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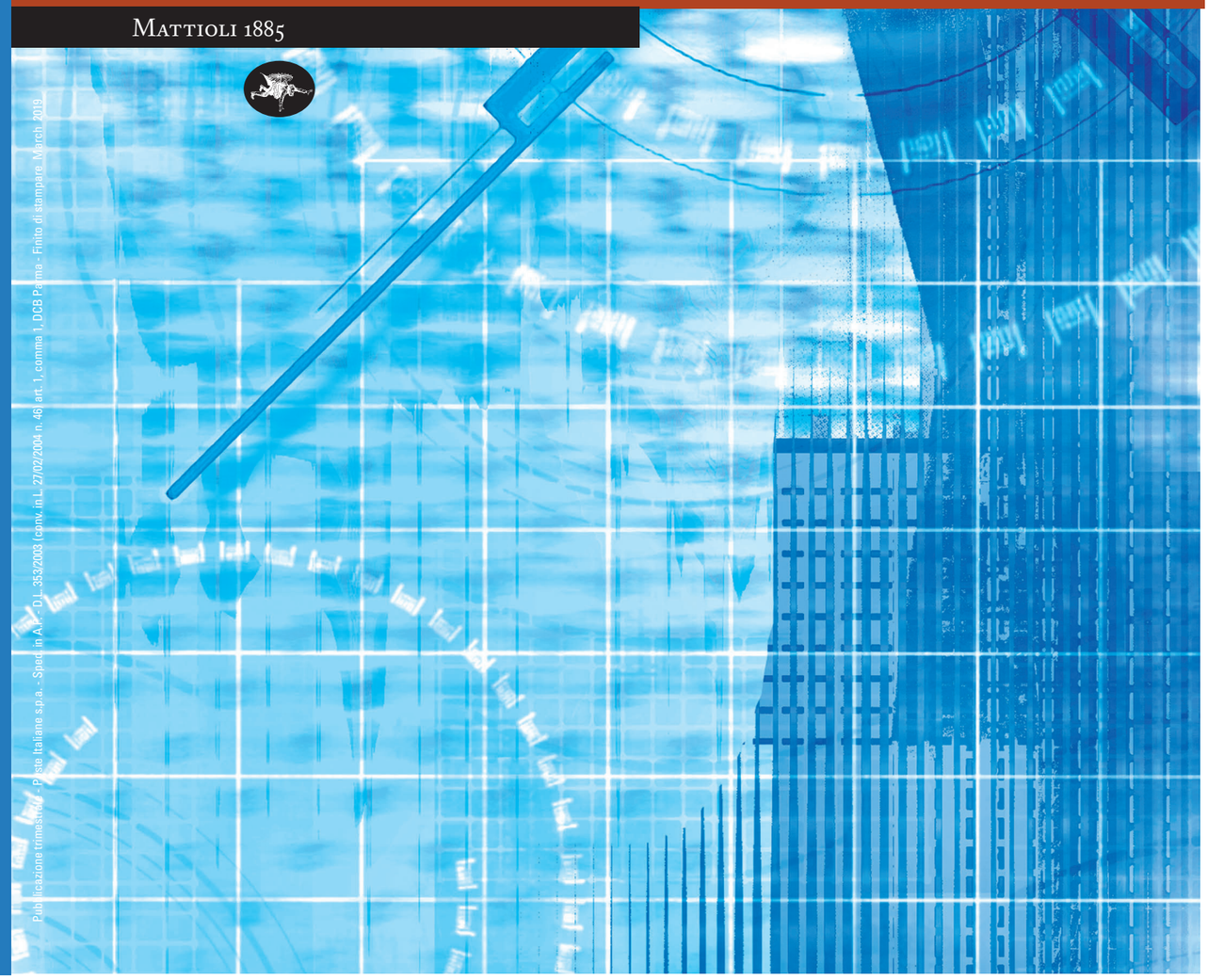

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Editorial: a focus on Post-Graduate specializations

At the University of Studies of Parma (Department of Medicine and Surgery) several Post-Graduate specializations, specifically dedicated to the health professions, have been active for many years.

Most of them are 1st level Post-graduate specializations, such as: the Post-Graduate specialization in "Case / Care management in the hospital and on the territory for health professions", the Post-graduate specialization in "Palliative care and pain therapy for health professions", the Post-graduate specialization in "Management of risk of infection related to health care", the "Post-graduate specialization in critical area", the Post-graduate specialization in "Expert in innovative educational methodologies in the social-health field". Others, such as "Training strategies in the social and health environment; European standards and innovation" are instead 2st level Post-Graduate specialization.

Despite the heterogeneity of the topics covered by these Post-Graduate specializations, they all share the same vision. In particular, the rationale underlying the shared vision is given by the fact that the Post-Graduate specialization is a type of highly specialized and high profile training and that the participants who attend these study programmes are professionals with a previous work experience and know-how. This is the starting point for training and can also represent a personal contribution to the dissemination of 'knowledge' among professionals, when favored.

The vision, therefore, develops around the following seven transversal macro areas.

1. Cultural development of participants: the research. Although the Post-Graduate specializations for the health professions are essentially professional, it's considered essential to act also on the 'professional culture' of the course attendant. The main tool (among others) is research activity, which is particularly important in these Post-graduate specializations. The research activity consists in elaborating in small groups, starting from a specific issue, a research project/protocol, submitting it, if necessary to the Ethics Committee and then working to collect data, process it and write the final report, which will constitute the Post-Graduate specialization's final dissertation. This research activity is preceded by a brief introduction to research methodology followed by on-site training, monitored by tutors who are research experts (mostly PhDs), supported, where possible, by sector experts working in clinics or in the field. On several occasions the works produced are submitted to field-related conferences (e.g. ANIARTI, SICP, SIPeM) and can also be disseminated through scientific publications. In particular "Acta BioMedica Health Professions" publishes numerous research papers of the various Post-Graduate specializations.

2. Orientation of the Post-Graduate specialization to the assisted person and his/her family and not only to the clinical case. An important space, especially in clinical Post-Graduate specialization' programmes, is given to the assisted person and the family as a 'single core' of care. In line with the biopsychosocial model, physical, emotional, social and spiritual factors in different proportions play an important role in every illness. The health professional's task is therefore to recognize not only the organic components, but also the psychosocial and spiritual processes involved in the disease and to take these into account. Whether psychosocial stress is present can be clarified by the doctor only in the framework of a psychosocial anamnesis. This describes the interactions among the biological, psychological, social and spiritual processes, integrating the disease with illness and sickness. The approach to an advanced assessment of needs of the ill person is thoroughly explored, considered in his multidimensionality, using also relational tools, such as the patient's agenda (that is the evaluation of expectations, wishes, ideas and interpretation of the condition of each individual and the analysis of the context in which the person is living in) and the

narration (made up of an interview with open questions to the person carried out by professionals with competences in the use of this tool) to collect in-depth the personal needs of the 'care core'. Necessities ranging from the more properly bio-physiological dimension (e.g. changes to needs such as feeding, hydrating, resting, moving), to the psycho-socio-value dimension (e.g. coping strategies, resilience, need for communication/relationship, to co-construct one's own treatment plan, the modification of one's own body image or self-perception in illness and the meaning attributed to the new condition of life.

In this sense, an engagement dimension is tackled, not only of the ill person, but also of his/her family and the curing team. For this purpose, there are already present in literature, also in Italian, assessment scales of to which extent the ill person, and his/her main caregiver, as well as the professionals can be engaged. By using these and other tools, we can hypothesize a growth of all the actors of the care team (ill person, family, professionals) through which the ill assisted person can really create and share with the curing team his/her own cure and the caring project.

3. Orientation to skill development. The Post-Graduate specialization programmes for health professionals must be oriented towards developing skills that are used on the field. The work on the expected skills for each Post-Graduate specialization (and not only on learning objectives) is an activity in progress that involves all the training staff, as well as the participants. The internship is the privileged (but not unique) field of development of clinical, interpersonal, and educational skills. The traineeship thus becomes a privileged moment of learning, especially if carried out in an accredited and quality-approved place. Traineeships are planned together between learner and tutor, also in relation to the training programmes offered by the affiliated centers. Some traineeship is organized abroad, upon request of the participants.

3.1. Relational skills and team work. Training for the development of communication skills and basic relationship to the assisted person and the family and within the multidisciplinary team, are then dealt with, in each Post-graduate specialization, according to the specific features of the intervention context of the Post-Graduate specialization. In relation to these specific skills, communication laboratories are active for each Post-graduate specialization, and are held in settings equipped and managed by experienced professionals. These laboratories are mainly activated with role-playing on cases identified by the learners themselves, reinterpreted and discussed by them, with peer supervision and experts.

3.2. The strengthening of *light and sophisticated skills*, more widely known as "soft skills", and the consequent improvement of these skills in the social-health sector, is one of the crucial elements for health-care development, intended in its meaning of care relationship towards the patient. The correct use of these skills entails knowing how to implement techniques to make them effective. The combination of these techniques, when it fills the toolbox available for the healthcare personnel, can be defined by the term "light and sophisticated technologies." Analyzing methods and practices to enhance the skills related to patient orientation, such as example, group work, emotional communication and persuasion, team building, empathy and assertiveness, developing and improving a holistic approach (in the sense of "soma" and "psyche" care) towards the patient using the light and sophisticated technologies is one of the objectives of the Post-graduate specialization's study programme.

4. Personalisation of the study programme. We are convinced, and the experience confirms it from year to year, that each group of Post-Graduate specialization students is different from the others and from those of previous years. For this reason, together with the co-construction of the curriculum, are also used other tools that can help to build a classroom profile that is very useful for teachers who will intervene in the training course. The mostly use tools are given by an analysis of training needs, which is carried out on the first day of the Post-graduate specialization's program; this becomes very useful for recalibrating the development of the study programme. For the research, considering the heterogeneity of preparation, a not evaluative *entrance test* is prepared. This help to calibrate the intervention of the teachers on the research. Another important tool is the *autobiography* that requires the student to carry out a reflective writing of the undergoing experience. Autobiography is requested at the beginning of the Post-graduate specialization, in itinere and at the conclusion,

providing also important elements of evaluation of the Post-Graduate specialization itself.

5. Co-construction of the curriculum. The educational programs of the Post-Graduate specializations, by choice, are never predefined, because every year there are improvements to be made, based on the evaluation of the previous year and because the students should feel protagonists of their training, even suggesting specific areas of interest that can be included in the study programme. This dimension is then particularly developed for internships: various opportunities are offered, but the student can suggest and choose, also in relation to the skills already matured, venues that may not even be included in the standard study programme.

6. Use of on-line platform. Each Post-Graduate specialization makes use of an online information infrastructure that allows learners, tutors and teachers to share resources communicate, collaborate at distance, and "increase" classroom teaching activities. The university platform dedicated to post graduate studies (https://elly.postlaurea.unipr.it/) can therefore be used both to support teaching and for horizontal collaboration between students, creating in the era of social networks an added value to training in terms of acquisition and getting familiar with *soft skills*, as well as *problem solving* and *team-based learning*. The use of digital for the participants of the Post-graduate specializations allows not only a prompt consultation of the updated resources available to the learner, but also to make learning global and social as a shared experience in a hybrid context of virtual communities of practice. The use of one's own devices as network access points is preferred. Finally, an online virtual laboratory with solutions for augmented and virtual reality is also available to learners, as well as an open archive that students can use to share resources and create web pages.

7. Inter-professionalism. All Post-Graduate specializations are open to inter-professionalism (with the exception of the one in "Palliative care and pain therapy for health professions", regulated by law), among health professions, but also including professionals in humanistic disciplines. This choice is motivated by the fact that professionals of different areas, never met in their training courses, later have to work together, and are not prepared for this. Currently, the choice of inter-professionalism is not a choice that has brought significant results, since the classrooms are still predominantly mono-professional, and are especially nurses. However, with the aim of going in this direction, opportunities have been created, within the training path, to meet other educational institutions and other professionals in training. Among them, for example, seminars with the participation of several Post-graduate specializations were organized, and above all has been tested the development of inter-professional Education, in which the Post-graduate specializations students were actively involved. The Inter- Professional Education is in fact considered as one key factor in the development of positive behaviors in the context of health care. In particular, the post-basic training is a key moment to raise awareness, train and help Post-Graduate specialization students to Inter-professional Collaboration.

Starting from the importance of teamwork, of the co-construction and above all of inter-professionalism, the use of innovative laboratory of Inter-professional Education was promoted. As will be specifically described in a contribution of this issue titled "Inter-Professionalism In Health Care Post-Basic Education: An Innovative Laboratory", the participants of diffrent Post-graduate specializations were able to collaborate to reach a common goal, thus promoting the Inter-professional Collaboration.

It seems important that even in scientific journals, such as this one, value is given to pedagogical aspects, and to innovative educational and learning strategies that are closely related to the quality of care and services.

Attention to the quality of training is a significant requirement, not only in relation to patient satisfaction, but also in function of the strategic importance of the development of certain professional skills in a context in which the demand for health takes on increasing complexity.

The broader aim is thus to foster a new culture of medical pedagogy which, dealing with the training of health personnel, produce measurable improvements in health services, as wll as the development, the coordination, the enhancement of knowledge, research and studies, spreading the principles of this discipline in the training of health professionals.

Giovanna Artioli, Chiara Foà, Leopoldo Sarli

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Original article: Focus on new education tools for health professionals

Inter-Professionalism in Health Care Post-graduate specialization: an innovative Laboratory

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Abstract. *Background and aim:* Inter- professional Collaboration (IPC) is an important component of a well-functioning healthcare system. It is linked to improvements in patient safety and case management, optimal use of the skills of each healthcare team member and provision of better health services. Inter- professional Education (IPE), is one key factor in the development of positive behaviors useful for IPC: the basic and post-basic training are key moments to raise awareness, train and help implement the IPC. Aim of this paper is to present and evaluate the use of an innovative laboratory of Consensus Conference implemented in the Nursing Post-graduate specialization at the University of Parma to train students to IPC. *Methods:* An Innovative Laboratory inspired by of the Consensus Conference (CC) methodology on the "Integrated Narrative Nursing Assessment" was designed. Three Post-graduate specialization courses were involved and assigned to different tasks in the CC, according to the characteristics of the specializations. *Results:* Strengths and weaknesses of the methodology were analyzed. Strengths: students' engagement in their competencies building, and the acquisition inter-professional collaboration skills. Weaknesses: the lack of time to develop the whole process, and the need of a deeper guidance in the scientific production. *Conclusions:* Although the methodology have to be continuously improved through practice, this experimental Laboratory reached the aim of offering a real experience of IPC to the students. They really collaborated with different professionals to reach a common goal and being already considered an expert. (www.actabiomedica.it)

Key words: Inter-professional, Education, Collaboration, Post-graduate specialization, Health Care, Innovation

Introduction

1.1 The Inter-professional Collaboration

Inter- professional Collaboration (IPC) has become an important component of a well-functioning healthcare system, because it is critical to the provision of effective and efficient health care, given the complexity of patients' healthcare needs and the range of healthcare providers and organizations (1). The IPC occurs when "two or more healthcare professionals who have specific roles, perform interdependent tasks, and share a common goal; a negotiated agreement which values expertise and contribution that each individual brings to patient care" (2). The IPC has been linked to a range of outcomes, including improvements in patient safety and case management, the optimal use of the skills of each healthcare team member and the provision of better health services (3-7).

Indeed, collaboration between healthcare providers is necessary in any health care setting, as there is no single profession that can meet all of a patient's needs (8).

The interdisciplinary cooperation and good teamwork are important components of clinical settings, and when they are lacking, the consequences may in-

clude negative patient outcomes, a low level of professional work satisfaction, and wasted resources (9).

It has been well documented that a lack of collaboration and communication between health professionals causes stress and frustration in the professionals, has a negative impact on the quality of care, on patients' health outcomes and on their safety, as, for example, adverse events, medical errors, increased complications and consequent increase in the duration of hospitalization. On the contrary, the shared decision-making by the whole care team determines a better quality of care, greater patient satisfaction, a reduction in the average length of hospital stay and a consequent reduction in costs (10).

1.2 The Inter- professional Education

The concept of IPC is often accompanied by that of Inter- professional Education (IPE), which is considered as one key factor in the development of positive behaviors useful for IPC in the context of health care (11): the basic training and post-basic training are in fact key moments to raise awareness, train and help implement the IPC.

IPE refers to occasions when two or more professionals learn with, from and about each other to improve effective collaboration, the quality of care and the health outcomes (12-14). The IPE can be considered as the set of training interventions in which members of more than one health or social care profession (or both) learn interactively together, with the aim of improving inter- professional collaboration or the health/wellbeing of patients/customers (15).

The link between IPE and IPC is clearly represented in the WHO Framework for Action on Inter- professional Education and Collaborative Practice (2010), which expresses the importance of starting from the health needs that occur in local situations, to intervene through IPE both in training courses for new professionals and those dedicated to those already working, in order to build solid teams that constantly act in a collaborative way. The path that leads to the collaboration of professionals in clinical practice leads to at least two important outcomes: increase the strengths of the health system and improve the results in terms of health.

Therefore, the goal of the IPE is to integrate collaborative practice in the educational context, so that the clinical experiences of the students are as similar as possible to the real care activities that they will have to face once the training course has been completed, creating good conditions for the development of instances of change in the health care sectors (16).

1.3 The Inter- professional Education Collaborative Core Competencies

The IPE can take place in academic and non-academic contexts or in the context of continuing education (13, 17).

Literature is divided about the teaching pedagogy that can be successfully tailored to match goal setting and desired outcomes of an IPE program (18). Some researchers have argued that a standard IPE module can be delivered during pre-qualification (19), while others have indicated that it can be taught both before and after qualification (20).

Anyhow there have been many indications given to the training field over the years to favor the construction of IPC during the training courses.

The most well-known and most followed are those defined at international level by "Inter-professional Education Collaborative Core Competencies for Inter-professional Collaborative Practice" (2016) (21), which indicate four "core" competences, oriented by two fundamental principles: 1) the centrality of the patient and the family; 2) the orientation to the community and to the population. These competences are:

1. Values / Ethics for inter-professional practice: working with individuals of other professions maintaining a climate of mutual respect and sharing values.
2. Roles / Responsibilities: use the knowledge of their role and those of other professions to evaluate and adequately address the health needs of patients and to promote and improve the health of populations.
3. Inter-professional communication: communicate with patients, families, communities and professionals in the health and / or other fields in a responsible way, in order to support a team approach aimed at the promotion and mainte-

nance of health and prevention and treatment of diseases.
4. Team and Teamwork: build relationships and manage group dynamics to take on different roles in the team, plan, deliver and evaluate person / population-centered care and policies that are safe, timely, efficient, effective and fair.

1.4. The effect of Inter-professional Education

Guraya and Barr (2018) (22), in their systematic review and meta-analysis, identified many positive outcomes of the educational intervention by teaching and developing IPE courses in various disciplines of healthcare.

The effectiveness of pre-post design has been shown in general to have a positive impact in improving the knowledge, skills, and attitudes of learners about collaborative teamwork.

Several other studies have shown that IPE promotes interdisciplinary collaboration and teamwork (23, 24) reduces the barriers and preconceptions prevailing among various healthcare groups and promotes professional competencies (25). For example, Reeves and Hean (2013) (26), stress the importance of inter-professional education as being supportive in the development of professional identity, insight, and competency, all of which impact client care.

A recent longitudinal study on IPE learning course to health professional students (27) also found, that among students increased significantly from before to after the course, the abilities to: demonstrate knowledge, skills and behaviors of teamwork/collaboration, values/ethics, and quality/safety as an inter-professional team member; demonstrate collaboration, teaming skills and behaviors as an inter-professional team; identify the unique roles and responsibilities of each health care professional within the inter-professional team and articulate a shared, inter-professional identity as a health care professional.

Vereen et al (2018) (28) have found that the implications of the IPE for graduate students training to be professional counselors include a decreased stigma towards counseling, a better understanding of the roles and responsibilities of professional counselors, increased likelihood for client referrals, preference for inter-professional collaboration, and seeking out personal counseling services.

Anyhow Groessl and Vandenhouten (2019) (29) stressed the importance of measuring the readiness of Master students and practitioners to adapt to this model of practice. Careful consideration of readiness can help to best create pedagogical experiences that can foster interactions that improve the likelihood of positive patient outcomes.

Despite these important evidences as Zheng et al. (2018) (30) underlined, remains little evidence on the lasting effects of IPE courses and the long-term influences of these IPE experiences are poorly documented.

Therefore it would seem important to find further insights into the long-term aspects of inter-professional education and collaborative practice, as well as the impact of inter-professional education and collaborative practice on the growth, development, competency, and professional identity of professional in training.

1.5. The development of Inter-professional Education

The international literature identifies IPE as important in preparing nursing students and other healthcare professionals for their roles as healthcare providers (31-33).

For many years in the USA and Canada, important support has been guaranteed at the government level and by private organizations for projects relating to both IPC and IPE (17, 34-38), including the creation of documents to support the dissemination of IPE at an academic level (39, 40).

This approach of engaging multiple health workers from different professional backgrounds working together with patients, families and communities has in fact been shown to provide the highest quality of patient care (41).

In Europe, sensitivity to, and support for, these essential themes occurred several years later, but it was supported equally by some countries that considered them important as a response to healthcare needs in continuous evolution (42).

Examples of IPE programs established well are represented by the experience of the Linköping University (Sweden), Karolinska Institutet of Stockholm,

and The Royal London School of Medicine and Dentistry (43).

In Switzerland, the Académie Suisse des Sciences Médicales (2014) (44) provided significant support at the national level. Applying its "Charte of Collaboration Entre Les Professionnels De La Santé", it wants to help optimize patients' treatment to ensure healthcare.It has been also argued that the interprofessional approach should characterize both practice and graduate and postgraduate training. This position has helped strengthen the commitment of those academic institutions that for years have been experimenting with IPE models for different healthcare professions by providing common modules that integrate specific knowledge (10). The research financed by the Swiss National Research Fund also is dedicated to understanding the factors that facilitate and hinder IPC in these institutions (45).

In Italy, the DECREE 22nd October 2004, n.270, regarding the "Amendments to the regulation concerning the teaching autonomy of the universities" (Article 10, paragraph 5) (46) , states that "The courses must provide activities training in one or more disciplinary areas similar or complementary to the basic and characterizing ones, also with regard to contextual cultures and interdisciplinary training".

Nevertheless, medical education curricula and healthcare degrees have included IPE programs in some universities only in recent years, although these experiences are still local, and are not formalized nationwide (41).

Methods

In order to allow students to live a practical, guided, and controlled experience of inter-professional collaboration, we decided to design an Innovative Laboratory inspired by the scientific methodology of the Consensus Conference (CC). CC is one of the tools available to reach, through a formal process, an agreement between different figures (representatives of different professions and disciplines) with respect to particularly controversial and complex health issues favoring the choice of guidelines as uniform as possible in clinical practice aiming to provide patients with the best quality of care in relation to available resources (47). Therefore, the practical simulation of a CC was an ideal methodology to combine three educational pillars of the Post-graduate specializations (PgS) in Nursing Sciences: the importance of research, interprofessional collaboration, and the quality of patient's care.

We decided to organize at the Department of Medicine and Surgery of the University of Parma a CC Simulation Laboratory on the "Integrated Narrative Nursing Assessment" (48). This is an innovative approach to the integrated assessment of the person person which, despite having demonstrated its applicative validity at different stages of the person's care (49-51), has yet to find an effective application space within the health practice.

As in this experimental phase we still had to evaluate the effectiveness of the application of this methodology, we decided to limit the professional involvement to three Post-graduate specializations:

- PgS as Expert in Innovative Educational Methodologies in the social-health environment;
- PgS in Case / Care management in the hospital and on the territory for the health professions;
- PgS in Palliative Care and Pain Therapy for Health Professions

The choice fell on these 3 courses due to the intrinsically inter-professional nature of the roles the students are trained for. This experimental opportunity has therefore proved to be perfectly suited to this formative need.

Furthermore, the students of each PgS were assigned to different tasks (all central to the performance of a CC) according to the characteristics of the PgS they attended.

Specifically, students attending the PgS as Expert in Educational Methodologies, whose goal is training experts in teaching methods innovative and more suitable to favor the achievement of the learner's foreseen performances, supervised by the didactic Tutor, were collectively entrusted with the task of studying and organizing the methodological structure of the CC. During the course of the same they were divided into small groups to cover the functions of the organizing committee, the writing committee, the scientific secretariat and the organizational secretariat.

Students of the PgS in Case / Care Management, whose goal is training professionals with specific skills in taking care of the person, the family and in the management of care pathways, as they receive intense training during the year on integrated narrative assessment, so much so as to become experts in INNA, have collectively held the role of technical scientific committee, and have then been divided into working groups that have collected the background information useful for answering the CC's questions.

Students of the PgS in Palliative Care, whose goal is training professionals with specific skills in the field of palliative care and pain therapy, able to manage global care strategies, and which focuses on the acquisition of the competence of team work, were included in the panel of judges, together with experienced professionals from the high level sector.

The students were then invited to discuss, using the CC's methodology on four questions concerning INNA:

1. What is the definition and which are the essential constituent elements of the INNA model?
2. How to use the Integrated Assessment (qualitative and quantitative)?
3. What are the fields of applicability of INNA?
4. What are the advantages and disadvantages of introducing INNA?

Results

Strengths and weaknesses of the educational strategy

The implementation of a Simulation Laboratory of a high-level scientific methodology to stimulate the situated formation and the inter-professional contact, being completely innovative, requires a careful final evaluation and a balance of the strengths and weaknesses of this approach, to be able to evaluate the implementation of this one within the standard educational strategies offered by the PgSs.

Strengths

This strategy proved to be successful in promoting student Engagement in their training process. The term Engagement, taken from the health field, refers to the ability, will, and gradual choice of people to take a proactive role in managing their own health (52). In this case, applied to the training context, the Engagement of the students can be translated into the will, commitment and, subsequently, perception of being active components in the management of their acquisition of new professional skills, feeling themselves as performers and experimenters of the skills that were taught to them during the PgS's course. The perception reported by them, even if only at an anecdotal level, was that of a real but safe context in which they could experiment as highly qualified professionals, "a skills' incubator" that allowed them to feel sufficiently effective before bringing these same skills in their real work environment.

In particular, the students of the PgS as Expert in Educational Methodologies reported an important level of satisfaction linked to the possibility of acquiring and directly managing a new, complex, and scientifically very relevant educational competence.

Students of PgS in Case Care Management, from their point of view, experienced with great satisfaction the possibility to get out of their role as learners to become in effect "experts" of an innovative and articulated theme to analyze and deepen.

Students of PgS in Palliative Care, on their turn, reported satisfaction with the possibility of putting into practice what they had learned about team work, being guided in the role of Panel, by an expert in the field. This allowed them to see in vivo the strategies used by the experts in the mediation of a team meeting, allowing them to identify themselves with the expert and to feel able to export these strategies in the real context of work in palliative care.

Weaknesses and Improvement Trajectories

Using a Consensus Conference Simulation Laboratory as an educational methodology, given the absence of previous applications at an experimental level, must foresee the acceptance of a continuous construction and adjustment of the necessary methodology and, therefore, a thorough and sincere post hoc evaluation, in order to identify the main weaknesses and clearly trace the lines of improvement of this methodology,

allowing to generate future hypotheses for the management of this Laboratory, more and more accurate and tailored to the educational needs of the students.

The first improvement trajectory is linked to the total time management times of the Laboratory. From the work carried out, we noticed the need to use longer times for the assimilation of the processes implemented (working groups, panels, drafting recommendations). It is necessary to take into account the inexperience in the field of the actors involved and therefore the need to have more time available for the preparation of scientific material.

Second, fundamental, improvement trajectory is increasing the support to be provided to students on the scientific elaboration of the work. The tutors of the PgSs, experts both in training and in scientific research, will have to accompany and better support the scientific elaboration process, offering appropriate contributions and incentives to increase the methodological rigor of the final elaborations (work group output, recommendations). Therefore, in a future perspective of the Laboratory, we hypothesize structuring the research and content analysis phase to a greater extent, also broadening the spectrum of high-level skills acquired by the students thanks to this tool.

Furthermore, we must consider the specific difficulty related to the theme chosen for this Consensus Conference Laboratory. The INNA approach is a new theme, a model recent, little investigated, and that has not found yet full application at the experimental level. This was accompanied by an understandable lack of scientific familiarity of the participants who, therefore, faced a major challenge in the construction of the scientific background, which in this case foresaw the need to expand bibliographic research to related themes not directly linked to the INNA approach .

Discussions and conclusions

As stated by Bianchi e Bressan (2019) (42), the investment of resources to develop IPE programs that generate the conditions for its realization is currently significant (40), even because the IPE represent strategic opportunities to prepare a more flexible healthcare workforce able to maximize limited resources and provide a wide range of different services together in a variety of healthcare settings (53).

Having this in our mind, we decided to experiment this new method, as we deeply believe that a good training should include a continuous investment in searching for strategies able to give to students and professionals a whole new set of competence but also of experience.

The vision that underlies these Post-graduate specializations is creating professionals who are high level experts in their field, not just who gather new and specific knowledges.

The Innovative Laboratory, seemed to be effective in this. Although the methodology and structure have to be continuously improved through practice, we can state that this experiment reached the aim of offering a real experience of IPC to the students. They had the chance to really collaborate with different professionals trying to reach a common goal and being already considered an expert.

The widespread advocacy and implementation of IPE reflects the premise that IPE will contribute to developing healthcare providers with the skills and knowledge needed to work in a collaborative manner (17, 39, 54).

All these evidences underline the need to think to the IPE approach as a new paradigm also in nursing education (55) (O'Connor, 2018), which contrasts with multi-professional education where health professionals learn alongside one another in a parallel manner (56).

The new methodology here proposed, facilitates the comparison and collaboration between students/professionals, that is preparing them to the moment when they will find themselves working together in clinical practice at the end of their training.

The first thing is to understand clearly is the important effects that this paradigm shift will have in improving the healthcare system, both with respect to patient outcomes and professional satisfaction. Thereafter, it is essential to promote IPE as a unique approach to train healthcare professionals and consider the different mechanisms that shape the way IPE is developed.

These can be divided into two categories: "educator mechanisms (for academic staff, training, cham-

pions, institutional support, managerial commitment, and learning outcomes) and curricular mechanisms [logistics and scheduling, programme content, compulsory attendance, shared objectives, adult learning principles, and contextual learning: (17), p. 12]. With awareness of both these points, it will be possible to act effectively and efficiently and seek the active collaboration of the other professions involved in this cultural change (42).

In particular, according to Reeves and Hean (2013) (26), the challenges facing educators and supervisors is an inability to conceptualize the utility and value of inter-professional education and its overall impact on the development of the individual and collaborative care teams.

This Innovative Laboratory is a good method to face these challenges, being a moment that will necessarily put under the spotlight the crucial importance of IPE, for students, professional, supervisors, educators and everybody involved in the construction of this unique and satisfying experience.

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Original article: Focus on new education tools for health professionals

The use of blended learning to improve health professionals' communication skills: a literature review

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Abstract. *Background and aim of the work:* In recent years, health professionals' education has moved towards the increasing use of blended learning. One of the most widespread blended formulas is the mix of face-to-face and online learning, which combines the advantages of distance learning, both in training provision and in training fruition, with the maintenance of socialization goals and application to practice activities. This literature review aims to find out whether blended-learning is employed for improving health professionals' communication skills and which are its outcomes. *Methods:* Literature review of publications released from January 2000 to January 2019 was conducted across the academic databases Cinahl (EBSCO), Cochrane and Pubmed using relevant keywords. *Results:* Research has shown that blended learning is used in the education of different health professionals (students, nurses, physicians, etc.) at various stages of the educational path. The enhancement of communication skills appears to be a secondary learning objective in many studies, but it is shown to be nevertheless central to the proper acquisition and application of more clinical skills addressed by the blended courses. The blended modules here examined achieved their goals. However, the evaluation of the learning outcomes is still based on self-assessment, and thus needs to be implemented. *Conclusions:* Blended learning providers would need to pay more attention in the design and implementation phases of blended modules, assessing participants' needs and offering more tailored and targeted programs, and should provide a more rigorous evaluation of learning outcomes. (www.actabiomedica.it)

Key words: blended learning, health professionals, communication skills, e-learning, distance learning, continuing medical education, nurse

Introduction

Health professionals' education has gone through powerful changes in recent years, shifting on the one hand towards a more interactive and learner-centred approach; on the other, thanks to the development of technological innovation and the changed working and living conditions of the professionals, it has moved towards the increasing use of e-learning or distance learning (1).

If e-learning, defined as the delivery of education through Information and Communication Technology (2), offers the undeniable advantage of transcending the limits of space and time in the training provision, and provides reusable and updated materials through interactive multimedia content, however, it also suffers from significant disadvantages, such as learners' isolation and need for self-discipline to sustain motivation, and the difficulty in creating a sense of community (3). Despite the progress of online technologies, in fact, it is known that medicine is a practice-based discipline and that both curing and caring for people are relational works, so it wouldn't be desirable to completely replace the traditional education of health professionals with

online learning. The potential of blended learning, that is the combination of an educational method that adopts two or more approaches that complement each other while imparting the same teaching materials (4), is thus increasingly debated. One of the most widespread blended learning formulas is the mix of face-to-face and online learning (5), which is the object of this literature review. Blended e-learning (6) is now recognised as an effective way to promote greater learning independence and personalization without losing those collaborative aspects and socialization goals that face-to-face training has always promoted.

The aim of this review is to find out whether blended-learning, intended as the combination of face-to-face activities and e-learning, is employed for improving health professionals' communication skills and which are its outcomes.

Interest in the teaching of the so-called nontechnical skills (also called soft-skills) has progressively increased since the last thirty years (7). Among these, communication skills occupy a primary role, becoming one of the objectives of health professionals' education in the third millennium. It has been argued, in fact, that the quality of practitioner/patient communication contributes in determining the level of satisfaction in patients, which directly influences patients' compliance and recovery and reduces patients' psychological distress and anxiety (8).

Since communication skills are truly human skills that cross the workplaces, in this review we considered as target population of blended learning courses, all health professionals, regardless of their role (doctors, nurses, etc.) and the level or training context (graduate, undergraduate, postgraduate, continuing medical education, etc.).

Furthermore, the aim of this review is to identify and to discuss the outcomes of different experiences implemented within the field of blended learning in recent years.

Method

Literature review, completed in February 2019, was conducted across the academic databases Cinahl (EBSCO), Cochrane and Pubmed.

Key-words used were 'blended learning' AND 'health professionals' AND 'communication skills'. Results were filtered by publication date, to return only publications released from January 2000 to January 2019, available in full text, with no word variations and dealing with human species.

The search strategy (Figure 1) identified 41 items. After the removal of 3 duplicate items and scanning the titles and abstracts, 28 were found to be potentially eligible. Then, full texts were read for further assessment and 23 items di not encompass the review criteria. Thus, 5 items remained and were included in this study. These are summarized in Figure 2.

We included studies in which blended-learning is an essential element.

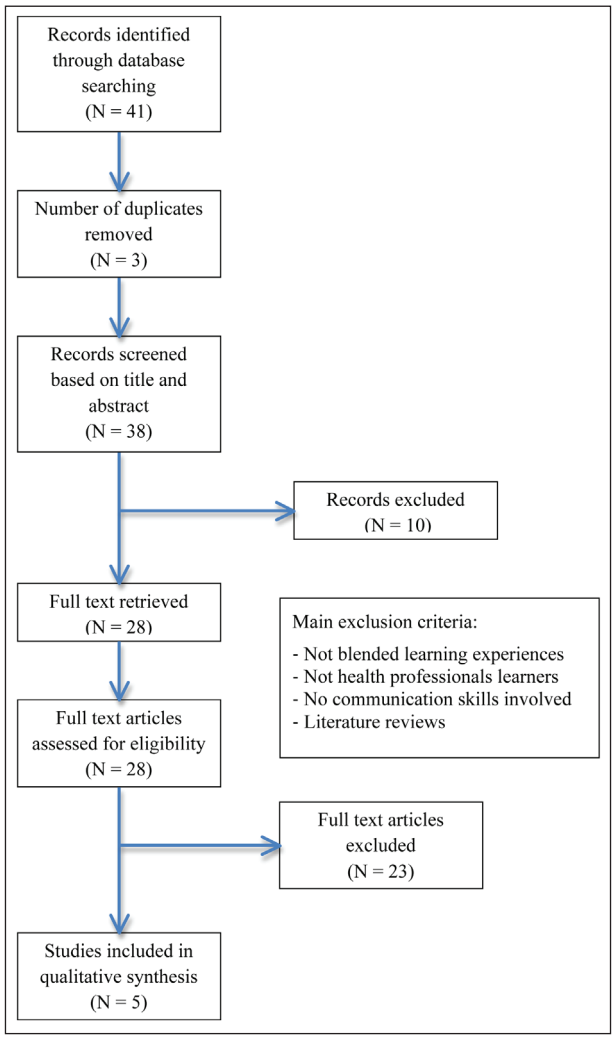

Figure 1. Literature review flow diagram

Authors & Journals	Participants	Learning context	Intervention	Evaluation measurements
Shorey, Siew, Ang (2018), *Nurse Education Today*	First year nursing undergraduates students	University-Affiliated Nursing school Singapore	Blended module aimed to enhancing nursing students' effective communication to patients and their family members	Reflective written exercises at the end of the module
Halverson, Da Rosa, Borgstrom, Caropreso, Hughes, Hoyt, Sachdeva (2014), *The American Journal of Surgery*	Rural surgeons	Continuous Professional Development USA	Blended learning surgical skills course based on a gap analysis for surgeons in rural practice	Post-course and follow-up self-assessment questionnaires
Holland, Bench, Brown, Bradley, Johnson (2013), *The Clinical Teacher*	Advanced undergraduate students in medicine, adult nursing and physiotherapy	University UK	Inter-professional blended module on clinical care in the acute care setting	Participants' narrative self-reports
Taylor-Fishwick, Okafor, Fletcher (2012), *Journal of American Association of Nurse Practitioners*	Advanced Nurse practitioners	Continuous Professional Development USA	Evidence-based distance-learning educational course designed to aid the dissemination of the 2007 asthma clinical guidelines	Course evaluation form; Pre, post and follow-up questionnaires
Bekkers, Simpson, Dunstan, Hood, Hare, Evans, Butler and the STAR study team (2010), *BMC Family Practice*	General Practitioners and Nurse Practitioners	Continuous Professional Development UK	Stemming The Tide of Antibiotic Resistance (STAR) blended educational program to enhance the quality of antibiotic prescribing and raise awareness about antibiotic resistance	Semi-structured telephone interviews

Figure 2. Studies considering blended learning for the improvement of health professionals' communication skills identified in the literature review

We only included studies in which blended-learning is intended as the mix of face-to-face learning and e-learning.

We included studies whose participants are (existing or future) health-professionals, except for those working in paediatric units.

We included studies assessing blended learning programmes aimed at improving health professionals' communication skills.

We included studies reporting concrete and already provided blended-learning experiences.

We excluded studies recruiting non-health professionals learners.

We excluded studies recruiting health professionals working in paediatric units.

We excluded studies whose interventions weren't aimed at communication skills' improvement.

We excluded studies in which the improvement of communication skills was directed at subjects different from health professionals.

We excluded studies reporting data derived from non-already provided blended learning experiences.

We excluded literature reviews.

Results

Research has suggested that blended learning pedagogical tool is widely used in health professionals' education in many countries, at different stages of the educational path, for different purposes and aimed at diverse health professionals. The implementation and reporting of blended learning experiences, although remarkably different from each other, are always accompanied by an evaluation process of the impact of blended modules on learners. In this section, we will illustrate the results emerged from a qualitative content analysis of the studies included, which highlighted the following main themes: participants and learning context; purpose of intervention; type of intervention; evaluation measurements and outcomes.

Participants and learning context

Studies involved a diverse range of existing and future health professionals, although the most represented category is that of nurses. Nurses appear to be involved as exclusive target of two different blended modules experiences: one considering, as participants, 74 first years nursing undergraduates students (4) and the other being directed to advanced nurse practitioners in (but not exclusively) their continuing education (9). Moreover, nurse are included in other two studies among other health professionals: in a blended educational program aimed at Primary Care practitioners, together with General Practitioners (10) and in an inter-professional module on clinical care in the acute care setting, together with their undergraduates peers studying medicine or physiotherapy (11). Only one blended course emerged from literature review as targeted to rural surgeons only (12).

Except for the two studies involving undergraduate students, in which the blended module was provided within university courses, in all other cases blended learning was implemented in the context of continuing professional education.

Purpose of Intervention

The improvement of health professionals' communication skills through a blended pedagogy emerged, in this literature review, as the main learning objective only in one case. In fact, if in the study of Shorey et al. (4), the blended module was aimed to enhancing nursing students' effective communication to patients and their family members, in all the other studies examined, blended courses addressed the improvement of multiple skills, both clinical and non-technical. The blended course illustrated by Halverson et al. (12) addressed a module on leadership and communication among others modules dealing with a variety of skills that reflect the broad scope of practice of surgeons in rural areas, such as endoscopy, emergency gynaecology, emergency urology, facial plastic surgery, etc. Holland et al. (11) observed that good interprofessional collaboration and communication are prerequisite for good patient outcomes in acute care, so their course focused on integrating clinical knowledge, skills, decision making and reflective practice underpinning the interprofessional care of the acutely ill adult. The main objective of the STAR Educational Program (10), instead, aimed to enhance the quality of antibiotic prescribing

and raise awareness about antibiotic resistance among general practitioners. Finally, the Asthma Principle and Practice Course (9) was designed to aid in the dissemination of asthma clinical guidelines and create an environment to enable participants to apply knowledge and skills into clinical practice. Communication skills thus appear in the above-mentioned courses as a crosscutting learning objective necessary to the delivery of proper care in very different contexts.

Type of intervention

A wide heterogeneity in blended courses' instructional designs and formats emerged from the literature review. Shorey, Siew and Ang (4) offered an overview of a four-credit course module aimed at improving nurses' effective communication, in which the virtual learning environment included online presentations (made of PowerPoint slides and videos), online quizzes, discussion forums and reflective exercises, whereas the face-to-face lecture comprised real-life clinical scenarios, students' class and online active participation assessment, video-making and an interview with standardized patients. Halverson et al. (12) reported a blended learning format consisting - for what concern web-based materials - of references, book chapters, links to web-based videos illustrating specific operative skills; whilst the face-to-face portion of the course provided experiential mentored skills training. The blended learning module illustrated by Holland et al. (11) was designed for an extensive use of asynchronous e-learning: a web site hosted all documentation for the module (information on evidence-based practice and critical appraisal, and links to papers), private spaces for students' observations and reflections and a discussion forum; the contact sessions comprised an induction session, a clinically-situated structured observation, a simulation-based training and facilitated debriefing and a collaborative peer-group working and presentations. The STAR Educational Program described by Bekkers et al. (10) consisted of an online part providing case scenarios and video scenarios for online reflection on clinicians' own practice, examples of the latest evidence in the form of reference charts and summarised readings and a web forum; the face-to-face part consisted of a practice-based seminar. The Asthma Principle and Practice course, outlined by Taylor-Fishwick et al. (9) comprised a face-to-face study day conducted using case studies, role-plays, student-led discussions, video and lecture, which followed an interactive distance-learning study binder designed with 11 modules of readings and exercises. These studies showed that online materials are mainly concerned with background information, theoretical knowledge, updated clinical guidelines, video and exercises/quizzes pertaining the specific topic addressed by the course and discussion web-spaces aimed at participants' socialization; whilst on-site face-to-face moments appear to provide a practical application of what has been learned through the distance learning module. In the examined studies, the most common live-situations mentioned are role-plays, student-led discussions, simulation-based trainings or mentored skills training.

Evaluation measurements and outcomes

Satisfaction, perceived skills acquirement and perceived change to practice, measured through self-assessment, are the main form of blended learning evaluation emerging from the literature review.

Shorey et al. (4) collected students' experiences of the blended learning course, through reflective written exercises that were conducted at the end of the module. Data were thematically analysed and showed that students felt more self-confident at the end of the course and thought that this improved their social interactions. A four-component evaluation system, based on Kirkpatrick's outcomes model, was proposed in their study by Halverson et al. (12) to evaluate: learners reactions regarding the relevance and quality of the course (through a post-course questionnaire), knowledge acquisition (through a surgeon's self-assessment questionnaire), surgeons' skill development and behavioural changes in practice, and perceived patients benefits (through a follow-up electronic survey six months after the completion of the course). Surgeons indicated that they felt they had improved their communication skills and they all reported changes in their interaction with colleagues. The evaluation of the IWAC course was limited to narrative self-reports of satisfaction and value obtained from students and faculty staff

involved. They reported high-satisfaction scores and self-identifying both explicit and tacit learning as having occurred. Effectiveness of the STAR educational program (10) was evaluated in a randomised controlled trial through a multi-faceted process evaluation that included: the views of participants from the experimental group, seminar facilitators' views, practice background information, mapping of participants' use of the online learning program, web forum comments and an economic evaluation. Participants' perspectives, collected through semi-structured telephone interviews with purposive sampled trial participants, reported an increased awareness on the course topic, greater self-confidence in practice, some change in consultation style and prescribing behaviour, and increased insight into patients' expectations. The process of evaluation of Taylor-Fishwick at al.'s study (9) involved participants completing a course evaluation form that asked questions about the experience of the course, the educational style, and course-related materials. A pre-questionnaire sent through the distance learning binder, a post-questionnaire at the end of the study day and a follow-up questionnaire sent to participants six months after the completion of the study day were used to assess changes in the use of clinical guidelines and in the use of communication skills. Participants showed statistically significant improvements, after the blended course, in confidence in using the communication strategies for improving interaction with patients.

Discussion

From the findings, it is noted that blended pedagogy appears to be consistently applied in nurses' education, both at university level and in continuing professional development, even more than in other health professionals' educational paths. Given the limited number of studies included in this literature review, these results appear to be in line with Liu et al.'s meta-analysis (3), which reported nursing students and nurses as being the second and third most involved participants in studies concerning blended learning interventions, after medical students. Furthermore, blended learning demonstrated to be applied predominantly within the context of continuous professional education. As stated in Halverson et al.'s study (12), continuous professional development shows many barriers to professionals' participation, such as the need to travel long distance, the difficulties in finding coverage for the professional's practice while away and the loss of income while away, from practice. Blended learning has the potential to overcome these barriers, enabling health professionals to reduce travel costs and to learn at a time that is convenient to them, pacing their learning to suit their needs and interests, as pointed out by Scott et al. (13). This does not forcedly mean they avoid human socialization. All the blended courses surveyed in this review studies, in fact, provided large space dedicated to online and face-to-face peer discussions and interprofessional collaboration, where expected. Many participants, in the evaluation phase, stressed precisely the importance of having interacted formally with other professionals working in the same context, and with instructors during the course, and informally during the breaks and meals (12). This was shown also in Markett et al.'s study (14), which demonstrated that increased interactivity between the educator and the learner enhances participants' motivation. Shorey et al. study's participants referred particular appreciation to the class feedback and sharing sessions, which lead, in their opinion, to the creation of a unique bond among the students and to an enhanced perceived importance of the cross collaboration among the teamwork members (4). Bekkers et al.'s respondents viewed the face-to-face seminar as providing a much-needed "human touch" and as a unique chance to increase communication within the practice team, dismissing at the same time the web forum (10). Taylor-Fishwick et al. collected, in their evaluation of study days, participants' positive comments pertaining to interaction and shared practices among the group (9).

Blended learning, thus, appears as a concrete way to overcome the limitation of the traditional e-learning, promoting within its modules interactivity, reflection and application to practice, as shown also in Lawn et al.'s study (2).

The online part of the courses, mainly concerned with background information, theoretical knowledge, updated clinical guidelines, video and exercises/quizzes pertaining the specific topic addressed by the course, were generally evaluated positively by the par-

ticipants. In all the reported cases, increased level of clinical knowledge or the reinforcement of already existing knowledge emerged as outcomes. Moreover, participants generally felt the online activities were useful in helping them to prepare for face-to-face sessions, highlighting the close connection and interdependency between the online and face-to-face parts.

Finally, literature review's findings showed that a systematic approach to planning, development, implementation and evaluation of blended courses is still lacking. Even if many of the studies considered demonstrated to have conducted extensive researches and embraced theoretically strong approaches to design their blended modules, only one (12) seems to have provided a needs assessment to establish leaners' existing knowledge, attitudes and information technology skills and only Holland et al.'s study (11) seems to have been piloted before its implementation.

Following Scott et al.'s ten evidence-based principles for the development of technology-enhanced learning (13), we can say that the studies included in this review: positively clarified the rationale of their purpose; effectively incorporated approaches proven to improve learning, such as dividing course into a series of small sections (15); integrated case-based learning and project-based learning, as suggested by Huckstadt et al. (16) and Christianson et al. (17); included activities that involved actual practice of the skills; enabled interaction between learners and teachers. On the other side, the studies examined didn't provide opportunity for revision to aid retention and demonstrated the tendency to evaluate above all learners' satisfaction, self-assessment of learning or intention to change practice, to the detriment of the learning outcomes. Since previous studies had shown a poor correlation between self-assessment and observed performance (18), a proper evaluation of learning outcomes, long-term retention of knowledge and skills and application to practice would be recommended.

Conclusions

Blended learning shows to be increasingly used both in continuing medical education and in university courses. It is well known (19) that the effectiveness of any form of education depends on a wide range of factors. Some of these factors, such as the learners' interests, ability and readiness for change, would be appropriately taken into account through a needs analysis.

Teaching institutions, within the field of health professionals education, thus need to pay more attention in the design and implementation phases of blended modules, to assess participants' needs and offer tailored and targeted programs.

This literature reviews showed no sufficient evidences on effectiveness of e-learning on patient outcomes. Most of the studies, in fact, have focused only on measuring professionals' perceived knowledge acquisition or self-reported practice change, leading us to suggest that blended learning should move towards more complete and rigorous evaluation methods.

It is interesting to note that professionals recognized the value of enhancing communication skills even in the context of those blended course aimed mainly at developing clinical skills.

This demonstrates how the transferability of communication competence (20) does not refer as much to the similarity of situations among working environments that the professional may encounter in his working career, but to the subject's ability to activate similar processes in different working context in order to solve problems and accomplish tasks or to promote positive teamwork and provide effective care to patients.

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Association between burnout and sense of coherence among speech and language therapists: an exploratory study in Italy

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Abstract. *Background and aim:* Job burnout has been recognized as a serious occupational hazard among professionals, such as health care professionals. The sense of coherence (SoC) is deemed to be a personal resource capable of reducing the impact of job stressors and, consequently, the experience of job burnout. The purpose of this study was to investigate the relationship between SoC and job burnout among speech and language therapists. *Materials and methods:* A descriptive and cross-sectional analysis was carried out through an online self-reported questionnaire. A total of 217 Italian speech and language therapists were involved in the study. The Anova test, T-test and logistic regression were performed to study the association between SoC and job burnout. *Results:* The Anova test showed that job tenure was not associated to job burnout. The T-test showed that speech and language therapists having a low SoC exhibited significantly higher emotional exhaustion, higher cynicism, and lower professional efficacy (t=-7.190 d.f.=215 p<.001) when compared to those having a high SoC. Finally, the odds ratio showed that low SoC was associated with high emotional exhaustion (OR=11.86; 95% CI=5.52-25.49; p<0.05), low SoC was associated with high cynicism (OR=4.41, CI=2.50-7.80; p<0.05), and low SoC was associated with low personal efficacy (OR=4.70; CI=2.59-8.52; p<0.05). *Conclusion:* Our results are in line with previous studies which showed that SoC is a fundamental personal resource which may activate workers' reaction to various stressors, thus reducing the experience of burnout. (www.actabiomedica.it)

Key words: sense of coherence, emotional exhaustion, cynicism, professional efficacy, job burnout¸ speech and language therapists

Introduction

Over the last 25 years, the percentage of workers at risk of suffering from high occupational stress has increased, affecting more than 30% of workers globally. The 5th European Working Conditions Survey reported that, during the previous three years, around 45% of workers had experienced different psychosocial risks that significantly affected their workplace (1). If not controlled, those psychosocial risks can expose workers to the risk of developing severe distress, anxiety, depression, and burnout (2).

Recently, EUROFOUND highlighted that between 15% and 25% of EU workers reported moderate forms of job burnout (3). Job burnout is considered as the result of workers' cumulative negative response to chronic work-related stress. It has been operationalized as consisting of three components: emotional exhaustion, cynicism, and professional inefficacy. Emotional exhaustion is mainly related to workers' experience of stress and the associated deterioration of emotional and physical resources. According to Leiter and Maslach's definition (4), the experience of exhaustion reduces workers' initiative while progressively limit-

ing their capacity for demanding work' (5). Cynicism refers to detachment from work as a reaction to the overload of exhaustion and it is linked to the loss of passion for one's work (4). Finally, professional inefficacy refers to workers' feelings of ineffectiveness and lack of achievement and productivity at work (4).

Burnout has been identified as an occupational hazard which affects mainly helping professionals, such as human service, education and health care professionals. Job burnout has been associated with several health problems, such as hypertension, gastrointestinal disorders, and insomnia (6, 7). It has also been associated with performance related issues (8-11), demonstrating its direct impact on workplace effectiveness.

In the last two decades there has been an increased emphasis on resource-based theories on stress. According to Hobfoll, job burnout could be considered as the result of people's failure in acquiring adequate resources (12). In this respect, job burnout might thus occur due to a lack of resources (13). According to the Conservation of Resources (COR) theory, resources are defined as 'those entities that either are centrally valued in their own right, or act as means to obtain centrally valued ends' (13).

Among the most prominent resource-based theories on stress, Antonovsky (14) suggested that a strong sense of coherence (SoC) might be a personal resource capable of enabling individuals to mobilize external and internal resources to reduce the impact of job stressors and promote effective coping strategies by finding solutions and resolving tension in a health promoting manner (15).

SoC has been defined as: "A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (a) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable and explicable; (b) the resources are available to one to meet the demands posed by these stimuli; and (c) these demands are challenges, worthy of investment and engagement" (16).

SoC entails elements of comprehensibility (cognitive elements), manageability (instrumental elements) and meaningfulness (motivational elements) (17) which allow workers to make use of adaptive coping strategies (18). Accordingly, workers with high SoC perceive and understand the world as more comprehensive, manageable, and meaningful (19). Baker et al. (1997) suggested that SoC is negatively correlated with emotional exhaustion and cynicism, and positively correlated with personal accomplishment (20). Del-Pino-Casado et al. (2018) highlighted that high levels of SoC may protect workers from job stress and they are linked to a reduced risk for various health problems (21,22). On the contrary, a weak SoC might lead to job stress and burnout.

In the last 25 years, there has been a considerable amount of research that has examined burnout and SoC in several helping professions. Among those, speech and language therapists are vulnerable to burnout because of their role in the rehabilitation process, which requires close interaction with patients, frequent contact with patients may suffer with pain, and may face discouraging barriers or setbacks during extended treatment intervals. According to Worrall and Yiu (2000), speech-language therapists develop a deep relationship with their patients, becoming psychologically and emotionally involved in helping others (23). However, very few researches have investigated these phenomena, pertaining to speech and language therapists. In fact, the available studies investigating burnout among speech and language therapists are related to the macro-group of workers in rehabilitation contexts. For example, Li Calzi and colleagues (2006) in their study found that rehabilitation therapists showed "medium" levels of both emotional exhaustion and cynicism (24).

Aim

The purpose of this study was to investigate the relationship between SoC and job burnout among speech and language therapists.

Methods

Design and participants

A descriptive and cross-sectional analysis was carried out through an online self-reported questionnaire

on limesurvey. The convenience sample was recruited through a public announcement on Italian official social network groups of speech and language therapists which contained an invitation to participate in the anonymous survey.

Specifically, the survey's homepage reported information about the study purpose and a general description of the questionnaire, including information about risks and benefits of participating. The time needed to complete the survey and privacy policy information were also reported. All the survey was in Italian language. A total of 217 Italian speech and language therapists were involved in the study. 94.5% of the total were women (N=205) and 5.5% were men (N=12).

The mean age of the respondents was 32.15±9.47 years, with an average length of service of 8.32±8.92 years.

Instrument

The questionnaire included a socio-demographic section and a set of validated scales from the international literature. The Italian version of Maslach Burnout Inventory-General Survey was used (25). Participants used a seven-point Likert scale, ranging from 0 (never) to 6 (every day), to rate the extent to which they experienced emotional exhaustion (5 items; e.g., 'I felt emotionally drained from my work'), cynicism at work (5 items; e.g., 'I have become less enthusiastic about my work') and professional efficacy (6 items; e.g.. 'At my work, I feel confident that I am effective at getting things done'). In the present study, Cronbach's alpha for each subscale was 0.90 for emotional exhaustion, 0.83 for cynicism and 0.76 for professional efficacy.

SoC was measured by using the Italian adaptation of the SOC-13 developed by Antonovsky (26). The scale consists of 13 items, each of which is scored on a Likert scale, ranging from 1 ('very often') to 7 ('very seldom or never'). The SOC scale measures three dimensions: comprehensibility (five items; e.g.: 'Do you have the feeling that you are in an unfamiliar situation and don't know what to do?'); manageability (four items; e.g.: 'Has it happened that people whom you counted on disappointed you?'); and meaningfulness (four items; e.g.: 'Until now your life has had: no clear goals or purpose at all - very clear goals and purpose'). Cronbach's alpha was 0.78.

Data analysis

Frequency and percentage have been used in analyzing data. The relationships between burnout (emotional exhaustion, cynicism and professional efficacy) and SoC have been analyzed with the Pearson correlation analysis.

For multiple comparisons, the ANOVA test with Bonferroni correction was used to examine between-group burnout and SoC differences. The ANOVA test was deemed to be appropriate, as the data displayed normally distributed residuals and homogeneity of variance. Logistic regression was performed in order to study the relationship between SoC and burnout. The independent variables used in the burnout model included demographic characteristics (i.e., tenure) and SoC levels. Burnout and SoC were divided into two levels, high vs. low, using 33rd and 66th percentiles as cut-off points. Tenure was divided into three groups: less than 2 years, from 2 to 10 years, more than 10 years.

The odds ratios (ORs) and their 95% confidence intervals (CIs) were calculated. A significance level of 0.05 was chosen. Statistical analyses were carried out by using the SPSS program version 21.0 (SPSS: An IBM Company, Chicago, IL, USA).

Ethical consideration

This study has been conducted in accordance with the recommendations of the local ethic committee at the University of Cagliari. In Italy, no ethical approval is required for observational nature studies, since they are not defined as medical/clinical research, according to the Italian law No. 211/2003. In fact, the study included non-clinical surveys which used non-invasive measures (self-ratings).

Furthermore, this study complies with the Declaration of Helsinki (27) and with the Italian privacy law (Decree No. 196/2003). No treatments or false feedbacks were given, and no potentially harmful evaluation methods were used.

Participation was completely voluntary, and participants could drop out at any time without any negative consequences. All data were stored only by using an anonymous ID for each participant. Written online informed consent to participate in the survey was provided by clicking on 'I accept.'

Results

Means and standard deviations for the study's variables are given in Table 1. Our results supported the underlying assumptions postulated in the literature about the correlation between SoC and burnout. Specifically, Pearson correlation showed that SoC was negatibely correlated to EE (r=-0.40, p<.01), cynicism (r=-0.39, p<.01) and PE (r=-0.41, p<.01).

The ANOVA test showed a non-significant main effect of job tenure on emotional exhaustion, F(2, 210)= 0.104, *ns*, cynicism F(2, 210)= 0.047, ns, and personal efficacy F(2, 210)= 0.523, ns.

Results from the Independent Samples t-Test (table 2) showed that speech and language therapists with low SoC exhibited significantly higher emotional exhaustion (t=7.941 d.f.=215 p<.001), higher cynicism (t=6.676 d.f.=215 p<.001), and lower professional efficacy (t=-7.190 d.f.=215 p<.001) when compared to those having high SoC.

Finally, in order to assess the impact of SoC on burnout among speech and language therapists, binary logistic regression was performed. The association between low SoC and high emotional exhaustion (66th percentile: >3.6) was statistically significant OR=11.86; 95% CI=5.52-25.49; p<0.05 (table 3), low SoC was associated with high cynicism (66th percentile: >2.00) OR=4.41, CI=2.50-7.80; p<0.05 (table 3), and low SoC was associated with low personal efficacy (33rd percentile: <4.67) OR=4.70; CI=2.59-8.52; p<0.05 (table 4).

Discussion

The present study aimed at investigating how SoC was associated with job burnout (e.g., emotional exhaustion, cynicism and personal efficacy) among Italian speech and language therapists.

We did not find significant associations between job tenure and the three components of job burnout in this study. These results are not in line with traditional

Table 1. Means, standard deviations and Pearson correlation (r) between the variables of the study (N=217)

	M	SD	1	2	3	4
1. Job tenure	8.32	8.93				
2. SoC	4.54	0.57	0.28**			
3. EE	2.96	1.45	-0.03	-0.40**		
4. Cynicism	1.76	1.40	-0.08	-0.39**	0.65**	
5. PE	4.90	0.85	0.12	0.41**	-0.34**	-0.43*

SoC: Sense of Coherence, EE: Emotional Exhaustion, PE: Professional efficacy M: mean, SD: standard deviation **p<0.01, **p<0.05

Table 2. The associations between SoC and emotional exhaustion among speech and language therapists (N=151)

Variables	Emotional Exhaustion				OR	95% CI
	High		Low			
	N	%	N	%		
SoC						
Low	61	77.2%	16	22.2%	11.86*	5.52-25.49
High	18	22.8%	56	77.8%		

SoC=Sense of Coherence; OR=odds ratio; 95% CI=95% confidence interval. * p<0.05

Table 3. The associations between SoC and emotional exhaustion among speech and language therapists (N=111)

Variables	Cynism				OR	95% CI
	High		Low			
	N	%	N	%		
SoC						
Low	75	67.6%	34	32.1%	4.41*	2.50-7.80
High	36	32.4%	72	67.9%		

SoC=Sense of Coherence; OR=odds ratio; 95% CI=95% confidence interval. * p<0.05

Table 4. The associations between SoC and emotional exhaustion among speech and language therapists (N=111)

Variables	Personal efficacy				OR	95% CI
	High		Low			
	N	%	N	%		
SoC						
Low	61	72.6%	48	36.1%	4.70*	2.59-8.52
High	23	27.4%	85	63.9%		

SoC=Sense of Coherence; OR=odds ratio; 95% CI=95% confidence interval. * p<0.05

studies which showed that workers having a longer job tenure are at higher risk for job burnout (28). Other studies (29-30) reported insignificant associations between job tenure and emotional exhaustion, cynicism and lower professional efficacy.

Results from the Independent t-Test showed that low levels of SoC are significantly associated with higher levels of emotional exhaustion, cynicism and lower professional efficacy. Furthermore, when odds ratios were considered, a significantly increased OR in emotional exhaustion, cynicism and low personal efficacy emerged when SoC was low. Those results are in line with previous researches, which highlighted that SOC is an essential personal resource in activating workers' reaction to various stressors (31). Basically, the stronger SoC a worker has, the better ability to activate cognitive, affective and instrumental strategies directly linked to wellbeing he/she has. Accordingly, these outcomes corroborate the theory that SoC is an important personal resource which allows workers to appraise work-related stressors as not relevant, facilitating problem-solving under stress and protecting workers from burnout (32).

Study limitations

The first limitation of this study is that participants were not randomly selected from the national health care system. This may create a selection bias and limit the generalizability of the results. The study must be repeated by analyzing a larger and more representative sample of speech and language therapists. The second limitation of this study is that the data were cross-sectional in nature. This precludes conclusions about the direction of the relationships between SoC and burnout observed. Future longitudinal research is required to further understand how SoC influences the development of job burnout. Another limitation is represented by the use of a self-reported questionnaire, which may have determined a bias related to social desirability and common method (33).

Conclusions

This study suggests that low SoC is a potential risk factor for job burnout among speech and lan-

guage therapists. In his definition, Antonovsky (14) theorized SoC as an attitude developed in childhood and stable after age 30. However, recently, Kähönen, Näätänen, Tolvanen, and Salmela-Aro (34) developed a salutogenic group intervention aimed to increase SoC among healthcare workers. Future studies should consider the efficacy of this intervention among speech and language therapists.

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Emotional intelligence, empathy and alexithymia: a cross-sectional survey on emotional competence in a group of nursing students

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Abstract. *Background:* Emotional intelligence (EI) is the ability to recognize and manage one's own and others' emotions, empathy is the ability to understand how others feel, whereas alexithymia represents the difficulty in feeling and verbally expressing emotions. Emotional competences are important requirements for positive outcomes in nursing profession. *The aim of the study:* To analyze EI, empathy and alexithymia in nursing students. *Methods:* We conducted a cross-sectional survey in a sample of 237 students (53 males, 184 females), attending both the 1st and 3rd year of the University Nursing Course in Modena. We administered three Italian validated scales: Schutte Self-Report Emotional Intelligence Test (SSEIT), Jefferson Scale of Empathy - Health Professions Student (JSE-HPS), Toronto Alexithymia Scale (TAS-20). Data were statistically analyzed. *Results:* Statistically significant differences were found between the 1st and 3rd year students at SSEIT (t=-0.6, p=0.52), JSE-HPS (t=-3.2, p=0.0016) and TAS-20 scores (t=-3.54, p=0.0005). Among 3rd year students, females obtained significantly different scores from those of males at SSEIT (t=2.8, p=0.006). All three scales reported a Cronbach's alpha >0.80. SSEIT correlated positively with JSE-HPS (Spearman's rho=0.15, p=0.02) and negatively with TAS-20 (Spearman's rho=-0.18, p=0.006). *Conclusions:* Our study highlighted a good level of emotional skills among students at the beginning of nursing training, further increased by the last year of the course, suggesting that emotional competences can be learned, and confirmed that empathy, but not alexithymia, is a dimension of EI. (www.actabiomedica.it)

Key words: emotional intelligence, empathy, alexithymia, nursing students

Introduction

Emotions and Emotional Intelligence

A scientific model of emotional brain has been hypothesized in recent years. The term "Emotional Intelligence" (EI) was introduced in 1990 by Peter Salovey and John D. Mayer who defined EI as "*ability to monitor the emotions, the feelings of one's own and others, to discriminate between them and use this information to guide our thinking and actions*" (1). The same authors, years later, proposed a new more exhaustive definition: "*Emotional Intelligence implies the ability to accurately perceive, evaluate and express emotions: the ability to generate and/or access to feelings when they facilitate thought; the ability to understand emotions and emotional knowledge; and the ability to manage emotions to promote emotional and intellectual growth*" (2). Before them, in the 1980s, another author, Reuven Bar-On, an Israeli psychologist, had interpreted EI as "a set of faculties, skills

and non-cognitive abilities that influence one's ability to be able to cope with environmental demands and pressures" (3, 4) and had developed an evaluation scale, the "Emotional Quotient Inventory (EQ-I)". Another author, Howard Gardner, had criticized the concept of Intelligence Quotient (IQ) in the 1983 book "*Formae mentis*" and successively hypothesized the multiplicity of intelligences constantly evolving. The author himself observed that the core of interpersonal intelligence includes the "ability to distinguish and respond appropriately to moods, temperament, motivations and wishes of others" (5).

In his fundamental definition of EI, the psychologist Salovey described five EI main areas: 1) self-awareness of emotions, 2) control of emotions, 3) motivation, 4) ability to dominate emotions to achieve a goal, 5) recognition of the others' emotions ("*art of relationships consists in the ability to dominate the emotions of others*") (6).

The theme of EI was again dealt with in 1995 by Daniel Goleman (7) in the book "Emotional Intelligence", in which he defined the term emotion in relation to feelings and thoughts characterized by psychological and biological conditions and distinguished eight fundamental emotions: anger, sadness, fear, joy, love, surprise, disgust and shame. Daniel Goleman took up Gardner's theory of multiple intelligences, according to which the old concepts related to IQ only included a narrow range of linguistic and mathematical skills: "the analysis of IQ explains very little of the diverse fate of individuals with similar talents, instructions and opportunities". In accordance with Goleman, emotional competence is a learned ability, based on emotional intelligence, which represents how much of our emotional potential we managed to turn into real skills ready to be used in the workplace (7). Goleman always described fundamental skills to acquire emotional competence as emotional awareness: recognition of emotions and their effects. Another aspect of emotional competence is motivation, which identifies opportunities and guides behavior towards the goal (8). The most recent model of EI is represented by the so-called "tract of Emotional Intelligence", formulated by Petrides in 2007 (9), which provided a comprehensive operationalization model of emotion-related self-perceptions and dispositions. This can be considered a second-generation model which includes many features of previous models. According to theory, authors formulated a tool (validated in Italian) represented by the Trait Emotional Intelligence Questionnaire TEIQue (9). The EI concept is significant for people's well-being. It's positively related to the degree of personal satisfaction, optimism and quality of social relationships, especially in the workplace (10). Individuals with well-developed emotional skills are also more likely to be satisfied and efficient at work, being able to fuel productivity, while those who fail to exercise some control over their emotional lives fight internal battles that end up sabotaging their ability to work and think clearly (11). The highest EI levels, according to Mayer et al. (2008), correlate with better social relationships in childhood-adolescence and minor social deviance; success in adult interpersonal relationships, characterized by less violence, extroversion, relational adaptation and mediation skills; better family adaptation; better results in academic and work fields, with reduced levels of burn-out and abandonment; greater subjective well-being, self-confidence and lower frequency of depression (12). The ability to perceive, manage and effectively recognize one's own emotions and those of others must be a prerequisite and essential condition for anyone working in healthcare (13). Several studies have positively associated EI with the performance of single professionals and whole teams (14) as well as job satisfaction, represented by feelings of self-fulfilment, happiness and well-being (15). Satisfaction with one's own work normally increases self-esteem and commitment, while reducing the abandonment of work (16). Emotional intelligence is well-conceptualized, measurable and an important requirement for nursing profession and, in accordance with some authors, could therefore be assessed as a selection criterion (17).

Empathy

Empathy is commonly described as the feeling of a person imagining himself in another's situation, "putting himself in the other's shoes". It represents the skill to understand how others feel and what it means, and to communicate these emotions to others. However, empathy is an ambiguous concept and there is no consensus on its definition. Some researchers describe

empathy as a cognitive ability, which consists mainly in understanding others' thoughts, intentions and motivations; others describe this concept as an emotional aspect that involves the capacity of feeling and suffering what another person feels and suffers, sharing emotions. There is a third point of view that evaluates empathy both as an affective and cognitive attribute, describing it in multifactorial terms (18-21). Since the 1980s, cognitive and emotional aspects are coming together in a more holistic vision, in which one of the core ideas is that the empathic person not only understands, but shares and participates in the emotional state of the other. A "general" empathy can be defined as a relational process that involves different dimensions, such as cognitive, behavioral, affective and moral ones (22-24). All 4 dimensions of empathy can work together for patients' benefits (25). In recent decades, the phenomenon of empathy has received much attention in the field of neuroscience, which provided new theoretical models of empathy and substantially influenced its psychological construct. One of the most reliable hypotheses on the origin of empathy involves the theory of *mirror neurons*, located in an area of the human brain that includes the motor area of Broca, which responds selectively to an action observed in others. This does not happen only for motor activities but also for emotions: these neural networks would automatically activate when we see someone experiencing an emotion and they would allow us to experience these emotions as if they were ours (26). In clinical context, the cognitive component of empathy includes the ability of the practitioner to understand the patient's perspective and select counseling and treatment accordingly, while the affective component is commonly understood as empathic concern or understanding, which includes the ability to recognize affection and respond to the patient with appropriate emotion (27). Clinical empathy is a key communicative skill that is part of patient-centred care more focused on the patient rather than on illness (28). Empathy is a central aspect of healthcare and has been associated with positive outcomes not only for the patient (29-31), but also for health worker well-being (32, 33). Empathy is associated with better patient satisfaction and compliance with the recommended treatment (34). Some authors divide empathic competence into empathic skills in the strict sense, such as communication ability, and relation skills based on mutual trust. The ability to verbally and non-verbally communicate is used to control, clarify, support, understand, reconstruct and reflect on the perception of the patient's thoughts and feelings, while the ability to build a long-term trust relationship represents the therapist's interest in the patient's life stories and can only be established through an interactive reciprocal empathic relationship (35). Higher levels of empathy in health care workers have been linked to the improvement of patient care (36), greater patient satisfaction (37) and shorter periods of illness (31,38). Empathy is the foundation for understanding patients' needs, concerns and emotions and it's critical to nursing practice (35). Many researchers highlight that empathy is the most important ingredient in helping relationships (39-42) in order to create a climate of trust, to facilitate positive patient outcomes, to reduce physiological discomfort, to improve self-awareness, etc. (36, 43, 44).

The role of empathy in nursing course and professional practice is debated (45). Western modern health care theory is focused on evidence-based technology, resulting in empathy being largely ignored in scientific activities (46). The emphasis is often on teaching students to be technically competent rather than emotionally capable, fostering general knowledge over interpersonal competence (47).

Alexithymia

Alongside the concepts of EI and empathy the dimension of alexithymia, a phenomenon analyzed by psychoanalysts, is quite remarkable. Alexithymia is the inability to empathize and relate to others. The term alexithymia (from the Greek *a* = lack, lexis = word, *thymos* = emotion), coined by Sifneos (1973) (48) to describe the personality of patients suffering from psychosomatic illness, literally means "emotion without speech" or "lack of words for emotions", indicating the difficulty of verbally expressing emotions, associated with a limited symbolization capacity and a flat, colorless communication style. Other authors defined alexithymia as "a cognitive and an affective deficit in the way that some individuals recognize and communicate emotional states" (49, 50). The alexithymic per-

sonalities manifest a style of thought tending towards passivity, dependence and imitation, with an evident difficulty in verbal expression and recognition of emotions (51). Alexithymia is not a categorical phenomenon, but a dimensional construct or personality trait: some subjects present alexithymic brain functioning areas and/or alexithymic behavior exclusively related to specific contents, emotions and situations. In alexithymic subjects, the difficulty in emotion mentalization emerges clearly, leading them to regulate emotions through impulsive acts or compulsive behavior, showing poor abilities to experience positive emotions such as joy, happiness or love. A functional impairment in the process of cognitive handling of emotions also has important consequences in interpersonal skills. The alexithymics are unable to empathize with others and this inability leads them to social isolation or, in alternative, to develop highly dependent and interchangeable relationships. Taylor et al. (52) developed a tool to evaluate alexithymia, the Toronto Alexithymia Scale with 20 items (TAS-20), that evaluates three dimensions:

1) difficulty in identifying emotions, distinguishing between feelings;
2) difficulty in describing feelings;
3) externally oriented thinking (operative thought).

The reliability and validity of this scale was confirmed in a large sample of the general population (53). This scale allows researchers to investigate alexithymia as a psychological dimension which fits into more modern neurophysiology paradigms and interpersonal relationships regardless of the psychosomatic medicine paradigm, a deficit theory for classical psychosomatic diseases (the "holy seven"). Some studies highlighted that alexithymia was predictor for health anxiety (54) and could be an independent predisposing factor for burnout (55). In accordance with a recent study, alexithymia positively correlated with depression, anxiety, stress, female gender, and negatively with life satisfaction in a sample of University students (56).

Emotional competence in nursing students

Nursing students with high EI index are able to better understand the patient's perspective, and are also more likely to have a high level of empathy (57). A study developed by Sidney University investigated the association between EI, learning strategies (such as helping relationship and development of critical thinking) and their influence on university performance in a sample of nursing students during the first year of Nursing Course. To evaluate EI, the TEIQue was used. The training lasted six months, at the end of which the results demonstrated a statistically significant correlation between EI and development of critical thinking as well as between EI and therapeutic relationships. Results showed that greater emotional intelligence can lead students to pursue their interests more vigorously and EI can be an explanatory factor for better results in academic performance (58). A similar study was conducted in a sample of nurses in the United States, who attended a six-week psycho-education course aimed at developing communicative and empathic skills. The result showed that communication aspects as well as the empathy scale scores significantly increased after the training course (59). A Chinese study examined the association between emotional intelligence and communication skills among nursing students (60). The results of this study showed that EI was positively related to clinical communication skills and that resilience significantly influenced the relationship between these two abilities (60). Moreover, they indicated that the relationships between EI and clinical communication skills differed among participants with different levels of resilience: high resilience was associated with higher EI and good communication skills, low resilience with lower EI index and communication skills (60). Some authors found that social skills and emotional intelligence are indicators positively related to psychological well-being (61). A meta-analysis reviewed 31 articles from a total 395 studies on EI in approximately 65,300 participants: all studies showed that emotional competence, critical thinking skills, abilities and nursing traits are enhanced by EI in nursing course (62). Further studies correlated high EI with nurse mental health (63) and professional satisfaction increase (64). Moreover, high levels of EI also emerged as a significant predictor for nursing leadership and contributed to improving educational and organizational outcomes in health care (65). However, EI is minimally considered in healthcare training programs (66), although it is known that low levels of emotional skills can fre-

quently be associated with ineffective stress management and academic performance failure (67). Studies conducted among nurses and nursing students revealed that EI minimized the negative consequences of stress. Moreover, under stress, nursing students with high EI adopted positive coping strategies and more frequently received support from colleagues, friends and family (68). A study explored the relationship between EI and coping strategies, perceived stress, wellbeing and academic performance in a sample of UK nursing students (69). The results showed a positive correlation between EI and well-being perceived by students as well as a positive correlation between EI and academic performance (69). Data suggested that high levels of EI help nursing students to adopt active and effective coping strategies when dealing with stress, increasing their subjective well-being (69).

Another study assessed EI during the 4-year nursing course in 100 female nursing students, 25 in each of the four years (the researchers opted to evaluate only female subjects, since the sample of male students was too small to be evaluated) (70). Students completed the BarOn Emotional Quotient Inventory Short (EQ-I: S), a 51-item self-report questionnaire that includes scores for a total EQ and five sub-scales. The total score, the interpersonal structure and the stress management sub-scale scores obtained by fourth-year students were statistically significantly higher than first-year student scores, suggesting that emotional skills can develop over the nursing course progression (70). Other studies found that EI was positively correlated with nursing student clinical performance and low level of EI was a predictor for failings in patient care, in particular in reduced empathic compassion and understanding (71,72). Recent research put in evidence that EI is high in nursing students, especially in females if compared with males (73). Another study reports that empathy declined with age and career, but could be protective against burnout, which, in turn, reduced empathy (74).

Purpose

To assess emotional intelligence, empathy and alexithymia in first and third year nursing students, in order to verify the possible development and/or strengthening of emotional skills during the University Course.

Materials and methods

The study design

This was a cross-sectional survey implemented in the Nursing Course of Modena (Modena and Reggio Emilia University). On the same day and time, in classrooms after lessons, three tests focused on emotional competence were administered to 1st and 3rd year nursing students.

The sample

The sample consisted of the 1st and 3rd year nursing students who agreed to participate in this study and completed all 3 scales. In particular, 237 students participated, 130 from the first and 107 from the third year, of which 184 were females and 53 were males.

The selected variables

Only age, sex and high school orientation were collected from students, who anonymously completed the scale questionnaires in about one hour.

The scales

We selected three scales already validated in Italian for easily and rapidly evaluating emotional intelligence, empathy and alexithymia, respectively:

1. Schutte Self-Report Emotional Intelligence Test (SSEIT): a test for emotional intelligence composed of 33 items, developed by Schutte et al. (75) and validated in Italian (76). The items cover three aspects of emotional intelligence, such as assessment and expression, regulation and manipulation of emotions. The mean SSEIT score evaluated in many large samples is about 124, with a standard deviation of about 13. So scores below 111 or above 137 are unusually low or high. Studies of validation found Cronbach's alpha coefficients ranged between 0.73 and 0.92.
2. Toronto Alexithymia Scale (TAS-20) (77): a test composed of 20 Likert scale items with a score ranged between 1 and 5, already validated

in Italian (78). Some items (4, 5, 10, 18) have inverted score, with a range between 20 and 100. The alpha coefficient of Cronbach is equal to 0.81 in the validation studies. The score cut-off is as follows: ≥61 = positive alexithymia, 50-60 = borderline alexithymia, <50 = negative alexithymia. TAS analyzes the difficulty of identifying feelings, verbally describing them and the tendency to minimize emotional experience and focus attention externally.

3. Jefferson Scale of Empathy-Health Professions Student Version (JSE-HPS) was elaborated from the two other versions to make it more appropriate for different health professionals (doctors and all other health professions, medical students, health professions excluding medical students) (79). Cronbach's alpha coefficient is 0.81. This scale analyzes three factors: "Perspective taking", "Compassion care" and "Standing in the patients' shoes". In a recent review (80), the authors highlighted the following cut-offs, different for gender: men with high scores ≥127 and low ≤95, women with high scores ≥129 and low ≤100. The total score ranges from a minimum of 20 to a maximum of 140: higher scores denote higher levels of empathy. The JSE-HPS was validated in Italian (81).

The three scales were administered to students attending the first and third year of the nursing course to assess their psychological dimensions during the nursing training.

Statistical analysis

Descriptive statistics were applied to analyze continuous variables (mean and standard deviations, *t*-tests) and categorical variables (percentages and Chi2). The scales scores were correlated to each other with Spearman test. The correlations between each score of the scales (dependent variable) and the independent variables (age, gender, high school orientation) were also made applying the multiple linear regression model. Cronbach's alpha was also evaluated for the three administered scales.

Results

Our sample consisted of 237 students (53 males and 184 females): 130 attending the first year and 107 the third year of the Nursing Course. As shown in Table 1, we found no statistically significant difference in age between males and females, either in 1st year or in 3rd year nursing students. We found a statistically significant gender difference in the orientation of high schools they attended (Pearson chi2 = 24.43, p = 0.002): males had completed high schools scientifically and/or technically oriented whereas females had attended high schools with pedagogical or linguistic orientation (Table 1).

Table 1. Sample variables

Variables	1st year Students n=130		3rd year Students n=107		Total sample n=237
	Males n=26 (20%)	Females n=104 (80%)	Males n=27 (25%)	Females n=80 (75%)	
Age (m±SD) years	20.54±4.19	19.65±1.87	21.96±1.43	21.92±2.05	20.78±2.49
High School (orientation), n (%)					
Humanistic	1 (0%)	8 (3%)	0 (0%)	5 (2%)	14 (6%)
Scientific	18 (8%)	49 (21%)	18 (8%)	32 (14%)	117 (49%)
Artistic	0 (0%)	3 (1%)	0 (0%)	1 (0%)	4 (2%)
Linguistic	1 (0%)	15 (6%)	1 (0%)	19 (8%)	36 (15%)
Pedagogy	0 (0%)	15 (6%)	0 (0%)	8 (3%)	23 (10%)
Tecnical	6 (3%)	14 (6%)	8 (3%)	15 (6%)	43 (18%)

We found the following differences between the 1st-year and 3rd-year nursing student scale scores (Table 2):

- SSEIT: 1st year students 119.84 ± 11.92 SD, 3rd year students 120.89 ± 13.68 SD (t = -0.6, p = 0.5251, t-test);
- TAS-20: 1st year students 55.15 ± 7.91 SD, 3rd year students 59.20± 9.68 SD (t = -3.54, p = 0.0005, t-test);
- JSE-HPS: 1st year students 82.81 ± 0.86 SD, 3rd year students 86.72 ± 0.84 SD (t = -3.2, p = 0.0016, t-test).

As shown in Table 3, we highlighted a statistically significant gender difference only at SSEIT: the 3rd-year female students (122.99 ± 11.57) obtained higher scores than 3rd year male students (114.7 ± 17.4) (t = 2.8, p = 0.006, t-test).

Each of the three scales reported the Cronbach alpha coefficient greater than 0.8 (Table 4).

Table 4. Cronbach alpha coefficients

Scales	Cronbach alpha coefficient
SSEIT	0.8708
TAS-20	0.8167
JSE-HPS	0.8659

Table 5. SSEIT correlation with the other two scales

Scale	TAS-20	JSE-HPS
SSEIT	Spearman's rho= -0.18 p = 0.006	Spearman's rho= 0.15 p = 0.02

At the correlation Spearman test (Table 5), we highlighted that the SSEIT score:

- positively correlated with the JSE-HPS score (Spearman's rho = 0.15, p = 0.02),
- negatively correlated with the TAS score (Spearman's rho = -0.18, p = 0.006).

Table 2. Scale scores obtained by 1st year and 3rd year nursing Students

Scales	1st year nursing Students	3rd year nursing Students	Statistical Test Probability
SSEIT Score (m±SD)	119.84 ± 11.92	120.89 ± 13.68	t = -0.6, p = 0.5251 t-test
TAS-20 Score (m±SD)	55.15 ± 7.91	59.20± 9.68	t = -3.54, p = 0.0005 t-test
JSE-HPS Score (m±SD)	82.81 ± 0.86	86.72 ± 0.84	t = -3.2, p = 0.0016 t-test

Table 3. Scale scores in 1st and 3rd year nursing students divided by gender

Scales	1st year Students n=130		Statistical Test Probability	3rd year Students n=107		Statistical Test Probability
	Males n=26 (20%)	Females n=104 (80%)		Males n=27 (25%)	Females n=80 (75%)	
SSEIT Score (m±SD)	120.31±11.36	119.72±12.1	NS*	114.7±17.4	122.99±11.57	t=2.8, p=0.006
TAS-20 Score (m±SD)	55.96±8.02	54.95±7.92	NS*	58.7±11.56	50.37±9.04	NS*
JSE-HPS Score (m±SD)	83.23±7.14	82.7±10.47	NS*	85.88±11.15	87±7.78	NS*

NS= Not statistically significant

We did not highlight any statistically significant correlation between the selected variables and the three scale scores at our multiple linear regression model.

Discussion

The analysis of emotional intelligence, empathy and alexithymia in nursing students of the first and third year of the Nursing Course at the University of Modena and Reggio Emilia showed good level of emotional skills already at the first year

In all the students of our sample, we obtained SSEIT scores included in the mean values indicated by the authors of the scale (82). The EI scores shown by our students were higher than those of the students who attended the first year of the University nursing and engineering course in Slovenia, recently evaluated through the SSEIT (73). The average TAS-20 score obtained in our sample of students showed a limit value, significantly increased among third year students. Similarly, at the JSE-HPS our students obtained average values, ranged from 20 to 140 (36), which instead increased in the third year students.

We did not find any correlation between the orientation of high schools previously attended by students and their level of emotional skills, but we observed a significant gender difference in high school diplomas, which could indicate females' greater interest in social and humanist sciences, probably due to an empathic attitude, mirroring a general trend in the choice of high schools in males and females (83). We highlighted another gender difference: females presented statistically significantly higher scores at the scale of EI (SSEIT) than male students at the third year of the Nursing Course. This result is in line with most studies which highlighted that the level of emotional competence is higher in female nursing students (84,85) and increases over the course (86). Moreover, it allows us to hypothesize that female students presented higher capacity for learning emotional competences, since, at the end of course, they demonstrated the acquisition of greater ability to express, control and use their emotions compared to their male colleagues. Nevertheless, the female gender difference concerning the greater propensity for human relationships highlighted in our study, should be further analyzed in order to investigate if it is genetically or culturally determined.

The empathy scale did not show any gender difference among either the 1st or 3rd year students but highlighted a significant increase in the 3rd year student scores, indicating the increased empathic ability acquired by all students by the end of nursing school. The increased score at the empathy scale (JSE-HPS) suggests an improvement in the students' ability to get in touch with the patient, "putting himself/herself in the patient's shoes" to better understand his/her needs and requests (87). Moreover, this result indicates that both male and female students had developed this competence through the nursing teaching focused on empathy as essential attitude for good quality of care, which fostered the acquisition of a greater capacity to "feel" patients and get in touch with their needs (88). In this regard, it should be emphasized that, although there was no specific training for emotional competence in the Nursing Course, students have had the possibility to refine their emotional skills with the sole aid of nursing trainers and teachers. Therefore, we can deduce that the nursing course itself fosters students to develop their emotional and empathic abilities to establish a helping therapeutic relationship with the patient, as observed by other studies (80). We can further notice that contact with the patient's sufferance could contribute to developing and refining emotional and empathetic skills in students. Nevertheless, we have to put in evidence that we obtained statistically significantly higher score at the scale for evaluating alexithymia (TAS-20) in the 3rd year students, indicating the concomitant increase of this dimension at the last year of nursing training. This result could highlight that nursing students without a proper training on the management of emotional care burden had developed a withdrawal from their emotions (a sort of alexithymic style) as an implicit coping strategy. Further studies, which longitudinally assess the emotional competences in larger samples of nursing students, can better highlight this issue.

We can further notice that contact with the patient's sufferance could contribute to developing and refining emotional and empathetic skills in students. In any case, we highlight that our students became more empathic and more competent in emotional capacities as the nursing course progresses, confirming that, as

Goleman claimed and as evidenced by literature (58, 62, 89), these skills can be learned and improved.

Our research also confirms the literature data on the reliability of the three scales that, also in our study, obtained a Cronbach alpha coefficient higher than 0.8 in each of the three scales, suggesting their good reliability and reproducibility in measuring emotional, empathic and alexithymic dimensions, respectively (76). The score obtained by our students at the SSEIT scale positively correlated with the empathy scale (JSE-HPS) score and negatively with alexithymia scale (TAS-20) score. This result overlaps that of other authors (76) and is consistent with the constructs of the three scales. In fact, as our result suggests, empathy, but not alexithymia, is part of EI construct, in accordance with most studies (90-92). On the contrary, our results suggest that alexithymia is a psychological dimension contrary to empathy but, like empathy and EI, can be modulated over the training course. Therefore, alexithymia trait should be detected and controlled during the nursing course since it can reduce emotional competence of students and their capacity to create an appropriate therapeutic relationship with patients.

The nurse-patient relationship is a fundamental aspect of care, which can be modulated by empathic abilities as well as other technical skills in order to recognize the patient's needs and offer therapeutically appropriate response. Therefore, nursing students should be aware of their emotions to become emotionally competent and improve empathic abilities, essential aspects in nursing care and in all other health professions. Despite the importance of emotions in the therapeutic relationship, emotional competence is often underestimated in University Courses, where teaching is aimed at the acquisition of good theoretical and practical knowledge. Students' attention is often focused on memorizing notions useful to pass examinations or to acquire practical skills, but not to more properly manage their emotional competences in the relationship with the patient.

Conclusions

The main limitation is represented by the lack of a longitudinal evaluation of emotional skills in the same sample during the progress of course. Moreover, a comparison between nursing and other medical and non-medical students could be necessary to better evaluate emotional competences in different courses, suggesting limits and possibilities of teachings and trainings.

Another limitation is represented by the reduced number of variables selected for the students; other variables could have allowed us to highlight factors which influence emotional skills. Our study, albeit with the limits mentioned above, permitted us to investigate essential aspects of health professions, inviting us to reflect on the possibility that these can be learned and improved.

Our results suggest the possibility of learning and enhancing emotional and empathic skills in nursing course and suggest that empathy and EI, but not alexithymia, are emotional skills positively related to each other. In particular, we highlighted an increase in emotional capacities in 3rd year students, especially among females. This result emphasizes the possibility of continuous growth of emotional competences over the course. Therefore, we put in evidence the importance of training on emotional competences in nursing course as well as in all health profession schools, in order to specifically foster the development of these attitudes, which represent the first and indispensable step in implementing good clinical practice. In fact, we remind practitioners that awareness of self-emotions permits health professionals to understand in depth the patient's feelings, helping them to establish a respectful therapeutic relationship. Further research is necessary to better evaluate psychological dimensions in therapeutic help relationships in order to implement appropriate and effective training in University Courses.

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Spiritual care in nursing: an overview of the measures used to assess spiritual care provision and related factors amongst nurses

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Abstract. *Background and aim of the work:* Spiritual wellbeing has important implications for an individual's health and wellbeing. Whilst the provision of spiritual care and assessment of spiritual needs is a vital part of the nurse's role, literature suggests that nurses do not always engage in spiritual care with their patients or assess their spiritual needs. This review aims to ascertain wider reasons for this inconsistent spiritual care delivery by nurses to their patients. *Methods:* A review of the literature was conducted to identify instruments available relating to nursing professionals spiritual care and assessment. *Results:* 14 measures relating to spiritual care and assessment were identified covering the key domains of: 'Beliefs and values and attitudes around spiritual care,' 'Frequency of provision or extent to which they provide spiritual care or willingness,' 'Respondents' level of knowledge around spirituality and spiritual care,' 'Ability to respond to spiritual pain,' and 'Multiple Domains: beliefs and attitudes around spirituality and spiritual care, amount of preparation, training and knowledge, spiritual care practices, perceived ability and comfort with provision and perceived barriers to provision.' *Conclusions:* A lack of standardisation in the conceptualisation and assessment of spiritual care causes challenges in reviewing, however several themes do emerge. In general student and qualified nurses are aware of the importance of providing spiritual care and are hindered by a lack of education about how best to implement such care. The religiosity of individual nurses or their training institutions seems to be of less importance than training in spiritual care interventions. (www.actabiomedica.it)

Key words: spirituality, spiritual care and assessment, nursing

Introduction

There exists a lack of agreement around the definition of spirituality, indeed debate continues within the academic literature around the conceptualisation and definition of both spirituality and religiosity (1). Spirituality has been described as an umbrella term to denote the various meanings and interpretations of the term (2). Within nursing definitions of spirituality have been seen to include elements such as a higher power, feelings of connectedness, purpose and meaning in life, relationships and transcendence (3-5).

Regardless of the way it is defined or conceptualised spirituality is reported to contribute to the health and wellbeing of individuals (6). Spiritual wellbeing is associated with a number of positive outcomes including a greater tolerance of the emotional and physical demands of illness amongst patients (7) decreases in pain, stress and negative emotions (8), and lower risk of both depression and suicide (7). Patients who re-

ceive adequate spiritual care are also reportedly more satisfied with their hospital care and treatment (9).

The reverse appears true for unmet spiritual needs, with suggestion that when patients' spiritual needs are unmet there are seen to be lower levels of satisfaction with care received (10). Unmet spiritual needs appear to have a profound impact upon patient wellbeing (11). These adverse outcomes include reduced levels of quality of life, increased risk of depression and reduction in perceptions of spiritual peace (12).

Subsequently spiritual needs are acknowledged as being an important part of nursing care and assessment, and as such it can be regarded as a patient outcome. Indeed internationally there is growing emphasis on the importance of the spiritual needs of patients (13). Spiritual care is believed to be a major part of the nurse's role (14). This is consistent with the nurse's role as a multifaceted one, focusing on holistic care, incorporating the physical, psychological, social and spiritual needs of patients (15). Research has acknowledged that spiritual distress may occur at any time during the patient's journey and as such nurses should be prepared to provide spiritual care whenever it is needed including via the provision of a spiritual needs assessment (16). It has also been found (17) that nurses were both more likely to provide spiritual care and to contact specialist spiritual carers than physicians.

Despite this, there is evidence that spiritual needs and assessment are not always well engaged with by nursing staff, with suggestion in the literature that engagement with the spiritual needs of patients does not consistently occur (18). A variety of reasons may contribute to this, with the literature proposing various contributors including time pressures (19) and fear around the reaction of the patient to their attempts to aid with spiritual care (20). Cultural and religious differences may also affect ability to provide spiritual care, research (21) has found differences in knowledge of and training in spiritual care between Taiwanese and Mainland Chinese nurses. There is also said to be confusion amongst nurses about their role in spiritual care and assessment (22) a lack of clear definition over spiritual care as well as confusion over spiritual distress can act to make nurses less likely to deliver spiritual care to their patients (14). A perceived lack of skill in the area of spiritual care and of under preparation (23) and lack of confidence may also contribute (1). Indeed nurses often report the need for additional training provision in this area (e.g. 23).

This review intends to outline what measures have been used to examine spiritual care and assessment by nurse health professionals and explore what the literature using these methods tells us about how to increase the quality and quantity of spiritual care delivery.

Method

Searches were conducted using Nursing & Allied Health Database and Science direct databases.

Within the Nursing & Allied Health Database the words 'spirituality' and 'tools or measures or assessment or instruments or scales' and 'nursing' were used as keywords searched within the abstract of articles. Limiters were placed by age such that only results involving adults were returned. It was specified that scholarly journal articles should be returned, written in English. This resulted in 15 hits.

Within the Science Direct search the same words as above were used for search within the abstract of articles, topic requests were highlighted such that results only returned those concerning 'patients' or 'nurse'. Content was again limited to academic journals. This resulted in 362 results

Duplicates were removed and then titles and abstracts of articles were viewed and inappropriate articles discarded. Articles were discarded at this stage if they included assessment of spirituality in child patients, if they did not consider the role of nurses or student nurses in a patient's spirituality. The remaining articles were then viewed in full. Articles met the inclusion criteria if they included within their methodology measures which related to nursing professionals' spiritual care and assessment of patients.

Results

The search identified 14 measures related to spiritual care and assessment and upon examination it appeared they could be largely categorised into the following five domains as detailed below. Further details of the specific scales can be found in Table 1.

Table 1. List of Measures identified in the review and their description and properties

	Measure name	Mode of rating	N items	Dimensions / domains	Psychometrics
1	Spirituality and Spiritual Care Rating Scale (SCCRS) (Mcsherry et al., 2002)	Respondents indicated their agreement to a series of statements via a 5 point likert scale from strongly disagree to strongly agree.	17-item scale	Assesses the beliefs and values of nurses in four areas: Beliefs about spirituality; Beliefs about the way nurses can provide Spiritual care; Beliefs about Religiosity and the expression of religiosity and Beliefs and values around Personalised Care. e.g. items I believe nurses can provide spiritual care by arranging a visit by the hospital Chaplain or the patient's own religious leader if requested" I believe nurses can provide spiritual care by showing kindness, concern and cheerfulness when giving care".	Cronbach's alpha coefficient of 0.64.
2	Student Survey of Spiritual Care (SSSC) (Meyer, 2003)		9 item scale	Assesses students' perceived ability to provide spiritual care, their religious commitment and how much emphasis spirituality was given during their nursing training.	Reliability coefficient of 0.84.
3	The Spiritual Care in Practice (SCIP) (Burkhart & Schmidt, 2012)	5 point Likert scale ranging from "1" never to "5" always	12 items	Assesses how often respondents engage in methods to recognise the cues patients give of spiritual needs and the extent to which they provide spiritual interventions. E.g. When I believe a patient needs spiritual care, I take the time to be present with them	Cronbach's alpha for the tool was .91.
4	The Spiritual Care Inventory (SCI) (Buckhart, Schmidt & Hogan, 2011)	Likert-type ranging from 1 strongly disagree to 5 strongly agree	17 item scale	Measures the nurses' perceived belief of the extent they give spiritual care. Three subscales: spiritual care interventions, meaning making and faith rituals.	Subscale 1: internal consistency reliability of 0•82.
				The first assesses the extent to which respondents' feel that they provide interventions to promote the patients spirituality. E.g. I listen to patients when they are searching for meaning in situations' ' I give patients an opportunity to express spiritual aspects of themselves. Incorporates four items	The second subscale internal consistency reliability of 0•92
				The second subscale Meaning Making considered the reflective practices and meaning making that nurses used following spiritual encounters with patients Reflection helps me find meaning after providing spiritual care ten items	Subscale 3 internal consistency reliability of 0•86
				Subscale 3 Faith Rituals the extent to which the respondents used faith rituals in response to spiritual encounters with patients, 'After providing spiritual care, I find support through prayer'. three items	

(continued)

Table 1 ***(continued)*****.** List of Measures identified in the review and their description and properties

	Measure name	Mode of rating	N items	Dimensions / domains	Psychometrics
5	Spiritual Care Needs Inventory (SCNI) revised version (Wu, Tseng & Liao, 2016).	Participants responded as to their willingness to provide spiritual care from "willing" "don't know how to provide" and "unwilling."	21 item scale	Measures nurses willingness to provide care of spiritual dimensions. Assessed Willingness to Provide Spiritual Care in two spiritual care domains "Caring and Respecting" and "Meaning and Hope." 7 items formed "caring and respecting" e.g. Listening, accompanying, and providing reassurance," "Providing interaction," and "Respect for privacy and dignity. 14 items formed "Meaning and Hope." E.g. Guidance to find inner peace .	The item-level content validity index (CVI) ranged from 0.82 to 1.00 with an instrument-level CVI of 0.87 and a Cronbach's alpha of 0.96.
6	Spiritual Care Perspectives Scale (SCPS) Highfield, Taylor & Amenta, 2000	Likert scale responses 1-5 e.g. rarely or never to everyday weak or limited to strong, comprehensive ; or 1-4 Check boxes	6 items	The SCPS was developed to examine nurse attitudes, beliefs, practices, perspectives, and preparation regarding spiritual care. Assesses the frequency of providing spiritual care; Ability to provide spiritual care; Comfort level while providing spiritual care; Training/education in spiritual care; Adequacy of training; Influence of cancer/ terminal illness on spirituality.	
7	Spirituality Questionnaire Evaluation Tool (Hoffert, Henshaw, & Mvududu, 2007).	Participants responded to the extent that they agreed with the statement on a 5 point likert scale where 5 indicated a strong level of disagreement.	10 items	Evaluating the Perceived Comfort and Ability of Nursing Students to Perform a Spiritual Assessment: Spirituality Questionnaire Evaluation Tool, Included demographic information and assessing students perceived level of comfort with conducting a spiritual assessment, their perceived ability to perform spiritual assessment, their ability to differentiate between religion and spirituality, and the role of the nurse in spiritual care provision. e.g. " "I feel uncomfortable asking questions related to spirituality".	A value of .74 was found for this tool
8	The Spiritual Care Perspective Scale-Revised (Taylor et al., 1999)	5 point likert scale responses	Ten item scale	Attitude toward spiritual caregiving was quantified	The internal reliability αwas 0•75.
9	Modification of the Response Empathy Scale (RES; Elliott et al., 1982)	Respondents explained "would be the most spiritually healing response' that they would 'speak in immediate response' to each vignette		Used to assess the extent to which respondents were able to respond in an empathic way to patients' spiritual pain. It involved respondents evaluating written responses to vignette illustrating various patient expressions of spiritual pain	Interrater reliability of 0•86 and 0•82
10	Communicating for Spiritual Care Test (CSCT) (Johnston Taylor et al., 2009).		Scale of 24 items	Assesses the amount of knowledge that respondents have about communication for spiritual care. 24 item reflecting content taught in the intervention programme.	

(continued)

Table 1 ***(continued)*****.** List of Measures identified in the review and their description and properties

	Measure name	Mode of rating	N items	Dimensions / domains	Psychometrics
11	The measure: The Spiritual Importance scale (SI)			Assesses students understanding of spiritual issues and how important they perceive them to be based on the content delivered to them on a Spirituality and Clinical Care course	Cronbach α coefficients for the SI were .72 at pretest and .74 at posttest.
12	The Nurse Spiritual Assessment Questionnaire (NSAQ) (Johnston Taylor, 2013)	5 response options. Response options were available 'extremely uncomfortable', 'somewhat uncomfortable', 'somewhat comfortable', 'quite comfortable', and 'I don't understand this question'. Likert scale questions Open ended questions	21 items	Ascertained the level of comfort nurses had with asking patients various questions around spirituality as part of their nursing assessment. Comfort around spiritual care delivery Demographic information, Person spirituality and religiosity, perceived importance of spiritual care assessment by nurses and preparedness to conduct spiritual assessment types of spiritual assessment questions nurses use in their current work, what ways they employ with patients to gain spiritually relevant information	
13	Spirituality Scale (Nardi & Rooda, 2011).			The Spirituality Scale is used to identify respondents' level of awareness of spirituality and their use of strategies to address patients' spiritual needs. The questionnaire was formed of three sections. First part was formed of 10 demographic questions. The second part considered personal spirituality and life satisfaction. The final section considered 30 questions on beliefs and values, 15 questions on therapeutic strategies and behaviours	Cronbach's alpha (r = .949)
14	Adaption of Taylor's Nurse Spiritual Care Therapeutics Scale (DeKoninck, Hawkins, & Fyke, 2016).	Short answer and multiple choice questions. 4 point likert scale from strongly disagree, to strongly agree).	41 items	The measure adapted from the Taylor's Nurse Spiritual Care Therapeutics Scale. Demographic information and perceived barriers to the provision of spiritual care in nursing practice were addressed in 15 short answer and multiple choice questions. 26 questions ascertained the spiritual care practices of the respondents	

Beliefs and values and attitudes around spiritual care

1. Spirituality and Spiritual Care Rating Scale (SCCRS) (24), is an instrument developed to assess nurse's individual nurses' beliefs and values about spirituality and spiritual care. The original scale was of 23 items. After a pilot testing on seventy nurses working in surgical wards, the structure was changed to a final of 17 items with answers on a five-point Likert scale. The validation was conducted on a sample of 1029 ward-based nurses and the factor analysis identified four subscales: Spirituality, Spiritual Care, Religiosity and Personalised Care.

Frequency of provision or extent to which they provide spiritual care or willingness

1. The Spiritual Care in Practice (SCIP) (25), is an instrument used to measure the frequency of use of different methods to recognize a patient cue and providing spiritual interventions. It is a survey made of 12 items with answers on a five-point Likert scale. Its psychometric properties were tested on a sample of 78 nurses.
2. The Spiritual Care Inventory (SCI) (26) is an instrument developed to assess spiritual care provision. It was developed starting from a grounded theory study on the provision of spiritual care by nurses that labelled seven categories: recognition of patient cue, decision to engage/not engage in spiritual care, spiritual care intervention, immediate emotional response, searching for meaning, formation of meaningful memory and spiritual well-being. The first version was designed with 48 items with answers on a five-point Likert scale, tested on 298 adults (patients, nurses, general population). After an exploratory factor analysis, a final version of the scale with 17 items was released and tested on 78 adults (nurses and nursing students). It includes three subscales. Spiritual nursing intervention, meaning making, and faith rituals.
3. Spiritual Care Needs Inventory (SCNI) nurses version (27), is an instrument developed to assess nurses' willingness to provide specific aspects of spiritual care. It is based on the 21 items SCNI for patients (28) which identifies two subscales: Caring and Respecting and Meaning and Hope. In this nurses' version, the response categories were changed from "needs" (need, neutral, do not need) to "willingness" (willing, don't know how to provide, unwilling).

Respondents' level of knowledge around spirituality and spiritual care

1. Communicating for Spiritual Care Test (CSCT) (29), is an instrument developed to evaluate the knowledge about how to communicate to provide spiritual care. It is formed of 24 items with true/false answer options on: using personal 'woundedness' for healing purposes; listening to spiritual pain; making sense of what is heard; creating verbal responses to patients' expressions of spiritual pain.

Ability to respond to spiritual pain

1. Modification of the Response Empathy Scale (RES; 30), is an instrument assessing the ability to respond empathically to patient spiritual pain. It is made of three vignettes illustrating different patient expressions of spiritual pain. Respondents are asked to write down verbatim what 'would be the most spiritually healing response' that they would 'speak in immediate response' to each vignette. Each response is rated according to criteria including four items with five point Likert scales: topic centrality, staying 'here and now', choice of words, and exploratory manner. Scores range from 12 (low) – 60 (high empathy).

Multiple domains: beliefs and attitudes around spirituality and spiritual care, amount of preparation, training and knowledge, spiritual care practices, perceived ability and comfort with provision and perceived barriers to provision

1. Spiritual Care Perspectives Scale (SCPS) (31), is an instrument assessing nurse attitudes, be-

liefs, practices, perspectives, and preparation regarding spiritual care. It is made of six items, three of them with a five points Likert scale answer, one with a check list and two with a four points Likert scale answer. It was used to assess spiritual care education in 181 oncology and 645 hospice nurses.

2. Student Survey of Spiritual Care (SSSC) (32), is an instrument developed to assess student's perceived ability to provide spiritual care. It is made of 9 items with a six-point Likert scale answer.
3. Adaption of Taylor's Nurse Spiritual Care Therapeutics Scale (33), is an instrument developed to assess spiritual care barriers and practices. It is made of 15 short-answer and multiple-choice questions about demographics and perceived barriers to spiritual care and 26 questions about spiritual care practices on a 4-point Likert scale answer.
4. Spirituality Questionnaire Evaluation Tool (34), is an instrument developed to assess students' perceived comfort level with and ability to perform a spiritual assessment. It is made of 10 items with answers on a Likert scale. It was validated on a sample of thirty-nine students and assesses three domains: level of comfort related to performing spiritual care, ability to differentiate between religion and spirituality, and the role of nurses in providing spiritual care.
5. The Spiritual Importance scale (SI; 35), is an instrument developed to assess students' understanding of the importance of spiritual issues related to the Spirituality and Clinical Care. It is made of 8 items.
6. The Nurse Spiritual Assessment Questionnaire (NSAQ) (36) is an instrument developed to assess nurses' comfort with asking patients' spiritual assessment questions. It includes 21 items reproduced from North American and British health-care literature advocating spiritual assessment. Response options were ranged from 'extremely uncomfortable' to quite comfortable', including 'I don't understand this question'.
7. Spirituality Scale (37), is an instrument developed to assess the awareness of spirituality and use of nursing strategies to address the patient's spiritual needs. It consists of three sections. The first section contains 10 questions on demographic variables. One open-ended question in the second part eliciting self-exploration about personal spirituality and life satisfaction. The responses to this question are intended to be analysed using qualitative methods. The third section consists of 45 items on a Likert scale relating to the dimensions of spirituality: beliefs, values, therapeutic strategies, and behaviours. These therapeutic strategies and behaviours included the spirituality-focused nursing diagnoses (North American Nursing Diagnosis Association [NANDA]), Nursing Interventions Classifications (NIC), and Nursing Outcomes Classifications (NOC). The first part of this section contains 30 questions on beliefs and values, the second part contains 15 questions on therapeutic strategies and behaviours.
8. The Spiritual Care Perspective Scale-Revised (38) is an instrument developed to assess nurses' attitude towards spiritual caregiving. It includes ten items with five-point Likert response options. It was validated on 638 nurses and factor analysis suggested a uni-dimensional scale. A high score indicates positive attitude toward spiritual care.

Discussion

Reviewing the studies employing the measures outlined above, evidence around willingness to provide spiritual care initially appears to suggest that nurses are generally willing to provide spiritual care. For example, (27) examined nurses' education, knowledge of spiritual care and willingness to provide spiritual care using the Spiritual Care Needs Inventory (SCNI) revised version (27). The domains of spiritual care that were evaluated covered two facets of spiritual care: 'Caring and respecting' and 'Meaning and hope', outlining a total of 21 different spiritual care activities. Nurses were generally willing to provide spiritual care to their patients, in particular in the areas of 'Listening', 'accompanying', and 'providing reassurance'; 'Providing

interaction' and 'Respect for religious and cultural beliefs'.

However, (37) observed that whilst students had a good knowledge of the importance of spiritual beliefs and values in nursing care, a smaller number of students regularly provided spiritual based care. Similarly, (33) in their study of advanced nurse practitioners suggested that whilst around 93% acknowledged that patients do have spiritual needs a much smaller number (around 2 thirds) attempted to engage with spiritual care with patients. It would appear then that whilst nurses and nursing students acknowledge and have an awareness of the spiritual needs of patients and the importance of spiritual care as part of their nursing role, they do not always provide this care to their patients.

Studies examining the willingness to provide spiritual care found that there exist some differences in willingness to provide spiritual care, however the findings appear variable. Whilst (33) found some suggestion that younger nurses were more willing to perform spiritual assessment, others, such as (27) found that age and other nurse characteristics including clinical experience, gender level of education, and personal religiosity did not influence willingness to deliver spiritual care. It was however noted that those who perceived that they had received sufficient training in the delivery of spiritual care felt more willing to provide such care to their patients (27). When considering specific aspects of spiritual care provision, the source of the education appeared important. If respondents had attended spiritual care classes as part of their nurse training they were more willing to perform spiritual care such as "allow spiritual communication" with their patients than those who had not attended such courses at nursing school. Further, those who had undertaken spiritual care training as part of continued professional development were more willing to provide spiritual care such as "guide their patients to find confidence" than those who had not attended such training (27).

(33) found that those who had been trained in spiritual care were more confident to address spiritual needs without specialist support e.g. clergy; and had lower levels of discomfort around provision of spiritual care. (36) reported that respondents' level of comfort in providing spiritual care was not seen to relate to age, years in nursing, religiosity, or spirituality. However interestingly it was also reported that students who perceived spirituality as important were also more likely to be comfortable delivering spiritual care to patients, a finding echoed by (33). (31) in their examination of oncology and hospice nurses found that those that feel patients have a positive impact on their own spirituality were more likely to be comfortable with delivering spiritual care and also more likely to report more frequent delivery of spiritual care. Meanwhile (33) found no association between one's own spiritual beliefs and carrying out of spiritual assessment. It appears that there may be subtle nuances at work, with nurses' level of personal spirituality not contributing, but their perceptions of the importance of spirituality having a role in their comfort in delivering spiritual care.

Level of comfort with delivering spiritual assessment has also been considered. A study of hospice nurses (36) investigated factors associated with the level of comfort hospice nurses have in conducting spiritual assessment. Findings suggested that the nurses were generally comfortable with the types of questions involved in spiritual assessment and they also perceived spiritual assessment to be important. (36) also reported that those who had received training in spiritual assessment were more likely to be comfortable with such assessments as were those who felt that they had been adequately prepared for this aspect of their role.

What does seem apparent is that a number of factors are relevant to spiritual care delivery by nurses. Research has identified several barriers to the provision of spiritual care including time constraints, concern about spiritual care being inappropriate within their practice setting as well as a lack of knowledge (33). This is consistent with the literature which suggest many nurses report feeling inadequately prepared to deliver spiritual care to patients. Staff commonly report that they feel they receive inadequate preparation for this aspect of their role (27) and often report a lack of spiritual care training in nursing school (33). (32) reports similar findings observing that whilst students did perceive spiritual care to be an essential part of nursing care and of vital importance within health promotion, many felt that they had not received sufficient preparation to undertake spiritual assessment and to meet patients' spiritual needs.

Training therefore is an important consideration, with numerous studies considering the influence that this holds. Students within (37) study reported an awareness of spirituality and revealed beliefs and values around spirituality such as agreeing "that spiritual well-being is a major determining factor in response to illness" and that "spiritual care is a basic component of nursing care", or that "caring for the spirit of the patient is just as important as meeting other needs". Outcomes from factor analysis and the themes from qualitative analysis were said to suggest that student nurses are aware of the importance of spiritual health and of incorporating it into their nursing practice.

(37) in their study of student nurses found variations in spirituality score (defined as level of awareness of spirituality and respondents use of strategies to address patients' spiritual needs) were influenced by some factors not others. Demographics including age, years working in healthcare, highest level of education, religion, ethnicity, participation in a healing group, life satisfaction or degree of emphasis on spirituality in the nursing curriculum did not correlate with spirituality scale score. Spiritual connectedness (defined as a strong faith in a higher being or power and strong connection with the spiritual side of the self) did however correlate positively with spirituality scale score. It appears that spiritual connectedness may be a construct which is distinct from religiosity. This serves to emphasise the importance in terminology and the importance of clearly distinguishing religiosity and aspects of spirituality.

The literature has also considered students perceived level of spiritual care ability. For example, (32) used the Student Survey of Spiritual Care (SSSC) (32) as part of an examination of spiritual care attitudes and spiritual care practices in students with findings around student characteristics and environmental factors. Hierarchical regression suggested that student characteristics (spirituality, age and religious commitment) predicted perceived ability to provide spiritual care as did environmental factors but to a lesser extent. The strongest contribution was students' level of spirituality and their level of religious commitment, whilst the amount of emphasis on spirituality within the nursing course according to staff and faculty were the greatest environmental predictors. (32) notes that within and between private and public nursing school programmes there can be variations in spiritual care training, with an impact upon the spiritual awareness of students. It was suggested that those who attended religious colleges were more likely to regard spirituality as important, and that those attending courses with a greater emphasis or integration of spirituality into the curriculum were more likely to have increased spirituality awareness.

However, (37) reported that degree of emphasis on spirituality in the nursing curriculum did not relate to level of awareness of spirituality and their use of strategies to address patients' spiritual needs and (36) reported that level of comfort in providing spiritual care was not seen to relate to spirituality. (37) in their comparison of faith based and public school nursing programmes, observed that students' scores on the Spirituality Scale (which assessed level of awareness of spirituality and their use of strategies to address patients spiritual needs) did not differ significantly between the two types of students. This again emphasises the many aspects of spirituality which are considered within the literature and the array of ways variables can influence different facets of spiritual care.

Though assessing the degree to which student nurses are willing and able to provide spiritual care is important, possibly of more relevance is an understanding of what affects spiritual care provision in qualified nurses, as not only are they the ones in the trenches but will provide role models and mentors to student nurses as they enter practice. In their study of hospice and oncology nurses (31) examined the nurses' levels of spirituality training. It appeared there may have been differences in the education the nurses received before qualifying: Differences were apparent in their basic education: 35% of oncology nurses reported that spirituality was integrated throughout their basic education whilst 4% of hospice nurses did, however neither group were likely to report completing a course as part of their basic education (6% oncology, 10% hospice). This may of course reflect differences in education which impacted the choice of specialism that the nurses chose to work in (e.g. hospice versus oncology). However, considering education after qualifying, data on the two groups of nurses also produced interesting findings. 57% of hospice nurses said they had received

training through continued education compared to 27% of oncology nurses, whilst 73% of hospice nurses stated they carried out reading compared to 45% of oncology nurses. It seems then that nurses working within the hospices surveyed received more training than oncology nurses; it was also reported that hospice nurses perceived their preparation as more adequate than oncology nurses, although the discrepancies in sample size are observed. The majority of the nurses overall (hospice and oncology) felt that they had been inadequately prepared for spiritual care provision, particularly those working in oncology.

Inadequate preparation appears to be another key theme in spiritual care provision, with this review observing that interventions have been considered as a way of improving nurses' ability and willingness to provide spiritual care. For example, (34) suggested that educational interventions can increase levels of knowledge and comfort with conducting spiritual assessment, whilst (25) used The Spiritual Care in Practice (SCIP) (25) and found that interventions help increase respondents' perceived ability to provide spiritual care, especially in complex clinical situations. Intervention programmes have also been seen to improve attitudes towards spiritual care giving (SCPS-R), the ability to provide an empathic response, and levels of knowledge about communicating with patients about spirituality (29). (29) report that a number of factors were seen to predict improvements in attitude towards spiritual care giving: Age, frequency at attendance at religious services and initial spirituality score (DSES) although explaining only a small amount of variance. This is contrasted with (34) who found that improvements in level of knowledge and comfort with conducting spiritual assessment were not influenced by religiosity amongst other factors. (29) also suggested that the amount of spiritual care education received predicted learning about responding emphatically. However, these improvements did not appear to be impacted by the type of institution the participants were currently attending: religious or non-religious institution. This may suggest that it is not the religiosity of the institution that needs to be considered but the content of the programmes therein.

It appears that training and or interventions can have an important role in spiritual care delivery by nursing health care professionals. Research (27) suggests that the source of spiritual care training can be influential in terms of willingness to provide specific aspects of spiritual care: Those who had attended continued professional development were the most likely to state they were "willing to guide patients to find inner peace" (a specific facet of spiritual care) than those who had received training in other ways e.g. school and self-learning education. This may suggest that training from different sources can lead to competence in different areas. Therefore, it may be the case that just ensuring nurses have spiritual care provision education is not enough. The research considered above fragmented spiritual care knowledge into different facets and has suggested that knowledge varies in different types of spiritual care. It was reported that nurses were often less knowledgeable around spiritual care under the Meaning and Hope factor of spiritual care than the Caring and Respecting factor (considered above), and this went on to impact their comfort with the delivery of spiritual care in specific domains (27).

As well as considering the source of spiritual care education and the type of education which is covered, the individual participants in this training also warrant consideration. There is suggestion in the literature that interventions influence qualified nurses and student nurses differently. (29) found that whilst attitudes towards spiritual caregiving improved amongst both qualified staff and students following intervention training there were differences observed. Students' Scores on SCPS-R began at a lower level than qualified nurses and ended with a higher score than the qualified nurses. As such educational interventions may need to consider the stage of the career of the participants, with more experienced staff potentially responding in a different manner to those less experienced. Similarly, levels of spiritual importance can reportedly change differently over time between different types of students: (35) report how over time nursing students increase in general spiritual importance more than medical students; this variation should therefore be considered when contemplating ways of increasing spiritual care delivery.

This review has identified several measures that relate to spiritual care and assessment by nursing health professionals. Reviewing the articles which

reported the use of these measures has revealed the multitude of ways of conceptualising facets relevant to spiritual care and assessment by health professionals. This reflects the complexity and lack of agreed definition over spirituality commonly reported in the literature (e.g. 39). Because of the variety of ways in which aspects relating to spiritual care and assessment are conceptualised, operationalised and defined it becomes difficult to ascertain which factors are the most important when considering how to increase spiritual care delivery. However, a consistent theme seems to be a perception of lack of preparedness, and there is some evidence to suggest that intervention programmes may hold numerous benefits including increasing the perceived ability and comfort with conducting spiritual care and assessment, increases in the ability to respond emphatically, improvements in levels of knowledge and in attitudes towards spiritual caregiving.

It is vital to improve the provision of spiritual care delivery; indeed the importance of assisting patients to meet their spiritual needs is recognised internationally (13). Where spiritual needs are met reduced levels of spiritual distress are observed (40), additionally there are reports that adequate meeting of spiritual needs can act to facilitate a more rapid recovery (41). There are also known to be adverse psychological outcomes for patients who do not meet their spiritual needs (12). Despite the urgency of this situation, there still remains a necessity to conceptualise, define and operationalise spirituality to therefore enable training to increase ability to assess spiritual needs and to provide support for spiritual needs.

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Original article: Increasing quality between risk reduction and increased prevention

Breastfeeding pathologies: analysis of prevalence, risk and protective factors

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Abstract. *Background and aim of the study:* Breastfeeding is essential for the health of mothers and newborns, and it is recommended by WHO-UNICEF as the sole source of nutrition and protection for the first 6 months of life and beyond. In order to fully promote this practice, it is important to recognize early conditions that can lead to pathological breastfeeding. *Aim:* The study aims to analyze the prevalence and the possible risk or protective factors concerning the pathology of breastfeeding. *Methods:* For this observational study were consulted the medical records and the files of the Breastfeeding clinic of 1065 puerperal women, of the University Hospital of Modena, from January to August 2016. The data were processed with the SPSS Software. *Results:* In our study population, 532 (50%) puerperal women presented a breastfeeding-related disease, of which 330 (31%) had a disease affecting the mother (breast engorgement, fissures, a-/hypo-galactia, discontinuation of breastfeeding, galactocele, mastitis and candidiasis), 105 (9.9%) of the newborn (inadequate suction, neonatal jaundice, pathological weight loss, need for admission to NICU) and 97 (9.1%) of both the mother and the newborn. *Discussions:* It is evident from the results that the predicting factors of pathology in breastfeeding are present in pregnant women who give birth in an early gestational age and with high age, birth rate and nationality. *Conclusions:* staff training courses are essential to respond to WHO-UNICEF recommendations and to improve the continuity of care for the mother-child dyad. (www.actabiomedica.it)

Key words: breastfeeding, breastfeeding pathology, breastfeeding risk factors, mothers, baby, observational study

Introduction

Worldwide, the most important international organizations, such as WHO, UNICEF-OMS (1, 2) and the Italian Ministry of Health (3), express unanimous consensus on the importance of exclusive and prolonged breastfeeding in the promotion of health, with positive effects on physical, psychological, social and economic well-being, for mothers, children, families, the community and the healthcare system. The World Health Organization recommends, when it is possible, exclusive breastfeeding for the first six months of a child's life and to continue it, as a supplement to solid foods, for at least the first two years and beyond (4). The benefits of breastfeeding go far beyond the nutritional aspect. It has been associated with reduced risk to develop infections for the baby and moreover it regulates and improves the physiological systems of mother and the newborn, promoting the bonding (1, 2). In fact, early onset of breastfeeding has numerous maternal and child health benefits (4-6).

The benefits for mothers

Skin-to-skin contact (7) between mother and baby immediately after delivery and the early breastfeeding help to improve multisensory stimulation and a prolonged lactation period. Skin-to-skin contact (7), tactile stimulation of the nipple and sucking, promote the release of oxytocin and endorphins resulting in an improvement in the mother's mood tone. Oxytocin increases blood flow in the chest and in the nipple area, raising the skin's temperature and creating a warm and comfortable environment for the baby (8).

Breastfeeding increases the mother's attention to the needs of the child, it accelerates uterine involution after delivery and reduces the risk of postpartum bleeding. For example, a study of a sample of breast-feeding women (in two obstetrics departments and an independent birth center in New South Wales Australia) suggests that skin-to-skin contact and breastfeeding immediately after birth can be effective in reducing postpartum bleeding rates (9). Moreover, breastfeeding reduces the risk ovarian cancer, breast cancer and type II diabetes (10). It also has long-term anti-stress effects: during each feeding in mothers, blood pressure and cortisol levels are lowered; moreover, the peaks of this hormone, normally released in response to physical stress, are more contained than bottle-feeding. Early termination of breastfeeding has been associated with an increased risk of maternal postpartum depression (10).

The benefits for the newborn

Breast milk guarantees optimal macronutrients and micronutrients (fat, lactose, proteins) which promote growth, development and provide comprehensive protection (biochemical and cellular components) from infection (11). Term-born babies who receive breast milk show significant improvements in nutritional status, gastrointestinal maturity and neurological development, in addition to a lower predisposition to infections and chronic diseases (9), compared to those fed with formula, which instead may have these characteristics. Premature babies who receive breast milk have additional benefits, such as a lower risk of necrotizing enterocolitis (12), enteral food intolerances, chronic lung diseases (9). From the development point of view breastfeeding offers children different benefits, including superior neurological development and better behavioral assessments, as well as a reduced risk of obesity and type II diabetes in adulthood (6). Furthermore, it favors the normal oro-facial growth and it improves the teething (6). The delayed onset of lactogeny II among new mothers is related to maternal obesity and to factors associated with ineffective breastfeeding. It is more common in primiparous women and increases the risk of neonatal weight loss (11). Although breastfeeding may can't be the right choice for every parent, when it is possible it is the right choice for every child (13, 14). To this end, personalized information and much support for the mother and the family help the successful outcome of breastfeeding (13, 15).

The Polyclinic Hospital-University of Modena, in Italy, on the basis of the Guidelines for the protection, promotion and support of breastfeeding supported by several studies, (12-19) starting from November 2015 set up a breastfeeding clinic "Let's breastfeed together", for advice and support of breastfeeding after discharge from the hospital to ensure continuity of care. It is a free service, where the midwife (20) promotes the consolidation of breastfeeding techniques learned by the child during the hospitalization, it provides support and promotion of exclusive breastfeeding, thanks to a short-term follow-up programmed by the midwives of the puerperium at the time of discharge. The "Breastfeeding Chart", filled in the inpatient ward, is used and then used by the midwives of the clinic as a reference to the path taken by each child (22). At each access to the clinic, the documentation is given to the woman. This advice is also available to the pediatrician who will take care of the child. In case of need the midwife can alert the neonatologist who, if deemed necessary, has the possibility to take charge of the child and a gynecologist in case of maternal breast pathologies. This counseling service is important for providing information, suggestions related to breastfeeding and to prevent the onset of lactation diseases in women such as: fissures, abscesses, engorgement, candidiasis and mastitis.

Aim

The main purpose of our study is the analysis of the prevalence of breastfeeding pathologies and the search for possible risk or protective factors among the population of the Breastfeeding Clinic of the University Hospital of Modena.

Method

In the observational study 1065 puerperal women were included in the "Let's breastfeed together" clinic at the Polyclinic Hospital-University of Modena, from January to August 2016. Data were collected retrospectively from: medical records during hospitalization, from the "Breastfeeding Chart" filled out in the ward and subsequently used by the midwives of the clinic as a reference to the path taken by each patient. In the "Breastfeeding Chart", the main clinical records of women who recently gave birth and their newborns are included, such as: age of the mother, schooling, gestational age, nationality, parity, potential dysfunctions regarding breastfeeding and the Apgar score, type of delivery and potential neonatal pathologies.

The age of the mother, the gestational age (expressed in days) and the Apgar score were continuous variables, whereas the nationality (comparing the Italian nationality with all the others), the type of delivery (considering the spontaneous delivery as a reference point), all the other pathologies of maternal relevance in the breastfeeding (a-/ipo-galactia, galactoceles, mastitis, mammary engorgement, fissure) and of neonatal relevance (ineffective suction, jaundice, and other pathologies which require an hospitalization in the NICU) were discrete variables.

Data analysis

The descriptive statistics were expressed as mean ± standard deviation or as a number and a percentage. The continuous variables (age of the mother, schooling, gestational age, nationality, parity, potential dysfunctions regarding breastfeeding and the Apgar score, type of delivery and potential neonatal pathologies) are all described separately with the Kruskal-Wallis variance analysis. The association of predictors with maternal and neonatal pathologies related to lactation, as outcomes, was evaluated by a multivariate logistic regression. The data were processed with the SPSS Software (Statistical Package for Social Science).

Results

In the sample, 532 cases (50%) presented a related breastfeeding disorder (Figure 1).

Of these, 330 (31%) had a disease in the mother, 105 (9.9%) in the newborn and 97 (9.1%) in both the mother and the newborn. The main diseases affecting the mother were a- / ipo-galactia (16.3%), mammary engorgement (11.8%), fissures (3.7%), discontinuation of breastfeeding with cabergoline (3.7%), galactoceles (1.8%), mastitis (3.2%) and candidiasis (1.1%). The main neonatal conditions that caused breastfeeding problems were inadequate suction (8.7%), neonatal jaundice (0.8%), pathological weight loss (5.3%), need for neonatal intensive care unit (NICU) (2.7%). Most of the recorded pathology cases presented an overlap between different pathologies.

There were 677 patients of Italian nationality (63.6%). Among the foreigners the most represented nationalities are Moroccan (7.8%), Albanian (4.3%), Romanian (3.2%), Tunisian (2.6%) and Ghanaian (2.3%).

The Table 1 shows the indicators in relation to physiological and pathological pregnancies.

The maternal age of the patients with pathological breastfeeding was slightly higher than those with physiological lactation (33.48±5.35 Vs. 31.52±5.56 $p<0.00001$). The maternal mean age of subjects with maternal pathology was 33.38±5.44, statistically greater than healthy patients.

In the subpopulation of patients with pathology, 218 (41.4%) were spontaneous deliveries, 6 (1.1%) were driven deliveries, 53 (10.1%) were induced deliveries, 75 (14.2%) were operative vaginal deliveries and 175 (33.2%) were cesarean sections.

On the other hand, in patients with physiological lactation, the spontaneous deliveries were 329 (62.2%), the augmented labors were 13 (2.5%), the induced de-

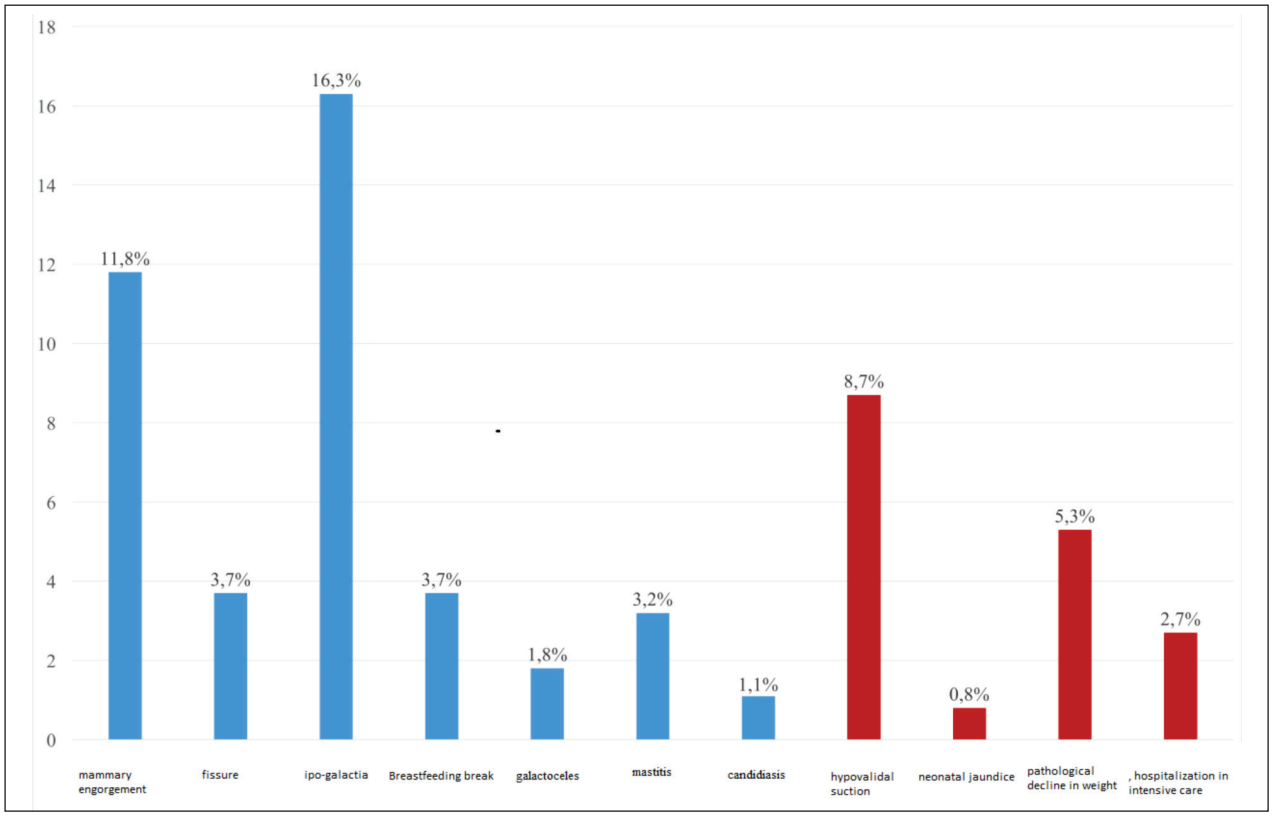

Figure 1. The main pathologies of the mother and the newborn

Table 1. Indicators in relation to physiological and pathological pregnancies

Indicators	Physiology	Pathology	p value
Age (year)	31,52 (25,95-37,08)	33,48 (28,14-38,83)	<0,0001
Gestational Age (day)	275,72 (266,45-284,98)	271,28 (255,44-287,12)	0,0003
1° minute Apgar score	8,92 (8,15-9,68)	8,61 (7,40-9,82)	<0,0001
Born at the end	1,67 (0,85-2,49)	1,56 (0,76-2,36)	0,007
Abortions	0,14 (-0,25-0,53)	0,17 (-0,28-0,62)	ns
Live births	1,55 (0,83-2,27)	1,41 (0,78-2,03)	0,002
Delivery			
Spontaneous	218 (41,4%)	<0,0001	
Driven	13 (2,5%)	6 (1,1%)	<0,0001
Inducted	50 (9,5%)	53 (10,1%)	<0,0001
Operative	41 (7,8%)	75 (14,1%)	<0,0001
Cesarian	96 (18,1%)	175 (33,3%)	<0,0001
Postpartumbleeding (ml)	339,70 (90,27-589,13)	410,15 (91,85-728,44)	0,0003

liveries were 50 (9.5%), the operative vaginal deliveries were 41 (7.8%) and the cesarean sections were 96 (18.1%).

The 68.6% of all caesarean sections, the 69% of all operative delivery and 53.4% of the induced delivery were performed in patients who developed a breastfeeding-related diseas.

The majority of patients who performed augmentation of labor (68.4%) and spontaneous delivery (59.6%) presented a physiological course of lacta-

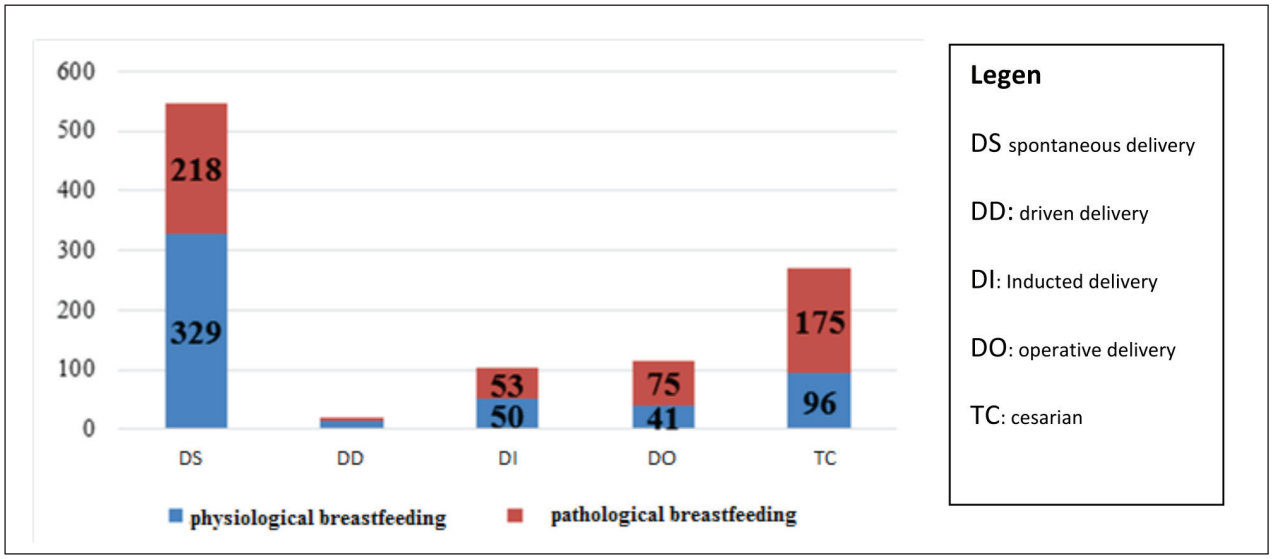

Figure 2. Physiological and pathological breastfeeding related to the type of childbirth

tion. These differences were statistically significant (p<0.00001).

The Figure 2 shows the physiological and pathological breastfeeding related to the type of childbirth.

In the studied population, exclusive breastfeeding was 56.9%, formula milk (4.6%), breast pump use (11.2%), breastfeeding + formula milk (7.4%), breastfeeding + breast pumping (11%), use of breast pump + artificial milk (8.9%).

The Table 2 shows the Multivariate Logistic Regression about the predictors of pathological and not pathological breastfeeding.

In the multivariate logistic model, the predictors of pathological breastfeeding were:

- maternal age (OR = 1.05 p = 0.0003 95% CI [1.02-1.08]),
- the operative delivery (OR = 2.37 p = 0.0002 95% CI [1.50-3.76])
- cesarean delivery (OR = 1.80 p = 0.001 95% CI [1.25-2.45])

Instead, the protective factors of a good breastfeeding were:

- gestational age (OR = 0.98 p = 0.0002 95% CI [0.96-0.99])
- the number of live births (OR = 0.71 p = 0.002 95% CI [0.57-0.88]),
- the Italian nationality (OR = 1.40 p = 0.03 95% CI [1.03-1.90])

Table 2. Multivariate Logistic Regression as predictor of an aggregate outcome of the breastfeeding dysfunctions

Predictors	OR	p value	95% CI
Maternal Age	1,052	0,0003	1,023-1,081
Delivery			
Spontaneous	1	/	/
Driven	0,511	ns	0,174-1,498
Inducted	1,391	ns	0,881-2,196
Operative	2,371	0,0002	1,495-3,76
Cesarian	1,755	0,001	1,255-2,454
Gestational Age	0,975	0,0002	0,962-0,988
Live births	0,712	0,002	0,574-0,884
Italian nationality	1,395	0,033	1,027-1,897
1° minute Apgar score	0,765	0,001	0,653-0,895

- the 1° minute Apgar score (OR = 0.77 p = 0.001 95% CI [0.65-0.90]).

The Pilot Delivery and the Induced Childbirth were not significant, because the confidence interval crosses the 1.

Discussion

Pathological breastfeeding turned out to be a condition concerning the half of the studied population, in the study population, a higher maternal age was observed (23) in cases of pathological breastfeeding and a smaller gestational age at delivery (24, 25). Some methods of delivery, such as operative delivery

and caesarean section (26), a high maternal age and Italian nationality were risk factors.

On the contrary, a birth at a higher gestational age, a high number of live births and a higher Apgar score at the first minute were protective factors. Early onset of breastfeeding reduces neonatal and infant mortality (27) early both through increased rates of exclusive breastfeeding and through additional mechanisms. In sum, the study confirms the results of the international literature, for the inherent factors, birth weight (28), the type of breasts and nipples (29), as well as maternal anxiety or stress (30) that may affect the first phase of breastfeeding and possibly delaying the milk supply. The study could be a reference for future researches to verify if the results can be effective to detect early or risk factors of breastfeeding pathologies. In fact, an early identification of risk factors for pathological breastfeeding may enable preventive intervention to reduce the prevalence of disease as well as risk stratification could be useful to plan a more effective intervention.

Conclusion

In addition to highlighting the prevalence and research of any risk or protective factors concerning the pathology of breastfeeding breast, this study was oriented to foster, where possible, an exclusive breastfeeding, according to the guidelines of the WHO, UNICEF, European Union and promoted by Italian Ministry of Health also.

Stressful moments during childbirth and in the hours and days following birth can affect the timing of lactogeny and long-term results of breastfeeding. In these situations, the modalities of childbirth and the hospital practices have a significant impact on the first experience of breastfeeding.

The continuity of assistance to the dyad provided by the midwife as a means of guaranteeing female reproductive empowerment is strongly underlined by the modifications to the Italian Midwife Code of Ethics also (33). The midwife, in fact, facilitates the development of self-esteem and self-enhancement of the dyad, through the strengthening of skills and abilities in the care and feeding of the child.

The public health programs should promote and effective lactation policies, and staff training courses should be implemented, to recognize the importance of breastfeeding, and to encourage a feeding based on signals of the child on request, with close feeds (8-12 in the 24 hours) (21). These are essential for the protection and support lactation, for the rooming-in and for the promotion of standardized protocols for the management of breastfeeding (20, 32, 33).

Conflict of interest: None to declare

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Original article: Increasing quality between risk reduction and increased prevention

Evalutation of the perceived quality in the Orthopedics/ Traumatology Unit at Carlo Poma Hospital in Mantova

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Abstract. *The background and the aim of the work:* The Department of Orthopedics and Traumatology of the "Carlo Poma" Hospital (Social Territorial Health Authority of Mantova), has pointed out in 2017, through the questionnaires survey over the citizens satisfaction, an appreciation decrease compared to the previous years. The obtained data were not sufficiently explanatory of the reasons for that kind of deterioration and also not enough specific to define possible corrective measures. The aim of this work was to identify the patients' perception regarding the hospitalization phases (from booking to follow up), taking into account five kind of operations and pathologies: 1st knee, shoulder and tibio-talar arthroscopy; 2nd hip and knee prosthesis; 3rd upper limb traumatology; 4th lower limb traumatology and 5th orthogeriatrics. *Methods:* The research is based on 29 narrations resulted from orthopedic patients between 30 and 80 days after the time of discharge. *Results:* The phases of care path which get the highest level of satisfaction are those concerning the operation and the outpatient visit followed by rehabilitation and assistive continuation. The most negative phase was the discharge but, also the needs assistance respond, the reception, the microclimate and the pre-operative medical assessment resulted contradictory. At the same time the three most significant areas of improvement were: the organization (critical for upper limb traumatology, arthroscopy and prosthetics); the health features (critical for the lower limb, orthogeriatrics and traumatology) and medical information (the most critical issues were those concerning the upper limb traumatology while the less were the orthogeriatrics ones). *Conclusion:* Use the narration to go into the orthopedic patient needs and perceptions allows to activate appropriate and customized organizational and professional changes in order to answer adequatly to the patient's needs to limit litigation and defence medicine expences. (www.actabiomedica.it)

Key words: customer satisfaction, perceived quality, orthopedics traumatology, narratives, qualitative research

1. Introduction

Lombardy region uses a detection system to measure patients gratification in every Regional Health System Companies. This survey is carried out through anonymous questionnaires with yes-and-no questions, voluntarily filled in by patients, which note the level of gratification with the quality of services considering booking, reception, admission, stay, discharge and follow up. The same method is applied to outpatient and inpatient service (1).

These means, belonging to *customer satisfaction,* can hardly allow to trace back to the reasons for patients gratification or dissatisfaction.

Within the Social Territorial Health Authority of Mantua (ASST), the Department of Orthopedics and Traumatology regularly analyzes the outcomes of this kind of research. In the 2014-2016 three years period,

despite positive data, there was an important decrease of appreciation, especially in the patient discharge phase.

The Company Management and the Structure Management have considered that the data provided were not sufficiently explanatory about the reasons for the deterioration of appreciation and that those data were not enough to define possible actions for improvement.

For these reasons it was considered possible to get this information through a qualitative survey based on the experience intimate by the patients (2). The Narrative Medicine is indeed increasingly legitimizing itself as a tool to improve treatment and care relationships at both international and national level; so much that the World Health Organization (WHO) issued a document, in 2016, about the application of narrative methods and its implementation in the national health systems (3).

The guidelines for the application of Narrative Medicine in the clinical-care field were already set in Italy in 2014, developed and presented by the National Institute of Health.

These guidelines were directed to all the professionals working in the social-health field (4). The document aims to give voice to patients, family members, institutions, health workers to reach a greater sharing in the care process. It is a new epidemiological and organizational instrument able to overcome the limits of statistical quantification, too often inappropriately considered as "objective" (5, 6).

The qualitative research, by its nature less structured than quantitative research, allows to identify a series of nuances of a certain behavior or event that could not be understood differently. The narrative describe how people structure linguistically their world and reconstruct its meaning. As Bruner states, *"the narrative device is particularly effective in the clarification and understanding of occurrences, events, experiences, human situations characterized by strong intentionality and in the focus of particularly intricate units of analysis, in which human subjects play a central role, with their stories, their cultures, ethics and values choices they bring; their intentions, motivations, choices and intersubjective relationships that interweave both on a cognitive/cultural level and on an emotional/relational level"* (7).

2. Aims

Based on these premises, a qualitative and explorative research started by narrative interviews to patients admitted to the Department of Orthopedics and Traumatology in Mantua, in order to identify more details about satisfaction/dissatisfaction area of the path of care (booking, reception, admission, stay, discharge and follow up). The treatments provided by an Orthopedics and Traumatology Department are strongly different from each other as the patients affected who differ according to the age, grade of discomfort, grade of disability. Treating indifferently all hospitalized patients you cannot focus properly their needs and expectations.

We therefore choose to differentiate five types of operations: knee-shoulder and tibio-talar arthroscopy, prosthetic hip and knee, upper limb traumatology, lower limb traumatology and orthogeriatrics. The results obtained in each group of patients has been object of supplementary valuation, compared to the quantitative survey in order to identify specific improvement activities to share with the working group.

3. Method

3.1 Instruments

Unstructured interviews have been used, in order to let the patients free to focus both the positive and negative memories according to their sensitivity. A general topic of the interview was established (the quality perceived by patients compared to the hospitalization experience), however the content of the questions was not prefixed, it varied from participant to participant. The initial question was the following: "Tell me about your experience of hospitalization in Mantua Orthopedics Department".

Other aspects, related to the general topic, spontaneously emerged during the telling. In this way, each interview content, duration and type of relationship established between the interviewer and the patient became unique (8). No doctors have been involved in the interviews.

3.2 Setting and recruitment of participants

The Public Information Office (URP) has made available its expertise to carry out the survey the research is based on. All the professional who take care of the patient, from the access to the emergency department to hospital discharge, have been involved in the research plan and in the results of evaluation, building a working team made by the medical director, the assistance coordinator, the secretary of department, the rehabilitation staff coordinator, an orthopedic First Aid nurse, a medical clinic nurse, a social health operator and a volunteer of the hospital volunteers association.

The URP operators, a nurse and a sociologist have managed all stages of the research, from the planning to the results evaluation. The interviewer has selected, from the department lists, the patients who has been discharged in the months prior to the start of the research (March-May 2017), based on their cognitive characteristics, age, gender and hospitalization modalities for each of the five identified areas (knee- shoulder and tibio-talar arthroscopy, Prosthetic hip and knee, Upper limb traumatology, Lower limb traumatology and Orthogeriatrics). The Press Office Communication and URP director has sent to the patients a letter explaining the aim of the survey and asking them for the consent to agree on time and the modalities of the interview.

The interviews were conducted between 30 and 80 days after the discharge; two to six interviews were carried out for each of the 5 identified surgical intervention areas:

1) Knee-shoulder and tibio-talar arthroscopy: at least two interviews for each joint, equally divided by gender, half under the age of 50 and half over;

2) Prosthetic: at least two interviews for the hip and two for the knee, equally divided by gender, half under the age of 60 and half older.

3) Upper limb traumatology, at least four interviews equally divided by limb and gender, half under the age of 50 and half over;

4) Lower limb traumatology, at least four interviews equally divided by gender, half with age less than 50 and half older;

5) Orthogeriatrics, at least four interviews equally divided by gender with age over 64.

3.3 Participants

Among the 61 people contacted by telephone, 29 patients (15 females and 14 males), aged between 19 and 84, joined the project.

3.4 Data analysis

All the interviews, with the prior consent, have been recorded and classified using progressive numbers from 1 to 29, fully transcribed and subdivided according to the five kinds of intervention taken into consideration. Despite the integral transcription represents the base for discussion about the results, a quantitative representation criterion has been elaborated, to identify a method of cataloging and assigning the testimonies to each specific category. For this purpose we adopted the improvement areas suggested by Avedis Donabedian (9), that are:

- **STRUT. Structural features** (need for masonry or infrastructural interventions);
- **STRUM. Instrumental features** (equipment or instrumentation);
- **ORG. Organizational features** (protocols, operative indications, shift management, methods of dispense meals, visiting and meeting hours);
- **REL. Relational features** (capability to establish a positive relationship between professionals and patients, create a climate of trust and emotional participation).

It's been decided to add the following ones:

- **SAN. Sanitary features** (perception of treatment quality and effectiveness, positive pain management);
- **INFOM. Medical information** (speaking time with the medical staff, understanding received information);
- **INFOS. Sanitary information** (speaking with the sanitary staff, nurses, social-health operators and the physiotherapists, understanding received information).

The interviews were sent to all the group members, asking each one to identify the positive and negative aspects and to assign them into the specific phase in which they took place.

4. Results

The reports can be graphically summarized to provide indications in order to understand what is valuable for the patient. The qualitative data were then summarized through charts, keeping in mind the analysis of the original interview.

The general picture, which summarizes the five categories investigated all together, highlights the stages in which the positive and negative aspects are concentrated.

These data are foundamental to use adequate instruments to reinforce and stabilize the elements of excellence and to face effectively the critical issues emerged. Through a statistical normalization, the data have been expressed as a percentage in order to have the possibility do comparisons among the patients, despite some stages are not present in each interviews.

The overall results obtained from the 29 interviews have particularly pointed out the following aspects.

Positive aspects: the excellences are mainly related to the operation and the operating room stay, the outpatient visit followed by rehabilitation and the medical care continuity service.

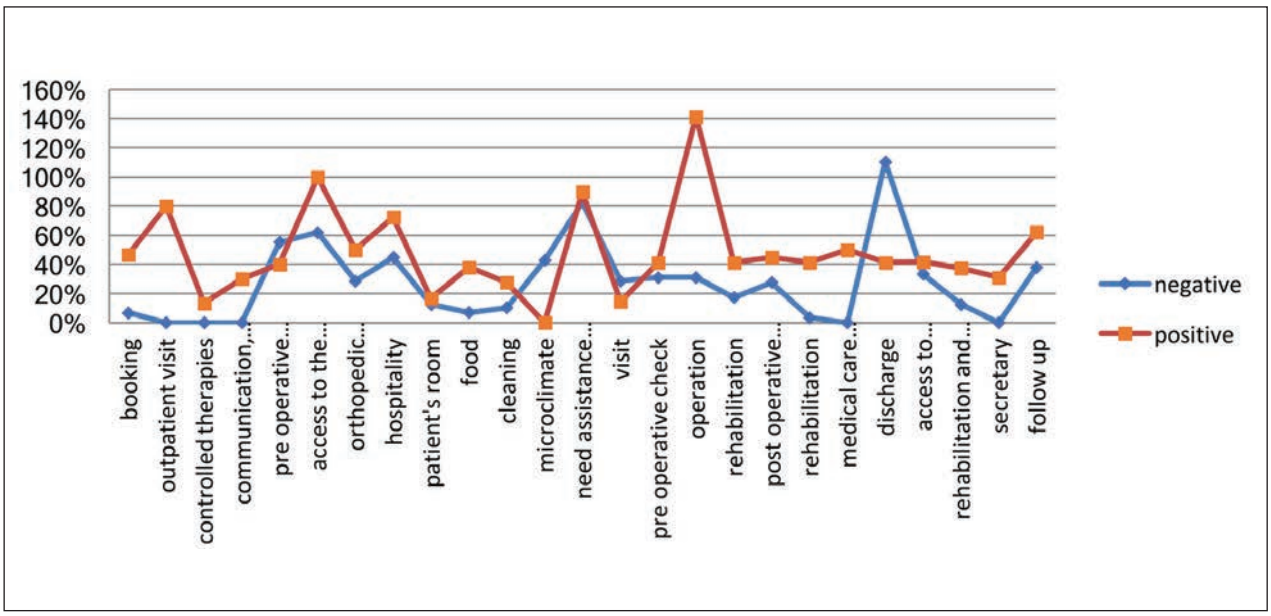
Both positive and negative aspects: the access at the emergency department is controversial, considering that the data are strongly conditioned by good or poor pain management.

Negative aspects: the discharge stage seems critical and the response to the need for assistance, the reception, and the pre-operative checks phases result as quite contradictory.

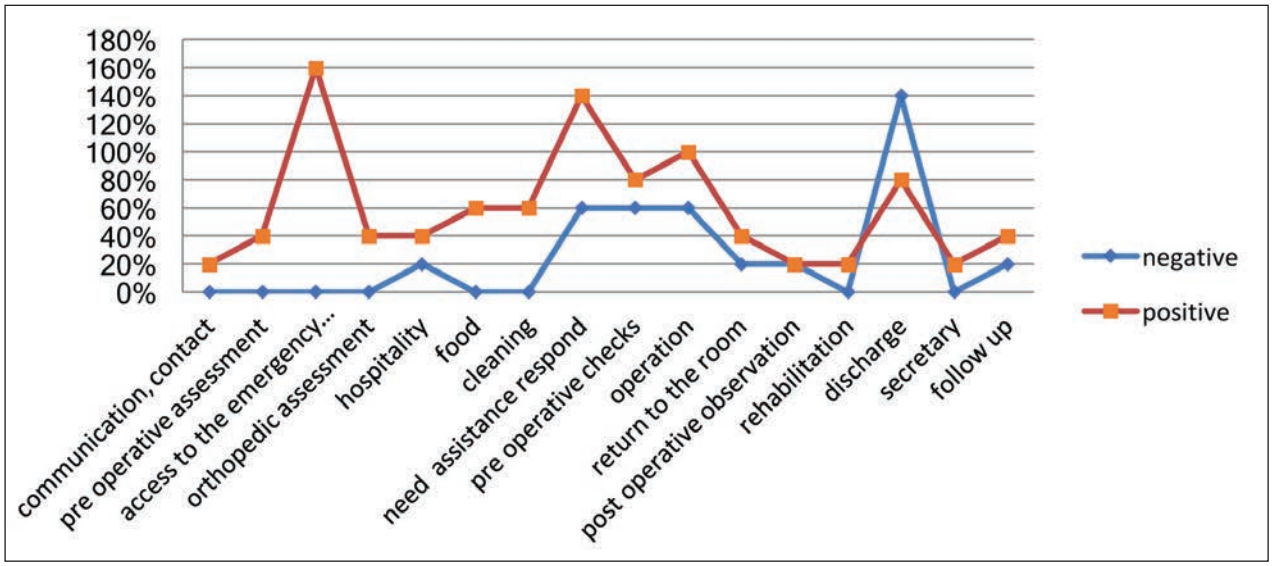
In relation to the reports analysis, set up by stages of care path and by category, patients belonging to the lower limb traumatology, in the pre-hospitalization stages do not declare negative elements but instead appreciate the management of pain at the emergency and accident department: "*In the Emergency Room I felt pain, so they gave me a drug and a little pain passed after a while, then they put a bandage on me and the pain just completely has gone*" (interview number 13, male, age 54).

The main issues are concentrated at the time of discharge because emerges the need by the patient to be more informed about the behaviors to adopt after the discharge: *"They did not give me information on my conduct once at home"* (interview number 10, female, age 60); *"Concerning the information, they were not quite clear, I wanted a little more information, more detailed"* (interview number 11, female, age 64).

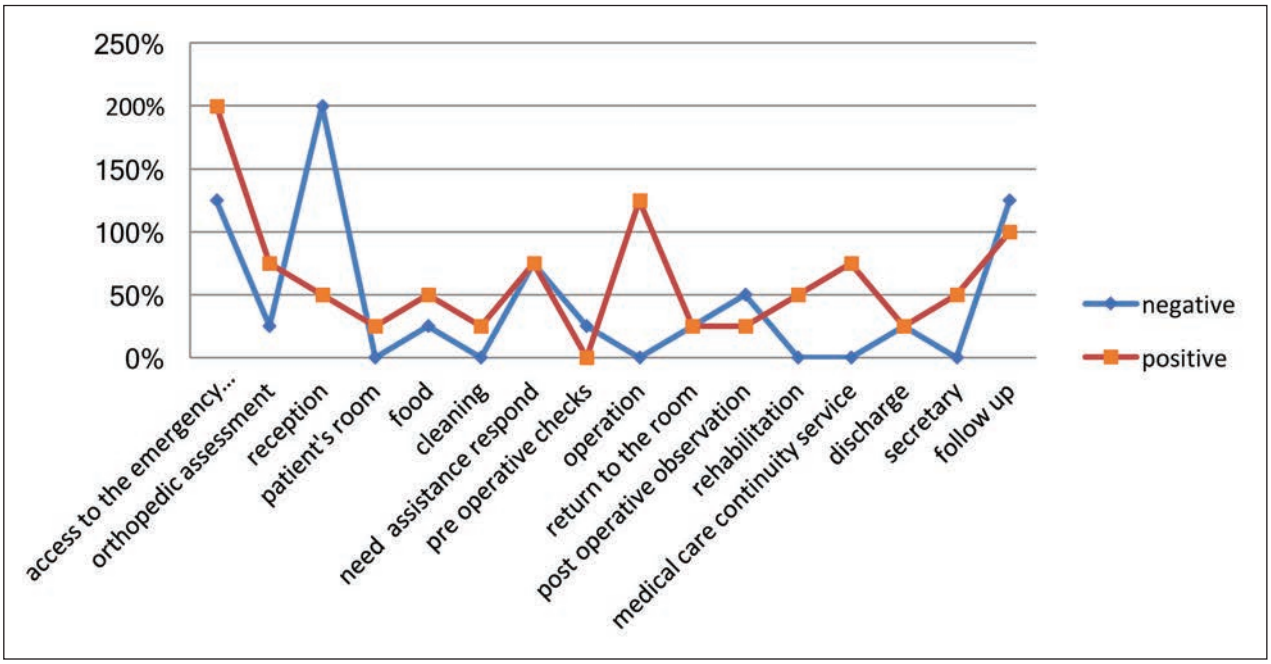
Regarding the perception of care treatment quality, only one person among the five interviewed pointed



Graph 1. Positive and negative elements of the phases of patient experience (29 interviews)



Graph 2. Lower limb traumatology (5 interviews). Evaluation of experience in the different phases of care



Graph 3. Upper limb traumatology (4 interviews). Evaluation of experiencein the different phases of care

out some issues related to health aspects (discomfort, pain..), that probably caused a feeling of ineffectiveness in terms of care treatment quality. However he recognized the value of the operators: *"I did not know that even in the fasting there weren't any prescribed medicines, I discovered it later, because the hypertensive circumstances occurred... I complained about this heel ache for the whole period, there was nothing could relieve my pain: in fact there was a fold in the bandage... the staff of the department, brilliant in my opinion, are very kind and always ready to meet the user needs"* (interview number 11, female, age 64).

An element not to be underestimated is related to the need of a good pain management; it was not always satisfied: *"During the night the pain came, the first night it was very, very bad... the nurses were kind and careful"* (interview number 13, male, age 54).

For upper limb traumatology patients, the negative elements are focused mainly on reception and less on postoperative observations and follow up. The emergency room access come out as positive about the relational and organizational aspects: *"In the emergency room they immediately took charge of me, they were very kind; the nurse immediately gave me a tablet to calm down"* (interview number 8, female, age 74)

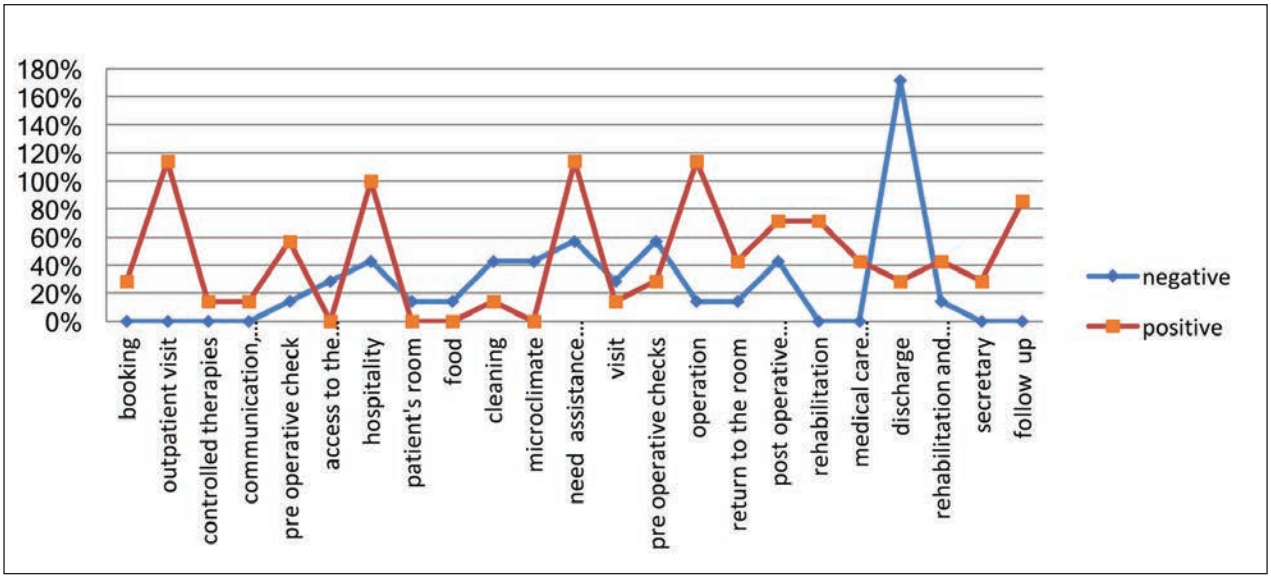
Quite conflicting is the perception of care treatment quality, especially about the pain management: *"I felt a lot of pain, but at that time I had no other alternatives"* (interview number 9, female, age 35); *"It was Sunday and I was sick, they immobilized the painful part of my body and later they gave me something to make the pain goes away"* (interview number 7, male, age 26).

Regarding the follow-up, two patients out of the four interviewed stated that they would appreciated to be followed by the doctors who actually operated them: *"I came twice and the second times I found a different person; I would have appreciated to meet the same one who operated me"* (interview number 7, male, age 26); *"During the medical check the doctor who visited me asked me if the doctor who had had previously visited me noted or not that my issue was actually a bad fracture; then another doctor during a following medical check, told me that another problem was going to appear"* (interview number 8, female, age 74).

The patients would like a continuity in the path of care; that means they would be guaranteed to be visited by the doctors who take charge of them in the first visit.

Another aspect emerged is the need to receive more medical information about their health condition, about any possible complications and finally about medical/health treatments: "*The first doctor who visited me did not tell me that there was a bad fracture and that I had to be operated... At the time of my discharge, in the ward the doctor gave the letter to the nurse and she brought it to me in the room, I do not know if that was a usually routine for every patient. I read what was written in the letter, there were just two lines and I would have preferred the doctor come to me and explain them to me... we patients are not numbers*" (interview number 8, female, age 74).

Regarding those patients undergoing hip and knee prosthesis, there are many areas of strong positivity, while the critical situations blows up at the time of discharge. There are also critical issues related to the need for assistance and pre-operative preparation. The

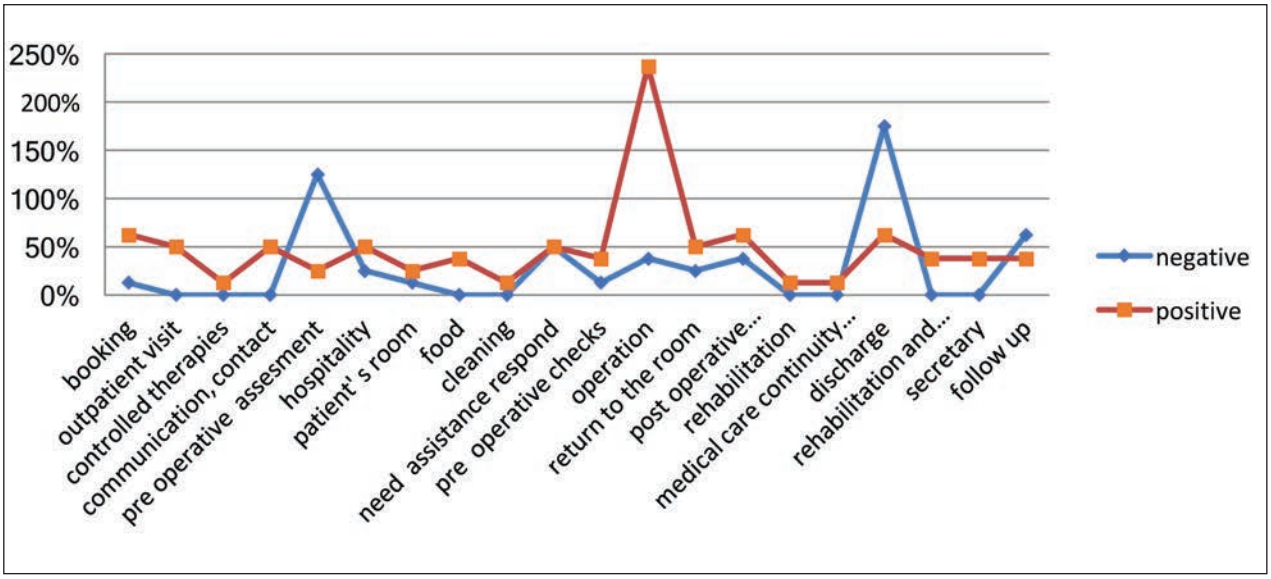


Graph 4. Prosthetic hip and knee (7 interviews). Evaluation of experience in the different phases of care

expectation of more health and medical information is also important: *"The information was very poor maybe they could tell me something more"* (interview number 21, female, age 51). The information and the education provided by doctors and by nurses are also deficient at the time of discharge: *"I don't know who wrote the letter of my discharge because I did'nt see him, they put the letter on the stretcher and they explained almost nothing to me and anyway the content of the letter was quite a little compared with the intervention I had"* (interview number 19, female, age 58); *"I had the impression that the doctor needed beds for other patiens, he explained to me the therapy and then he told me just to read the letter of discharge in which everything was written. They were hasty and I'd like there was someone to explain to me a little more about mobilization, what I could or mustn't to do; this, was not done!"* (interview number 21, female, age 51).

The presence of a physicians is necessary for the patients, especially in the moments in which their state of health and the care information must be transmitted. Another relevant element is referred to the necessity of assistance: for three patients it wasn't properly satisfied and, in their perception, it has been inappropriate. The whole matter can be probably traced back to the large number of patients situated in a structure with a complex system of welfare but nevertheless with reduced human, structural and instrumental resources available. *"After ringing the bell, the answer was not always been timely, when someone calls is because he needs"* (interview number 21, female, age 51), *"If someone is forced to bed, has more reason to ring the bell because he needs everything; some careful people (nurses) do know how to drive you, they know how to do their job, other were a little less careful, but I was still ill"* (interview 18, female 63 years old). For some participants, the therapeutic schedule for pain management was not always efficacious: *"I felt a lot of pain, probably the therapy I had was not enough"* (interview number 19, female, age 58); *"The first days after the surgery I felt a lot of pain"* (interview number 17, male, age 43).

Compared to the report of patients who have suffered knee, shoulder and tibio-talar arthroscopy, the operation phase obtained an exceptional level of gratification: *"The medical operation was my best memory, the staff was very fast, professional and very careful, finally they solved my issue. During and afterwards the operation they explained to me in detail what was happening, they even turned the screen to show me how the operation was proceeding. In that moment I felt myself very reassured, they always kept me update for the whole duration of the intervention"* (interview number 23, male, age 44); "*Availability and kindness, during the operation they were particularly careful. I was afraid and I expressed it; during the operation I was alert, meanwhile both the an-*



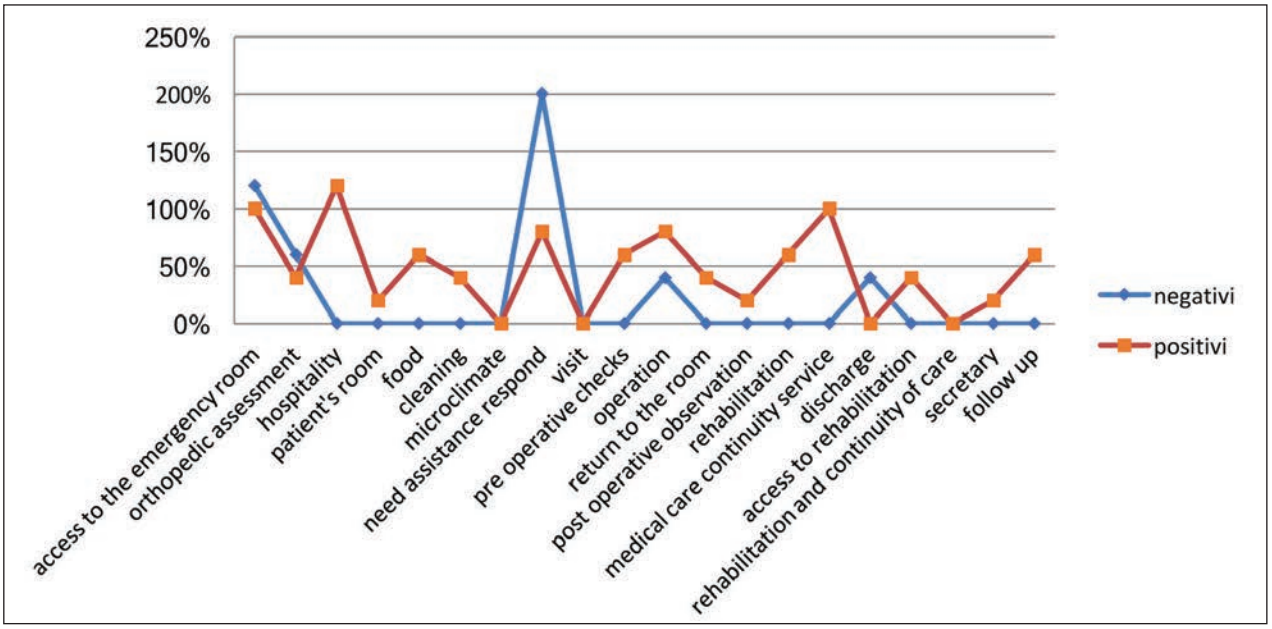
Graph 5. Arthroscopy (8 interviews). Evaluation of experience in the different phases of care

esthetist and the surgeons talked to me, reassuring me; the nurses explained to me what they were doing, what was occurring and finally that everything was going fine" (interview number 22, female, age 26).

The critical issues were pointed out in the phase of preoperative medical preparation but mainly during the discharge; some problems also emerged in the follow up. At the time of the discharge, the participants expressed the need to receive clearer information on the rehabilitative path, for them it would be also desirable to have a largest presence of the doctor at the time of hospital resignation, to get eventually further information: *"I did not even seen the doctor who resigned me, in the letter I received there was not written much, and more the nurse did not explain to me at all"* (interview number 26, female, age 59); *"The discharge transition was not very clear. I just found the paper with the letter of discharge with written on the kind of intervention has been made, but I still needed some information on the rehabilitation path, at that time the staff on duty was not able to provide the information I needed... They gave to me quite little information written on the discharge letter and concerning the access to the clinic they have not been able to readily answer me... For both the post-operative and resignation phases I did not have many points of reference"* (interview number 24, male, age 54).

In relation to the quality of health services, the patients require more attention in the assessment and control of pain : *"After the surgery I arrived home suffering a lot of pain, I think the therapy was not adequate... I spent a really terrible and painful night"* (interview number 26, female, age 59); *"The first night I was in pain so I asked for more painkillers"* (interview number 22, female, age 26).

Orthogeriatric patients stated that the main problems they had were in the emergency department, during the admittance and significantly when they needed assistance. More rarely, the critical issues have emerged in the operative phase. In the emergency department the patients were often suffering pain from fracture for hours, with late and inadequate drug therapy: *"I did not see the doctor... he had to come but there was some setback, I waited on the stretcher"* (interview number 3, male, age 71); *"I was in pain, I was screaming at the top of my lungs but they gave me nothing"* (interview number 2, female, age 69); *"All my body was painfully stretching, I felt an awful pain*" (interview 4, male 75 years). Looking at the interview analysis, a similar situation also occurred during the hospital stay: three participants complained a poor identification and satisfaction of basic needs, probably due to the fact that elderly patients often present a complex clinical scenario and so it is necessary

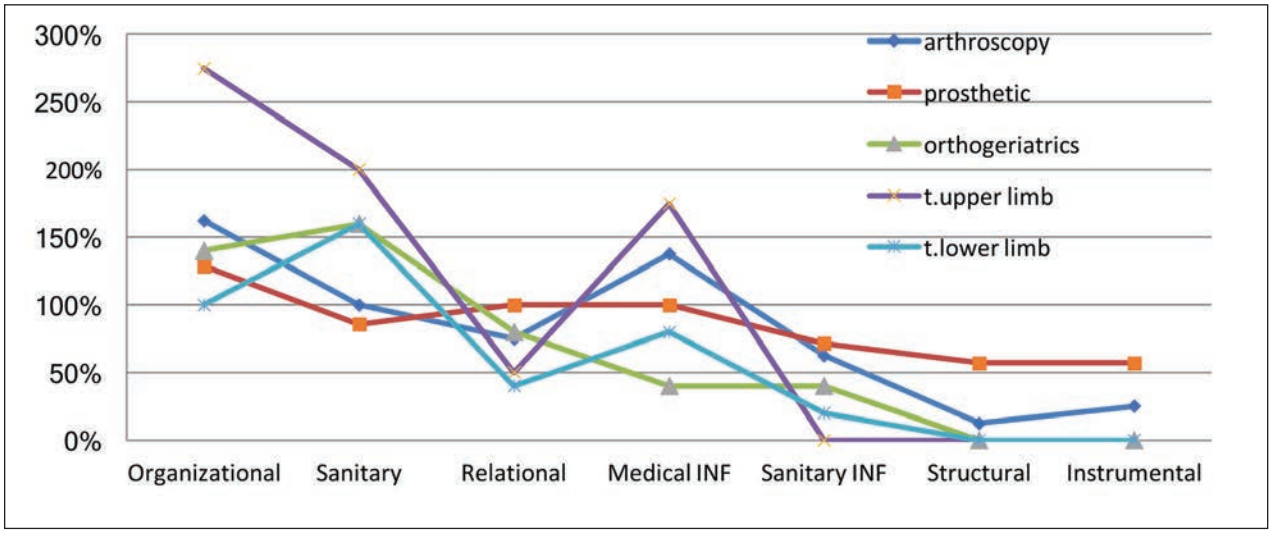


Graph 6. Orthogeriatrics (5 interviews). Stages of experience commented on in the interviews

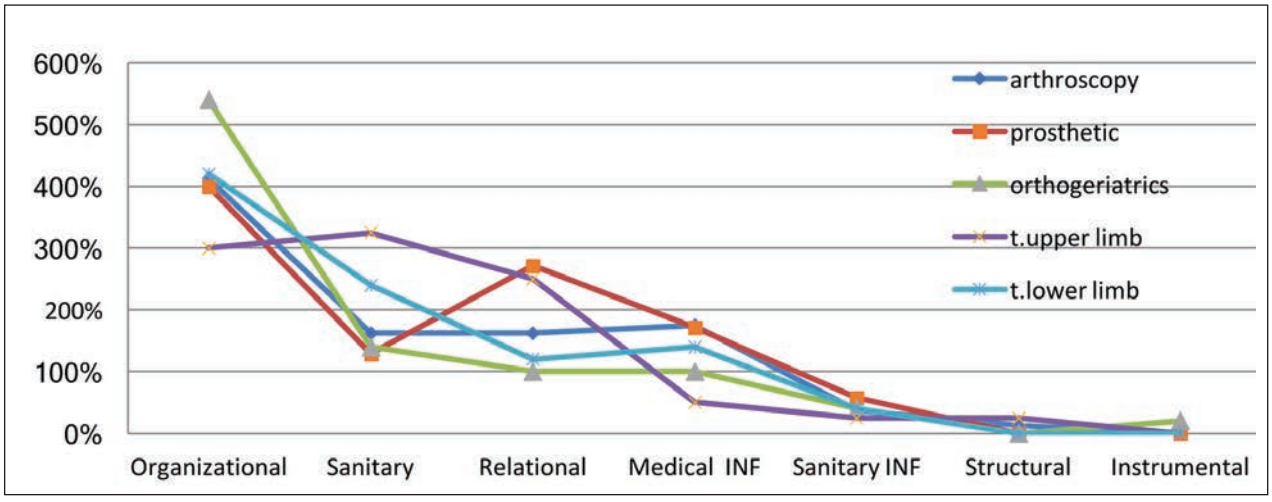
more time to understand the situation and assist them in a proper way… *"I found myself with an heel problem... and now I'm troubling"* (interview number 5, female, age 82), *"I was all mixed up by pain, I called the nurses at night because I was in pain, I could not move, if I turned around I was hurting all over my body... the nurses were a bit annoyed because they had much to do...."* (interview number 4, male, age 75).

On the contrary there was a positive perception of the reception, the preoperative assessment, the care continuity and the follow-up. *"They came to tell me about rehabilitation, I asked for a x or y spot but instead just a k one spot was left free... I was happy"* (interview number 5, female, age 82), *"I went to a structure where rehabilitation was facilitated, I'm still doing it and it's going pretty well, right now I can even bend the leg a little"* (interview number 1, female, age 84); *Now I'm coming here for the medical checks, the doctors are kind and they say how the things are going… it should be fine. Hopefully everything is fine, the personnel is kind and looks after you"* (interview number 1, female, age 84).

Referring to the representation of the critical points from Donabedian (8), the three most significant critical point are:



Graph 7. Critical aspect presented by area and category



Graph 8. Positive aspect presented by area and category

Organization: this is the most cited category, and represents the main complain in upper limb, arthroscopy and orthogeriatrics issue;

Health features: this aspect has been particularly underlined and it reveals itself as the most critical aspect for upper limb trauma, orthogeriatrics and lower limb trauma;

Medical information: the critical issues vary significantly from one to another disease category, the best is in the upper limb and the worse in orthogeriatrics.

The references to structural and instrumental aspects were almost nil. Regarding the relational features, which are determined by the individual attitude, the positive aspects predominate. As for health information, it's presumable that the low critical issues detected is due to the fact that elderly people don't ask for many information to the health and rehabilitation personnel.

The positive aspects, normalized by area and category, were much higher than the critical ones: they focus on organization for orthogeriatrics and followed by prosthetics, lower limb traumatology and arthroscopy. For what concern the health elements, upper and lower limb traumatology have the greatest positivity, while the relational aspect appears to have the better results for prosthetic and upper limb traumatology.

Discussion

The research carried out has made available a series of elements that will be used by the working team to develop action plans aimed to improve the quality of care considering the following elements:

The interviews give voice to those who have been cured.

The patients showed their curiosity and interest during the research expressing their satisfaction for being involved in something useful to improve the care service;

The areas which has been identified can be considered quality factors to monitor and to evaluate as positive or negative;

In a perspective of quality perception, is foundamental to identify the factors of excellence and the prevalent critical issues;

The research format, carried out by different kind of operations, showed how the same care phase can get very different evaluations in relation to the type of treatment and the type of patient. The different kinds of operations are, in fact, directed to different targets, according to age, lifestyle and expectations about the recovering of the original functionality.

The knowledge of this kind of needs allowed the Orthopedics Team to customize the approach to the patient.

The analysis developed allows the following general considerations:

The positive elements widely prevail over the critical issues: this doesn't mean that they can erase the negative ones in an overall final evaluation;

Inpatient expectations differ according to individual and general variables: among these the pathology causing hospitalization and the patient's age are particularly significant;

The structural and instrumental elements, strictly related to financial resources, don't seem to be of particularly important to patients;

Despite the professional autonomy and the specific expertise area of many health professionals, patients expect to talk mainly to the doctor, concerning any kind of information could be provided and in any case, the doctors rotation is poorly understood.

More worrying is the prevail of some negative aspects related to the lack of information requested to medical care personnel: from the perspective of the patients, in some cases, it seems that these figures renounce to a professional specificity now widely defined and codified;

Regarding the assessment and the pain management, the patients have made requests that in some cases were not objectively compatible.Considering that this issue has received many critical feedback, it will be necessary appropriate health actions (many of which are already foreseen, as the *Hospital without Pain Project*) based on the patient's needs;

The organization and assistance criteria appear to be the most critical issues, in particular at the time of discharge, so far as some assistance needs were required, also during the preoperative assessments and the reception.

The need for correct information by the doctors

or by the personnel, especially at the time of discharge, has been pointed out as the most negative aspect.

Conclusion

The researchers, and even more that professionals interested in measuring the quality of their performance, have to consider the utilization of instruments able to gather patients' opinions.

Strategies, such as an active observation, the recording of certain events, the introduction of narrative medicine techniques and facilities, up to the involvement of general medicine doctor as experts in a path of hospitalization and rehabilitation, could represent a possible change strategy. Moreover it should be considered that the presence of increasingly exigent patients, need to be faced developing instruments able to estimate the quality of the assistance starting from the citizens experiences.

All these activities have the aim of building a new partnership between professionals and the patient, with the perspective to co-develop individual medical care pathways (10).

As known, the instrument currently in use in the health system may not be exhaustive compared to the situation underlined, mainly because some objective limits occur; they can for example lead the person to create in his mind some opinions that do not allow free expression. In this research, the narration is proposed as an effective method to clarify those areas of suffering in the patient's path; the narration has also the possibility to integrate the information provided by the questionnaires, the tests, and the measurement scale; it was alike able to capture all the aspects of the situation (11, 12).

Conflict of interest: None to declare

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Pre-operative pediatric cardiac surgery: enema Versus not enema

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Abstract. *Background and aim of the work:* There is evidence in adult literature that the enema in the preoperative of thoracic surgery can be dismissed without disadvantage. However, there is a gap of articles about enema in childhood for thoracic surgeries. The aim of the work is to investigate whether the administration of enema in the preparation for cardiac surgery, the use of different analgosedation drugs and the Extracorporeal Circulation influence the children's intestinal motility in the post-operative period. *Methods:* A retrospective study was carried out comparing the data between users subjected to saline solution enema, originating from the U.O.C. of Pediatric Cardiology and Pediatric Cardiac Surgery and Congenital Heart Disease and users not subjected to such procedure, coming from the U.O.S.D. Pediatric Intensive Care. The data collected will evaluate the intestinal motility in the post-operative cardiac surgery. *Results:* The following three variables were analyzed: interval of post-operative evacuation days (mean 2.14, median 2.00, standard deviation 1.525 in non-enema children; mean 2.76, median 2.00, standard deviation 1.318 in enema children), administered analgosedation drugs and use of Extracorporeal Circulation - for which the Pearson Test was used. A sampling bias is also reported from the analysis of the data. The study did not show a statistical significance correlates the variables analyzed to intestinal motility in post-operative period. *Conclusion:* The sampling bias emerged could reflect the diversity of the catchment area in the two Wards. The study - in agreement with the literature concerning the adult user - proves that the practice of enema evacuation pre-operative cardiac surgery in the pediatric user is unnecessary and does not influence intestinal transit in the post-operative period. (www.actabiomedica.it)

Key words: enema, pediatric cardiac surgery, preoperative cardiac surgery

Background and aim of the work

The range of individual congenital cardiac malformations is very vast and the variety of types of cardiac disease affecting individuals early in life is large (1). Pediatric cardiac surgery are complicated, multiple and different (2). The casuistry changes from center to center, based on treated patients (2).

The incidence of congenital heart disease varies from about 4/1,000 to 50/1,000 live births (3).

Risk factors, in pediatric cardiac surgery include: surgical procedure type, primary cardiac diagnosis, univentricular status, age, weight, procedure type (bypass, non-bypass, or hybrid), groups of non-Down congenital anomalies, acquired comorbidities, increased severity of illness indicators (eg. preoperative mechanical ventilation or circulatory support) and additional cardiac risk factors (eg. heart muscle conditions and raised pulmonary arterial pressure) (4).

Jacobs ML, et al. (2) reports by the STAT (The

Society of Thoracic Surgeons European Association for Cardio- Thoracic Surgery) Mortality Category (5) and the results for a select group of representative and somewhat commonly performed procedures.

Many surgical procedures, adult and pediatric, involve the execution of a preoperative evacuation enema. The enema consists in the administration of water or other liquids in rectum and colon in order to stimulate the evacuation and empty the last section of the intestine (6).

Some studies (7, 8) have discussed this procedure, especially with regard to possible adverse effects in the pediatric population. In particular, the enema prepared with sodium phosphate has been shown to be responsible of electrolyte disturbances when administered in children (7). In fact, it should not be administered in children under two years old and should be given with extreme care in the age range between two and five years (8).

This practice was once considered a routine procedure especially in the pre-operative in adults' abdominal surgery in order to avoid the postoperative complications, but it was used also in adults' thoracic surgery to provide an advantage for postoperative complication and hospital stay (9, 10).

There is evidence in adult literature (9, 10) that the enema is no necessary in the preoperative of colonrectal surgery because, besides not affecting the risk of infection, it results to be a waste of resources and cause of discomfort to the patient. In addition, enema may cause electrolyte disturbances in patients with cardiac or renal disease (9). It has also been shown that even in thoracic surgery, the use of the enema can be dismissed without disadvantage in the post-operative period and without affecting the time spent in hospital (10).

However, there is a gap of articles about enema in childhood for thoracic surgeries.

Therefore, a retrospective study was carried out in the Hospital of Padua, comparing the pre cardio-surgical evacuation procedure of the U.O.C. of Pediatric Cardiology and Pediatric Cardiac Surgery and Congenital Heart Disease (hereafter U.O.C. of Pediatric Cardiology) with U.O.S.D. Pediatric Intensive Care Unit (hereafter U.O.S.D. PICU), where this procedure is not adopted as the alvo is monitored daily by the nursing staff.

Objective of the study

The principal objective of this study is to understand whether the administration of enema in the preparation for cardiac surgery facilitates the intestinal motility of children in post-surgery.

The secondary objective is to investigate the possible correlation between different analgosedation drugs and the use of Extracorporeal Circulation (CEC) with post-operative evacuation times.

Patients and Methods

The enema with physiological solution is given to children from the U.O.C. of Pediatric Cardiology; while it is not given to children coming from the U.O.S.D. PICU since in the aforesaid the alvo is monitored daily by the nursing staff.

The data collected will evaluate the intestinal motility in the post-operative cardiac surgery, through the analysis of the following three variables: days interval of post-operative evacuation, administered analgosedative drugs, use of CEC.

For this retrospective study, authorization was requested from the Chief of the Woman's & Child's Health Department to access the archive and evaluate the data useful for the aim of the study.

The retrospective study is related to the period January-June 2017.

Sampling occurred randomly, following the order of the operating list and not on the basis of age group or basic disease. The selected children are between 10 days and 16 years old. It must be considered that in the U.O.C. of Cardiology patients include all age groups, compared to the U.S.O.D. PICU where there are mostly newborns.

Sampling stopped when it became clear that statistically no significance was shown between the two object groups of the study.

In total, 100 children affected by all the various congenital heart diseases were examined: cyanotic heart disease, acyanotic heart disease, univentricular hearts, external and internal ventricular assistance implantation.

50 children were selected who afferent to the U.O.C. of Pediatric Cardiology. The evening before

the operation, the child underwent the routine enema procedure. The patients of this group have a middle age of 30,59 months and a middle weight of 12 kg.

Another 50 children were selected from the U.O.S.D. PICU and undergoing cardiac surgery. In this group, the patients did not carry out the pre-operative enema procedure. The middle age of this group is 4,8 months and the middle weight is 4,866 Kg.

Results

The analyzed data want to evaluate the possible impairment of intestinal motility in the post-operative cardiac surgery.

Through the Mann-Whitney Test (Table 1) data on the two population groups for age and weight (Kg) variables were analyzed.

It was not possible to stratify the analysis according to age categories because the U.O.S.D. PICU's population consists mainly in <2 years old children (11). Instead the U.O.C. of Pediatric Cardiology's population welcomes heterogeneous age groups.

Therefore the following three aspects were analyzed: range of postoperative evacuation days, administered analgosedative drugs, use of CEC.

The analysis of data on the evacuation days interval (Figure 1) shows that in the non-enema children (U.O.S.D. PICU group) the mean of the evacuation days is 2.14 and the median is 2,00 (standard deviation: 1,525).

While in children undergoing evacuation enema (U.O.C. Pediatric Cardiology group in Figure 2), the mean is 2.76 and the median is 2.00 (standard deviation: 1.318).

The second aspect, the analgosedation, was analyzed with Pearson's Chi-square statistical test. The following drugs were considered: Fentanyl (0.221), Tiopental (0.635), Rocuronium (0.758), Sevorane (0.585), Midazolam (0.344), Propofol (0.915), Remifentanil (0.356), Cisatracurium (0.239). 74% of the sample was subjected to CEC during the surgery (Table 2). We test the sample for significance the difference of CEC in Enema and not Enema groups. There is a reference value of 0.585 with the Pearson's Chi-square statistical test.

Table 1. Mann-Withney. Ranghi Test

Enema PRE	Numerosity	Medium Rank	Sum of the ranks
Kg			
No	50	30,38	1519,00
Yes	50	70,62	3531,00
Total	100		
Age			
No	50	30,81	1540,50
Yes	50	70,19	3509,50
Total	100		

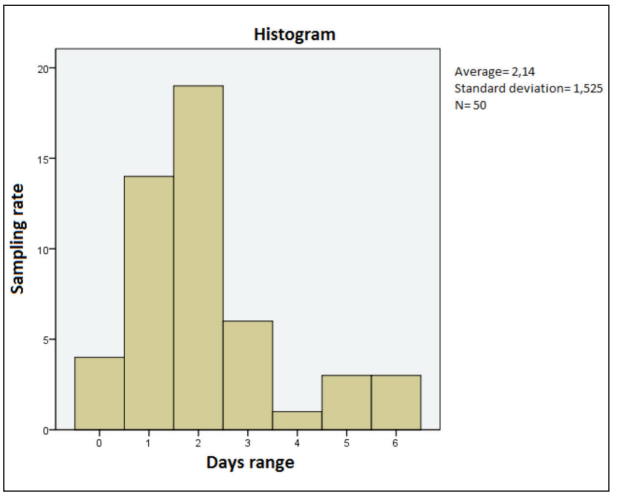

Figure 1. NO pre-operative enema

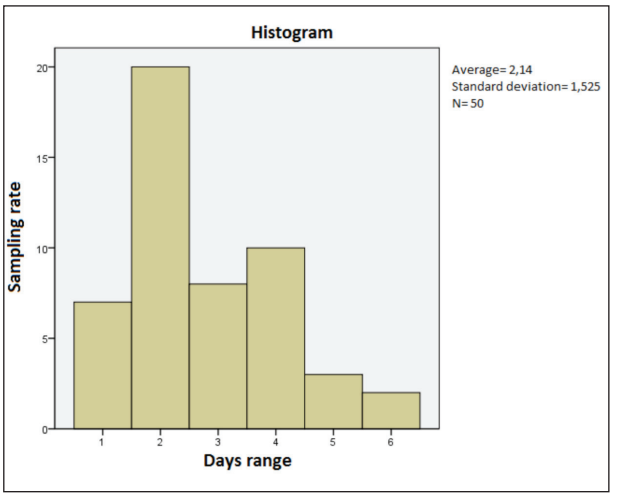

Figure 2. YES pre-operative enema

Table 2. Contingency table CEC * post-operative outcome

	Outcome post		Total
	No treatment post surgery	Yes treatment post surgery	
CEC			
No	22	4	26
Yes	59	15	74
Total	81	19	100

It should be noted that 19% of the total sample required evacuating interventions (suppositories, rectal probes, enema) in post-surgery, regardless of belonging group and the variables analyzed above.

The variables analyzed - interval of postoperative evacuation days, administered analgosedation drugs, use of CEC interval - do not show statistical significance.

Discussion

Although the sampling was random, the emerged bias could reflect the diversity of the catchment area in the two contexts of U.O.C. of Cardiology and PICU: in the first case all age groups and secondly newborn infants. It is not possible to stratify the samples and to compare them for age categories, for this reason it is possible that results are partly linked to different age.

The interval of evacuation days is superimposable in the two groups, while the median of the distribution of the evacuation days result to be the same.

Referring to the use of various drugs for the induction and continuation of anesthesia, the Pearson Chi-square statistical test shows the non-significant correlation with intestinal motility in the post-operative period.

Also the last variable analyzed, concerning the correlation between the CEC and the postoperative intestinal motility, did not report statistical significance.

Therefore, the data emerged from the present study, according to the literature (10, 12) present for the adult population, seem to confirm that the practice of the pre-operative cardiac surgery enema in the pediatric patient is not necessary (13, 14) and does not influence intestinal transit in the post-operative period.

Conclusion

The limits of the study are a scarce scientific literature on the subject and data collection of a single center. It would be desirable to extend data collection with the involvement of additional cardiac surgery centers.

There was a lack of homogeneity for the above variables, which constitutes a sampling bias (11).

The routine practice of enema as well as not having scientific basis and influence on intestinal motility, is an invasive procedure in all age groups and becomes difficult to approach especially in babyhood.

Although there is no precise and clear literature on this, it should be noted that numerous American guidelines do not include the practice of enema in the pre-operative routine of pediatric cardiac surgery, in any group of population (12-14).

Future multicenter studies will allow homogeneous sample for all age ranges, overcoming the limits due to the heterogeneity of the sample of our study.

Conflict of interest: None to declare

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