, Marc Lazarovici	LMU/INM	Traditional Lesson
27	Debriefing in Healthcare Simulation *, Marc Lazarovici	LMU/INM	Telesimulation
28	Debriefing after Simulation: when and how to *, Marc Lazarovici	LMU/INM	Telesimulation
29	Augmented and Virtual Reality in Medical Training , Cristian Boeriu	UMFST	Traditional Lesson
<div style="text-align: center;">  <p>Mixed Reality (MR)</p> <ul style="list-style-type: none"> ● A hybrid of <u>augmented reality</u> and <u>virtual reality</u> ● Merging of <u>real</u> and <u>virtual worlds</u> to produce new environments and visualizations, where physical and digital objects co-exist and interact in real time <p>AR VR Cristian Boeriu</p> </div>			
30	Innovative Applications of Augmented and Virtual Reality in Medical Practice , Emilia Turucz	UMFST	Traditional Lesson

31	Simulation in Croatian Nursing Education , Martina Smrekar	ZVU	Traditional Lesson
32	Clinical Simulation in Nursing Education , Vissarion I. Bakalis	UTH	Traditional Lesson
33	Simulated Patient 1 , Alessia Bolamperti / Rosaria Lea	UPO	Traditional Lesson
34	Simulated Patient 2 , Alessia Bolamperti / Rosaria Lea	UPO	Traditional Lesson
35	Simulated Patient 3 , A. Bolamperti / R. Lea / Fabio Maccapani	UPO	Telesimulation

*lecture is partial due LMU/INM policy

Selected abstracts

(In the Simnova Platform Abstracts were translated in the Partnership languages)

The role of simulation in healthcare education

Marc Lazarovici, LMU-INM

While traditional healthcare education is relying on the tried formats of lecture and bedside teaching, it does have a number of drawbacks. First, learning maneuvers on patients is being recognised as unethical, and teamwork aspects are seldom addressed in a structured way. Moreover, based on working time regulations the exposure of young professionals to certain situations and maneuvers has been reduced.

Here is where simulation as a method can help – being an old cultural technique, it has been adapted to healthcare remarkably early, its beginnings in Europe dating back to the 18th century. Nowadays, using very diverse technologies from relatively simple manikins or body-parts to high-end Augmented and Virtual Reality devices, simulation can help and sustain education in a variety of field, from skills and individual abilities to team training.

The target group of simulation based education is also very wide – it starts with students and beginner learners of all healthcare professions, and it basically doesn't ever end, accomplished multiprofessional teams being a target group for simulation as well. The learning goals and methods vary however greatly between the groups, moving from basic manoeuvres and basic simulators to specialized medical manoeuvres, teamwork and team coordination using high-fidelity equipment and complex scenarios. Interprofessional education should be embedded into simulation based education throughout the professional life, from student to experienced postgraduate.

Simulation should always be oriented towards a learning goal – the technology alone does not teach. And it should also be clear that simulation, especially of procedures, is just a first step into the complex world of unexpected that comes with clinical activity

Debriefing in Healthcare Simulation – Pitfalls, Principles

Marc Lazarovici, LMU-INM

There are many proposed structures and guidelines to conduct debriefing in healthcare simulation education. In order to better understand the underlying principles, the main difference between feedback (used in teaching) and debriefing (used in facilitating self-reflexion) has to be understood.

Debriefing is moderated conversation, aimed at the integration of emotions and reflexion on thought processes during a healthcare simulation. It is also highly dependent on the cultural environment of the teams involved in the simulation.

A widespread structure involves the five steps of:

1. giving structure
2. cooling down
3. description
4. analysis
5. integration.

Nevertheless there are other proposed structures, such as the Diamond. Different methods can be employed in different phases, as described in the Advocacy & Inquiry, PEARLS or plus-Delta techniques.

Overall, creating and maintaining a learning atmosphere is crucial to an effective debriefing, almost regardless of the technique and structure used, as long as it follows published and recognised guidelines.

Debriefing after Simulation – When and How to?

Marc Lazarovici, LMU-INM

The two main ways of employing simulators in healthcare education are skill training and simulation based team training. There are a number of similarities, as well as a number of differences between the two – while skill training is aimed more at direct teaching, team training is aimed at applying pre-existing knowledge and reflecting upon mental models and practice.

While different debriefing styles have been tried and described through time (judgmental, non-judgmental), a real innovation and leap forward came through the work of Jenny Rudolph, defining the so-called “Debriefing with good judgement”. Here, the aim is to understand mental models that frame our practice, and by addressing those to allow for double loop learning.

There are a number of techniques used to achieve this, all aimed at eliciting and supporting a self-reflective attitude in the learners and creating and keeping up a learning atmosphere.

A live demonstration with a commented debriefing session completes this learning module.

Augmented Reality (AR) and Virtual Reality (VR) in Medical Education: State of the Art and Future Options

Cristian Boeriu, UMFST

The field of medical education, while always advancing, faces challenges in providing hands-on experience, promoting patient safety, and managing costs. Here is where AR and VR step in, offering realistic, risk-free, and cost-effective learning environments, which are not constrained by physical boundaries.

Augmented Reality and Virtual Reality are immersive technologies that integrate digital information with the physical environment. While AR overlays virtual objects on the real world, VR creates a completely immersive environment. From entertainment to military training, these technologies have found wide-ranging applications, and healthcare is no exception.

The potential for AR and VR in medical education lies in their integration into the curriculum. A blended learning approach, combining traditional methods with AR and VR, can provide a comprehensive learning experience. Whether it's AR-aided anatomy lectures or VR-based surgical practice, these technologies empower students with self-directed and experiential learning.

Despite their promise, AR and VR face challenges like high implementation costs, technological limitations, and resistance to change. Additionally, there's a need for skilled professionals who can develop and maintain these advanced systems. But as the technology continues to evolve and costs decrease, these barriers are expected to lessen. The future of medical education with AR and VR looks promising. With continuous advancements, we can expect more realistic simulations, broader application areas, and personalized learning experiences. The future medical professionals will be equipped with not just theoretical knowledge, but also with practical skills honed in a risk-free, immersive environment.

In conclusion, AR and VR are set to revolutionize medical education. While challenges exist, the potential benefits these technologies offer make them indispensable tools for the future of healthcare learning.

Clinical Simulation in Nursing Education

Vissarion I. Bakalis, UTH

Clinical simulation is an educational approach that is widely used in nursing education to provide students with opportunities to develop clinical skills and decision-making abilities in a safe and controlled environment. Simulation-based learning allows nursing students to practice various clinical scenarios using high-fidelity mannequins, computer-based programs, and other simulation equipment. This approach enables students to apply their theoretical knowledge to real-life situations, make informed decisions, and develop critical thinking skills.

Clinical simulation offers several advantages to nursing education, including the ability to standardize clinical experiences, provide opportunities for repeated practice and feedback, and promote teamwork and communication among healthcare professionals. Additionally, simulation-based learning has been shown to increase student confidence and competence in clinical practice and reduce the risk of errors and adverse events.

Simulation-based learning is widely used in nursing education, ranging from undergraduate nursing programs to continuing education for practicing nurses. However, there are also challenges associated with implementing simulation-based learning, such as the high cost of equipment and the need for qualified instructors. Despite these challenges, clinical simulation remains an effective and essential educational approach for nursing students to develop clinical skills and prepare for the demands of clinical practice.

Communicating nursing practice to students: the simulated patient in UPO Simnova

Rosaria Lea, Alessia Bolamperti, UPO, SIMNOVA





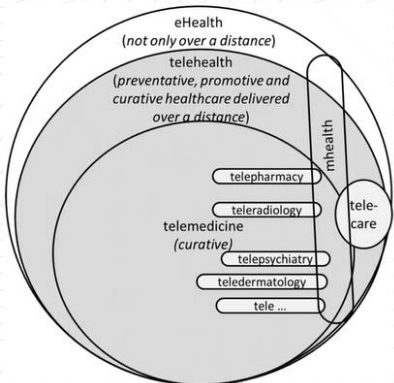
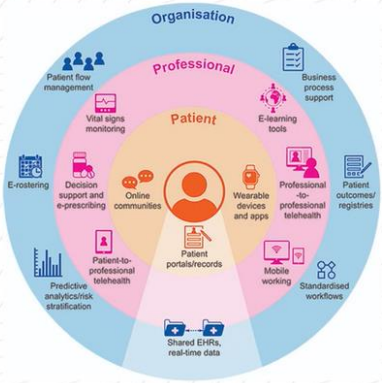
During this lesson, will be defined both the figures of the simulated patient and of the standardized patient, their function, their application according to literature, to 2021 simulation standards INACLS (International Nursing Association for Clinical Simulation in Learning), to specific simulations with with SP, edited by ASPE (Association of Standardized Patients Educators) in 2017.

Brief notes on recruitment, initial and ongoing training of SP will be provided, with particular attention at the SP program of UPO SIMNOVA and at the projects that have seen the use of simulation in the medical and nursing field.

Finally, the available evidence of the use of SP in the field on telemedicine will be highlighted, during the formative process of health professional.

The lesson will be accompanied by biblioi and sitography, both useful in deepening the subject matter.

Telemedicine

TELEMEDICINE			
35	e-Health tools: wearable devices in Telemedicine, Massimo Canonico	UPO	Traditional lesson
36	Digitalization and teletransmission of radiological images, Alessandro Stecco	UPO	Traditional lesson
<div style="text-align: center;">   Co-funded by the European Union   </div> <h3 style="text-align: center;">Telemedicine – definition and overview</h3> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>https://beemtel.eu/</p> </div> <div style="text-align: center;">  <p>Prof. Stecco: Digitalization and teletransmission of radiologic images: emergency</p> </div> </div> <p>Telemedicine and Teleradiology_by A. Stecco (UPO) <small>Unlisted</small></p>			
37	Telemedicine and education of the future * , Marc Lazarovici	LMU/INM	Telesimulation
38	Telenursing: challenges and opportunities, Snježana Čukljek	ZVU	Traditional lesson
eHEALTH Governance			
39	Governance of Healthcare systems towards future hospitals, Luigi Bertinato	ISS	Traditional Lesson

NEW MATERIALS FOR BUILDING



<https://beemtel.eu/>



Example:
 New surgical and emergency centre of the San Raffaele Hospital in Milan (Iceberg), signed by MCA- Mario Cucinella Architects

 Hospital = functional but... sustainable, low impact machine, eco-sustainable and innovative materials

coating in antimog ceramic blades, with titanium dioxide catalytic coating

lezione Bertinato
 Unlisted

40	Risk management in distance care, Massimiliano Panella	UPO	Traditional Lesson
41	Preventing crisis in public health worldwide , Maria Saridi	UTH	Traditional Lesson

*lecture is partial due LMU/INM policy

Selected abstracts

(In the Simnova Platform Abstracts were translated in the Partnership languages)

e-Health tools: wearable devices in Telemedicine

Massimo Canonico, UPO

In recent years, more and more devices connected to the internet have been exploited for healthcare purposes. In particular, wearable devices are being used to monitor the patient's health in order to allow doctors and/or caregivers to avoid (or in some cases to prevent the occurrences of) dangerous situations. There is a lot of Computer Science involved and the architecture of the proposed solutions need a complex interaction between wearable devices, mobile apps and cloud computing.

Moreover, between the components, it is necessary to deal with data transmission problems and battery life duration which are crucial elements in these contexts. The video talks about real experiences of using these devices by involving fragile people including people with Parkinson disease.

Digitalization and tele-transmission of radiologic images: applications in radiological emergencies and telehealth cooperation

Alessandro Stecco, UPO

Radiology has been one of the first medical specializations which underwent to experimental tele-transmission of images and subsequently after some decades, to become entirely digitalized from acquisition to reporting and delivery of the radiological examination of the patients.

This digitalization process passed through a standardization of the radiologic digital format, which became known for everyone as the DICOM format, so letting different equipments interoperate among them on images, and allowed its manipulation as for post processing as for tele-transmission.

Teleradiology today relies on technically equipped scanners and PACS and often on third part solutions for reporting and tele reporting, as for post processing and tele transmission and distribution of images.

Telereporting can help to overcome shortage of competence of human resources more in country sided hospitals without reducing the availability of radiological services to the local population, but telereporting without knowing clinical and radiological history of the patients lead to risk of lower accuracy, and less acceptance from the patients, this is an issue to be well taken in account.

Teledistribution of radiological images in emergency allows to quickly alert, report also aided by AI, take decisions in the management of patients affected by time dependent pathology, as stroke or trauma, and tight connection between peripheral and central hub hospitals.

Telecooperation allows second opinion or support to medical practitioners or radiologists. All the above applications, as with many others are now cutting edge in medicine and has to be followed and actively managed.

Telenursing – challenges and opportunities

Snježana Čukljek, ZVU

Telehealth is defined as the delivery and facilitation of health and health-related services including medical care, provider and patient education, health information services, and self-care through telecommunications and digital communication technologies. Telehealth includes services provided by nurses, doctors, pharmacists, and other healthcare professionals.

Telenursing, a subset of telehealth, is the use of information technology and telecommunications to provide remote nursing care. The American Nurses Association (ANA) has defined telenursing as the use of “technology to deliver nursing care and conduct nursing practices” (2001).

In telenursing the nurse must follow the nursing process when assessing, planning, implementing and evaluating care. The only difference is that the care is provided remotely, rather than in person.

Healthcare professionals provide four types of telehealth/telenursing services: live video conferencing, asynchronous or store-and-forward technology, remote patient monitoring, and eHealth.

The responsibilities of telehealth nurses include remote patient monitoring, collaborating with the healthcare team, and communicating with patients and their families. Telenursing is applied in preoperative conditions, as consultations for minor ailments and during home care in case of illness or recovery, during care of patients with chronic conditions.

Telehealth has expanded dramatically during the COVID epidemic because of the need to provide healthcare access for patients, protect patients and healthcare providers against infection, reduce patient visits to crowded healthcare facilities, reduce costs and improve the quality of care. Telehealth also became more popular or used due to the development of the telecommunication industry.

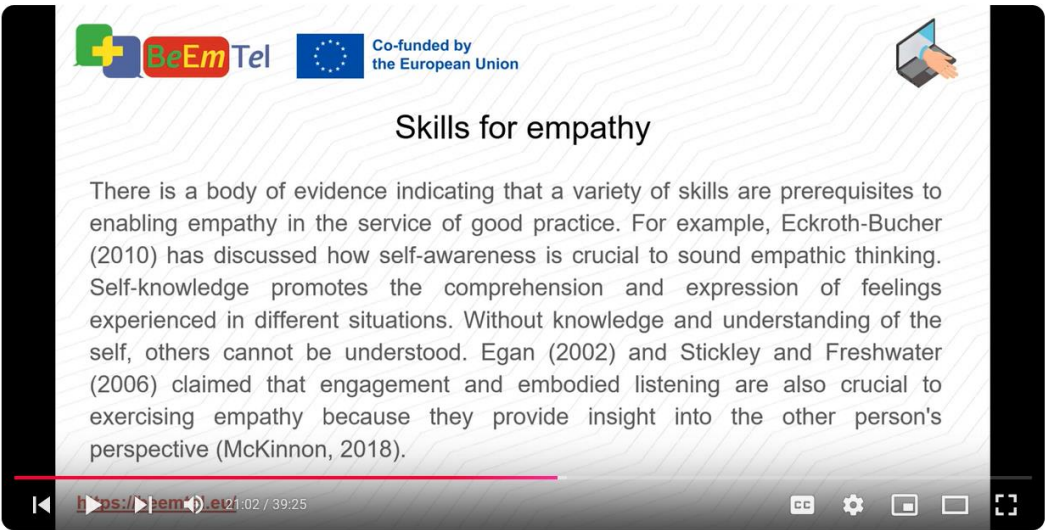
Preventing crisis in public health worldwide





Maria Saridi, UTH

Preparing for the possibility of a global pandemic presents a transnational organizational challenge: to assemble and coordinate knowledge over institutionally diverse countries with high fidelity. The COVID-19 pandemic has laid these problems bare. Over the last decade, a significant amount of resources and effort in the public health field have gone toward public crises prevention. As citizens, we've become all too familiar with morbid news reports of gun violence, mass shootings in unthinkable places - churches, schools, movie theatres - dangerous health risks in our drinking water and worsening drug epidemics that claim a shocking number of lives per year. During a public health emergency, a crisis communication plan enables public health professionals to deliver information that helps people act on behalf of their physical and mental health and well-being. Messaging refers to persuasive communication designed to change health-related behaviors. Messengers are the government leaders and health professionals responsible for reaching out to the public. Strategic public health crisis communication planning allows authorities, such as public health practitioners, government researchers, and scientists, to devise and deliver effective messaging when information is limited, obsolete, or changing rapidly. WHO is working with countries and partners around the world, around the clock, to prepare for, prevent, detect and respond to disease outbreaks and other health emergencies. WHO's Health Emergencies Programme works with all countries and partners to ensure the world is better prepared for all-hazards health emergencies that threaten global health security. The European Commission now (after COVID-19 Crisis) seeks to strengthen its role in preparedness planning and response through, among other measures, the establishment of the European Union (EU) Health Emergency Preparedness and Response Authority (HERA). COVID-19 provides a renewed prospect for solidarity, both within and between countries. It also serves as a reminder that health is more than healthcare and that a whole-of-government approach to health and well-being is needed to create healthy populations able to collectively prevent and respond to crises, leaving no one behind.

New Forms of Proximity - Overview of e-course content

The third part of the e-course was concerned with new forms of proximity and included 12 lectures. Below in the text is a list of lectures, links to selected lectures as well as selected abstracts.

N°	Lesson title, Teacher	Affiliated partner	Type of lesson
42	Principles of participation between public and private actors. The case of narrative medicine , Stefano Rossa	UPO	Traditional Lesson
43	Ageing and Active Ageing framework implementation in Croatia , Boris Ilić	ZVU	Traditional Lesson
44	Psychological proximity an overview *, Maria Prohn	LMU	Traditional Lesson
45	The importance of empathy in healthcare , Melita Rukavina	ZVU	Traditional Lesson
46	Empathy in nursing , Adriano Friganović	ZVU	Traditional Lesson
47	Empathy at Distance: Virtual Reality and new forms of proximity , Evangelos Fradelos	UTH	Traditional Lesson
 <p>Skills for empathy</p> <p>There is a body of evidence indicating that a variety of skills are prerequisites to enabling empathy in the service of good practice. For example, Eckroth-Bucher (2010) has discussed how self-awareness is crucial to sound empathic thinking. Self-knowledge promotes the comprehension and expression of feelings experienced in different situations. Without knowledge and understanding of the self, others cannot be understood. Egan (2002) and Stickley and Freshwater (2006) claimed that engagement and embodied listening are also crucial to exercising empathy because they provide insight into the other person's perspective (McKinnon, 2018).</p> <p>Empathy at Distance_ Virtual Reality and new forms of proximity</p>			
48	Digital health education: an overview *, Selina Kim	LMU/INM	Traditional Lesson
49	Enhancing treatment adherence of chronic patients in digital era , Evangelos Fradelos	UTH	Traditional Lesson
50	Human-Computer Interaction. Designing usable remote assistance *, Julia Schrader-Reichling	LMU/INM	Traditional Lesson
51	Nursing Management of Patients with Anxiety Disorders , Ioanna V. Papathanasiou	UTH	Traditional Lesson

52	New Forms of Proximity in Healthcare: A philosophical perspective , Emiliano Loria	UPO	Traditional Lesson
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">   <p>Co-funded by the European Union</p> </div> <div style="text-align: right;">  </div> </div> <p style="text-align: center; color: red; font-weight: bold; font-style: italic;">The Promise of a new Approach</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;"> <p>The most interesting opportunities derive from the so-called Internet of Things, i.e. from the possibility of connecting and making devices and objects in the home environment communicate with each other, to improve the health, autonomy and quality of life of the elderly or differently abled.</p> <p>Technological solutions designed specifically for the elderly can increase therapeutic adherence, the perception of safety and self-control.</p> <p>https://beemtel.eu/</p> </div> <div style="width: 45%; text-align: center;">  </div> </div> <p style="text-align: center;">Loria UPO New Proximity_ A Philosophical Perspective</p>			
53	Assessment of spirituality and spiritual needs of chronic patients in the context of remote care , Evangelos Fradelos	UTH	Traditional Lesson

*lecture is partial due LMU/INM policy

Selected abstracts

(In the Simnova Platform Abstracts were translated in the Partnership languages)

Empathy in nursing

Adriano Friganović, ZVU

Understanding other people's emotions is a key skill in the workplace. It can enable us to resolve conflicts, to build more productive teams, and to improve our relationships with co-workers, clients and customers. The concept of empathy is of relatively recent intellectual heritage. Moreover, since researchers in different disciplines have focused their investigations on very specific aspects of the broad range of empathy-related phenomena, one should probably not be surprised by a certain amount of conceptual confusion and a multiplicity of definitions associated with the empathy concept in a number of different scientific and non-scientific discourses. An appropriate leadership style should promote the efficacy of nurses. Different leadership styles can affect nurse's job stress and the numbers of nurses leaving their workplace or their profession. Empathy is integral part of leadership style.

Empathy at Distance - Virtual Reality and new forms of proximity

Evangelos Fradelos, UTH

Empathy is derived from the Greek word 'empathia', which is composed of en, meaning "in," and pathos, meaning "feeling and suffering." Aristotle and Plutarch used empathy to indicate being inspired by in Ancient Greece. Modern usage can be traced back to Germany at the end of the 19th century, when 'Einfühlung' was used in an aesthetic sense to describe the process by which a person becomes immersed in contemplating a work of art. Robert Vischer first coined the term (Einfühlung) empathy in 1873 to describe the projection of human emotion onto the natural environment. The work of Rogers on empathic understanding in the therapeutic relationship in psychology informed the early investigations in the topic. However, the use of this concept in issues of interactions between nurses and patients and in clinical nursing practice only emerged in the mid-1970s. Up to the 1990s, the literature saw empathy as appropriate, desirable, and therapeutic, as well as a beneficial component of nurse-patient interactions. As a result, empathy emerged in the 21st century in educational strategies and the programs of healthcare institutions as a significant means of increasing the quality of nursing care.

In nursing, empathy is defined as a human, professional, and caring trait in the process of communicating with patients. According to Carl Rogers' articles, empathy is the process of experiencing the same sentiments as others and having an emotional connection with them or feeling the world of the patient in such a way that this feeling is your own experience. He talked about subjective and objective empathy, and he believes that subjective empathy involves paying attention to your own personal reactions in response to the patient's experience, whereas objective empathy involves using external information, such as theories or concepts, to better understand the patient's experiences. The ability to truly understand and share the patient's emotions and thoughts by fostering good communication through evidence-based constructive ways. In this communication, the fact that nurses transmit what they understand to the individual is an empathic response given to satisfy the patient's feelings and needs. Empathy is an advanced, effortful, intellectual, and trainable attribute that includes cognition more than emotions and contributes for professional satisfaction and career advancement, whereas sympathy is a primitive and effortless reaction that mainly involves affective domain leading to anxiety and subsequent vicarious trauma. Whereas empathy is characterized by shared feelings (feeling as), compassion is characterized by caring concern but not necessarily by shared feelings (feeling with). While compassion provides prosocial incentive to help, empathy may generate a combination of motivation to help as well as personal suffering and avoidance. Conveying empathy requires both verbal and nonverbal awareness. Word choice, tone of voice, and pace of speech are all key components of face-to-face communication, and their importance increases when speaking with a client telephonically or online. Over a digital platform, facial expressions and gestures can help convey empathy, however there is a lack of other context such as body posture and setting. Hence, even minor details can transmit the wrong message if there is no other context to counteract a negative impression. For example, speaking too quickly may inadvertently convey as "I'm too busy to spend time on the phone with you," while an unfamiliar word could intimidate someone. Telemedicine and other Medical 2.0 services are gaining popularity, however research indicates that empathy is diminished in digital situations. As the provision of telemedicine increases and streamlines access to care, healthcare providers must not only acquire the necessary technical expertise, but also communication skills adapted to the technology that express care and concern for patients.

Effective techniques for expressing empathy via telemedicine differ in some aspects from those for face-to-face interactions.

Human-Computer Interaction – Designing usable remote assistance

Julia Schrader-Reichling, LMU

Human-Computer Interaction (HCI) is an interdisciplinary field aiming to improve the way users interact with a technical device to achieve a goal without a lot of cognitive effort. To design an attractive interaction, the following four aspects need to be studied in detail: the user, the task, the interface and the context in which the task is performed. The user's cognitive capacities and abilities to respond to a stimulus are the limiting factors when deciding on e.g. how many options can be displayed on a computer screen without overloading the user. Furthermore, any impairments e.g. lower contrast vision or difficulties to make fine-tuned hand movements should be considered in the design of the user interface. Also important is the choice of an adequate input and output technology to facilitate the interaction. In the future, it is possible to make use of augmented and virtual reality in telemedicine to enrich the interaction between doctor and patient. To measure if a good interaction has been created, it is important to look at the usability of a system. This term describes how effective, efficient and satisfactory a user can attain predefined goals. These components can be measured during a usability test, where users are observed and recorded during the usage of a system. Before, during the development process, a thorough understanding of the user is necessary. Different methods of user research are presented in this lecture as well as the concept of user-centred design, including iterative testing throughout the development process.

Nursing Management of Patients with Anxiety Disorders

Ioanna V. Papathanasiou, UTH

Anxiety is a necessary force for survival and has been experienced by humanity throughout the ages. It was first described as a physiological disorder and identified by its physical symptoms, particularly the cardiac symptoms. The psychological implications for the symptoms were not recognized until the early 1900s. Anxiety is considered a normal reaction to a realistic danger or threat to biological integrity or self-concept. Normality of the anxiety experienced in response to a stressor is defined by societal and cultural standards.

Anxiety disorders are more common in women than in men by at least two to one. Studies of familial patterns suggest that a familial predisposition to anxiety disorders probably exists. The DSM-5 identifies several broad categories of anxiety and related disorders. They include panic and generalized anxiety disorders, phobic disorders, and OCD and related disorders, such as body dysmorphic disorder, trichotillomania, and hoarding disorder. Anxiety disorders may also be the result of other medical conditions and intoxication or withdrawal from substances.

Panic disorder is characterized by recurrent panic attacks, the onset of which are unpredictable and manifested by intense apprehension, fear, and physical discomfort. Generalized anxiety disorder is characterized by chronic, unrealistic, and excessive anxiety and worry. Social anxiety disorder is an excessive fear of situations in which a person might do something embarrassing or be evaluated negatively by others. Specific phobia is a marked, persistent, and excessive or unreasonable fear when in the presence of, or when anticipating an

encounter with, a specific object or situation. Agoraphobia is a fear of being in places or situations from which escape might be difficult or in which help might not be available in the event that the person becomes anxious. OCD involves recurrent obsessions or compulsions that are severe enough to interfere with social and occupational functioning. Body dysmorphic disorder is an exaggerated belief that the body is deformed or defective in some specific way. Trichotillomania (also known as hair-pulling disorder) is a disorder of impulse control characterized by the recurrent pulling out of one's own hair that results in noticeable hair loss. Hoarding disorder is defined by the persistent difficulty of discarding or parting with possessions, regardless of their actual value.

Nursing management of a patient with anxiety disorder includes nursing assessment (history, general appearance and motor behavior, mood and affect, thought processes and content, sensorium and intellectual process), nursing diagnosis (anxiety, fear, ineffective coping, powerlessness, social isolation), nursing care planning and goals, nursing interventions and evaluation of the outcomes. Nurses can help patients with anxiety and related disorders gain insight and increase self-awareness in relation to their illness. Intervention focuses on assisting patients to learn techniques with which they may interrupt the escalation of anxiety before it reaches unmanageable proportions, and to replace maladaptive behavior patterns with new, more adaptive, coping skills.

Treatment of anxiety and related disorders includes individual psychotherapy, cognitive therapy, behavior therapy (including implosion therapy, systematic desensitization, and habit-reversal therapy), and psychopharmacology.

Telehealth interventions appear to be as effective as conventional therapy delivered in-person for effectively treating anxiety and related conditions. There is a need for further high-quality trials to determine the effectiveness, acceptability, feasibility and cost-effectiveness of telehealth interventions for the management of anxiety disorders.

New Forms of Proximity in Healthcare: A philosophical perspective

Emiliano Loria, UPO

The presentation highlights the importance of telemedicine and, more generally, telecare during the recent pandemic, which - in addition to its tragic impact - provided an opportunity to assess the effectiveness of a remote care relationship mediated by a range of technological tools: from PCs and mobile phones to telemonitoring devices. Recent literature on the subject has demonstrated not only the effectiveness, but also the satisfaction of health-operators and patients with the new arrangement of remote visits, which do not - and could not - replace face-to-face encounters, but which allow monitoring of the patient's condition and an intensity of visits, above all in the case of chronic conditions.

The second part of the lecture focuses on the philosophical aspect of such proximity, the new technologically mediated medical and nursing proximity. Among the many possible facets of this new proxemic dimension, the epistemic dimension is explored as an essential component in achieving one of the most important goals in the therapeutic relationship, particularly in chronic conditions: therapeutic adherence. The concept of the epistemic dimension is introduced, the negative case of epistemic injustice in the health operator-patient relationship, and its opposite, that consists in considering the patient as an epistemic agent, i.e.

a subject who is the bearer of knowledge (about his own illness) and of points of view. In this positive perspective the patient is seen as a collaborator and "allied" subject and not a complicated object that poses problems for the clinicians to solve. The patient's collaboration is a result, not taken for granted, of the therapeutic alliance that is also played out on an epistemic level, a level based on recognition of informative points of view.

The technologically mediated distance relationship, as today's Telecare is intended, can foster the epistemic dimension against an objectifying approach, and encourage the patient in the self-control of symptoms and awareness of the therapeutic plan.

LEARNING, TRAINING AND TEACHING ACTIVITY (LTTA) ERASMUS PROJECT

BeEmTel project included two Learning, Teaching and Training Activities (LTTA events) held in the Italian and German Simulation Centres - Simnova (UPO - Italy) and Human Simulation Center (LMU - Germany). These activities represented an intense 40-hour training experience each and the real immersion into the pedagogical method of simulation bringing an added value in the realization of the project's objectives. The activities comprised 40 hours withing one week.

The LTTAs were organized after the e-learning phase and 50 participants (students) who successfully completed the BeEmTel course were selected – 25 for Italy and 25 for Germany. The first LTTA was organized at Centro di Simulazione SIMNOVA, Novara, Italy 4-8 March 2024, and the second LTTA in LMU University Hospital, the Institute of Emergency Medicine and Medical Management Munich, Germany, 18-22 March 2024.

1st LTTA Novara, Italy, Immersive Week in UPO, Centro di Simulazione SIMNOVA

The simulation week at the SIMNOVA Centre was organized with days dedicated to specific themes. The themes were as follows:

- Monday, March 4: principles of simulation, telemedicine, and non-technical skills.
- Tuesday, March 5: telemedicine and disaster medicine
- Wednesday, March 6: telemedicine and cardiology
- Thursday, March 7: telemedicine and endocrinology
- Friday, March 8: telemedicine and community and family nursing.

Each day was designed, organized, and managed by a different multidisciplinary work group, with methodological and organizational supervision from the expert simulation team at SIMNOVA. Each group included European partners, UPO university professors, UPO doctoral students and PhD candidates (both for nursing and medical disciplines), UPO experts in simulation, and SIMNOVA simulated patients for the simulation sessions.

The teaching methods employed were chosen from those that guarantee a high level of interactivity on the part of students and facilitators: from workshops that developed following different moments of the clinical and care pathway of the assisted person, to scenarios that saw the use of virtual reality, to scenarios with a simulated patient that allowed the student to experience real telemedicine encounters with the assisted person and their caregiver.

Each simulation session which lasted 10-15 minutes, was analyzed during a debriefing session: a guided and reasoned reflection of 45-50 minutes to highlight strengths and areas for improvement by the participants.

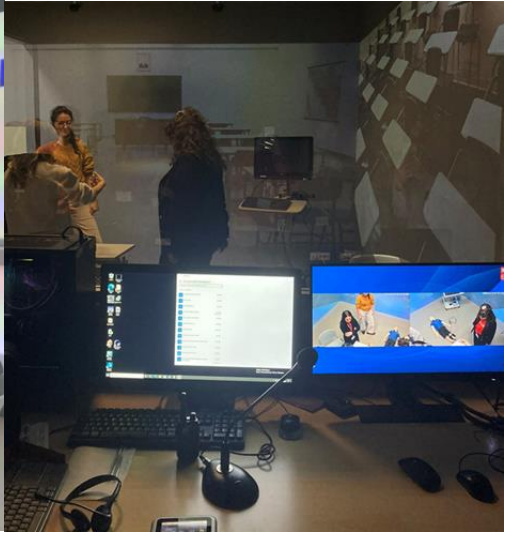
The scenarios that were the subject of the various simulation sessions were the result of numerous videoconference meetings or in-person meetings in the year preceding the LTTA week. During the meetings, general and specific objectives of the scenarios and the key actions for

each scenario were defined, in order to allow the evaluation of the achievement of the objectives themselves.

A fundamental part of the preparation of the various simulation sessions was dedicated to writing the scripts for the simulated patients (SPs) involved in the scenarios. Thanks to the collaboration of two English-speaking SPs, it was possible to create telemedicine scenarios with a high level of realism, in accordance with the standards expected for this type of simulation. The added value of scenarios with SPs is the participation of these latter in the debriefing. The students thus had the opportunity to immediately learn, after the interaction, the point of view of the patient and/or their caregiver and their experience during the telemedicine encounter. The scenarios that involved the participation of SPs took place during the days dedicated to telemedicine in cardiology, endocrinology, and family and community nursing.







Student experiences LTTA in Novara, Italy

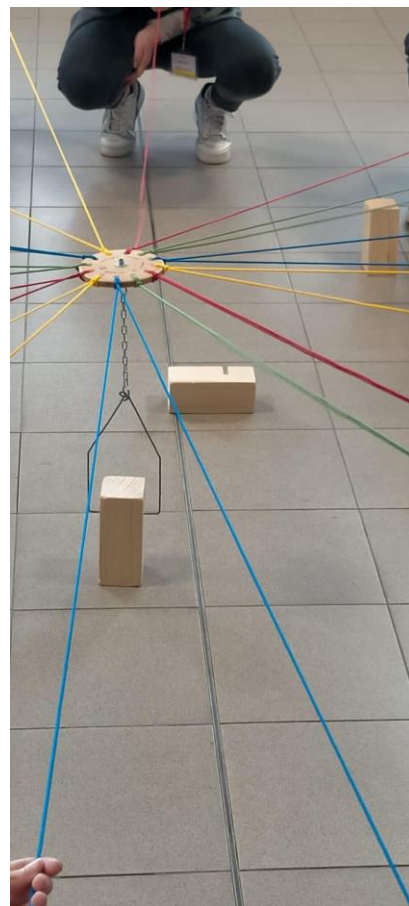
Croatian students' experiences

Monika Šuver, University of Applied Health Sciences Zagreb, Croatia

As part of the BeEmTel project I was one of the selected students that participated in the LTTA training week in Novara, Italy.



The programme lasted for five days, and it included various workshops. One of them was the „Tower of power“ a workshop on increasing teamwork.



In this workshop it didn't matter who was from where and how long we knew each other, but that we listened to each other and agreed. Everyone received one or two strings that were tied to the center with which we lifted the cubes and placed them one on top of the other.

The goal was to stack as many of them as possible. The first attempt was not the most successful, while the second attempt was better. We realized that we had to appoint a leader who would coordinate us, listen and respect the opinions, but in the end the leader had the final say.

It was interesting to participate in this type of workshop to feel and see what it means to be part of a team and actively participate in it. We realized how important it is to have a good and correct leader, but also how important it is to be a good colleague in the team.

The conclusion was that it was important to express one's opinion in a proper way, respect other people's opinion and accept the fact that we will not always agree on everything, but that it is important to accept and respect this mutual diversity. It is important that in the end we find a common goal that is best for everyone.



„BeEmTel is a project that I will always remember as a part of my education as a future healthcare worker. I think it was very useful and instructive, but also an innovative way to gaining new knowledge. I was satisfied with everything, with lectures, workshops and simulations. Everything was presented and designed in a fun way and I enjoyed every part of it. The equipment in the entire simulation center is extraordinary and I admired everything. I will always remember all the wonderful staff who shared their experiences and passed on their knowledge to us and the friendships we made with other students. This is an experience that I will always remember and I will always be grateful that I could be a part of this project. „

Marina

„BeEmTel project is interesting and innovative. I am glad that I got the opportunity to participate and gain new knowledge. The lectures were interesting and it was great for me to hear other teachers experiences about each topic we covered. The workshops were a lot of fun and it was great for me that we immediately went through what we heard in the lecture. All in all, this experience in Italy worth repeating.”

Veronika



„Monika and I participated in a simulation where a child diagnosed with diabetes fainted at school. We found ourselves in a room where that boy. Before the very beginning, you don't expect that you will actually enjoy yourself so much that at times everything seemed real. That doll really became that boy. I did not expect such excellent equipment as well as elaborate scenarios. We had to do everything as if we were in a real situation. An unforgettable experience and something completely new.”

Ena

„I am happy that I was a part of this project, BeEmTel expanded my knowledge and skills, which will be useful in my future work. The project organization, lecturers and other participants contributed to our personal development and progress by showing us something new.”

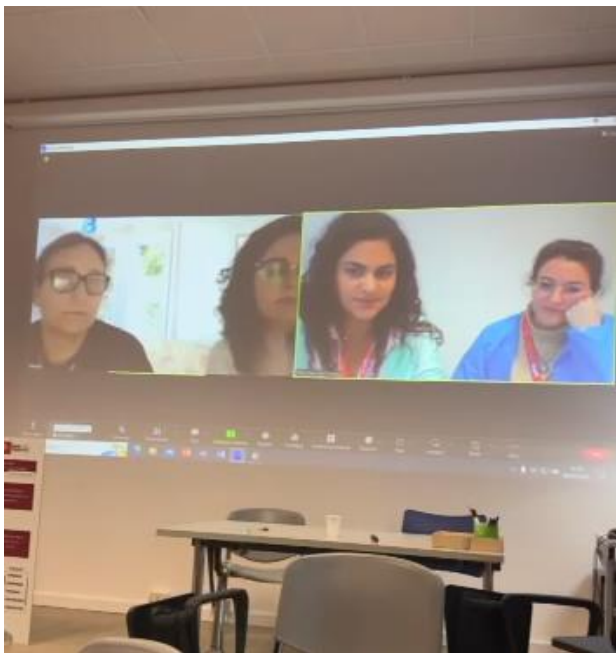
Nikolina



Greek students' experiences

Elena Kiasa, Graduate Student of the Department of Nursing in Larisa, Greece

This year I had the opportunity to participate in the LTTA Erasmus Project which took place in Novara that is located in Italy. More specifically, in addition to the knowledge I received, I was given the opportunity to use the latest simulation techniques. As a graduate student of nursing, I feel very pleased to have expanded my knowledge on the field of telemedicine, especially in cases of chronic diseases. Furthermore, in my opinion, a graded scale of difficulty was noticeable not only in the lectures, but also in the workshops and simulation scenarios. By enhancing my theoretical background, I was able to handle the practical part including case studies and simulation scenarios. It goes without saying that a level of difficulty was present during the practice due to the short preparation time and lack of experience, but I believe that I managed it adequately. Also, through this educational programme, I had the advantage of cooperating with colleagues from other countries and exchanging views with respected academics, which helped me to create friendly bonds and to establish future collaborations. In conclusion, I became familiar with telemedicine, I realized its importance especially in our time and I identified its advantages and disadvantages in our daily life.



[Link to video](#)

Romanian student's experiences

Andreea Oana Pop Bandrabula, Medical Student, UMFST Targu Mures, Romania

In March 2024, I had the amazing chance to take part in the Erasmus project "Beyond the Emergency" at the UPO SIMNOVA Centre in Novara, Italy. This experience truly opened my eyes, both academically and personally. It was a wonderful mix of learning, cultural exploration, and delicious food that left a lasting impression on me.

The learning aspect of the project was one of the highlights for me. We took part in workshops and discussions led by knowledgeable experts who shared their insights on emergency management and community resilience. What I enjoyed the most were the eye-opening workshops dedicated to telemedicine. We learned how technology is being used to provide healthcare services remotely, especially in emergency situations where access to medical facilities can be limited. The discussions highlighted the benefits of telemedicine, such as reaching underserved communities and enabling faster responses in crises. It was inspiring to see how innovation can make a real difference in people's lives, and it sparked my interest in exploring this field further.

Working in diverse groups was a great way to learn from others. Each participant brought unique perspectives, which made our discussions richer and more engaging. I found myself thinking critically and creatively, and I felt inspired by the collaborative spirit of everyone involved. This project not only enhanced my understanding of the subject matter but also improved my teamwork and communication skills.

Beyond the educational component, the cultural experience in Novara has to be mentioned. The town itself was beautiful, with its historic buildings and welcoming atmosphere. I loved wandering through the streets, soaking in the sights and sounds of everyday Italian life. And of course, no visit to Italy would be complete without enjoying its incredible food! Sharing meals together was another special part of the experience. We gathered around the table with participants and locals, enjoying delicious food and great company.

Participating in the "Beyond the Emergency" Erasmus project at the UPO SIMNOVA Centre was an incredible experience that I will always treasure. The combination of hands-on learning, cultural immersion, and culinary delights made it truly special. I left Novara not only with new knowledge and skills but also with wonderful memories and friendships. I am grateful that I had the opportunity to be part of such a complex and immersive project and I hope to see Novara and the SIMNOVA Centre again in the future.



2nd LTTA Munich, Germany, Immersive week in LMU University Hospital, the Institute of Emergency Medicine and Medical Management

The second BeEmTel immersion week took place at the Institute of Emergency Medicine and Medical Management (INM) at the LMU University Hospital in Munich. 27 students from five countries and numerous teachers took part in the five-day event. The event focused in particular on healthcare simulation.

After a general introduction to the INM and LMU University Hospital, participants attended a wide range of presentations on the topics of simulations in emergency medicine, nursing education, cancer, pediatric emergencies, and Virtual and Augmented Reality training in healthcare.

The lectures were also complemented by numerous practical elements, one of which was the opportunity to test the ARTEKMED system, a Mixed Reality teleconsultation system used in emergency medicine, in the INM's Human Simulation Centre.

By putting on a full-body motion-capturing suit, the students were also able to experience how human movement patterns are captured and transferred to a computer model in real-time.

On Tuesday evening during dinner, all participants had the opportunity to try traditional Bavarian cuisine. Thus, a cultural events as provided in addition to the intensive professional training.

LTTA as concluded on Friday afternoon after several intensive, instructive and exciting days.







Student experiences LTTA in Munich, Germany

Greek students' experiences

Our second immersive week kicked off with great excitement as we arrived at LMU. We were welcomed by our group of professors, each consisting of multicultural backgrounds. This introduction started our enthusiasm into learning about health perspectives and the healthcare systems of different countries.

The highlight of our first day was undoubtedly the visit to the Human Simulation Center. We were excited by the facilities, which included a fully equipped real-life ambulance and a helicopter. This remarkable environment set the tone for the dynamic, hands-on learning experiences that awaited us.

As we moved into the following days, our anticipation only grew. We explored innovative and stress-free teaching methods designed to train future nurses and doctors, which widened our understanding of modern education in healthcare. The program became even more engaging, and we had the privilege of actively participating in the educational sessions. Our team worked carefully to deliver presentations, and it incredibly rewarding to see everything run smoothly.

Throughout the week, we gained valuable insights into cutting-edge technologies like telemedicine, augmented reality (AR), and virtual reality (VR). These tools demonstrated how they can revolutionize patient care and change health outcomes.

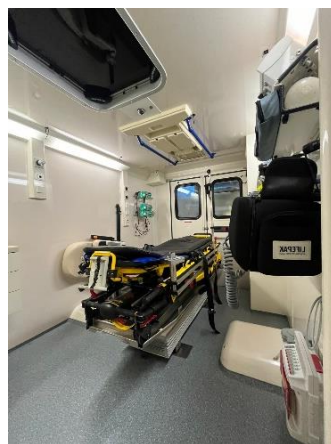
The week came to an end in a simulation exercise, where we not only practiced our skills but also learned how to effectively debrief and reflect on the experience. This immersive week left us inspired and equipped with new knowledge and skills to bring forward in our healthcare journey.



Croatian students' experiences

Katja Klepac, Nursing student from Croatia

The BeEmTel project is an Erasmus+ project for nursing and medical students. The project focuses on the themes: telemedicine, emergency health care, and chronic diseases. Spending a week in Munich with other nursing and medical students from different countries was an opportunity to expand and exchange clinical knowledge and different experiences through university. Not only was it a great opportunity to learn and expand new skills, but to connect with future healthcare workers who share a passion for patient care. The simulations were a great way to expand on to the online lessons and to try out new ways of learning that the Institute for Emergency Medicine offers for its students. Through the week we had a chance to hear about different perspectives and approaches from students from other countries, which taught me that teamwork and different backgrounds can enrich the process of care. We had simulations and presentations that included the following themes: telemedicine, distance learning, holopatient and VR, teamwork, simulations in nursing education, communication skills, and breaking bad news. Outside of the simulations, we had time to explore and sightsee in Munich. We visited many cultural sights that Munich has to offer, like Marienplatz, Deutches Museum, English Garden, and others, and had a great time with the students from other countries. This project has been a great experience, which I would want to repeat. What I gained the most from this experience was confidence in my ability to contribute in a team and motivation for further involvement in student activities and collaborations beyond the classroom. Participating in this project has shown me that shared learning is a great way to develop skills like leadership, teamwork, and communication, which are important in academic and professional settings.



Romanian students' experiences

This year, I had the amazing opportunity to participate at the onsite courses of the project Erasmus+ "Beyond the Emergency. Telecare for Non-Communicable Diseases-BeEmTel", which were held at Ludwig-Maximilians-Universitaet in München, Germany. It still feels like a dream that I had this experience.

All the courses were great. From every single one, I learned something. The technology showcased was mind-blowing. In one of the courses, we learn how holopatients work and how we can use these holograms for education. This really made me think about how teaching medicine will look like in the future. I'm curious and excited at the same time to see how advanced technology is going to be used to improve teaching.

I believe that one of the hardest tasks as a doctor is delivering bad news. This is why the course where we learned about communicating unfortunate information to a patient or their family is the one I loved the most. I think that, after this experience, I know more about how to talk to patients and how to inform them about their state, even when it's not their best. Another



important task for doctors is to collaborate with each other. Therefore, the team building activities were really important. They didn't disappoint and we had fun during them. I also learned a lot about how healthcare works in other countries, and we talked about the universities we came from. This change of experience made me realize how different our systems work and see the faults in them. What better time to share experiences other than during a coffee break? It was nice that we had a place where we could have a coffee and eat some food. This helped with interaction between participants a lot.

During these breaks, me and my group befriended one of the students from Ludwig-Maximilians-Universitaet university. With this student, we did some sightseeing in München and went out after the courses. He was a bit of a tour guide for us. I loved visiting the museums and the different tourist attractions there since the city is breathtaking.

In the end, I want to point out that this was a once-in-a-lifetime experience and that I don't regret one bit for doing it. I kind of wish for everyone to have an opportunity like this in their life, because it truly changes the way you can perceive a subject. Besides, it's truly an exciting project to be part of. I would repeat it without a second thought.



Outline of an LTTA day Simnova Simulation Center - Novara– example of good practice

During the LTTA training at Simnova Simulation Center - Novara (Italy), one day was dedicated to Heart Failure, and 20 learners from the partner countries took part in the training. The day began by welcoming the students and after getting to know each other through a short tour of the students, the teachers and the program of the day were introduced.

The occasion was also useful to provide the operational instructions that the students would have to follow throughout the experience of the day dedicated to heart failure.

The team of teachers/tutors for the day dedicated to heart failure were:

- **Michela Barisone (RN, UPO):** Quality Management Committee Coordinator of the BeEmTel Project and Director of the first Italian course dedicated to the management of heart failure for Nurses (ACNAP-HFA). Michela has worked more than 10 years with patients with heart failure and her doctoral thesis concerns patients with heart failure who have undergone cardiac device surgery.
- **Manuela Bocchino (MD, ISS):** Cardiologist, with significant experience in Telemedicine applied to cardiology and patients with heart failure.
- **Domenico D’Amario (MD, UPO):** Cardiologist with significant experience in project management through the use of telemedicine systems in the field of cardiology and with patients with heart failure.
- **Ines Bassi (RN, UPO):** PhD student at the University of Eastern Piedmont, who supported the methodological part, in collaboration with colleagues from the Simulation Center Simnova, with pedagogical experience of the simulated patient.
- **Rosaria Lea and Alessia Bolamperti (SIMNOVA):** Tutors and experts in learning through medical simulation systems at the Simnova Simulation Center in Novara.

The day dedicated to heart failure was the 3rd of the week, and was structured as per the program below:

Time	Programme	Activity	Note	Person in charge of the activity
9.00 - 9.30	Introduction	Welcome and introduction of the students. Presentation of the day's program	Operating instructions for the day and Faculty presentation	Michela Barisone

12.30 – 13.30	Lunch			
13.30 – 15.45	Simulation session	3rd-4th Group 10 min: initial briefing 20-25 min: simulated clinical case 50-55 min: debriefing	For SIMNOVA: Rosaria Lea, Alessia Bolamperti, Francesca Pisano, Renata Olivia Thorogood For the Workshop: clinical case n° 2 (division into micro groups, questions and final discussion)	Domenico D’Amario Ines Basso
	Workshop session	1st-2nd Group		Manuela Bocchino Michela Barisone
15.45 – 16.00	Coffee Break			
16.00 – 16.45	Summary of the day: feedback from students	Collection of impressions of the participants of the experience	Sub-project activities C1 - LTTA	

After reviewing the objectives of the BeEmTel project and providing an overview of the day, a brief report was presented on the potential of telemedicine tools in managing heart failure as a chronic condition.

Following this insightful contribution by Dr. Bocchino, students received a glossary designed to facilitate effective communication in the management of chronic patients. This material, which also included assessment tools, was sent to students via email a week before the LTTA experience, allowing them time to familiarize themselves with these resources. Dr. Basso oversaw this section.

At the conclusion of these informative reports, the tutors from the Simnova Simulation Center, Rosaria Lea and Alessia Bolamperti, initiated the familiarization activity with the students. The goal was to provide students with the objectives and context of the simulation scenarios, as well as to acquaint them with the environment and tools used in the scenarios (the simulation pact).

The students' learning objectives were as follows:

Learning objectives for both medical and nursing students:

1. Collect and interpret individual and clinical data using telemedicine devices to gain a comprehensive understanding of the patient and their informal caregiver.
2. Identify health needs and prioritize them appropriately.
3. Recognize clinical situations that necessitate transitioning from remote care to an in-person visit.
4. Engage effectively with patients and caregivers using telemedicine tools.
5. Collaborate and communicate efficiently within a multidisciplinary team.

Educational objectives specifically for nursing students:

- Support the patient by promoting self-care and disease self-management.

Proposal for modifying the "heart failure" clinical case:

- Include the role of the nurse. The nurse could provide remote educational interventions (telenursing), supporting the patient's and caregiver's ability to manage self-care and the disease.

Decision-making points:

- Manage a situation where the patient shows poor adherence to home telemonitoring or televisit.
- Identify when the patient requires an in-person visit, particularly in cases where symptoms such as congestion persist despite changes in therapy.

The program also involved dividing the students into groups for two simultaneous sessions:

1. A workshop session focused on discussing a clinical case using decision-making cards, where students answered questions based on specific scenarios.
2. A simulation session structured as follows:
 - Initial briefing (scenario description and distribution to students).
 - Assessment tools and communication technique guidelines were sent to students one week prior to the LTTA experience.
 - 20-25 minutes: simulated clinical case.
 - 50-55 minutes: debriefing.

1) Workshop case track:

Maria is a 55 years old woman, she has a strong familiarity with ischemic heart disease from his father and she smokes 20 cigarettes a day. A month ago, she was admitted to the intensive coronary unit for an acute myocardial infarction with ST elevation; a coronarography performed in emergency detected a proximal occlusion of the interventricular artery that was subjected to primary angioplasty with successful stent implantation. Despite the prompt intervention, the ejection fraction of the left ventricle has decreased (about 40%), otherwise the clinical course was good.

At the moment of discharge from the hospital after five days, the doctor gives to Maria the discharge letter that reports clinical progress, instrumental examinations carried out, and therapeutic indications. Regarding the clinical follow-up, Maria will have to perform a check-up about 15 days after discharge, an echocardiogram to check the left ventricular ejection fraction in 40 days, that must be viewed by the cardiologist for confirmation or modification of the therapy and to set the next process.

A cardiology technician performs a counselling and explains how to change her lifestyle, some recommendations about adherence to medications and to implement correct lifestyle behaviours, a heart-healthy diet, and adequate exercise.

Learners were provided with a case outline and were asked a series of questions as the case progressed, designed to stimulate clinical reasoning and decision-making in managing patients with heart failure.

The learning objectives were:

- Effectively engage with the patient and caregiver using telemedicine tools.
- Collaborate and communicate efficiently within a multidisciplinary team.
- Identify health needs and prioritize them appropriately.

Each question involved 15 minutes of student briefing, during which they proposed hypotheses to address the case, followed by 15 minutes of debriefing with the instructors to discuss the decisions made and the clinical reasoning behind them.

At the end of the workshop, Michela Barisone presented several scientific studies on therapeutic adherence in heart failure patients, highlighting the nurse's role in the care pathway, particularly in the post-discharge period and during follow-up care.



2. **Simulation scenario** (section edited by Domenico D'Amario, Ines Basso, Rosaria Lea and Alessia Bolamperti in collaboration with two experts in simulation and medical pedagogy who played the role of simulated patient and caregiver)

Patient with heart failure and an implantable defibrillator. The path uses telemedicine services such as telemonitoring, televisit, and teleassistance.

The case develops in two steps:

- moment of discharge
- follow-up visit

1° step:

Renata is a 40-years-old woman suffering from a severe arrhythmogenic right ventricular dysplasia, with a past episode of sustained syncopal ventricular tachycardia, moderately overweight, so it was necessary to implant a defibrillator just discharged. He had some episodes of heart failure too, due to reduced right ventricular systolic function.

This is the moment of discharge, in which a monitor for the telemonitoring of his defibrillator is given to Renata and the cardiologist and the nurse explain its operating way.

The nurse will train the patient in symptom monitoring, healthy lifestyle and self-care assessment using the self-care tool.

EXPECTED BEHAVIORS PHYSICIAN

To provide the patient with useful information about the management of his or her condition at home and what behaviours to adopt with respect to the newly implanted cardiac device.

EXPECTED BEHAVIORS NURSE

To provide the patient with useful information about the management of his or her condition at home and what behaviours to adopt regarding wound dressing, lifestyle, and how to assess any worsening of symptoms.

2° step:

After 1 year he passed with regular checkups. Renata uses her monitor, which transmits data, without any problems. The nurse periodically checks the transmitted data, according to the time and manner prescribed by the centers protocol. Checking the transmitted data, the nurse observes that an alarm has been generated because the composite index exceeds the configured threshold; this index indicates a warning of possible heart failure on average about 30 days earlier with high sensitivity.

The nurse communicates the parameters of the alert to the physician, and a telemedicine meeting is arranged with the patient at home. When the appointed time arrives, the cardiologist connects through the videoconferencing platform where he finds Renata connected in the living room with her sister.

EXPECTED BEHAVIORS PHYSICIAN

Investigate the patients' health status to assess any clinical worsening and what therapeutic actions to consider.

EXPECTED BEHAVIORS NURSE

The nurse participates in the call between doctor and nurse as part of the multidisciplinary team and will intervene if required.



The Workshop and the simulation scenario involved two groups per face for each activity. The students who participated in the Workshop in the morning session then carried out the simulation activities in the afternoon and vice versa.

The experience ended with a moment of debriefing of the activities carried out throughout the day by the students and teachers.

The feedback received was all very positive, it was an immersive day in the management of heart failure with telemedicine tools. An effective and engaging way for clinical learning based on simulated scenarios of patients with heart failure.



Appendix 1

Educational material for the simulation scenario

Effective Health-Care Communication

Effective communication with chronic patients requires a tailored approach that addresses their unique needs, challenges, and circumstances. Key characteristics of effective communication with chronic patients include:

Empathy and Understanding: Healthcare providers should demonstrate empathy and be attuned to the challenges chronic patients face. Building rapport and trust is essential, which involves actively listening to their concerns, acknowledging their experiences, and showing genuine compassion.

Clear and Transparent Information: Communication should be clear, transparent, and free of medical jargon. Patients need to fully understand their condition, treatment options, and self-management strategies in a way that empowers them to make informed decisions about their health.

Two-Way Communication: Encourage open-ended questions to let patients share what's on their minds. Addressing these immediate concerns allows patients to feel heard and opens the door for discussing other topics during the session. Encouraging patients to ask questions and express concerns fosters a collaborative relationship, which enhances treatment adherence and outcomes.

Patient-Centered Approach: Tailor communication to each patient's needs, preferences, and cultural background. Recognize that patients have different priorities, goals, and levels of health literacy, requiring a personalized approach. Be mindful of cultural differences.

Positive Reinforcement and Motivation: Acknowledge the patient's efforts in managing their condition, offering positive reinforcement to sustain motivation. Celebrating small victories and setting realistic goals can boost their confidence and engagement in self-care.

Adaptability and Flexibility: Be adaptable in communication approaches, adjusting to changes in the patient's condition, preferences, or circumstances. Regularly evaluate the effectiveness of communication strategies and adjust them to meet evolving needs.

Emotional Support: Chronic conditions can impact patients' emotional well-being. Healthcare providers should offer emotional support, validate their feelings, and provide resources for coping strategies or mental health support when necessary.

Summarizing: Consistently summarizing the patient's narrative throughout the consultation, not just at the end, shows active listening and ensures a clear understanding of their key points.

Consistency and Continuity: Ensure consistent communication across all healthcare providers and settings. Chronic patients often interact with multiple providers, and clear, consistent communication helps avoid misunderstandings and promotes coordinated care.

By incorporating these characteristics into their communication, healthcare providers can foster a trusting, collaborative relationship that supports effective chronic condition management and improves patient outcomes.

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EVALUATION

The BeEmTel project—"Beyond the Emergency: Telecare for Non-communicable Diseases through Simulation Techniques"—was designed in response to the pandemic, highlighting the need for robust e-health education and telecare solutions for chronic disease management. This evaluation chapter aims to assess the effectiveness of BeEmTel’s e-learning platform and telesimulation method, focusing on the impact of digital learning tools on the knowledge, skills, and confidence of healthcare professionals managing chronic diseases remotely.

The evaluation involved a mixed-method approach to capture both quantitative and qualitative data, allowing for a comprehensive analysis of the BeEmTel curriculum's impact. Primary tools included structured questionnaires, distributed to participants across multiple European institutions, and in-depth feedback gathered through focus groups. The main areas of evaluation covered:

1. Participant satisfaction with the digital platform’s usability, content relevance, and interactivity.
2. Assessment of knowledge retention and skill development in chronic disease management using telecare techniques.
3. Evaluation of the telesimulation’s effectiveness in providing real-life scenarios to enhance decision-making skills.

Quantitative data from the questionnaires were analyzed to identify trends and average scores, while qualitative feedback provided insights into specific strengths and areas for improvement.

European Curriculum Evaluation Questionnaire on Chronic Disease Management Through Telemedicine

The questionnaire was created in accordance with the contents of the e-course and includes three parts: chronic diseases, simulation and telemedicine and communication and new form of proximity in the assistance area. In each area of the questionnaire, students self-assessed the acquisition of knowledge, skills and attitudes on a scale from 0 to 4.

Chronic disease

TOPIC: CHRONIC DISEASES (NCD)					
Description					
To evaluate learning on chronic disease topics through the online e-course BeEmTel and LTTA. Self-assessment is overall learning through e-course and LTTA.					
Knowledge	0	1	2	3	4
<i>Assign a score from 0 to 4 with respect to the knowledge the course provided you with respect to:</i>					

<ul style="list-style-type: none"> • By the end of the course, learners will have acquired a comprehensive understanding of the biological mechanisms underlying obesity. • By the end of the course, learners will Demonstrate effective communication skills necessary for frequent collaboration among multidisciplinary teams involved in the care of heart failure patients. • By the end of the course, learners will Acquire knowledge of the latest updates in heart failure management, including understanding epidemiology, definitions, and key aspects of multidimensional assessment. • By the end of the course, learners will Acquire knowledge of the telerehabilitation in providing long-lasting follow-up protocols for patients with chronic neurological diseases. • Will Understand the definition and characteristics of frailty syndrome. • Reflect critically on the reason for the occurrence and care for the patients of IBD. • Will know current trends of epidemiology of Prostate Cancer • Will be able to Recognize the various types of errors and adverse events that can occur in healthcare settings. • Will understand the concept of resilience in the context of emergency department operations. 					
Skills					
<ul style="list-style-type: none"> • Upon completion of the program, participants will have developed practical skills in assessing and addressing obesity-related health risks. • By the end of the course, learners Will know all various comorbidities associated with heart failure. • By the end of the course, learners will Demonstrate proficiency in conducting multidimensional assessments of heart failure patients. • learners will be able to Implement telerehabilitation protocols to monitor and treat patients with chronic neurological conditions. • Learners will be able to Identify and assess frailty syndrome in patients. • Will be able to interpret all clinical signs of IBD. • Will be able to Implement protocols and strategies to prevent and reduce risks, errors, and harm to patients during the provision of healthcare. • Will be able to conduct a screening for prostate cancer. • Will be able to assess challenges and vulnerabilities of emergency departments 					
Attitudes					

<ul style="list-style-type: none"> • Learners will demonstrate an empathetic attitude towards individuals affected by obesity. • Attitudes By the end of the course, learners will Develop a patient-centered attitude that prioritizes the holistic well-being and quality of life of heart failure patients. • Attitudes By the end of the course, learners will exhibit openness to the integration of telemedicine and artificial intelligence systems to enhance patient care and meet the changing needs of heart failure patients. • By the end of the course, learners will be able to recognize telerehabilitation as an essential resource in modern clinical practice. • Will exhibit sensitivity and personalized care when managing patients with frailty syndrome. • will be able to Adopt a patient-centred approach for patients with IBD. • will Develop an attitude of responsibility towards patient safety. • Will exhibit a supporting attitude towards management of late effects, comorbidities, and potential recurrence of the disease. • Will exhibit a culture of continuous improvement and implementing solutions to enhance resilience in emergency departments. 					
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Simulation and telemedicine

TOPIC: SIMULATION AND TELEMEDICINE					
Description					
To evaluate learning on chronic disease topics through the online e-course BeEmTel and LTTA. Self-assessment is overall learning through e-course and LTTA.					
Knowledge	0	1	2	3	4
<p><i>Assign a score from 0 to 4 with respect to the knowledge the course provided you with respect to:</i></p> <ul style="list-style-type: none"> • Describe what is understood by digital education. • Will be able to recognize the importance of integrating telemedicine into diabetes care plans. • Describe the telemedicine services. • Describe indications for use and methods of execution of telemedicine services. • Will understand the benefits of telemedicine in heart failure management. • will gain a comprehensive understanding of telenursing interventions for chronic disease management. • Will have a comprehensive understanding of tele nephrology 					

<p>modalities and their applications in managing chronic kidney disease (CKD).</p> <ul style="list-style-type: none"> • Will be able to understand the applications of telemedicine in chronic respiratory diseases. • will gain a comprehensive understanding of clinical procedures and teamwork dynamics through simulation-based education. • comprehensive understanding of the principles and importance of interprofessional collaboration (IPC) and interprofessional education (IPE). • Recognize different debriefing approaches and understand the aim of debriefing in and after a simulation. • Reflect the potential, advantages and limitations of augmented reality (AR) and virtual reality (VR) in medical simulation. • Demonstrate how simulation-based learning can enhance and complement nursing education. • Reflect on how standardized patients and simulated patients are used for training and the benefits of role-playing. • Will know the historical evolution of digital technology in healthcare. • will gain comprehensive knowledge of the challenges and considerations associated with implementing internet-connected devices in healthcare. 					
Skills					
<ul style="list-style-type: none"> • Will be able to Implement and utilize telemedicine tools effectively for remote monitoring and management of diabetic patients. • Demonstrate the ability to effectively engage with the patient and caregiver using telemedicine tools. • Demonstrate the ability to collaborate and communicate effectively within a multidisciplinary team. • Demonstrate the ability to elaborate health needs to be addressed, choosing the right priority. • Will develop proficiency in technologies, such as wearable devices and telemonitoring systems, to enhance nursing care delivery. • Will be able to apply telehealth technologies for delivering nephrology care. • will develop practical skills in healthcare procedures and maneuvers through simulation-based education. • will develop effective communication, teamwork, and collaboration skills through interprofessional education (IPE). • Will be able to moderate conversations, integrate emotions, and promote self-reflection among participants, fostering a conducive learning environment. • Will be able to utilize augmented reality (AR) and virtual reality 					

(VR) technologies for medical education.					
<ul style="list-style-type: none"> will develop deeper understanding the architecture and functionality of healthcare solutions utilizing wearable devices. 					
Attitudes					
<ul style="list-style-type: none"> Will develop an attitude of openness and willingness to adopt telemedicine technologies as valuable tools in diabetes management. Will value the teamwork and collaboration in the delivery of remote care for heart failure patients. Participants will learn to collaborate effectively with healthcare providers, community stakeholders, and technology experts to implement telenursing interventions. Will exhibit a positive attitude towards embracing technological advancements in nephrology care. will cultivate a positive attitude towards lifelong learning and continuous improvement in healthcare practice through simulation-based education. Will exhibit a positive attitude towards interprofessional collaboration and education, recognizing them as essential components of modern healthcare system. Will recognize the potential of AR and VR to enhance learning outcomes. Will cultivate appreciation for the impact of technology on improving patient care and quality of life Demonstrate the ability to understand patients' needs also through information and communication technologies. 					

Communication and new form of proximity in the remote assistance era

TOPIC: COMMUNICATION AND NEW FORM OF PROXIMITY IN THE REMOTE ASSISTANCE ERA					
Description					
To evaluate learning on chronic disease topics through the online e-course BeEmTel and LTTA. Self-assessment is overall learning through e-course and LTTA.					
Knowledge	0	1	2	3	4
Assign a score from 0 to 4 with respect to the knowledge the course provided you with respect to: <ul style="list-style-type: none"> Will know the principle of participation and its significance in 					

<p>fostering collaboration and inclusivity within legal and medical systems.</p> <ul style="list-style-type: none"> • Describe the ways of digital health education. • Will know the basic the principles and components of effective patient-physician communication. • Will know about the concept of empathy in the context of healthcare and its significance in building therapeutic relationships with patients. • Will have a deep understanding of the concept of empathy and its significance in the workplace, particularly within the context of leadership styles. • Will acquire a comprehensive understanding of the historical evolution of the concept of empathy. • Will learn key definitions, terminology, and tools used in digital health education, as well as the Chronic Care Model (CCM). • Will acquire a comprehensive understanding of medication adherence, including its definition, components, determinants, and measurement methods. • will acquire a comprehensive understanding of Human-Computer Interaction (HCI) principles. • Will have a deeper understanding in the philosophical aspects of remote care, including the concept of the epistemic dimension in therapeutic relationships and the role of therapeutic adherence. • Will be able to describe significance of spirituality in patient care, particularly in the context of chronic illnesses. 					
Skills					
<ul style="list-style-type: none"> • Will be able to apply principle of participation to promote collaboration between public and private actors in legal and medical spheres. • Will develop practical communication skills centered on empathy. • Will strengthen their ability to express empathy in healthcare interactions. • Will be able to resolve conflicts, build productive teams, and improve relationships with colleagues, clients, and customers. • Will learn effective verbal and nonverbal communication techniques for conveying empathy. • Will be able to assess the quality and accuracy of information from various sources, including online platforms and professional exchanges with experts. • Will be able to assess and promote medication adherence in clinical practice. • Will be able to apply techniques for conducting user research 					

<p>and implementing user-centred design approaches.</p> <ul style="list-style-type: none"> • Will be able to assess the benefits and limitations of remote care approaches, considering both patient and health operator satisfaction. 					
Attitudes					
<ul style="list-style-type: none"> • Will be able to exhibit empathy, respect, and advocacy for policies and practices that enhance the quality of life for older adults. • Will develop attitudes of empathy, compassion, and patience towards patients. • Will demonstrating commitment to promoting the well-being and success of their colleagues and employees. • will develop a commitment to integrating empathy into their daily interactions with patients, regardless of the communication medium used. • Will cultivate positive attitudes towards patient-centered care and collaborative decision-making in medication management. • Will develop an openness to embracing emerging technologies to enhance user experiences in telemedicine. • will adopt a patient-centric perspective, recognizing patients as active participants and collaborators in their own care rather than passive recipients. • Will cultivate attitudes of respect and sensitivity towards patients' spiritual beliefs and practices. 					
<p>Describe in a few words what an educational experience the BeEmTel project was for you:</p>					

Students feedback

One hundred and twenty one students filled in the survey (30.7%). Figure 1 reports the user's general opinion on telemedicine and their experience with the course. Only 16% of the students already attended a telemedicine course before (Figure 1c). Most of them consider telemedicine an important topic, noting that it should be integrated in their degree program (91%) and that they would continue independent study of the topic to strengthen their knowledge (88%) (Figure 1a, Figure 1b). Students encountered problems in using the platform in 32% of cases (Figure 1d).

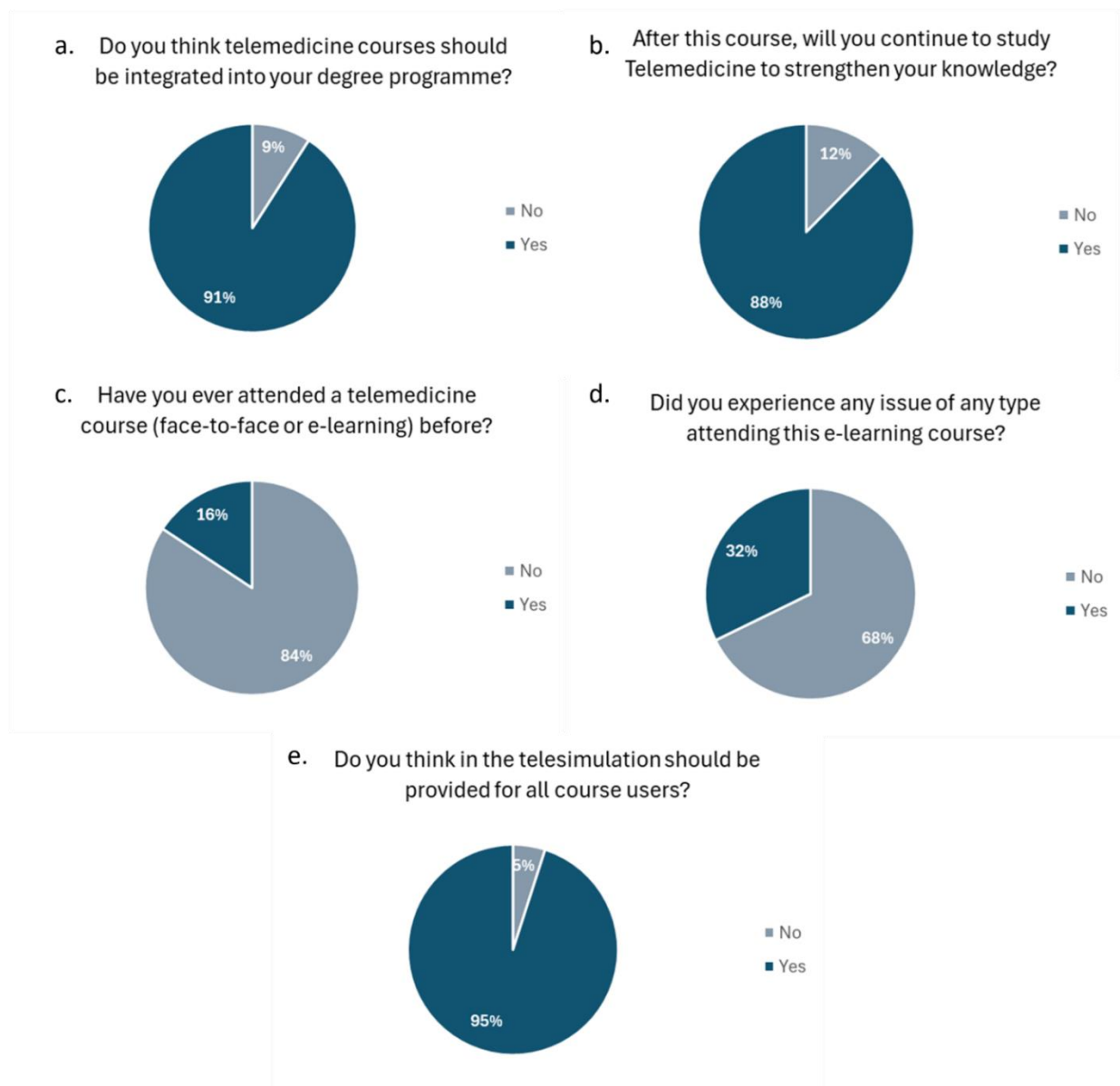


Figure 1. Student's general opinion on telemedicine and their experience (n=121).

Considering learners' general opinion on the e-course (Figure 2), most of them found the topics covered interesting (93.4%) and in line with their knowledge (79.4%) (Figures 2c, Figure 2a). Students considered topics useful for their future professional life in 89% of cases (Figure 2d).

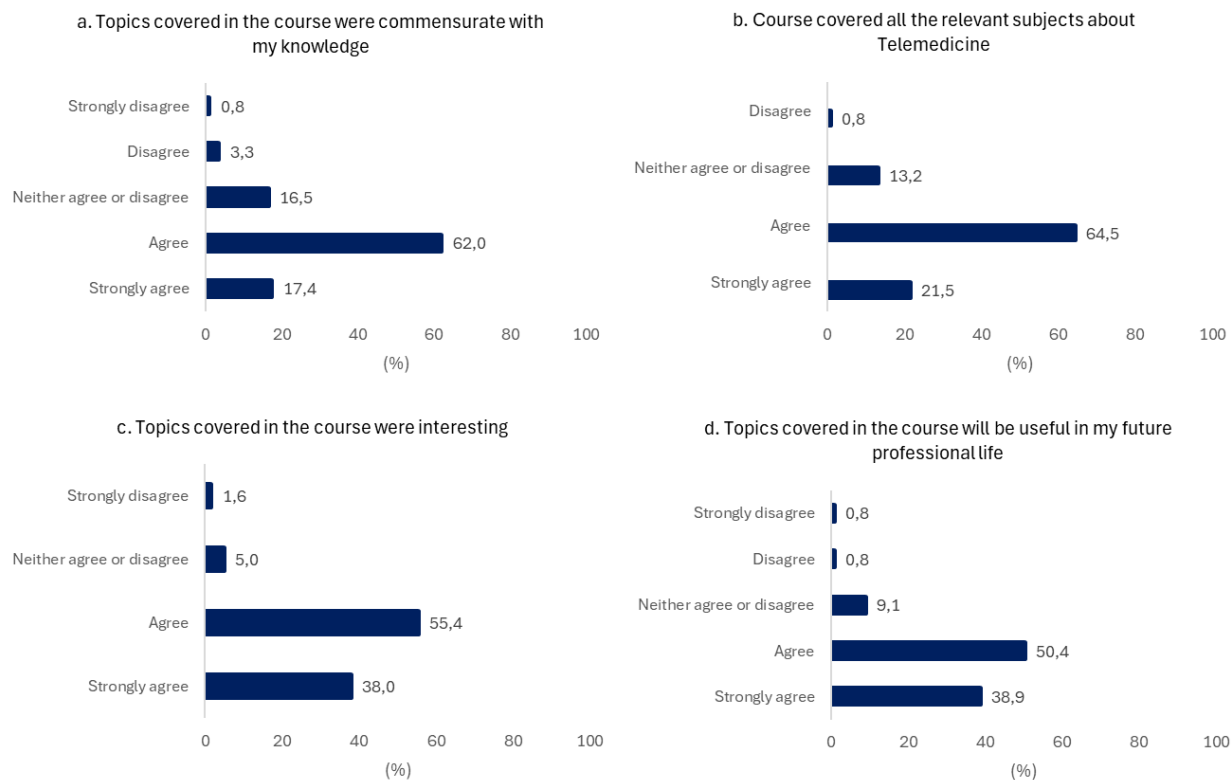


Figure 2. Student’s general opinion on the BeEmTel course (n=121).

As for the user’s experience on the course’ organization (Figure 3), lessons were clear and easy to understand (81%) (Figure 3c), the platform’s interface was useful and user-friendly for 88% of them, although 17% of the students encountered practical problems with it (Figure 3e).

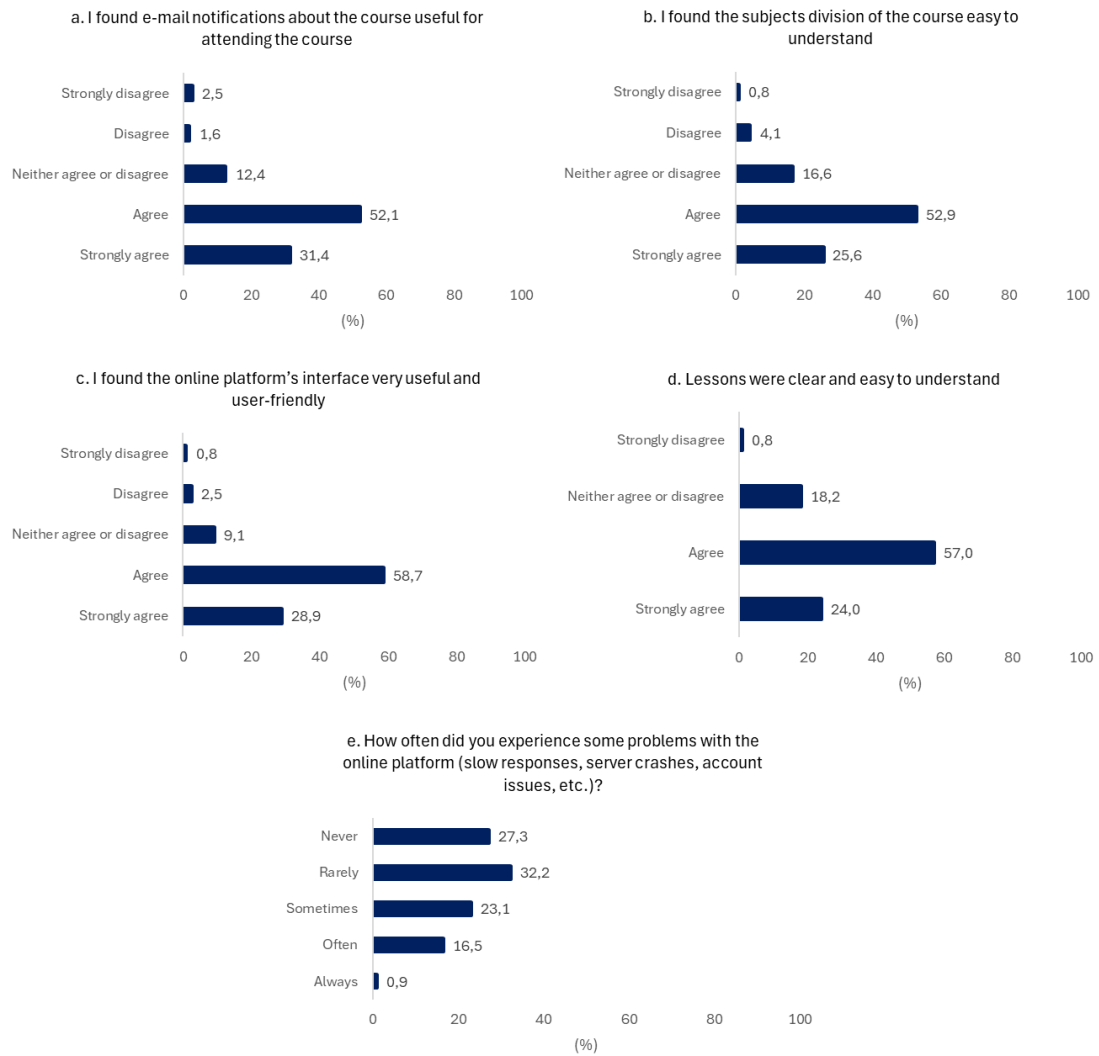


Figure 3. Student's experience on the course' organization (n=121).

During the whole year, 38.0% of the learners consistently attended the e-course (Figure 4d). Among the aspects that positively influenced the e-course, 52.9% indicated the topics covered, 19.8% the teachers and 12.4% the platform's interface (Figure 4b). Conversely, among the aspects that negatively influenced the course, 67.8% indicated lack of time to devote to the course (Figure 4a). Finally, 90.9% of students were satisfied or very satisfied with the course overall (Figure 4c). When asked if they prefer face-to-face or e-learning lessons, 55.4% of students opted for the latter (Figure 4e).

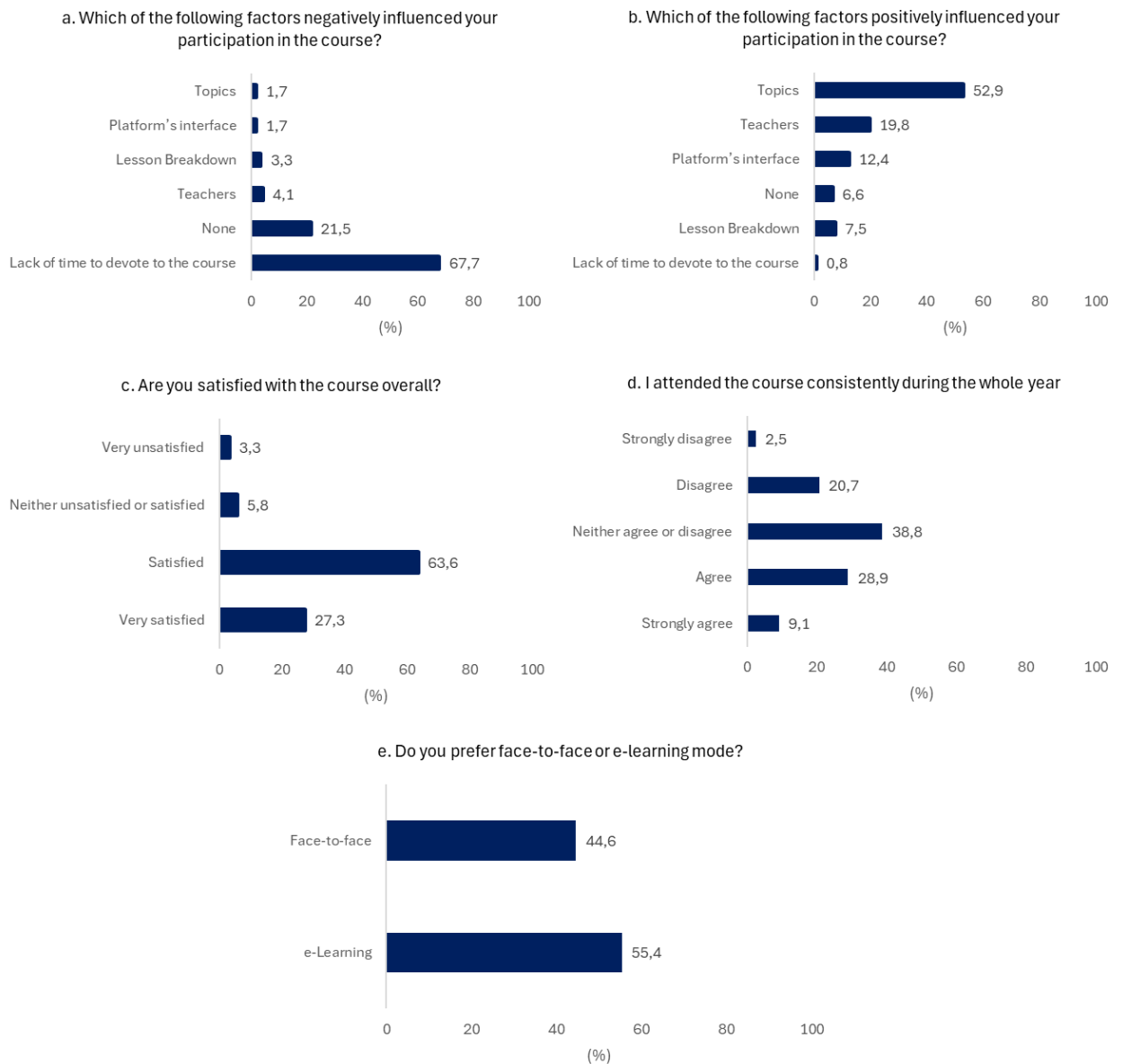


Figure 4. Student's overall opinion (n=121).

When analyzing the measures of association considering both degree course and nationality (Tables 4 and 5), only one association was statistically significant (with the question. "Do you think telemedicine courses should be integrated into your degree program?"). An univariate analysis was performed to verify the effect that area of study, nationality and willingness to participate in activities may have had on the final test score. The analysis did not provide significant findings (results not shown).

Measures of association considering degree course.

	Medicine	Nursing	Other faculty	Chi-squared test (p-value)	Cramer V
	%	%	%		
Do you think telemedicine courses should be integrated into your degree programme?					
No	17.0	2.0	0.0	0.013	0.27
Yes	83.0	98.0	100.0		
The subjects covered in the course were useful for my future professional life					
Agree	57.6	42.4	66.7	0.310	0.20
Disagree	0	1.7	0		
Neither agree or disagree	13.7	5.1	0		
Strongly agree	28.8	49.1	33.3		
Strongly disagree	0	1.7	0		
Do you prefer face-to-face or e-learning mode?					
e-Learning	59.3	49.1	100.0	0.156	0.18
Face to face	40.7	50.9	0		
Are you satisfied with the course overall?					
Very unsatisfied	0	6.8	0	0.455	0.15
Neither unsatisfied or satisfied	6.8	5.1	0		
Satisfied	69.5	57.6	66.7		
Very satisfied	23.7	30.5	33.3		
Which of the following factors positively influenced your participation in the course?					
Topics	47.5	56.0	100.0	0.235	0.21
Teachers	15.2	25.4	0		
Platform's interface	20.3	5.0	0		
Lesson Breakdown	8.5	6.8	0		
Other	8.5	6.8	0		

Measures of association considering respondent's nationality.

	Croatia	Germany	Greece	Italy	Romania	Chi-squared test (p-value)	Cramer V
	%	%	%	%	%		
Do you think telemedicine courses should be integrated into your degree program?							
No	0	0	6.7	15.4	0	0.120	0.25
Yes	100.0	100.0	93.3	84.6	100.0		
The subjects covered in the course were useful for my future professional life							
Agree	39.1	33.3	53.3	53.9	53.3	0.124	0.22
Disagree	4.4	0	0	0	0		
Neither agree or disagree	0	0	0	16.9	0		
Strongly agree	52.1	66.7	46.7	29.2	46.7		
Strongly disagree	4.4	0	0	0	0		
Do you prefer face-to-face or e-learning mode?							
e-Learning	56.5	0	46.7	57.0	66.7	0.284	0.20
Face to face	43.5	100.0	53.3	43.0	33.3		
Are you satisfied with the course overall?							
Very unsatisfied	8.7	0	0	3.1	0	0.891	0.13
Neither unsatisfied or satisfied	8.7	0	0	6.2	6.7		
Satisfied	60.9	66.7	66.7	66.2	53.3		
Very satisfied	21.7	33.3	33.3	24.6	40.0		
Which of the following factors positively influenced your participation in the course?							
Topics	60.9	100	46.6	52.3	40.0	0.216	0.20
Teachers	21.7	0	40.0	12.3	33.3		
Platform's interface	0	0	6.7	20.0	6.7		
Lesson Breakdown	4.4	0	6.7	9.2	6.7		
Other	13.0	0	0	6.2	13.3		

The results from the evaluation questionnaire indicated a positive reception of the BeEmTel digital toolkit. Key findings included:

1. Usability and Content Quality: Students generally found the platform and course material beneficial. For example, around 93.4% of students reported that topics were interesting, and 89% found the material relevant to their future careers.
2. Engagement and Interactivity: The telesimulations and interactive components were well-received. Many participants valued the hands-on practice and praised the simulations as effective for applying theoretical knowledge in a practical setting.
3. Knowledge Retention and Skill Development: The course included self-assessment tests and quizzes, with positive learning outcomes suggested by user feedback. Though exact percentage improvement figures weren't listed, the feedback highlighted enhanced knowledge and preparedness for telemedicine applications.
4. Feedback on Curriculum Structure: User feedback highlighted a strong interest in additional, diverse case studies to better address complex patient scenarios, reinforcing the value of frequent, varied assessments.

The BeEmTel curriculum demonstrated considerable success in enhancing knowledge and practical skills related to chronic disease telecare. The project's e-learning platform and telesimulation modules effectively supported healthcare professionals in gaining confidence in remote patient management, particularly valuable in emergency contexts where face-to-face care may be limited.

The BeEmTel digital toolkit, through its innovative combination of e-learning and telesimulation, has provided an effective means of training healthcare professionals in telecare for chronic disease management. Its positive reception, high usability, and impactful learning outcomes underscore its potential as a valuable resource in healthcare education. The recommendations outlined above aim to further strengthen the toolkit, ensuring it meets the evolving needs of healthcare systems and professionals in telecare settings. Future projects may benefit from these insights, contributing to an ongoing improvement in telemedicine education and chronic disease care.

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