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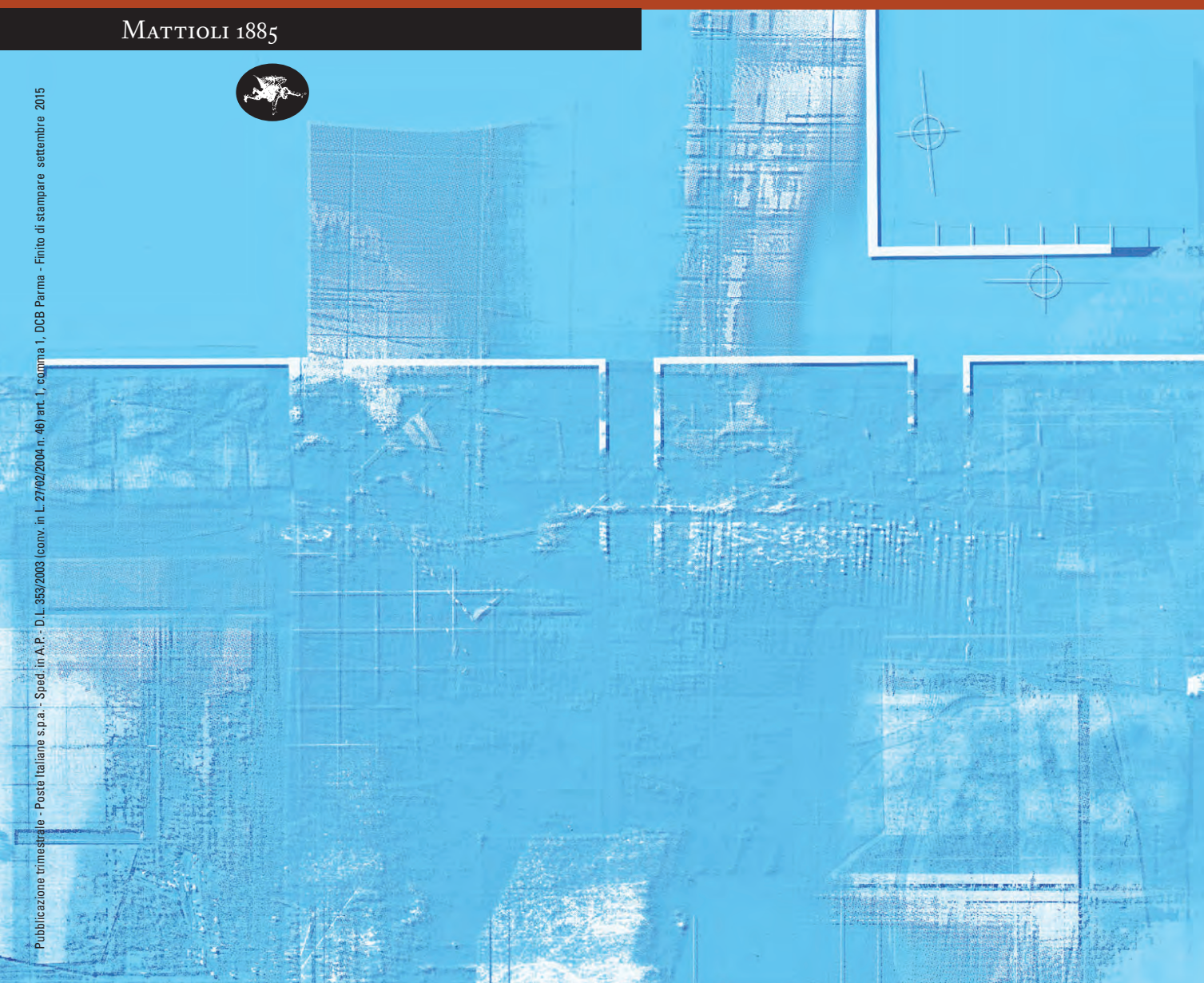

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Health Professions

Special Issue (II-2015)

Foreword

Editorial

Leopoldo Sarli
Department of Surgical Sciences of Parma University

It is with great satisfaction that we have noted the rising interest of professionals in the health care sector in this review, now in its third edition, in particular among the nursing community. The number and the quality of the articles reaching the attention of the editorial board are proof of this. Besides the customary collaboration with the degree courses and postgraduate training courses (master's degrees and doctorates), the best of the scientific works of which are printed in these pages, we are pleased to point out the collaboration of the review with a scientific society such as the *Associazione Nazionale Infermieri Specialisti del Rischio Infettivo* (ANIPIO), whose president gave us an interesting article, to be published in the next issue, which describes what should be the competency profile for an Italian Infection Risk Specialist Nurse. The collaboration with ANIPIO has also led to the first edition of a first level Master's degree in "Management of the risk of infection correlated to health assistance", and it is predictable that the results of some of the project works being produced by the students of the master's course will find their way onto the pages of future editions. The collaboration between scientific research and teaching courses is in our view indispensable for professions whose role in the organisation of the health services is in continuous evolution, and which require training courses that provide skills at ever increasing levels. In this regard, of much interest is the contribution by Hildingh et al. comparing the Swedish and Italian experiences concerning nursing students' attitudes towards health promotion practice. The World Health Organization Strategy for Nursing and Midwifery has called for the explicit inclusion and application of health promotion in all nursing curricula. However, research indicates that there are deficiencies in nursing education regarding health promotion in both the theoretical and the practical elements of education. The article by Priami et al. lays emphasis on the importance of tutoring in training for the professionalisation of health care specialists and evaluates the opportuneness of specific training for tutors, utilising the experience of Emilia Romagna. The third edition of the review, like its predecessors, gives space to contributions that emphasise the necessity among the health professions, and in particular that of nursing, for a wide gamut of competences ranging from the scientific-clinical to the humanistic-psycho-social aspects. The contribution by Foà et al. underlines the emphasis in the international literature regarding patients with cardiovascular disease of the importance of providing bio-medical and psycho-social nursing care during the three phases of the nursing process (acceptance, assistance and education) and reports the results of a study that shows the importance of promoting a multidimensional educational path for nurses assessing the impact of professional training on professional practice, in order to improve the quality of care delivered . Psychological implications are also present in the contribution by Ferri et al., which underlines that empathy is an essential element of good nursing care associated with increased patient satisfaction, and that high levels of empathy can be protective against burnout development, which, when present, reduces empathy. As stated above, this edition also includes contributions representing the conclusive result of study courses. The contribution by Bulgarelli et al. reports the results presented in a nursing degree thesis that analysed the validity of systems to measure the

risk of dehydration, while the articles by Gionti et al., Marletta et al. and Sollami et al. report the results of various conclusive project works from the courses of several students of the first level master's degree. In particular, the article by Marletta et al. refers to a practice of complementary medicine for the treatment of chronic pain: healing touch massage. The contribution by Gionti et al. proposes an initial Italian validation of the Cultural Competence Assessment Instrument and a refinement of this scale in terms of measured constructs. Finally, the article by Sollami et al. presents a literature review of the major international databases regarding pain management.

Original article: Professional education

Health Promotion in Nursing Education: attitudes among nurse students

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Abstract. *Background:* The World Health Organization (WHO) European Strategy for Nursing and Midwifery has called for the explicit inclusion and application of health promotion in all nursing curricula. However, research indicates that there are deficiencies in nursing education regarding health promotion in both the theoretical and practical elements of education. Insight into the experiences of European nursing students' attitudes, positive or negative, about working in health promotion may provide a clue whether health promotion will be regarded as an important task and to what extent it will have priority in different parts of Europe. *Aim:* The aim of this study was to compare Italian and Swedish nursing students' attitudes towards health promotion practice on matriculation to nursing school and after a three-year nursing education, and to explore whether attitudes towards health promotion practice correlate with BMI and smoking. *Method:* The study involved students who started their nursing education in autumn 2009 (n =240). Data were collected via a questionnaire. *Results:* The results show that the Swedish students had a more positive stance on health promotion than Italian students did. After completion of a three-year nursing education programme, Italian students' attitudes on health promotion had improved, while no such development was seen in Sweden. Further, no correlation between lifestyle issues and attitudes to health promotion was found. *Conclusion:* Health promotion in nursing education may have important influence on students' attitudes and thereby on the quantity and quality of future health promotion practice.

Key words: attitudes, health promotion, motivation (MeSH®), student nurses, nursing students

Introduction

In industrialized countries, the cost of lifestyle diseases has increased dramatically, both financially and in terms of human suffering. The World Health Organization (WHO) (1) has long recognized the need to focus not only on treating the illness but also on emphasizing health promotion and the prevention of health risks (2, 3). To succeed, strategies for promoting health must be incorporated at every level of the health-care system.

Nurses compose one category of health professionals who can be important agents in promoting health (4-8), as they represent a large number of total patient/health-care-worker interactions. However, studies show that nurses do not sufficiently practice health promotion (9, 10). A greater emphasis on attitudes and skills concerning promoting health and minimizing health-risk factors may increase the quantity and quality of future practice (11-14). The nurses' own health behaviour may also be important and may be reflected in their attitudes towards health promotion (5, 10).

The WHO European Strategy for Nursing and Midwifery has called for the explicit inclusion and application of health promotion in all nursing curricula (1). However, research indicates that there are deficiencies in nursing education regarding health promotion in both the theoretical and the practical elements of that training (16). Insight into the experiences of European nursing students' attitudes, positive or negative, on working in health promotion may provide a clue whether health promotion will be regarded as an important task and to what extent it will have priority in different parts of Europe. The aim of this study was to compare Italian and Swedish nursing students' attitudes towards health promotion practice on matriculation to nursing school and after a three-year nursing education, and to explore whether attitudes towards health promotion practice correlate with BMI and smoking.

Methods

This study is part of an international project about lifestyle issues among student nurses and health promotion in nursing education. The study's design is comparative, involving students who started their nursing education in autumn 2009. Two European universities took part in the study, one in the northern Europe (Sweden) and one in the south (Italy).

Questionnaire

Attitudes on health promotion practice were measured using an eight-question Likert scale with five response alternatives ranging from "strongly agree" to "strongly disagree." A low value indicate a favourable answer. The questionnaire was tested for face validity using the "think aloud" method Fonteyn et al. (17); French et al. (18). This evaluation showed that the questionnaire needed minimal revision in both countries. Certified translators converted the questionnaire from Swedish to English and then from English to Italian. Retranslation from English to Swedish was also conducted, as was retranslation from Italian to English.

A construct validity test was performed by means of factor analysis (19). Factors emerged with an eigenvalue of > 1, which explained 59.8% of the total variance (Table 1). To obtain the best possible model, different combinations of factors were tested. Finally, the principle component analysis model with the varimax rotation method was chosen. This procedure resulted in two factors: (1) attitudes on health promotion in nursing and (2) attitudes on one's own ability and motivation to work with lifestyle issues. The correlation coefficient was measured by means of Cronbach's alpha, which produced an overall correlation of .84 (20).

Data analysis

Descriptive statistics were computed for all study variables and a nonparametric method (Mann-Whitney U-test) was used to analyse the data. The level of significance was set at $p \leq .05$. Statistical analysis was performed using SPSS 15.0.

Ethical considerations

The study was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki, http://www.icmje.org). Each university's institutional review board approved the study. All participants were informed about the study and were invited to participate on a voluntary basis; their confidentiality was guaranteed. They were aware that they could withdraw from the study at any time, without having to give a reason, and that this would not affect their studies. Informed consent was obtained from those who agreed to participate.

Results

The number of participants in the study at baseline was 239, and after three years' education the number was 208; most were females. In Italy, there were more male students than in Sweden (26.6% and 7.9%, respectively). The students' birth years varied, the youngest was born in 1991 and the oldest in 1950; the mean age of the students in Italy was 29 years and in Sweden 27. Of the Swedish students, 42% lived with a partner, compared with 3.4% of the Italian students, and after three years 10 of the Swedish students had

Table 1. Validity and reliability tests calculated by means of Factor analysis and Cronbac's alpha (Attitude questions about health promotion in nursing)

	Mean	SD	Communalities extraction	Cumulative variance %	Factor I	Factor II
Working with health promotion is an important task in nursing	1.42	0.61	0.52		0.68	
My opinion is that the nursing education should prepar e me for health promotion work	1.59	0.66	0.49		0.68	
I would collaborate with patients and their next-of-kin in health promotion work	1.74	0.76	0.61		0.67	
Nurses are important persons in influencing patients lifestyle	1.98	0.78	0.38		0.57	
My opinion is that patients should be participants in health promotion work	1.68	0.70	0.43		0.56	
I am not sure I will have time for health promotion work among patients	3.13	0.97	0.31		0.48	
				26.51		
I believe that I can work with lifetyle issues	2.15	0.83	0.73			0.85
I feel motivated to work with lifestyle issues	2.04	0.81	0.67			0.76
I believe in my ability to motivate patients in changing lifestyle	2.15	0.81	0.59			0.74
My opinion is that the nursing education should prepare for innovation and entrepreneurship	2.04	0.80	0.37			0.52
				25.98		

Kaiser-Meyer-Olkin measure of sampling adequacy (KMO):0.85. Bartlett's test sphericity:p<0.0001.
Factor I: Attitudes on health promotion in nursing
Factor II: Attitudes on own ability and motivation to work with lifestyle issues in nursing
Overall Cronbach's alpha: 0.84

become parents but none of the Italian students had. Non-smokers in Sweden at baseline were 79%, compared with 63.8% in Italy. No correlations were found between countries concerning smoking and attitudes towards health promotion. BMI did not change during the three years of education. The mean value for BMI was 23.1 for the Swedish students and 21.9 for the Italians. No correlations between BMI and attitudes to health promotion were found.

Attitudes on health promotion in nursing

No difference was found concerning attitudes towards health promotion in nursing among the Swedish students over time. In Italy, the students were more positive regarding health promotion practice after three years than they had been at baseline (p = .012) (Table 2). However, both at their entry to nursing education and after three years, the Swedish students demonstrated a more positive stance than their Italian counterparts did on health promotion practice (p < .0001) (Table 3).

Attitudes on own ability and motivation to work with lifestyle issues in nursing

When it comes to students' attitudes regarding their own ability and motivation to work with lifestyle

Table 2. Nursing students' attitudes to health promotion practice at baseline and after three years of education. Comparisons within groups

	N	Mean rank	Sum of ranks	*p*-Value
Factor 1				
Sweden at baseline	62	64.08	3973.0	
Sweden after 3 years	55	53.27	2930.0	0.073
Italy at baseline	177	177.63	31441.0	
Italy after 3 years	153	151.46	23174.0	0.012
Factor 2				
Sweden at baseline	62	59.41	3683.5	
Sweden after 3 years	55	58.54	3219.5	0.887
Italy at baseline	177	175.85	31125.0	
Italy after 3 years	153	153.53	23490.0	0.031

Mann-Whitney *U*-test
Factor 1. Attitudes on health promotion in nursing
Factor 2. Attitudes on own ability and motivation to work with lifestyle issues in nursing

Table 3. Nursing students' attitudes to health promotion practice at baseline and after three years education. Comparisons between groups

	N	Mean rank	Sum of ranks	*p*-Value
Factor 1				
Sweden at baseline	62	66.90	4147.5	
Italy at baseline	177	138.60	24532.5	0.0001
Sweden after three years	55	55.96	3078.0	
Italy after three years	153	121.95	18658.0	0.0001
Factor 2				
Sweden at baseline	62	87.56	5429.0	
Italy at baseline	177	131.36	23251.0	0.0001
Sweden after three years	55	79.12	4351.5	
Italy after 3 years	153	113.62	17384.5	0.0001

Mann-Whitney *U*-test
Factor 1. Attitudes on health promotion in nursing
Factor 2. Attitudes on own ability and motivation to work with lifestyle issues in nursing

issues, there were no differences over time among the Swedish students, but the Italian students were more positive after three years than they had been at baseline ($p = .031$) (Table 2).The Swedish students were more positive concerning their own ability and motivation to work with lifestyle issues than the Italian students, both at baseline ($p < .0001$) and after three years ($p < .0001$) (Table 3).

Discussion

This study was undertaken in order to highlight nursing students' attitudes, ability and motivation regarding health promotion practice and to shed light on important implications for improving health promotion in nursing education. The subject of health promotion is an important issue in the European Strategy for Nursing and Midwifery (1) and ought to influence the content of nursing education. Health promotion in nursing education may have important influence on students' attitudes and thereby on the quantity and quality of future health promotion practice. Our results show that the Italian students' attitudes were more positive on health promotion practice after three years than they had been at baseline; the same pattern emerged concerning their perceived ability and motivation to work with lifestyle issues. This may indicate that the Italian nursing education influenced the students' attitudes and motivation to practice health promotion. In Sweden, however, the students reported a more positive attitude towards health promotion and greater ability and motivation to work with lifestyle issues both at baseline and after three years, which seems to indicate that factors other than nursing education had influenced them. Apart from education, different cultures and traditions may of course play a significant role in students' attitudes and motivation regarding health promotion practice. Differences may exist, for example, in societies' propaganda promoting a healthy diet, physical activity, or smoking cessation—these are important and also influence students' attitudes. Research has shown that nursing students' own lifestyles significantly affect their attitudes and motivation to work with lifestyle issues (15, 21-23). Our study shows that smoking was more common among the Swedish students than the Italian at start of the nursing education but that the number of smokers decreased in both Italy and Sweden during the students' three years of training. However, no correlations between smoking, BMI, and attitudes on health promotion were found, a phenomenon that aligns with the findings of Steptoe et al. (24), which in contrast to recent research show that there is no correlation between personal health behaviour and attitudes towards HP among nurses and general practitioners.

The present study used a sample drawn from two universities in two European countries and cannot be seen as representative of nursing students in general; a health promotion approach may be stronger in some countries and weaker in others. Further, the pathogenic approach may be quite strong in some countries, making it difficult for health professionals to embrace a salutogenic perspective (25). This naturally also affects education, including nursing programmes. Research has found impediments to implementing reforms in European nursing education concerning health promotion (26), and difficulties have also arisen in interpreting nurses' role in health promotion (10). However, it is important that all nursing education take WHO's call seriously and incorporate health promotion in the education, as the role nurses should play in health promotion is evident (4-8).

The strength of this study is its use of a comparative research design; this allowed us to study similarities and differences in student nurses from two different European countries, one in the south and one in the north, in terms of their attitudes towards health promotion. The WHO European Strategy for Nursing and Midwifery has called for the explicit inclusion and application of health promotion in all nursing curricula (1), and this has been implemented in both Swedish and Italian nursing education. However, it is not known how much students read about health promotion or whether it permeates the entire educational programmes. Nor is it possible to comment on whether it was the education itself that influenced students' attitudes to health promotion; this is a weakness of the study.

Other strengths of the study are that the questionnaire was tested for internal validity using the "think aloud" method (17, 18) and that translation and retranslation by certified translators was carried out in both countries.

Conclusions

In Sweden and Italy attitudes about health promotion and lifestyle among nursing students exhibited different patterns over time. At matriculation to nursing school, Swedish students were more positive regarding health promotion than Italian students were. After completing a three-year nursing education programme, Italian students demonstrated improved, more positive attitudes to health promotion than they had at the programme's start. No such development was seen in Sweden. Students' attitudes on health promotion when they started nursing education in Italy and Sweden may mirror the general attitude of these societies. The evolution of attitudes may relate to education. Attitudes towards health promotion were not associated with lifestyle issues like smoking or BMI, either in Sweden or in Italy. Teaching health promotion in nursing education is important in influencing students' attitudes and thereby the quantity and quality of future health promotion practice.

Key points:

Our findings show, in contrast to recent research, that there were no correlations between nursing students' personal health behaviours and their attitudes and motivation to work with lifestyle issues.

Teaching health promotion in nursing education improve positive attitudes to health promotion practice.

Nursing students' attitudes to health promotion when they started their education in Sweden and Italy respectively may mirror different attitudes to health promotion in society.

Empirical research study

This empirical research study consists of an article on original research that has not been previously been published in its current format

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Original article: Professional education

Tutorship process in health care professions: a survey investigation in Emilia Romagna

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Abstract. The areas that we wanted to investigate include: tasks performed, tools used, formalization of the assignment, workload, empowerment and satisfaction of the function performed, and training. The results clearly show that the processes of tutoring are different for physicians and non-physician healthcare professionals. The first interesting difference is the method of assignment of mentoring. While among medical professions the function is assigned by others, tutors are often non-medical volunteers. This evidence leads to two unanswered questions: what are the criteria by which they are chosen as tutors? Do volunteers really possess the skills and ability to carry out this role? Future research should be directed towards clearly defining the profile of the "tutor" among both doctors and non-medical professionals. Another difference is the way the work of the mentor is formalized. If they are doctors, the task is assigned to them; this is not the case for non-medical professions. Despite this difference, a high percentage of both medical professionals and doctors said they did not feel valued for their role of tutor. However, differences emerge: physicians see their role as a paid tutor and / or recognized in their curriculum vitae. For non-medical professions, however, the only reward is a recognition of ECM (Educazione Continua in Medicina)credits. A common feature among professionals is that for both physicians and non-physician healthcare tutors, a system of evaluation is rarely reported. Another common feature is the skills that professionals would like to see improved. Both groups of professionals, in fact, would like to see improved teaching methods, communication strategies and reporting and evaluation systems. Finally, non-physician tutors report the same level of satisfaction, although the non-physician professionals are more satisfied in their relationship with colleagues. The degree of empowerment reveals perceived differences and similarities among the professionals. In fact, both professional groups reported the same levels of competence and impact, but differ in meaning and self-determination. More specifically, the non-medical professionals show high scores, while doctors get a higher score for self-determination. These results suggest that for increased attention to the system of evaluation and enhancement of the function tutorial we need not only to increase the satisfaction of those who act as tutors, but also to improve the tutorial process itself. Furthermore, the results suggest the carrying out of training projects for teaching and assessment methods that represent the issues that are most in demand by tutors. The training should include the use of tools for the governance process that project tutorial and apprenticeships. The responses indicate that these tools are already in use, although not as widespread and continuous.

Key words: tutorship, health care professions, training, professional competences

Introduction

The student/tutor relationship, more than any other form of education, is characterized by a deep interpersonal relationship between tutor and learner. This educational relationship aims to raise awareness of one's own training in students. This aim implies a dynamic relationship where, in addition to the cognitive factor, emotional and affective factors are activated; in this case, the tutor must be a good listener and show a proactive and supporting behaviour (1).

Learning in general, and professionalizing learning in particular, is achieved by transforming the information into a knowledge network that allows learners to understand and solve problems. In this way, learning becomes a real knowledge of professional skills which can be used in organizational contexts (1). The tutor is a facilitator of learning, and he/she must make students aware of their own learning process. Accordingly, the tutorship process is characterized by the experiential nature of learning which is greatly interactive so that the educational function is expressed by accompanying the tutee to know; it is in this way that learning is realised in the mind of the learner (2).

Tutor-oriented behaviours are to accompany, to initiate, to facilitate and to support learning through an educational relationship characterized by listening, guidance and advising. In the process of tutorship, teaching and learning are the basis of the interpersonal communication between tutor and tutee (3). The attitude of the tutor must be finalized in such a way that the tutee activates his/her knowledge and ability to analyze and solve problems in a given situation and is able to independently recognize the learning needs that the situation involves (4). The growth, the autonomy and the empowerment of the person in training are the aims of the tutor model, emphasizing learning from the experience and practices of a reflective type. Practical knowledge, that constantly occurs in organizations, becomes a mediator of the learning process, opening new logics of training and stressing the importance of supportive processes for the development of professionals' skills in organizational contexts (5).

The training, then, is connected to the processes of thinking and processing, open itself to the learning experience and the promotion of contexts and operational situations where professionals act and construct their relationship with reality and their personal history (6).

Professional roles and skills are developed within organizations which need to invest resources in training activities in order to supply services (7). These training activities may take various forms, but all share a tutorial function that stems from experience and activates reflective practices. The tutor model then enters into the learning processes which focalize on the learner from the definition of the methods, timing and objectives to be achieved (1).

The tutor in healthcare settings

In a clinical setting, tutors are figures of a high educational level, who implement learning processes with a close relationship with the students, becoming an example for these students. The tutor is therefore a practitioner with a professional profile similar to that of the student; the clinical tutor guides students to the gradual acquisition of autonomy in the exercise of their profession, taking the student from a practice carried out under direct supervision to an independent professional practice (1). In this process, the tutor encourages his students to constantly reflect on their working experiences, before and after practical experience, and to consider practical experience as a part of a broader context of care. The principal behaviours of the clinical tutor should be to create a rich learning environment, to increase the acceptance and inclusion of the student, to inform and involve all operators of the student's project, to select the activities to make the students' experience consistent with the educational goals, to participate in the planning of internships, and to offer students opportunities to experience a gradual but progressive empowerment (8).

In sum, tutors contribute significantly to a) stimulating students to contextualize their scientific knowledge, b) stimulating the decision-making processes behind the action during care interventions, c) helping students to perform specific manoeuvres and to reflect on the possible mistakes.

The present research

A survey conducted in Emilia Romagna (9) highlighted the need for further study on the tutorial function in healthcare.

Following this study, the aim of this paper was twofold. Firstly, we wanted to describe the Local Health tutorial process in Emilia Romagna from the point of view of health professionals in terms of ways of recruiting tutors among professionals and of the training needs of professionals to perform the tutorial function. Furthermore, we wanted to investigate whether and how the tutorial role is formalized and evaluated and ultimately the training needs of tutors.

Secondly, we wanted to add depth to the analysis of the views of professionals about the skills which are needed for being a tutor, as well as their perceived empowerment and satisfaction. Finally, we were interested in analysing whether the above features of tutorship processes are different for nurses and physicians.

Method

Design and procedure

A cross-sectional questionnaire survey was used. Questionnaires were filled in on line and participants were rewarded with 2 ECM credits. Participants were contacted via email and invited to participate in a research study concerning the role and recognition of tutorial functions. Data were collected from September to November 2012.

Eligibility criteria

All practitioners working in the enrolled Hospitals who over the last three years had been involved in tutorship were asked to participate in the survey.

Participants

915 questionnaires were returned (response rate = 41.5%), but 117 were discarded because the profession was not indicated. The final sample was thus composed of 798 practitioners of whom 135 (17%) were physicians, 463 were nurses (58%), 34 were physiotherapists (4.25%), 132 were laboratory technicians (16.5%) and 34 were screening technicians (4.25%). Thus, 83% of the sample represented non-physician healthcare professionals. 258 participants (32.3%) were men while 540 (67.7%) were women. 159 (19.9%) respondents were between 21 and 35 years old, 443 (55.5%) were between 36 and 50 years old and 196 (24.6%) were more than 50 years old. 40 (5%) participants had been tutors for less than one year, 300 (37.6%) participants had been tutors for one to five years, 220 (27.6%) had been tutors for six to 10 years and 238 (29.8%) had been tutors for more than ten years.

Measures

The questionnaire was composed of several parts aimed to assess different constructs.

The first part contained the following questions:

a) How did you become a tutor?
b) Is you work as a tutor formalized?
c) What training did you do for the acquisition of your skills as a tutor?
d) Is your work as a tutor valorized? How?
e) Is your work as a tutor evaluated?
f) What tools are you using for the management of the tutorship?
g) What competences would you like to improve as a tutor?

The second part of the questionnaire measured the following psycho-social constructs.

Satisfaction as tutor was measured with six items - Schriesheim and Tsui (1980) (10) - asking participants to indicate their satisfaction for different aspects of their job as a tutor (i.e. relationship with coordinator, relationship with colleagues) on a 7-point Likert-type scale (1=completely unsatisfied, 7 = completely satisfied). Reliability was good (a = 0.84).

Empowerment was measured with Spreitzer's (1995) (11) scale, which is composed of 12 items on a 7-point Likert-type scale (1=completely disagree, 7 = completely agree) and measuring four dimensions: Meaning (a = 0.93), Competence (a = 0.86) Self-determination (a =0.88) and Impact (a = 0.83).

Results

Characteristics of tutor and tutorship

Table 1 shows percentages of responses for non-physician healthcare professions and physicians separately and for the total sample. As one can see, 153 participants (19.2%) become tutors proposing themselves voluntarily, only 43 (5.4%) are selected, 538 (67.4%) were chosen by others, while 64 (8%) indicated other ways. These percentages are significantly different for non-physician healthcare professions and physicians ($\chi^2(2) = 7.68$, $p = 0.02$). More precisely, physicians were more often chosen by others and less often volunteers than non-physician healthcare professionals.

The work as a tutor was declared as being formalized by 361 participants (45.2%), while it was stated as not formalized by 294 (36.8%) tutors. 143 (17.9%) tutors declared that they did not know. Also in this case, a significant difference emerged ($\chi^2(2) = 21.30$, $p < .001$) for which the work of physicians was more likely to be formalized than the work of non-medical practitioners.

For 63.5% of the respondents, their work as a tutor is not valorised and this percentage is equal for non-physician healthcare professions and physicians ($\chi^2(1) = 2.01$, $p = .16$). However, the way in which the work as tutor is valorised changes between professions. Indeed, physicians are less likely to receive ECM credits ($\chi^2(1) = 18.52$, $p < .001$), but more likely to receive an economic reward ($\chi^2(1) = 35.91$, $p < .001$) and CV acknowledgement ($\chi^2(1) = 10.40$, $p = .001$) than non-physician healthcare practitioners.

Moreover, the results highlight that in most cases (82.58%) professionals are not evaluated for their work as tutors. Furthermore, non-physician healthcare professionals and physicians use different tools for managing the process of tutor. More precisely, non-physician healthcare professionals are more likely to use tutorship projects ($\chi^2(1) = 40.51$, $p < .001$) and training contracts ($\chi^2(1) = 7.63$, $p = .006$) than physicians. No differences appear for other tools.

Finally, it appears that teaching, evaluation methods and relationships are the competences that professionals indicate as the more urgent competences to be improved. Also in this case, non-physician healthcare professionals are more likely to ask for improvement in teaching methods ($\chi^2(1) = 7.08$, $p = .008$) or evaluation methods ($\chi^2(1) = 4.47$, $p = .035$) than physicians, while the latter are more likely to ask for improvement in ECM legislation ($\chi^2(1) = 5.64$, $p = .018$).

Satisfaction and empowerment

Table 2 shows mean and standard deviation for satisfaction and empowerment scores separately for non-physician healthcare professions and physicians as well as for the total sample. As one can see, tutors are fairly well satisfied for all the dimensions considered, apart from reward, which receives the lowest score. Only one difference appeared between professionals: physicians seem to be less satisfied than other professionals about their relationship with colleagues ($t(796) = 2.29$, $p = .022$).

Also empowerment was fairly good among professionals. In this case, non-physician healthcare professionals have higher scores on the "meaning" dimension ($t(796) = 2.66$, $p = .008$) than physicians who, however, scored higher on Self-determination ($t(796) = 3.23$, $p = .001$).

Conclusions

The results clearly demonstrate that tutorship processes are different for physicians and non-physician healthcare professionals. The first interesting difference is the method of allocation of tutoring. While among medical professions the function is assigned by others, in non-physician health professions tutors are often volunteers. This evidence leads to two unanswered questions: what are the criteria by which tutors are chosen? Do volunteers really have the skills and ability to perform this role? Future research should be oriented to define clearly the profile of the "tutor" among both physicians and non-physician healthcare professionals.

A further difference is the way in which tutors' jobs are formalized. Although for physicians the function is formalized, this is not the case for non-physician health care professions. Despite this difference, a high percentage of both physicians and non-physician

Table 1. Percentage of response for non-medical professions, physicians, and the total sample

	Non-medical professions		Physicians		Total	
	n	%	n	%	n	%
How you become a tutor?						
I volunteered to do tutor	138	22.62	15	12.10	153	19.2
Making a selection	37	6.07	6	4.84	43	5.4
Chosen by other	435	71.31	103	83.06	538	67.4
Other	53	8.69	11	8.87	64	8
Work as tutor formalized?						
Yes	279	42.08	82	60.74	361	45.2
No	267	40.27	27	20.00	294	36.8
Don't know	117	17.65	26	19.26	143	17.9
What training?*						
University courses	98	12.98	20	11.98	118	12.8
Hospital training	294	38.94	22	13.17	316	34.27
Regional courses	22	2.91	14	8.38	36	3.9
Professional association courses	18	2.38	18	10.78	36	3.9
None	321	42.52	93	55.69	414	44.9
Other	2	0.26	0	0	2	0.22
Work as tutor valorised?						
Yes	249	37.56	42	31.11	291	36.5
No	414	62.44	93	68.89	507	63.5
How is valorised?*						
ECM	188	59.31	18	30.51	206	54.79
Acknowledgment of hours	54	17.03	7	11.86	61	16.22
Economic Reward	12	3.79	14	23.73	26	6.91
Curriculum	59	18.61	20	33.90	79	21.01
Other	4	1.26	0	0.00	4	1.06
Is your work as tutor evaluated?						
Yes	123	18.55	16	11.85	139	17.42
No	540	81.45	119	88.15	659	82.58
Tools for manage tutorship?*						
Tutorship project	345	30.78	30	15.96	375	28.65
Training contract	91	8.12	7	3.72	98	7.49
Caring report	139	12.40	19	10.11	158	12.07
Briefing & de-briefing	131	11.69	33	17.55	164	12.53
Evaluation	392	34.97	91	48.40	483	36.90
Other	23	2.05	8	4.26	31	2.37
Competence to be improved*						
Teaching method	420	37.53	69	31.80	489	36.60
Communication and relation	283	25.29	61	28.11	344	25.75
Evaluation method	276	24.66	43	19.82	319	23.88
Hospital organization	74	6.61	20	9.22	94	7.04
University organization	22	1.97	7	3.23	29	2.17
ECM legislation	44	3.93	17	7.83	61	4.57

*more than one answer was allowed

Table 2. Mean and standard deviation of satisfaction and empowerment score among non-medical professionals and physicians and for the total sample

	Non-medical professions		Physicians		Total	
	M	*SD*	*M*	*SD*	*M*	*SD*
Satisfaction						
Kind of job	4.98	1.44	5.07	1.38	4.99	1.43
Relationship with coordinator/superiors	4.91	1.61	4.70	1.78	4.87	1.64
Relationship with colleagues*	5.24	1.34	4.95	1.50	5.19	1.38
Rewards	3.53	1.77	3.25	1.74	3.48	1.77
Personal development	4.21	1.94	4.46	1.75	4.25	1.91
Work as tutor	4.90	1.50	4.96	1.45	4.91	1.49
Satisfaction mean	4.63	1.21	4.56	1.19	4.62	1.20
Empowerment						
Meaning*	5.19	1.48	4.82	1.49	5.13	1.49
Competence	5.24	1.23	5.23	1.16	5.24	1.22
Self-determination*	5.22	1.38	5.63	1.14	5.29	1.35
Impact	4.88	1.30	4.88	1.40	4.88	1.31
Empowerment mean	5.13	1.15	5.14	1.10	5.13	1.14

* Difference between non-medical professionals and physicians is different at $p < .05$. Note: range of response = 1-7

healthcare professionals claimed that they do not feel appreciated for their role of tutor. However, differences also emerged in this case: physicians are more likely to be paid and/or recognized in their curriculum vitae. For non-physician healthcare professions, however, the only reward is the non-remunerative allocation of ECM credits.

A common aspect among professionals is that for both physicians and non-physician healthcare tutors a system of evaluation is seldom reported. Another shared feature is the competencies that professionals would like to see enhanced. Indeed, both groups of tutors express the need to acquire teaching methods, communication and relational strategies and evaluation systems.

Finally, non-physician healthcare professionals and physicians report the same level of satisfaction, although the non-physician healthcare professionals are more satisfied about their relationship with colleagues than physicians. Moreover, both groups of professionals report lower levels of satisfaction concerning rewards. Perceived empowerment reveals differences and similarities among the two groups of professionals. Indeed, both professional categories report the same levels of competence and impact, but differ concerning meaning and self-determination. More precisely, non-physician healthcare professionals scored higher on meaning while physicians scored higher on self-determination.

The findings of this study suggest that greater attention to the evaluation system and enhancement of the tutorial function is necessary, not only to increase the satisfaction of those who carry out the tutorial function but also to improve the tutorial process itself. Furthermore, the results suggest the implementing of training projects for teaching and evaluation methods which represent the topics that are most requested by tutors. The training should include the use of tools for the governance process which the tutorial projects and contracts of apprenticeship training. The replies indicate that these tools are already in use, although not so widespread and continuous,

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Empathy and burnout: an analytic cross-sectional study among nurses and nursing students

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Abstract. *Background and aim:* Empathy is an essential element of good nursing care associated with increased patient satisfaction. Burnout represents chronic occupational stress which diminishes interest in work and reduces patient safety and satisfaction. The purpose of this study was to evaluate the correlation between empathy and burnout in nursing students and nurses. *Method:* This cross-sectional research was conducted in a sample of 298 nurses and 115 nursing students. Socio-demographic and career information was collected. Balanced Emotional Empathy Scale (BEES) and Maslach Burnout Inventory (MBI) were administered. Data were statistically analysed. *Results:* 63% of our sample answered questionnaires (54% of nurses and 84% of students). The BEES global mean score was slightly inferior to empathy cut-off of 32. In the student group, two BEES dimension scores were statistically significantly higher than nurses (p=0.011 and p=0.007 respectively, t-test). Empathy was negatively related to age (p=0.001, ANOVA). Emotional exhaustion (EE) scores of MBI reported statistically significantly lower levels for students (p<0.0001, t-test). EE was negatively related to BEES mean total score in students (r=-0.307, p<0.002) and nurses (r=-0.245, p<0.002), personal accomplishment of MBI presented positive correlation with BEES mean total scores in students (r=0.319, p<0.002) and nurses (r=0.266, p<0.001, Pearson's correlation). Female students showed superior empathy capacity in comparison to male students in all 5 dimensions of BEES (p<0.001), whereas females nurses in only one dimension (p<0.001). *Conclusions:* Our data suggest empathy declines with age and career. High levels of empathy can be protective against burnout development, which, when presents, reduces empathy.

Key words: analytic cross-sectional study, empathy, burnout, nursing students, nurses

Introduction

Empathy

The term empathy was coined by Robert Vischer at the end of 1800 and the philosophers Wundt and Lipps used it to indicate the projection of human feelings on to the natural world. Successively, this concept was applied to psychology by Freud and other psychoanalysts. In particular, Kohut called empathy "vicarious introspection", to indicate that the therapeutic relationship is based on these two modalities: introspection and empathy (1). Edith Stein, a German phenomenologist, distinguished from sympathy and defined empathy as the capacity to promote self-awareness and positive regard for others (2). Among phenomenologists, Jaspers claimed the epistemological role of empathy in psychopathological diagnosis and observed that it permits to understand the patient through a direct access to his/her abnormal mental experiences (3).

Empathy is an essential element of good quality of nursing care and is associated with increased patient

satisfaction and well-being, adherence to treatment and fewer malpractice complaints (4-9). The empathy capacity of professionals can influence the course and outcome of illness (10-12). Clinical empathy involves the ability to understand the patient's situation, his/her perspective and feelings (and their attached meanings) (13-17). Empathy capacity is a fundamental and essential instrument in all therapeutic relationships, allowing the professional to meet the needs of patients (6,18-22). In order to develop empathy, professionals have to maintain a correct distance from the patient, avoiding excessive involvement in his/her life and the detachment from patients' problems (23,24). According to most authors, nurses show low levels of empathic tendency (10), although there is a great difference among nurses in various settings (8) and nursing students (25,26). This data could reflect the complexity of measuring empathy, which remains "a subjective, multifaceted and even intangible component of caring", as suggested by some authors (8). The ability to empathize can be influenced by many factors: gender, age, work training and experiences (27). Many studies evidenced that women show superior empathic tendency in comparison to men (28-30). In a study, conducted among health profession students in Philadelphia, females showed higher levels of empathy in comparison to both male fellow students and senior professionals (31). An Italian longitudinal study, which assessed the efficacy of a specific training course for improving empathy skills in nursing students, highlighted that training was more effective for female students as compared to males (32). Another Italian study evidenced that the impact of gender on empathy tendency increased during nursing training, as demonstrated by higher BEES scale scores of female students in comparison to males (26). The different empathy capacity between males and females is thought to be due to many factors. Some researchers view empathy as a feminine trait and attribute this difference to a result of evolution (33). Other authors believe that this result could also be conditioned by 'sex-role stereotypes' answers of participants or that there may be biases introduced by social desirability (34). On the other hand, neurobiological substrates of empathy show significant quantitative gender differences in the basic networks involved in affective and cognitive forms of empathy, as well as a qualitative divergence between the sexes in the integration of emotional information in the decision-making processes (35). In accordance with some authors, who observed that older people manifested lower levels of empathy in comparison to younger ones, age could be a variable negatively related to empathy (36). In this regard, many studies (37) identified higher empathic scores in young nurses, newly registered but trained longer. Similar results were obtained in another study putting in evidence that empathetic tendency scores of newly registered nurses were higher than other groups (20). A significant decline in empathetic tendency during the course of study was registered in nursing students (38-40). Whilst this decline may be partly due to a 'settling in' phenomenon with a change from idealism to realism, students may also be displaying an adaptive response to new responsibilities and an increasing workload (40). Ward and colleagues (41) found a more pronounced decline in empathy among students exposed to clinical encounters and real patients, compared with nursing students in their first year of study, who spent most of their time in the laboratory setting (30). Students' facing emotional care burdens such as fear, confusion, helplessness and loss of patients during undergraduate years may demonstrate avoidance and a decrease in empathetic tendency in order to protect themselves from pain and anxiety (20). Several authors described "factors that impeded nurses' empathic behavior, which included lack of time, lack of support from unsympathetic colleagues, personality style and anxiety toward patients" (29,41-43). Increasing workload, time pressures, competitiveness, technology-driven therapeutics and increased cynicism about caring process are all factors believed to contribute to the decline in empathy (44).

Empathy is commonly understood as a critical factor in providing effective support, but it has also been considered a primary path of vulnerability to developing stress disorders secondary to the profession, such as compassion fatigue and professional emotional exhaustion (45-47).

Burnout

Burnout syndrome is a significant problem in modern working environments and its prevalence has

increased substantially over the past decade (48). The term burnout was coined by Herbert Freudenberger to define a state of physical, emotional and mental exhaustion due to long-term involvement in work situations that are emotionally demanding (49). Burnout syndrome occurs when the use of coping strategies is ineffective to overcome stress leading to a chronic condition of physical and psychological vulnerability (50-54). Burnout has been interpreted as chronic occupational stress which diminishes interest in work and causes clinical symptoms similar to depression. One of the most widely used instrument for assessing burnout is the Maslach Burnout Inventory, which was developed by Christina Maslach and Susan Jackson. These social psychologists identified a three-dimensional syndrome made up of 'exhaustion', 'depersonalization' and 'personal accomplishment'. Emotional exhaustion refers to the physical and emotional overloads that result from interactions with co-workers and patients; depersonalization (also known as 'cynicism') is the development of cynical attitudes and responses toward fellow workers and the beneficiaries of the services that one provides; reduced 'personal accomplishment' (also defined 'inefficacy') refers to the tendency of nurses to adopt a negative self-concept as a consequence of unrewarding situations. Overwork and high stress levels can cause burnout in workers (55), with negative outcomes for both individuals and organizations. Individuals suffering from burnout usually manifest psychological distress, somatic complaints, alcohol and drug abuse, psychosomatic problems (weakness and insomnia), emotional problems (anxiety and depression), attitude problems (hostility, apathy and distrust) and behavioral problems (aggressiveness, irritability and isolation), among other problems (56-58). For health organizations, burnout can be costly, leading to increased employee tardiness, absenteeism, turnover, decreased performance and difficulty in recruiting and retaining staff (59-62). Individuals' personalities are a strong predictor of the level of job burnout they experience (63-65). Organizational stressors, such as work overload, can lead to different levels of burnout depending on the personality traits of employees (48,66,67). Socio-demographic variables related to burnout syndrome have been extensively studied though the results obtained have been contradictory. Some studies concluded that burnout decreased with age (68,69), whereas others reported the opposite (70-72). The high levels of burnout in younger workers could be secondary to less professional experience and more elevated stress related to work (73). According to the meta-analysis of Purvanova (74), there are important gender-specific differences in burnout levels: women experience emotional exhaustion more frequently whereas men are more prone to depersonalization. In nurses, burnout has been associated with reduced patient safety and satisfaction and other measures of deficient quality of care (60,75).

Among nursing students, burnout, which has been found to be related to academic performance, can foster high drop-out rates and influence future quality of care in nurses' professional lives (76). Undertaking a nursing course leads to increased level of stress (77), burnout and psychological morbidity, which are largely related to individual personality and coping traits (54). The literature identifies three main groups of stress causes: academic sources of stress, clinical sources of stress and personal/social sources of stress (78). The characteristics of burnout syndrome in nursing students are feelings of exhaustion, cynicism, which involves a detached and ineffective professional behavior, and, at the same time, the perception of themselves as incompetent (76). At present, both nationally and internationally, research on burnout in nursing students is scarce (79).

Empathy and burnout

Empathy has been related to an important construct in the field of health: professional burnout, but previous studies on this relationship between empathy and burnout have found contradictory results. In particular, burnout severity is related to both increases and decreases in dispositional empathy scores (14,15). People with a higher score on dimensions such as empathic concern tend to greater development of burnout syndrome, especially in its depersonalization component (29,80-83). Otherwise, nurses, constantly exposed to emotional situations related to patients' suffering (84), develop coping strategies in order to protect themselves from an excessive emotive involvement, with the risk of reducing empathy capacity. Therefore, frequent

exposure to emotionally demanding situations may put nurses at risk of burnout and professional distress, resulting in a low sense of accomplishment and severe emotional exhaustion (67,85,86). According to Zapf and colleagues, the emotional nurses investment may be seen as a principle factor predicting burnout among common job stressors (87).

Most studies have observed an inverse relationship between self-report burnout and empathy, whereas empathy was positively correlated with personal accomplishment scores in medical students and physicians (88-90). In the nursing profession, some studies have observed that there is a statistically significant negative correlation between some dimensions of burnout and empathy (91). In particular, Wilczek-Rużyczka suggested that developing empathy prevents professional burnout since she found that the level of empathy was negatively correlated with burnout (92). Tei et al. (86), have evidenced in 25 nurses, by means of fMRI, that severe burnout syndrome was associated with 'reduced empathy related to brain activity'. On the contrary, another study, which analyzed the relationship between empathy and burnout in 3 different helping professions, did not find any statistically significant correlation between these two constructs (93). These contradictory data concerning the correlation between burnout and empathy are explained by two opposite theories: the conventional theory, 'compassion fatigue theory' (16), which suggests that burnout is related to excessive empathy; the alternative theory, 'emotional dissonance theory' (17), which hypothesizes that burnout can be associated to reduced emotional regulation.

Aims

- To compare the levels of empathy and burnout between nursing students and nurses.
- To evaluate the correlation between the levels of empathy and burnout in both groups.

Methods

This analytic cross-sectional study was conducted in 2015 in Northern Italy.

Participants

The sample was composed of a total of 413 individuals: 298 nurses (283 employed in 17 Medical and Surgical hospital wards in a General Hospital and 15 teachers in Nursing Degree Course); 115 students attending the last year of their Nursing Degree Course.

Measures

Three research instruments were used:

1. a questionnaire concerning socio-demographic (age, gender) and career (years of employment) information;
2. the Italian version of the Balanced Emotional Empathy Scale (BEES) (94), which assesses empathy levels, in terms of susceptibility to becoming vicariously involved in others' emotional feelings and the tendency to develop positive interpersonal relationships (32). BEES includes 30 items and the participants express their level of agreement/disagreement on a seven-point Likert scale, with negative and positive answers, designed to avoid social desirability in the responses (95). The total BEES score indicates high levels of empathy if it is greater than the mean value of 32 ± 18 (SD). The Italian version of the BEES validated five dimensions concerning the following areas of emotional empathy (32): 'Impermeability to the emotional feelings of others' (D1), 'Susceptibility to the emotional feelings of others' (D2), 'Emotional spread responsiveness' (D3), 'Susceptibility to emotional involvement with people nearby' (D4), 'Tendency to avoid emotional involvement with fragile people' (D5). At D1, D3 and D5, high scores indicate scarce capacity to empathize; on the contrary, at D2 and D4 low scores indicate good empathic tendency.
3. the Maslach Burnout Inventory (MBI) (96), which includes 22-items scored on a seven-point Likert scale ranging from 0 to 6 points, is the instrument most widely used by researchers (97). This instrument is formed by 3 sub-scales to evaluate the following domains of burnout:

'emotional exhaustion' (EE) (feeling unable to carry on), 'depersonalization' (D) (unfeeling and impersonal response towards recipients of one's service, care, treatment or instruction), and 'personal accomplishment' (PA) (satisfaction from the job). The BMI has also been used extensively in studies of both nurses (60,70,98,99) and nursing students (54,100). The minimum and maximum scores were ranged from 0 to 54 (cut-off: low<15, average 15–22, high>23) for EE, from 0 to 30 (cut-off: low<4, average 4–7, high>8) for D, and from 0 to 48 (cut-off: low>29, average 29–36, high<37) for PA.

Procedures

The research instruments were given to the participants of our sample in order to obtain self-report answers within 10 days. The anonymity and confidentiality of participants were assured and their decision to participate voluntarily in this study was respected. The study was authorized by the Director of Nursing Degree Course and by both Medical Director and Nurse Manager of the General Hospital.

Statistical Analyses

Descriptive statistics for the evaluated parameters were reported with summary tables. Continuous variables were summarized in tables displaying sample size, mean and standard deviation (SD) or median and quartiles; categorical variables were described in terms of absolute and percentage frequencies of the number of cases examined. The comparison of continuous variables between 2 groups was performed using the t-test, and between 3 or more groups by means of analysis of variance (ANOVA). The comparison of categorical variables between groups was performed using the Chi2 test or the Fisher's exact test, when appropriate. All the reported statistical tests were two-sided, and we considered as significant a test with p-value <0.05.

The statistical analysis was performed by means of the software Stata (v10, College Station, TX 77845 USA) and R (v 3.0.1, 2013 The R Foundation for Statistical Computing).

Results

The individuals who agreed to participate in this study and fully answered the research instruments were 63% of our sample (n=259), represented by 162 nurses (54% of all nurses) and 97 students (84% of all students). Among nurse participants, females were 130 and males 32; among student participants, females were 76 and males 21 (the imbalance between females and males reflects the distribution of participants). The mean age of nurses was 39 ± 9 (SD) years, whereas the mean age of students was 22 ± 4 (SD) years. The years of employment of nurse participants were 14 years on average ± 10 (SD).

Empathy

The mean scores of total and 5-dimension BEES are reported in Table 1, divided into nurse and student scores. The 2 groups reported mean scores inferior to the expected cut-off value of 32. Students reported superior total BEES score in comparison to nurses. Among the 5 dimensions, only 'Impermeability to the emotional feelings of others' and 'Tendency to avoid emotional involvement with fragile people' presented a statistically significant difference between students

Table 1. Mean (± SD) scores of total and 5-dimension BEES: "*Impermeability to the emotional feelings of others*" (D1), "*Susceptibility to the emotional feelings of others*" (D2), "*Emotional spread responsiveness*" (D3), "*Susceptibility to emotional involvement with people nearby*" (D4), "*Tendency to avoid emotional involvement with fragile people*" (D5).

	N	D1 M (SD)	D2 M (SD)	D3 M (SD)	D4 M (SD)	D5 M (SD)	Total BEES M (SD)
Students	97	-6.1 (6.3)	9.8 (4.4)	-1.8 (8.2)	9.0 (5.1)	-4.1 (4.0)	**28.2** (17.0)
Nurses	162	-4.0 (6.8)	9.0 (5.1)	-0.6 (7.3)	9.8 (5.6)	-5.5 (3.9)	**25.6** (17.3)
P–value		***0.011***	*0.202*	*0.211*	*0.264*	***0.007***	*0.227*

and nurses (p = 0.011 and p = 0.007 respectively, t-test).

Empathy was negatively related to the age of our sample. In particular, the scores of 'Impermeability to the emotional feelings of others' presented statistically significant differences according to the different age groups (p = 0.001, ANOVA; Table 2). We have to put in evidence that the youngest participants, who were represented by 80 students with an age ranged between 21 e 24 years, showed the highest scores of empathy.

Burnout

The mean levels of burnout (according to the MBI) for students and nurses are presented in Table 3. Only the emotional exhaustion (EE) scores reported a statistically significant difference between the nurse and student groups (p < 0.0001, t-test), with lower levels for students. Similar results were obtained for the 3 cut-off levels (low, average, high) of the EE scores (p < 0.001, Chi2; Table 4). Both groups reported high scores in the depersonalization and average scores in the personal accomplishment.

Empathy and burnout

In the student group, the emotional exhaustion sub-scale of MBI was negatively related to the BEES mean total score (r = -0.307, p < 0.002, Pearson's correlation), as it was in the nurse group of our sample (r = -0.245, p < 0.002, Pearson's correlation). Both these

Table 2. The total and 5-dimension BEES mean scores divided into age groups

Age groups (years)	N	D1 M (SD)	D2 M (SD)	D3 M (SD)	D4 M (SD)	D5 M (SD)	Total BEES M (SD)
21-24§	80	-6.2 (6.1)	9.9 (4.5)	-2.2 (8.4)	9.4 (5.2)	-4.2 (3.8)	29.1 (16.3)
25-33*	61	-5.9 (6.2)	9.0 (6.2)	-1.0 (6.2)	9.5 (6.2)	-5.8 (6.2)	28.2 (6.2)
34-44*	55	-2.8 (6.5)	8.5 (6.5)	-0.3 (6.5)	9.6 (6.5)	-5.7 (6.5)	23.5 (6.5)
45-60*	46	-2.8 (7.3)	9.7 (7.3)	-0.2 (7.3)	10.3 (7.3)	-4.8 (7.3)	24.5 (7.3)
P-value		***0.001***	*0.344*	*0.319*	*0.721*	*0.157*	*0.129*

§ only students, * only nurses

Table 3. Mean (± SD) scores at the MBI 3 sub-scales of nursing students and nurses

	Emotional Exhaustion M (±SD)	Depersonalization M (±SD)	Personal Accomplishment M (±SD)
Students	11.6 (±8.1)	11.5 (±4.6)	31.5 (±5.2)
Nurses	16.7 (±9.9)	12.7 (±5.2)	31.5 (±6.9)
P-value	***<0.0001***	*0.064*	*0.990*

Table 4. Percentage scores (divided into low, average and high cut-off) at the MBI 3 sub-scales of nursing students and nurses

	Emotional Exhaustion Score (%)			Depersonalization Score (%)			Personal Accomplishment Score (%)		
	Low	Average	High	Low	Average	High	Low	Average	High
Students	74	18	8	1	30	69	28	60	12
Nurses	46	27	27	2	20	78	30	50	20
P-value		***<0.001***			*0.150*			*0.184*	

results showed that reduced emotional exhaustion is associated with high levels of empathy.

On the contrary, the personal accomplishment presented a positive correlation with the BEES mean total scores both in the student group (r = 0.319, p < 0.002, Pearson's correlation) and nurse group of our sample (r = 0.266, p < 0.001, Pearson's correlation), whereas the depersonalization sub-scale was not related in a statistically significant way to the BEES mean total scores.

The gender difference

The student BEES scores were statistically significantly different between females and males: female nursing students showed superior empathy capacity in comparison to male nursing students (p < 0.001, ANCOVA), as shown in Table 5. Otherwise, the male and female nurse BEES scores presented a statistically significant difference only at the dimension 'emotional spread responsiveness' (D3), with a superior empathic tendency for females (p < 0.001, ANCOVA) (Table 5). On the MBI, the male and female nursing student scores did not present any statistically significant differences, whereas, among nurses, the depersonalization scores of females was statistically significantly superior to males (p = 0.046, ANCOVA).

Discussion

Nurses and nursing students in our sample were similar for gender and age distribution, but they reported different results on both the evaluation scales for empathy and burnout. Students answered questionnaires more frequently than nurses, with a percentage (84%) similar (40) or superior to other studies (21,41), showing more interest in this topic as well as more empathetic tendency than nurses. In fact, on BEES, nursing students reported higher levels of empathy in comparison to nurses. In particular, they presented statistically significant superior outcomes at two dimensions (D1 and D5) of the scale concerning the empathy capacity to be involved in others' feeling, especially those of vulnerable people like children and the elderly, suggesting a strong initial motivation to enter this profession. Otherwise, students reported lower levels of burnout, especially in the emotional exhaustion dimension, in comparison to nurses, probably because they were early in their nursing career, as observed by other authors (101).

We highlight that both students and nurses presented moderate global empathy levels, with mean scores that were slightly inferior to the minimum range of BEES. This data is consistent with literature (21,26,31,40, 102), although it is difficult to compare

Table 5. Dispositional empathy and burnout scores according to gender, Covariance analysis (ANCOVA)

Scales	Students			Nurses		
	Females (n=76) M	Males (n=21) M	*P–value*	Females (n=130) M	Males (n=32) M	*P–value*
MASLACH						
EE	11.2	13.1	0.057	13.2	10.8	0.461
D	10.6	15.0	0.140	16.9	15.8	**0.046**
PA	31.5	31.4	0.772	31.9	29.8	0.056
BEES						
D1	-7.6	-0.8	**<0.001**	-4.1	-3.4	0.787
D2	10.3	8.0	**0.040**	9.1	8.6	0.915
D3	-3.4	4.0	**<0.001**	-1.6	3.5	**<0.001**
D4	9.7	6.8	**0.049**	10.0	8.8	0.211
D5	-4.6	-2.4	**0.034**	-5.5	-5.6	0.610
Total BEES	32.0	14.7	**<0.001**	26.3	22.5	0.471

with the results of other studies obtained through different evaluation instruments (8). Our data, in accordance with most studies (20,37,103), show that empathy and age were inversely related since empathic tendency decreased with the increase of age. Other authors observed that empathy decline can also be observed during the course of training in many health professions and inferred that it can represent a sort of defense mechanism to avoid human suffering (29,40,41,44). In line with this observation, we can hypothesize that empathy decline could represent a universal age-related defensive mechanism, which can be exacerbate by health-care settings (104).

Regarding gender difference, our results highlight that females presented higher empathy capacity than males. In particular, among nursing students, females showed higher empathic tendency in all dimensions of BEES, whereas among nurses, females showed statistically significantly higher scores only at the dimension of 'emotional spread responsiveness', in comparison with males. These results, in accordance with literature (21,26,29,30,31,40), indicate that females have more predisposition to empathize with others, probably due to greater emotional resonance to others' feelings and more sensitivity to interpersonal stimuli (32). Our data suggest that this empathetic predisposition tends to decrease with the increase of work activities and/or age, since our female nurses presented lower levels of empathy than our female students. Several authors described factors that impeded nurses' empathic behavior, such as lack of time, work shifts, conflicting relationship with patients, colleagues and care-givers, workload, time pressures, competitiveness (10,41,103). All these factors, which could favor the detached attitude or anxious behavior of nurses toward patients, are related to daily work activities and responsibilities (10,29,41,104). Our data confirm these observations since empathy decline was more frequently observed in senior nurses than in nursing students.

Concerning burnout, our results highlight that emotional exhaustion, an important indicator of burnout, was relatively low in all our sample, especially in students, in comparison to most other research on this topic (79,105,106). In particular, both our nurses and students presented lower scores of emotional exhaustion and higher levels of depersonalization in comparison to other non-Italian studies (48,105,107). According to the MBI scores reported, our sample could be detached or cynical towards patients, suggesting that high levels of depersonalization could represent for them a defense mechanism to avoid emotional engagement with patient and, eventually, nurses' emotional exhaustion.

We highlight that empathy and burnout were negatively related in both groups, students and nurses, since increased levels of emotional exhaustion were related to reduced empathy, attested by low BEES total scores. Conversely, high scores at personal accomplishment were positively related to BEES scores. This result suggests a direct relationship between these two psychological conditions, confirming that burnout is connoted by a decline of empathy, and, on the contrary, low capacity to empathize could make people more vulnerable to burnout. We have to put in evidence that in our sample, the more representative indicator of burnout was depersonalization, which can be interpreted as a form of empathy absence. These data overlap other results of the few nurses studies (86,92) and many other studies which investigated this correlation in physicians and medical students (88-90).

Conclusion

Our research highlights two important aspects of nursing care, empathy and burnout, which have been scarcely studied among nurses and undergraduate nursing students. We conclude that empathy can be a predisposition, more frequent in students and in females, which declines with the increase of both age and work activities, probably due to a psychological defense mechanism against human suffering. Similarly, our data on burnout indicate low level of emotional exhaustion in students, whereas depersonalization presented high levels in both nurses and students. Although this latter indicator was not statistically significantly related to empathy, it could be interpreted as a sort of defensive detachment and disengagement from dramatic clinical situations. Since empathy and burnout were negatively related in our sample, we can infer that high levels of empathy can be protective against the development of burnout and, on the

contrary, when burnout is present it might not permit a fully empathic therapeutic relationship with patients. According to our data, we underline the importance of improving the empathic ability among nursing students and nurses, since empathy has been recognized as an ability or skilled behaviour that can be learned and developed through education and practice. Early interventions to promote and develop empathy can be useful not only against its decline related to increased age and/or work activities, but also to counteract development of burnout, which leads professionals to be less responsive to the needs of patients and, at the same time, to be more vulnerable to stress-related illness.

Limitations and advantages

According to our cross-sectional design, we collected data at a single point in time and in both academic institution and general hospital of a single town in Northern Italy. Therefore, our findings cannot be completely generalizable. Longitudinal studies should be implemented to provide more substantive understanding of empathy and burnout correlation, because only prospective research allows us to examine the development of this relationship over time. Despite these limitations, however, our results provide additional information on empathy and burnout of health care staff and students. Moreover, our study analyzes the relationship between two possible influencing factors of good care: empathy and burnout, which have been scarcely studied among nurses and nursing students up to now.

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Bio-clinical and psycho-social nursing practice. An experimental research in an Intensive Coronary Care Unit

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Abstract. *Background and aim:* The literature on patients with cardiovascular disease emphasizes the importance of providing a bio-medical and a psycho-social nursing care during the three phases of the nursing process (acceptance, assistance, education). How is his multidimensional nursing approach actually used during nursing practice? The present study aimed to evaluate the effects of a nursing educational training and it was finalized to implement a multidimensional care practice of nurses working in Intensive Coronary Care Unit (I.C.C.U.). *Method:* The entire nursing staff of the I.C.C.U of Parma Hospital (N = 17) took part in the research and it has been randomized in two subgroups. A group of 9 nurses participated as experimental group. They filled up a semi-structured questionnaire investigating the bio-clinical and psycho-social nursing activities, before (pre-test, time 1) and after (post-test, time 2) a professional training. 8 nurses participated as control group. They filled out the same questionnaire (at the time 1 and 2), but they did not participate at the professional training. *Results:* Results indicated how the nursing practice was more related to the bio-clinical (e.g. blood pressure) than to the psycho-social (e.g. mood) activities at the time 1. After the professional training (time 2), only the experimental group changed its professional practice, by integrating the bio-medical with the psycho-social nursing. *Conclusions:* The data showed the importance to promote a multidimensional educational path for nurses that assess the impact of the professional training on the professional practice, in order to improve the quality of care delivered to patients affected by cardiovascular disease.

Key words: nursing, bio-psycho-social model, professional training, experimental research, acute coronary syndrome, cardiovascular disease

Introduction

Models of nursing care

In the current nursing care practice two reference models coexist: bio-clinical oriented and psycho-social oriented.

Bio-clinical model

The first one, related to the evidence based literature, is considered "traditional" and it is mainly used in the Italian context. The epistemological assumptions are characterized by rationality, objectivity, determinism, universalism and linearity; its methods tend to emphasize the logic, control, measurement and deduction (1). This model underlines the bio-clinical knowledge, focuses on disease, and privileges an organic frame of reference (2, 3) in which the *patient* assumes a passive role in his/her care (4, 5). The *health* is only referred to as the lack of the *disease* caused by organ pathology or by external agent's aggression (6). Therefore, the *health* is intended as the absence of biological damage to or-

gans, cells and tissues (7-9). The consequences of this model on nursing are the focus on the *standardized cure* during all three phases of nursing process: acceptance, assistance and education. In the "acceptance" phase the nurse practice consists of collecting information, mostly by investigating the bio-physiological and clinical parameters of patients. The information is measured through physical-chemical and organic instruments leading to the classification of bio-physiological and clinical problems. The "assistance" phase is aimed at solving the bio-physiological and clinical problems reveled during the acceptance phase. The care is standardized and largely based on technical nurse performances: as the problem solving (10) practice and the use of protocols, where procedures and interventions are based on the "Evidence Based Nursing" perspective. Even the "education" phase is limited to the mere transfer of clinical and therapeutic information from professionals to patients.

Psycho-social model

Starting from different premises, the epistemological assumptions of the psychosocial model give prominence to the complex, global, inner, context depending on, and thus not repeatable, human realities (11). Its authors (12-16) refer to the tradition of humanities. In this model the *patient* is figured as a person having needs, resources and limits, emotions, values, ideas and a culture. He/she is considered as an active subject, able to give "meaning" to own experience (17, 18). The *health* is intended as a personal, multidimensional, and dynamic concept, tightly connected with psychological (e.g. positive attitude towards oneself, self-efficacy, ability to take care of others) and social dimensions (e.g. social integration, sense of belonging to a community, trust in other people). Besides considering the *disease* as an organ pathology, this model takes also into account the *illness*, that is the personal meaning that patients attributed to their experience, and the *sickness*, that is the social recognition of the illness (19-21). The focus is on "*personal care*", and the nurse practices are enriched of communication strategies useful to properly understand the psycho-social needs of the patients (22, 23). The nursing phases of this model includes: an individual assessment ("acceptance" phase) aimed to emphatically understand the psycho-social needs of patients; an active communication with them ("assistance" phase) in order to build a personalized and shared therapeutic plan; an education of patients and also of their care-givers ("education" phase), in order to encourage adherence to the treatment plan and health-oriented behaviors (21, 24) and to promote adaptive coping strategies (25), with positive effects on quality of life (26).

Given these premises, it is possible to suppose that a nursing model able to integrate both the bio-clinical and the psycho-social aspects would allow the nurses to provide a personalized care, more oriented towards the fulfillment and the maintenance of health. Education planes and training programs aimed to improve nurses' multidimensional skills is therefore advocated, because they could guarantee continuity between work and training and also improve the quality of care and of health outcomes (27).

The continuing educational programs in cardiovascular prevention

An educational program of this type seems highly recommended for the nurses working on patients affected by Acute Coronary Syndrome (ACS). The critical events that these patients have experienced in fact influence not only the physical but even the psychological and relational aspects, which have an important role for the improvement of the patient health conditions (28).

Nevertheless, many studies and reviews conduced by Randomized Control Trials highlight the lack of strong evidence regarding the ability of continuing education to modify nursing behaviors to the point of significantly influence patients' health conditions (29-34). The continuing education programs seem to affect in someway the professional behavior and the health outcomes only when the interactive or mixed formative practices (35, 36) and some multimedia technologies (37) are used or when programs are limited to some intervention areas (38).

Specifically, regarding the continuing education of nurses in the cardiovascular field, some studies focus mainly on the improvement of a large set of clinical outcomes of patients, underestimating the effects that

educational programs can have on behavioral changes of the involved healthcare professionals.

For instance, the study of Global Secondary Prevention Strategies to Limit Event Recurrence After Myocardial Infarction (39, 40) is one of the few that included an educational program for healthcare professionals (nurses and general practitioners). The contents concerned a brief program of education about the health of patients dismissed from the hospital, to be held in a cardiovascular rehabilitation center. The program was related for example to: conforming to therapy, gaining and maintaining correct eating habits, as well as weight control, physical activity, smoking suspension and stress management.

In that educational program is however difficult to find an explicit intention to increase the psychosocial model described above, both concerning the patient's management during the follow-up phase and on the changes in the assistance activities that the educational program enhances. Even the improvement of psycho-social competences in nursing process phases (acceptance, assistance and education) is not described.

Also the RESPONSE research (41) did not specify which were the methodology and the program contents followed during this training course, as well as it did not demonstrate the effectiveness of a nursing program oriented to cardiovascular prevention.

Finally, even the main results of the EUROACTION research (42), that included a program of nurse-directed secondary prevention, had not make clear the content of nurse training, as well as its methods, instruments and the collaboration with other professionals (e.g. psychologist, diet experts). It missed also to evaluate the changes in the professional behavior of trained nurses, compared with a control group.

Therefore, even if these continuing educational programs propose and make worthy the culture of continuing education as an organic activity for professionals in health care organizations, their effectiveness did not seem based, until now, on adequate scientific evidence. Thus, the aim of this research was to reach scientific evidence of the results - in terms of changes in care practice - of a continuing education program implemented for nurses operating in Intensive Coronary Care Unit (I.C.C.U.) at the Hospital of Parma. This continuing educational program was aimed to further an integrated bio-psycho-social model and to promote a multidimensional care in nursing practice.

Method

Phases and contents of the continuing educational program implemented for nurses operating in I.C.C.U.

The project was articulated in four phases. The first two phases were aimed to plan a training program that fit well with nurses' needs operating in I.C.C.U at the Hospital of Parma. The last two phases were aimed to evaluate the training program results, in terms of changes on nurses' care practices.

First Phase – *Training needs analysis*

Aim: to investigate the training needs of the nurses operating in I.C.C.U. of Parma Hospital.

Participants: all nurses operating in the I.C.C.U. (N = 17, 13 Females).

Method: a semi-structured interview (43, 44) has been conducted with nurses operating in I.C.C.U. in order to explore: the representation of patients with Acute Coronary Syndrome (ACS); the representation of the healthcare model prevailing in I.C.C.U.; the interest in participating in a continuing educational program. Interviews were audio-recoded, transcribed and analyzed with content analysis.

Results: About *the representation of patient with ACS*, nurses shared an image of a critical patient both in terms of bio-clinical data (e.g. hemodynamic instability), and in terms of psycho-social vulnerability (e.g. anxiety, anger, social isolation), a patient that therefore required a multidimensional care. The *representation of the healthcare model existing in I.C.C.U.* was largely considered by the nurses interviewed as an inadequate model focused mostly on bio-clinical aspects ("traditional" nursing model), disregarding the importance of the psychosocial ones. It focuses also on the hospital stay phase only, without considering the post-dismissal phase (lack of healthcare continuity). The nurses recognized therefore the need to participate in a *continuing educational program* oriented towards the promotion of a patient-centered care that consider both the bio-clinical and the psycho-social dimensions of ACS patients.

Second Phase – *Planning the continuing educational programs on the basis of an integrated healthcare model*

Aim: to schedule a training program for nurses operating in the I.C.C.U. taking into account both the training needs emerged from the interviews, and the most recent cardiovascular literature results (45).

The integrated healthcare model (bio-clinical and psycho-social; see paragraph 1.1) has been operationalized and calibrated for patients affected by ACS. This model has been applied in each of the three phases of the nursing process: acceptance, assistance, education (Table 1).

Participants: the training program was aimed at a subgroup of 9 nurses (52.94% of nurses operating in I.C.C.U.) selected on the base of volunteer adherence.

Training model. The training-planning model used is "objectives-oriented planning" (46). It includes an evaluation of results, as well as of the reached and not reached objectives, at the end of each of the learning events. This hierarchical organization was applied in order to adapt the following learning events of the training program. The planning of the training program has included: the articulation of the didactic program, the definition of contents and times, the elaboration of didactic and evaluative tools and methods.

Didactic program. It is articulated in 3 teaching modules, each one 8 hours long, for a total amount of 24 hours. The three teaching modules were taught in 3 consecutive days. An interactive and multimethod approach was chosen. Therefore, each teaching module was articulated in:

- theoretical lectures (during the morning) on: the main cardiovascular risk factors, the factors influencing the adherence to therapy and the theoretical concepts of the integrated healthcare model;
- interactive-practical exercises (during the afternoon) through: clips finalized to shown to the participants the phases of the healthcare process; role-playing with fake patients, finalized to promote nurses' educational interventions aimed to correct risk factors and to implement therapeutic adherence (47); clinical case studies finalized to promote problem solving strategies and problem analysis (48).

Trainers: to realize a training that considers a multidimensional approach to ASC patient's care, the trainers were different professionals: 3 nurses, 2 cardiologists and 2 psychologists.

Table 1. Integrated healthcare model in the nursing phases for patients affected by ACS

Nursing Phase	Elements of the Bio-clinical model	Elements of Psycho-social model
Acceptance	Reveal data showing the somatic disease (signs and symptoms)	Reveal data showing the patients experience of the illness and the meaning attributed to them (experience and emotion)
	Investigate the relation between symptoms and somatic disease	Investigate the relation between the illness and its attributed meanings
Assistance	Making the nursing diagnosis on the bases of bio-clinical problems	Making the nursing diagnosis on the bases of psychosocial-relational problems
	Definition of therapy on the bases of somatic symptoms	Definition of therapy on the bases of the idiosyncratic patient's experience
	Standardized procedures, controls and therapeutic planning, based on clinical dimension only	Construction of a multidimensional and dynamic therapeutic project, built within patients
Education	Transmission of bio-clinical information between nurse and patient, limited to the hospitalization	Talks between patient-nurse-caregiver focused on the psychosocial aspects regarding therapeutic adherence, based on the healthcare continuity (follow-up)

Contents. The content of the three teaching modules are described below:

Module 1^: factors of bio-clinical cardiovascular risk: smoke, dyslipidemia, hypertension, diabetes, obesity. The nursing competences to be acquired were: acceptance, definition of nursing diagnoses and education actions related to each single factor of bio-clinical cardiovascular risk.

Module 2^: factors of additive cardiovascular risk, as diet, alcohol, metabolic syndrome, physical exercise, and *psycho-social* risk factors, as anxiety, depression, anger/hostility, A and D personality types, self-efficacy and social isolation. The nursing competences to be acquired were: acceptance, definition of nursing diagnoses and education actions related to each single factor of additive and psycho-social cardiovascular risk factors.

Module 3^: therapeutic education for the patient with SCA: the therapeutic standards as beta-blockers, ace-inhibitors, statins and anti-platelet drugs; the lifestyle changes; intentional and unintentional factors that impede the adherence to the therapy. The nursing competences to be acquired were: acceptance, definition of nursing diagnoses and educations on factors of cardiovascular risk finalized to increase pharmacological and non-pharmacological therapeutic adherence.

Methodology: at the end of each interactive section the trainers have made a restitution of cases, proposing behavioral alternatives and suggestions to improve the relationship and the communication with patients.

Phase 3^ - *evaluation of the acquired knowledge of nurses*

Aim: to evaluate *the knowledge* acquired by trained nurses with respect to the assistance process (acceptance, assistance, education).

Participants: the 9 nurses that participate in the training process.

Instrument: a learning test built by trainers and teachers on the basis of the lessons content. The test consisted of 30 multiple choice questions and it was administered by the trainers at the end of training.

The test investigated the nurses perception of their *ability to identify cardiovascular risk factors* of ACS patients and to *formulate multidimensional diagnoses*, as well as the *bio-clinical and psycho-social activities* that can promote patients' changes in their lifestyle and patients' adherence to medications.

Results: the analysis showed that the knowledge acquired by trained nurses was really high at the end of the training. In fact, the 96% of the professionals has reached the highest level of knowledge (100% of correct answers) and the 4% has reached a really good level of knowledge (97% of correct answers).

In general the results demonstrated that the participants have understood the importance of the bio-psycho-social model in the management of patients with ACS.

Phase 4^ - *evaluation of the competences acquired by the nurses*

Aim: to evaluate the *know how,* and then if the knowledge acquired through the training program has been transferred in nursing practices.

Participants: the subgroup that participated in the training program (N = 9: experimental group) as well as others nurses operating in I.C.C.U. (N =8: control group) have participated in this phase.

Instrument: One month after the conclusion of the training program both group of nurses completed a structured questionnaire composed of 3 areas.

The area "A" included two questions respectively related to the *time dedicated* to the three phases of the nursing process (acceptance, assistance and education) and to the *importance* attributed to them. A 4 points scale was used in the first case (1 = no time dedicated; 4 = about ¾ of time) and a 4 points Likert-type scale was used in the second case (1= not important; 4= very important).

The areas "B" is structured in a list of possible healthcare *activities* that nurses effected during their last shift with first admittance and already recovered patients. The list of the proposed healthcare activities was ad hoc constructed both on the basis of the analysis of health system formal documents and on the basis of the plan of work in use in the I.C.C.U. considered. This list was enriched with the healthcare activities foreseen by the integrated model. The list of activities was evaluated by two independent judges chosen on the basis of their nursing and psychological competences in the area of SCA. The judges reached a unanimous agreement on the codification of the items in the two macro

categories that make reference respectively to the "bio-clinical" activities (13 items; *e.g. angina or thoracic pain, arrhythmia, shortness of breath, disturbances of sleep/tiredness, pain of stomach/nausea and so on symptoms*) and to the "psycho-social" activities (17 items; *e.g. anxiety and/or fear linked to the hospital context, fear of the future, fear of death, real or perceived threats to one's own well being; non-adherence to medication/treatments, inefficient management of the therapeutic regime, anticipated changes of the daily routine/lifestyle*). Alpha score were respectively of .50 and .97. For each activities nurses had to indicate if during their last shift they have practiced or not. Indicators of bio-clinical and psycho-social activities have been calculated summing the activities practiced into the two categories and converting this indicator into percentages: a percentage of 36 means that participants declared to have done 36 out of 100 possible bio-clinical or psycho-social activities.

The last area "C" measured the *attention dedicated* in I.C.C.U. to the bio-clinical and psycho-social aspects; the scale used was of 4 points (1= not at all; 4= a lot).

Hypothesis: In order to reach scientific evidence of the results of the training program implemented - in terms of changes to health care practice - some hypotheses have been formulated:

H1.1: the psycho-social *activities* practiced by the nurses who participated in the training program (experimental group) were significantly more frequent with respect to those practiced by the untrained nurses (control group); no significant differences were predicted, between subgroups, about the bio-clinical activities;

H1.2: the psycho-social *activities* practiced by the nurses who participated in the training program (experimental group) were significantly more frequent than bio-clinical activities and vice versa we expected for the untrained nurses (control group);

H2.1: The *time dedicated* to the phase of education by the nurses who participated in the training program (experimental group) was significantly greater with respect to that declared by the untrained nurses (control group);

H2.2: The *time dedicated* to the phase of education by the nurses who participated in the training program (experimental group) was significantly greater than those dedicated both to the acceptance, and to the clinical assistance; vice versa we expected for the untrained nurses (control group);

H3.1: The *importance* attributed to the phase of education by the nurses who participated in the training program (experimental group) was significantly greater with respect to that declared by the untrained nurses (control group);

H3.2: The *importance* attributed to the phase of education by the nurses who participated in the training program (experimental group) was significantly greater than those dedicated both to the acceptance, and to the clinical assistance; vice versa we expected for the untrained nurses (control group);

H4.1: the *attention* dedicated to the psychological and relational aspects of the assistance in I.C.C.U. declared by the nurses who participated in the training program (experimental group) was estimated significantly greater with respect to that estimated by the untrained nurses (control group);

H4.2: the *attention dedicated* to the psychological and relational aspects of the assistance in I.C.C.U. estimated by the nurses who participated in the training program (experimental group) was significantly greater than those attributed to the bio-clinical aspects; vice versa we expected for the untrained nurses (control group).

Data Analysis. In order to confirm the hypotheses U of Mann-Whitney and Wilcoxon tests were used, using the SPSS 19 (Statistical Package for the Social Sciences) software.

Results

Characteristics of the participants

The trained nurses were 3 men and 6 women, while nurses who were not trained were 1 man and 7 women. Of the trained nurses (9), 4 had been practicing in the nursing profession for 10 years and 5 for more than 10 years; while of those untrained (8), 6 had been practicing in the nursing profession for 10 years and 2 for more than 10 years.

Regarding the length of self-treatment of the trained nurses, 5 professionals have operated in

I.C.C.U. for 10 years or less and 4 have operated for more than 10 years in I.C.C.U.; while with respect to the untrained nurses, 6 have operated in I.C.C.U. for 10 years or less and 2 have operated for more than 10 years.

Verification of the hypothesis

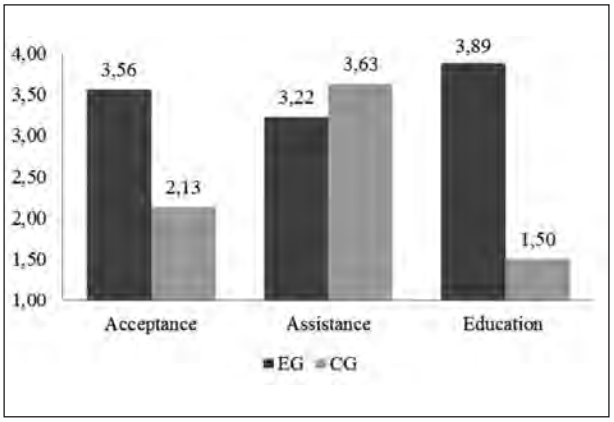
Hypothesis 1.1 was confirmed (Graph 1): psycho-social *activities* practiced by the nurses that participated in the training program (experimental group) were significantly more frequent than those practiced by the untrained nurses (control group), z = -3.06, p = .002 . Instead, no significant differences occurred between the two sub-groups about the bio-clinical activities, z = -1.84.

Data confirmed also the *hypotheses 1.2*: the psycho-social *activities* practiced by the nurses who participated in the training program (experimental group) were significantly more frequent than bio-clinical activities, z = -2.56, p = .010. On the other hand the bio-clinical *activities* practiced by the nurses that didn't have participated in the training program (control group) were significantly more frequent than psycho-social activities, z = -1.97, p = .049.

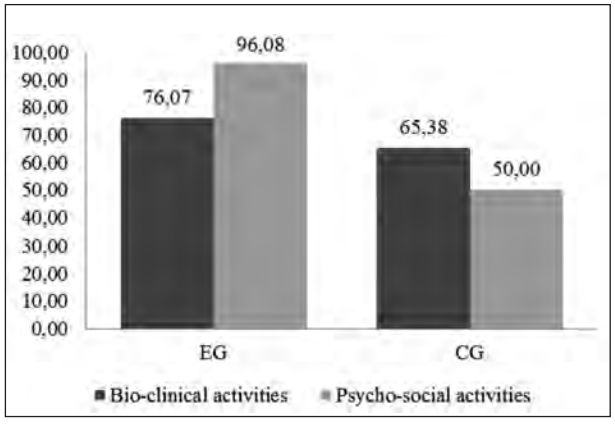
Hypothesis 2.1 was confirmed (Graph 2): the *time dedicated* to the education phase by the nurses who participated in the training program (experimental group) was significantly greater than that declared by the untrained nurses (control group), z = -3.66, p = .000 .

Data partially confirmed the *hypotheses 2.2*: the *time dedicated* to the education phase by the nurses who participated in the training program (experimental group) was significantly greater than those dedicated and to the clinical assistance, z = -2.45, p = .014, but not to that dedicated to the acceptance. In the same way, for the untrained nurses (control group) only the time dedicated to the phase of clinical assistance was significantly greater than those dedicated to the education, z = -2.56, p = .010.

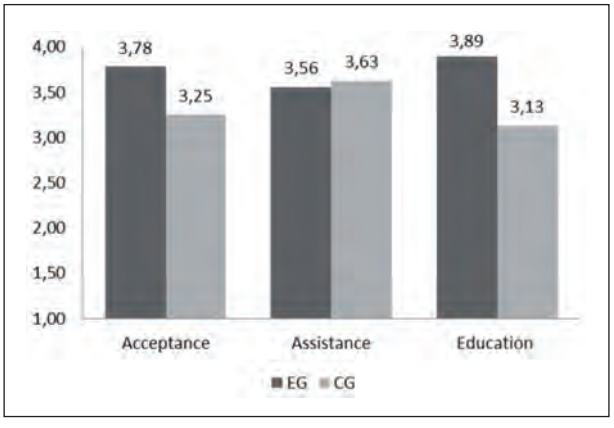
The results regarding the importance assigned to the phases of the nursing process (Graph 3) confirm those just described.



Graph 2. Time dedicated to the three phases of the nursing process: comparison between experimental (EG) and control (CG) group (means; range 1-4)



Graph 1. Bio-clinical and psycho-social activities: comparison between experimental (EG) and control (CG) group (means; range 0-100)



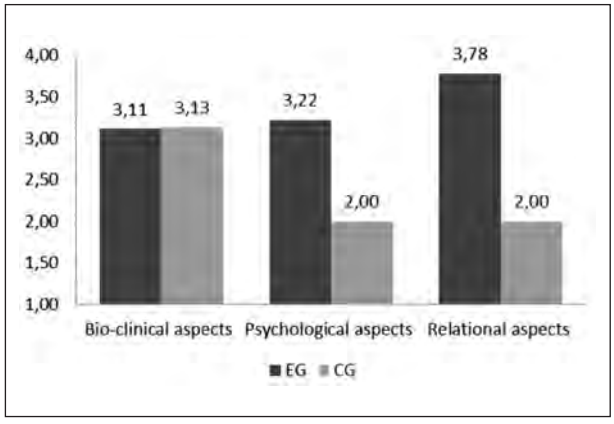
Graph 3. Importance attributed to the three phases of the nursing process: comparison between experimental (EG) and control (CG) group (means; range 1-4).

Data confirmed *Hypothesis 3.1*: the *importance attributed* to the phase of education by the nurses who participated in the training program (experimental group) was significantly greater than that declared by the untrained nurses (control group), $z = -2.22$, $p = .027$.

Data not confirmed the *hypotheses 3.2*: the *importance attributed* to the three phases was similar and very high both for nurses who participated in the training program (experimental group) and for the untrained nurses (control group). Not significant differences emerged in this case, even if the nurses of the experimental group were the ones that attributed more importance to both the acceptance and to the education phases.

The hypothesis 4.1 was confirmed (Graph 4): the *attention* dedicated to the psychological, $z = -3.39$, $p = .001$, and to the relational aspects, $z = -3.81$, $p = .000$, of the assistance in I.C.C.U. estimated by the nurses who participated in the training program (experimental group) was significantly greater that those estimated by the untrained nurses (control group).

Data only partially confirmed the H4.2: nurses who participated in the training program (experimental group) estimated that the *attention dedicated* to the psychological aspects of assistance in I.C.C.U. was not significantly different from those dedicated to the bio-clinical aspect; nevertheless they estimated that the attention dedicated to the relational aspects was significantly greater than those dedicated to the bio-clinical ones, $z = -2.45$, $p = .014$. Both psychological, $z = -2.25$, $p = .024$, and relational aspects, $z = -2.25$, $p = .024$, of assistance were, instead, estimated significantly lower than those dedicated to the bio-clinical aspects by nursed that didn't participate in the training program (control group).



Graph 4. Attention dedicated to bio-clinical, psychological and relational aspects of assistance in I.C.C.U.: comparison between experimental (EG) and control (CG) group (means; range 1-4)

Conclusions and Discussion

The main aim of this study was to evaluate, through a self-reporting instrument, if a training process was able to modify nurses' practices and their conception of care. The training process was developed on the bases of training needs expressed by a group of nurses operating in I.C.C.U. and it was inspired to an integrated care model.

The results of the evaluation of the competence acquired by the nurse (phase 4^) indicated that the training program adopted have achieved its goals. The most relevant indicator of this success was first of all the fact of being able of putting into practice some psycho-social competences in nurses that manage the patient with ACS. Observing the results, only in the group of nurses who participated in the training program the psycho-social activities prevailed over the clinical ones, while this did not occur for the untrained nurses.

By a comparison between this two types of activities- psycho-social and bio-clinical- the differences between trained and untrained nurses were significant only regarding the psycho-social ones, in that, this type of activities were significantly more practiced by the trained nurses. Instead, there did not emerge differences about the bio-clinical activities. This result seems to demonstrate the trained group adoption of a bio-psycho-social care model operationalized in the training program. This confirms in particular the efficiency of the given training program, which contents seem not only to be well acquired but also transferred into the professional activities.

Through a comparison between the experimental and control groups, it results also that the trained group declared to dedicate more attention to the psychological and relational aspects than the untrained group, while there are no significant differences between the

two groups in terms of importance attributed to the clinical aspects.

This shows the attention, on the part of the trained nurses, on both the bio-clinical (e.g. thoracic pain and shortness of breath) and psych-social (e.g. anxiety, fear, low adherence to the therapeutic regime) dimensions of patient with ACS. It could mean that participating in the training program gave to the nurses the opportunity to integrate their previous "traditional" bio-clinical model with a new one (bio-psycho-social model), that was exactly the aim of this project.

Interesting results are also derived in terms of the *phases of the nursing process*. The most relevant indicator, in this case, is the time dedicated to the education phase during the management of the patient with ACS. Observing the results of the experimental group, it can be deduced that the *time dedicated* to the education is greater with respect to that dedicated to the acceptance and assistance of the patient with ACS.

Through a comparison between the three phase of assistance process, differences between trained and untrained nurses in terms of time dedicated to the education is significant, while do not emerge differences regarding the time dedicated to acceptance and assistance. Also analyzing the *importance assigned* to the three phases data highlighted how the trained nurses attributed greater importance to education than to the acceptance and assistance. This difference has been accentuated by a comparison between the two groups, which are differentiated only regarding the education phase, while there are no significant differences regarding the acceptance and assistance phases.

These results could be at least partially attributed to the contents of the training program implemented, where the nurses' educational interventions in the education phase were highlighted. It is because we think that the interventions of health education for the patients with SCA and for their caregivers need to be not only practiced as foreseen, but also internalized by the trained professionals as important for the quality of care. The results obtained are therefore strengthened, if we consider that the education of patients and caregivers is extremely relevant for health outcomes, in terms of cardiovascular relapse and death (49). Even the active participation of the caregivers foreseen by the training model is an invaluable resource for the patient.

In conclusion, we can confirm the proven efficiency of the training program implemented for nurses that take care for patients with ACS, at the Hospital of Parma. This program was oriented toward the use of bio-psycho-social care model. The professional nursing training has produced important behavioral changes in the management of this type of patients: the bio-psycho-social model have been transferred in professional activities. This model, furthermore, taking into consideration the multi-dimensionality of the patient, could also be applied to other contexts, for example to the management of cancer patients, in which alongside assistance based on evidence (protocols and procedures), the psychological and social aspects are also determining factors (50, 51).

This data, although preliminary, nourishes in us the conviction that the nurses, in order to be able to guarantee global assistance, have to integrate the bio-physical with psycho-social patients' dimensions. Hopefully our research represents a significant starting point and other researches have to retest this model and test it also with other types of patients.

This research, while certainly showing particularly encouraging results, presents the limit of the lower number of participants taken into examination, with a consequently reduced generalization of the treated conclusions.

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The complementary medicine (CAM) for the treatment of chronic pain: scientific evidence regarding the effects of healing touch massage

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Abstract. *Background and aim:* Evidence-based medicine offers effective pathways of pharmacological treatment for chronic pain that may compromise the quality of life of patients; this is one of the main reasons why more and more people resort to traditional and complementary approaches, to try to maintain or regain their health. The effectiveness of the various forms of complementary treatments often cannot be proven objectively, which is why, given the need to find more concrete evidence of the effectiveness of complementary therapies with particular reference to the method of healing touch massage, a review of the literature was conducted in order to gather evidence of the efficacy of the specific method regarding pain and other health outcomes of patients with malignant disease to support a proposal for improvement, based on the practice of healing touch massage conducted by nurses. *Method:* Systematic review. *Results:* There are several examples (in some cases specifically regarding patients with tumors) of the positive effects of healing touch massage on pain, anxiety and fatigue, and also on biochemical parameters. *Conclusions:* The way to full recognition by both the institutional and the scientific community seems to promise fairly well, although it should be noted that the achievement of this goal will require further research avoiding the limitations of previous studies.

Key words: complementary therapy, pain reduction, touch massage, nurse, healing touch massage

Introduction

One of the main symptoms of disease that afflicts man is pain. The International Association for the Study of Pain (IASP) proposes to define pain as "an unpleasant sensory and emotional experience associated with a hazard or potential tissue present, or described in terms of potential hurt" (1).

Pain sometimes can become chronic, regardless of the underlying disease, transforming itself into a real disease. Pain has long been neglected; it has only recently been calculated that only a tiny fraction of the people (less than 10%) in the world who need palliative care are currently receiving it. This is the situation photographed by the World Health Organization (WHO) in collaboration with the Worldwide Palliative Care Alliance (WPCA), in a document entitled Global Atlas of Palliative Care at the End of Life, that highlights the disparity in general in the world between the need for palliative care and the presence of services and facilities . The data show that 20 million terminally ill patients each year require palliative care, 6% of whom are children. And the number of those who request it has doubled, to about 40 million, including patients who may benefit from palliative care at an early stage of disease (2). That raises questions.

The importance of considering pain as a vital sign emerges from the awareness that has been universally reached: to treat pain right from the start improves the quality of life of the person and can reduce costs for health care organizations.

The WHO in 1996 proposed a 3-step scale for the pharmacological management of pain; in the first instance, to apply to cancer pain, later also used for the other kinds of chronic pain. The approach in three steps, according to the WHO, would add, for the treatment of pain, an overall strategy that also includes non-pharmacological treatments. Pain is divided into:

- Mild 1-3: indication for treatment with NSAIDs or paracetamol and adjuvants;
- Moderate 4-6: indication for treatment with mild opioids +/- NSAIDs and adjuvants;
- Severe 7-10: indication for treatment with major opioids +/- NSAIDs and adjuvants (3)

Complementary therapies

Classical treatment approaches to chronic pain include pharmacological measures; in addition to them, there are new therapeutic strategies that can assist the official ones and can contribute to the wellbeing of the person with chronic pain. These strategies include the use, in the clinical setting, of several methods, including the use of natural substances, that seem to have positive effects in preventive care, enhancing such aspects as assistance and support to treatment with drugs.

The spread of complementary therapies or non-conventional or alternative medicine (CAM, according to the definition given by the National Cancer Institute of Bethesda (U.S.A.) appears to have significantly increased in the western world. Over 25% of the European population would seem to have resorted, at least once a year, to a type of unconventional therapy. More and more patients make this choice because the classic cancer cures do not respond fully to their needs and sometimes cause negative side effects that impair their quality of life (4). The key feature of these treatments is to have a vision of "a global and integral" view of the person: in short, a holistic view of man. The goal of nursing is to bring the individual to a phase of adaptation for him to cope with the disease; for this purpose, these treatments are well suited to this role, especially for the natural ability they have to bring out the resources of healing already inherent in individuals.

The complementary treatments offer responses that do not stop at the disease (as diseased organ) but can be considered as "personal care", where health is understood as maintaining and strengthening the unity that the person has with himself. Among the complementary treatments where nurses can play a role, the method of "touch-healing massage" can be an important component of the care relationship. The care team often touch the sick person: every action, every gesture of care, establishes a contact relationship, in which one is led inevitably to touch the body of the patient. The specific technique of the healing touch massage, which recalls the teachings of nursing theory of Martha Rogers (6), in its simplicity and ease of execution, is a way to approach the other with respect, without the filter of scientific and technical terminology (7).

The underlying idea of the practice of therapeutic touch is that it is ultimately the patient that can heal himself. In this context, the operator acts only as a support for the patient's energy, as long as his immune system is powerful enough for him to be able to cope with the disease (8). Despite the recognition given to them by the World Health Organization, the debate on the "scientific credit" attributed to complementary therapies is broad and controversial. Already the definitions assigned by major American research institutes make clear the skepticism with which the scientific community considers the use of complementary therapies. A New England Journal of Medicine editorial argued that *"It's time for the scientific community to stop giving CAM a free ride. There cannot be two kinds of medicine—conventional and alternative. There is only medicine that has been adequately tested and medicine that has not, medicine that works and medicine that may or may not work"* (9). This the opinion of an editorial of the American Medical Association : *"There is no Alternative Medicine. There is only scientifically proven, evidence-based medicine supported by solid data or unproven medicine, for which scientific evidence is lacking"* (10). Important opinions but dating back to the 90s; recently, positions have been revised, while maintaining a certain diffidence in accepting the validity of the

complementary therapies. At the root of the many criticisms that continue, as in the past, to rise from the scientific community is the issue that the effects of complementary therapies are not supported by any evidence of scientifically proven effectiveness. The aim of this literature review was to highlight evidence of the efficacy of pain relief of the healing touch massage method; we chose to focus the research on this topic because of the importance of the role of nurses.

Methods

Search strategy

The research was conducted on the following search engines: PsycINFO, MEDLINE, CINAHL and Google Scholar using the following keywords: complementary therapy, pain reduction, touch massage, nurse, healing touch massage, with the Boolean operators "AND" and "OR" in different search combinations. Publications issued from 2003 to 2014 were taken into account .

Inclusion Criteria

Only the primary and secondary sources were considered. Publications that had as their main topic the complementary therapy of healing touch massage and the role of nurses were considered.

Only systematic reviews were considered.

Publications with different research designs and methodologies, both qualitative and quantitative, were taken into consideration. Only publications in English, Italian, French and Spanish were included.

Results

Were therefore found 23 publications that met the selection criteria. Of these, 9 were eliminated because they were considered not related to the main topic. Fourteen reviews met all inclusion criteria (Table 1).

Snyder M, Wieland J, 2003 - The review set out to identify the complementary therapies most frequently used by nurses to relieve anxiety, promote comfort and reduce pain in cancer patients. This article highlighted the effectiveness of some complementary therapies, such as the method of hand massage (6 studies), on reducing anxiety and pain; once taught to patients and their families, this could help promote self-care (11)

Wardel D, Weymouth K, 2004 - The purpose of the review was to explore the various implications of healing touch massage on patients with various diseases (including cancer). In conclusion, an examination of 30 studies highlighted the beneficial effects, in particular towards the reduction of anxiety, stress and pain, and some biomedical parameters; however, the authors showed themselves to be especially critical of the scientific rigor with which the studies were conducted (12).

Hibdon SS, 2005 - The review analyzed the aspects of complementary therapies in cancer care in order to identify the benefits. The study showed that complementary therapies were important in helping the patient with cancer because they enabled him to improve his quality of life, reducing pain, fatigue and other side effects of cancer treatment. The author added that since the nursing practice in cancer care needs to be holistic, the complementary therapies may offer the opportunity to cover the "missing parts" of traditional therapy once used alone (13).

Bardia et al., 2006 - A systematic review of RCTs (randomized controlled trials) aimed at evaluating the effectiveness of CAM therapies on cancer-related pain. Eighteen studies were identified (eight poor, three intermediate and seven high quality based on Jadad score), out of a total of 1499 patients. Seven studies reported a significant benefit for CAM therapies, three of which related to healing touch massage. The authors concluded that there were promising data for the ability of some CAM therapies (specifically the healing touch massage) to positively influence cancer pain (14).

Pierce B, 2007 - This review showed the findings of controlled trials to evaluate the effectiveness of CAM (including in particular the method of healing

Table 1. Description of the 14 reviews that met all inclusion criteria

Title	Author/s, year	Journal
Complementary and alternative therapies: what in their place in the management of chronic pain?	Snyder M, Wieland J, 2003	Nurs Clin North Am
Review of studies of healing touch	Wardell DW, Weymounth KF, 2004	J Nurs Scholarship
Biofield consideration in cancer treatment	Hibdon SS, 2005	Semin Oncol Nurs
Efficacy of complementary and alternative medicine therapies in relieving cancer pain: a systematic review	Bardia A, Barton DL, Prokop LJ, Bauer BA, Moynihan TJ, 2006	J Clin Oncol
The use of biofield therapies in cancer care	Pierce B, 2007	Clin J Oncol Nurs
Does Therapeutic touch help reduce pain and anxiety in patients with cancer?	Jackson E, Kelley M, McNeil P, Meyer E, Schlegel L, Eaton M, 2008	Clin J Oncol Nurs
Touch therapies for pain relief in adults	So PS, Jiang Y, Qin Y, 2008	Cochrane Database Syst Rev.
The effect of therapeutic touch on pain	Monroe C, 2009	J Holist Nurs
Massage therapy for cancer palliation and supportive care: a systematic review of randomised clinical trials	Ernst E, 2009	Support Care Cancer
Effects of healing touch in clinical practice: a systematic review of randomized clinical trials	Anderson JG, Taylor AG, 2011	J Holist Nurs
Biofield therapies: helpful or full of hype? A best evidence synthesis	Jain S, Mild PJ, 2011	Int J Behav Med
Biofield therapies and cancer pain	Anderson JG, Taylor AG , 2012	Clin J Oncol Nurs
Integrative oncology: managing cancer pain with complementary and alternative therapies	Running A, Seright T., 2012	Curr Pain Headache Rep
Energy therapies in oncology nursing	Coakley AB, Barron AM, 2012	Semin Oncol Nurs

touch massage) on the symptoms of cancer patients. The results underlined the actual benefits regarding pain, perception of fatigue, mood and quality of life, adding that the benefit did not stop at the patients, but also extended to family members and health professionals (15).

Jackson E et al., 2008 - The review specifically addressed the method of Touch Massage (12 studies out of a total sample of more than 10 million patients in U.S.A.), to try to understand the effects on cancer patients. The results confirmed the effectiveness of this kind of treatment for the reduction of pain and anxiety (16).

So PS, Jiang Y, Qin Y, 2008 - The review had the aim of evaluating the effect of healing touch massage on any type of pain; it referred to randomized controlled trials, (RCTs) or controlled clinical trials (CCT). Twenty-four studies (involving 1153 participants) met the inclusion criteria. It showed the effectiveness of tactile therapies on the treatment of pain,

with a decrease in the perception of pain and a reduction in the use of analgesics (17).

Monroe C, 2009 - The contribution of Monroe referred to 7 studies conducted between 1997 and 2004 (only five of which refer to the method of healing touch massage), to understand whether the complementary care methods could significantly reduce pain. In conclusion it was noted that healing touch massage had a beneficial effect on pain, and also that there were no risks to the health of the patient subjected to treatment. The study concluded that healing touch massage could be considered as being among the nursing interventions for the treatment of pain (18).

Ernst E, 2009 - The aim of this systematic review was the evaluation of all available randomised clinical trials of massage in cancer palliation. Ernst found fourteen trials that met all inclusion criteria; the studies mentioned underlined that massage could alleviate a wide range of symptoms: pain, nausea, anxiety, depression, anger, stress and fatigue; however, because of the poor methodological quality of the studies included, we cannot draw any definite conclusion (19).

Anderson J, Taylor A, 2011 - The first review of Anderson and Taylor was aimed at critically evaluating the data from randomized clinical trials examining the clinical efficacy of the therapeutic touch as a form of supportive therapy to medical practice. The researchers identified five RCTs that referred to the use of therapeutic touch. The practices of therapeutic touch that were used in the pain centers, private clinics and operating rooms showed several benefits: reduced anxiety, increased relaxation and a sense of well-being (20).

Jain S, Mills PJ, 2011 - This review scrutinized 66 studies (52 of which were RCT) of various complementary methods (included healing touch massage), to assess their effects in different patient populations. This study showed that CAM treatments were able to reduce the intensity of pain and anxiety levels in patients hospitalized with cancer. In addition, they decreased the negative behavioral symptoms in patients with dementia. In particular, these treatments reduced anxiety in cardiovascular patients (21).

Anderson J, Taylor A, 2012 - In this second revision, Anderson and Taylor highlighted the fact that the public and health professionals have become increasingly inclined to accept the benefits provided by CAM, to support the physical, psychological, social and spiritual development for patients with cancer. It was also highlighted that the literary contributions found valid complementary methods defined for the purposes of reduction of pain due to cancer and its treatments (22).

Running A, Seright T, 2012 - The authors analyzed the evidence in the recent past on CAM for pain, with emphasis on the most common methods, including healing touch massage techniques. Seven reviews were identified: the specific studies reporting the effects of healing touch massage on cancer pain were nineteen in all. The studies generally showed and supported the use of massage to increase immune function, control blood pressure and mood, reduce anxiety and depression, and decrease visceral pain, nausea and constipation (23).

Coakley A, Barron A, 2012 - In this review of 11 studies there was growing evidence that energy therapies, and in particular the healing touch massage, had a positive effect in favor of relaxation and reduction of pain and a range of biohumoral responses, including a decrease in the levels of stress hormones, improved blood pressure, improved heart rate, decreased levels of cortisol and a better sense of perceived well-being (24).

Discussion

The institutional recognition of CAM is gaining ground all over the world; it is quite evident, however, that CAM treatments cannot be equated with official medicine since they cannot be supported by any evidence of scientifically proven effectiveness according to the canons of evidence-based medicine, the measurement of characteristics or perceptions relying solely on self-report scales. Referring to previous scientific contributions, investigating all studies of the reviews looking for scientific evidence, there are several testimonies to the effects of healing touch massage on biochemical

parameters. In several cases, however, the data refer to non-tumor pathologies, as in the case of Wilkinson et al., who found that the healing touch massage method can increase the levels of salivary immunoglobulin A in patients undergoing surgery (26). Other contributions show the benefits in terms of improvement in the values of blood pressure in patients with various diseases (27, 28). The following literary contributions, however, relate specifically to cancer patients.

Post White et al., 2003 - This randomised and prospective study basically tested the effects of two different techniques of healing touch massage with the standard treatment of 230 cancer patients. All the patients, divided into 3 subgroups (2 experimental groups and one control), were tested for heart rate, respiratory rate and blood pressure levels. The two intervention groups were treated with a series of sessions of normal massage (45 minutes for 4 weeks); the control group underwent the standard treatment (without massage). At the end of the treatment, significant improvement in the values of vital parameters (measured at T1 and T2 pre-intervention and post-intervention) was observed in the 2 intervention groups, as well as in mood, and a reduction in the use of NSAIDs, levels of pain, levels of anxiety, depression and fatigue (29).

Listing et al., 2010 - This research represents a further important contribution regarding the benefit of healing touch massage with the production of objective data. To study the efficacy of the procedure on stress perception and mood disorders, 34 women with a diagnosis of primary breast cancer were randomized and placed into an intervention group or a control group. For a period of 5 weeks, 2 days a week, the women in the intervention group were treated with a 30-minute session of classic massage. The control group, however, did not receive any addition to the routine treatment. In addition to the improvements in the levels of stress, anger and anxiety perceived, assessed by validated questionnaires (the Perceived Stress Questionnaire [PSQ] and the Berlin Mood Questionnaire [BSF]), significant improvements in blood levels of cortisol (baseline T1, at the end of 'intervention T2, and 6 weeks after T3) were observed in the intervention group compared to the control group (30).

Conclusions

Studies have shown that there are still limits. As noted, the vast majority of studies in the literature refer to the benefits reported on self-report scales; It would therefore be a good thing to continue on the path undertaken by a part of the research: to produce more effective results evaluated with objective measurements as far as possible. To the skepticism of the scientific community is added the fact that, in many parts of the world, there is a lack of a regulatory framework on the matter; this aspect probably contributes to arousing uncertainty towards CAM practices. It is necessary to establish certain rules for CAM treatment: this aspect could give greater visibility to the nurse, an increasingly qualified figure whose work is thus becoming increasingly integrated with that of the other professionals. CAM treatments are a legitimate part of health activities; the integration of these practices within the system of conventional medicine, as well as guaranteeing citizens the greatest freedom of choice of treatment, could ensure the highest level of safety and correctness of information, which would further enhance the job of nurses. The literary production would seem to confirm the great benefit that patients derive from the practices of healing touch massage: benefits primarily regarding pain relief, but also the quality of life of cancer patients. The implementation of a project based on the practice of healing touch massage by a team of nurses could certainly have an economic impact on the health organizations; but in the light of the literature findings, it seems plausible to consider a choice in this direction, which on one hand could enhance the figure of nurses, and on the other hand, more importantly, could help bring concrete benefits to the health of the patients.

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Original article: Clinical management

Proposal for the testing of a tool for assessing the risk of dehydration in the elderly patient

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Abstract. *Background:* Dehydration is now the most common fluid and electrolyte disorder in older people. Because it is often associated with high rates of morbidity and mortality, it requires careful control and prevention in the context of a thorough primary care. The main risk factor for dehydration was the low intake of water by mouth for several reasons, such as lack of autonomy, altered mental status, decreased sensation of thirst, social and environmental problems. To this may be added an increase in fluid loss caused by fever, vomiting, diarrhoea, bleeding etc., the use of diuretics or laxatives and the onset of diseases that induce an increase in the loss of urine (e.g. diabetes). This paper aims to locate a tool for assessing the risk among those reported in the literature that is easy to use for the nurse and to experiment with it on a sample of patients. *Methods:* An analysis of the literature showed the reliability of an instrument for assessing the risk of dehydration by the name of "Dehydration Risk Appraisal Checklist." In order to verify its usefulness in identifying the risk of dehydration, 2 groups of elderly persons at the OU Geriatrics and long-term care unit of the Azienda USL of Piacenza and the OU complex Geriatric Clinic of the University Hospital of Parma were investigated. Patients in both groups were assessed on admission by the assessment scale MNA (Mini Nutritional Assessment) and by the sheet of quantitative evaluation of the meal consumed. One group was considered as the "control group". Patients belonging to the other group, which was regarded as the "experimental group", in addition to the two above-mentioned instruments, were also assessed by the "Dehydration risk appraisal checklist". In both groups, the presence or absence of four indicators of dehydration measured at the time of and immediately before discharge was then detected. In the presence of each indicator of dehydration one point was awarded for a comprehensive evaluation. The data collected were analyzed using a statistical method. *Results and Conclusions:* The results showed no statistically significant differences in the identification of the risk of dehydration in the two groups. It is believed, however, that the data will guide checklists to consider the above-mentioned instrument valid and useful in nursing practice in order to assess the risk of dehydration in older people and early detection of its onset and thus enable prompt and effective management. It will take more extensive studies of case studies to test this hypothesis.

Key words: dehydratation, elderly, rating scale, prevention

Background

Given the ageing of the population, it would be beneficial to society and, in particular, to the health care system, if specific adjustments in the organization of health services were to be made.

Also in terms of cost containment, the health system must be structured so as to prevent the onset

of disability or impairment in functional status, particularly in the elderly, who make up the bulk of the population and, therefore, of hospital users.

As a result of the progressive reduction in the duration of hospitalization, in most cases, the problem of dehydration is dealt with only in terms of effect without intervening appropriately in terms of prevention and patient education, in relation to both elderly patients and their caregivers.

Dehydration has been defined as the most common imbalance of fluid and electrolytes in the elderly population. It causes the hospitalization of many patients, increases morbidity and mortality, and therefore represents an important socio-medical problem that requires multidisciplinary interventions in terms of prevention, diagnosis and therapy (1).

A persistent state of dehydration impairs both the physical and the mental capacity of our body; in the elderly, in particular, dehydration is associated with impaired general health status (2).

Health professionals should be aware of the risk factors and signs of dehydration and, consequently, should enable effective strategies to ensure good hydration.

During the assessment phase, the nurse collects subjective and objective data for the presence of the defining characteristics and factors related to any state of dehydration, using a variety of assessment tools [eg. Geriatric Depression Scale (3), Barthel Index (4), ADL (5)].

In addition, the operator must take into account the use of drugs, personal habits and socio-environmental factors that can affect the intake of fluids and the water balance of the person. After performing a focused assessment of the state of hydration/dehydration of the patient, the nurse must work out a care plan. The priority health problems identified are addressed by nurses independently and collaboratively through the formulation of objectives and the identification of specific interventions aimed at the prevention, resolution, or at least not to the worsening of the problems detected (6).

This paper aims to locate a tool for assessing the risk among those reported in the literature that is easy to use for the nurse to use and to experiment with it on a sample of patients.

Methods

Bibliographical search

The analysis of the literature for finding a tool for assessing the state of dehydration in the elderly used the following criteria:

Inclusion criteria: guidelines, systematic reviews, primary studies.

Exclusion criteria: gray literature, commentary, letters.

Limits used: studies on adults aged over 65 years.

Keywords used: Dehydration AND elderly.

Analytical studies, Systematic Review, and Review were taken into account in order of priority

The research questions were designed to assess the evidence regarding the assessment and prevention of dehydration in the elderly and to identify a scientifically validated method that can be used in hospital settings to improve the prevention of dehydration in the geriatric patient. The databases used were PubMed and Cochrane.

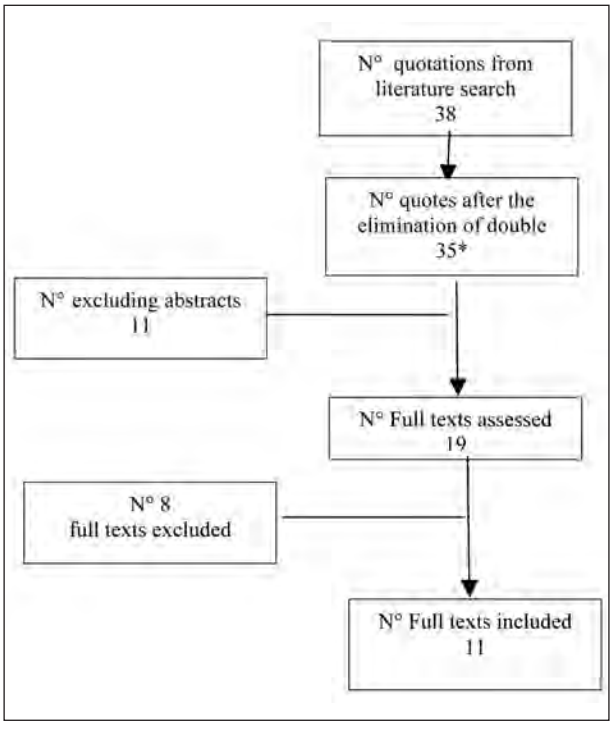

Figure 1. Flow chart selection literature
* Some quotes were devoid of abstract

Initially, 38 items were selected; after the elimination of the double there were only 35, 5 of which were not provided with abstracts and were therefore excluded. Of the remaining 30, 11 were discarded as irrelevant. Of the remaining 19 full-text items, 8 were subsequently excluded and thus 11 in all were analyzed.

The review of the literature thus conducted allowed for the retrieval of a guideline and a systematic review relevant to the subject.

Experimentation

The assessment tool from the literature that seemed most appropriate for the evaluation and prevention of risk of dehydration in the elderly is the "Dehydration Risk Appraisal Checklist". To test this hypothesis we proceeded to an experimental administration of the checklist to assess the impact.

The experimental facilities were the OU Geriatrics and long-term care unit of the Azienda USL of Piacenza and the OU complex Geriatric Clinic of the University Hospital of Parma.

The experimental period was detected in the time interval from the beginning of September 2013 to the middle of the month of October 2013.

Two study groups were identified: an experimental group and a control group, each consisting of 21 patients, all above the age of 65.

The control group was composed of 12 females and 9 males, and the experimental group of 11 females and 10 males. The average age in the control group was 81 years, while in the experimental group it was 80 years.

After authorization for the administration of the "Dehydration Risk Appraisal Checklist" was obtained from the Health Departments concerned, the control group were submitted within 3 days of admission to the MNA (Mini Nutritional Assessment) assessment scale, an instrument whose validity and effectiveness is well documented by the international scientific literature, and to the quantitative evaluation sheet of the meal consumed (7)

The experimental group was administered, in addition to the two above-mentioned instruments and always within 3 days from the time of admission, the "Dehydration Risk Appraisal Checklist". Since the checklist also includes a laboratory analysis, in both groups the presence was verified of four indicators of risk of dehydration, measured at entry and discharge: Urinary Specific Gravity > 1020; Urine colour dark yellow; Serum sodium > 150 mEq/L; Relationship between blood urea nitrogen/creatinine > 20 mg/dl. In the presence of each indicator a score equal to 1 was assigned in order to make an overall assessment of the presence of dehydration. Table 1 shows graphically the structure of the trial.

Table 1. Structure of the experiment

	Experimental group	Control group
Within 3 days of admission, administer:	**1**) MNA (Mini Nutritional Assessment Short-form) **2**) Sheet of quantitative evaluation of the meal consumed (Nutrition Day) **3**) Dehydration risk appraisal checklist	**1**) MNA (Mini Nutritional Assessment Short-form) **2**) Sheet of quantitative evaluation of the meal consumed (Nutrition Day) -
Within 3 days of admission, check:	Laboratory tests: - Urine specific gravity; - Serum sodium; - Blood urea nitrogen – creatinine ratio - Colour of urine	Laboratory tests: - Urine specific gravity; - Serum sodium; - Blood urea nitrogen – creatinine ratio - Colour of urine
The day before discharge check:	Laboratory tests: - Urine specific gravity; - Serum sodium; - Blood urea nitrogen – creatinine ratio - Colour of urine	Laboratory tests: - Urine specific gravity; - Serum sodium; - Blood urea nitrogen – creatinine ratio - Colour of urine

At the end of the experimental period, the collected data were entered into a database self with Microsoft Excel. The development provided, in the comparison between the two groups, the calculation of the statistical significance of the differences, in order to deduce the modifications made after the introduction of the "Dehydration Risk Appraisal Checklist". **The x^2 test was used with Yates' correction applied for continuity. The differences were considered significant when p was less than or equal to 0.05.

Results

Analysis of the literature

Here are the essential elements that emerged from the analysis of items considered most relevant: The article by Mentes J. Oral (2006) defines the age-related changes, risk factors, measurements of assessment and treatment interventions for the prevention of dehydration. The author uses a checklist to assess the risk of dehydration (8).

Ferry M. (2005) argues that dehydration is a major health problem and that all the multidisciplinary strategies must be activated for its prevention. His article deals with the clinical signs, risk factors for dehydration in the elderly and practical approaches for implementing prevention (9).

Marin M. (2009) shows that dehydration is an important socio-medical problem that warrants prevention measures. The author emphasizes the importance of a multidimensional assessment that takes into account the personal characteristics, the degree of autonomy of the pathologies in place, the medications administered and the values of laboratory indicators (10).

Shimizu, M. (2012) describes a prospective observational study in which the authors assessed the relationship between the various physical signs and laboratory parameters and identified the most appropriate ones to determine the state of dehydration. The physical signs of dehydration detected in elderly patients showed good specificity but poor sensitivity. The evaluation of axillary moisture and analysis of laboratory data, such as the sodium concentration in serum, may help to evaluate dehydration (11).

Closely related to the concept of underarm wetness is the experimental study of Kinoshita K. (2013) conducted on 29 elderly patients, which confirms that the axillary moisture measurement could help to assess the state of dehydration in the elderly, indicating that it can be excluded when the humidity is equal to or greater than the axillary 50% (12).

Hodkinson B. (2001), speaking of the daily recommended amount of liquids, identifies the risk factors most frequently associated with dehydration and the recommendations for the prevention and management of this condition in elderly patients. The daily intake of liquids should not be less than 1600 ml/24 h (13).

Molaschi M. (1997) conducts a retrospective study on the evaluation of the prevalence of hypertonic dehydration in elderly patients out of 2894 patients hospitalized in an acute ward of the Section of Geriatrics, Department of Medical and Surgical Disciplines, University of Turin from January 1990 to July 1995, which highlights that the prevalence of hypertonic dehydration increases with age and that mortality is correlated to the levels of serum sodium (14).

Maughan RJ. (2012) argues that dehydration, both acute and chronic, can lead to an increased risk of morbidity and mortality especially in the most vulnerable individuals, and that the state of dehydration in the elderly is often caused by reduced fluid intake (15).

Manz F. (2005) points out that maintaining a good state of hydration is indicated to prevent urolithiasis, constipation, asthma, hypertension, acute coronary syndrome, cerebrovascular accident, etc… (16).

Finally, Bossingham MJ. (2005) conducted an experimental study on the influence of age on the management of revenue and expenditure of liquids. The results show that, in the sample studied, the consumption and the introduction of water, water loss through urinary excretion and water balance are no different between young and elderly subjects (17).

The guideline found listed in the National Guideline Clearinghouse database refers to a tool for assessing the risk of dehydration of the elderly called "Dehydration Risk Appraisal Checklist" used in the work of Mentes J. Oral (2006) and consisting of 5 fields of investigation:

- Personal characteristics (age, body mass index, sex)
- Medical Conditions (Dementia, Depression, Diabetes mellitus, cerebral stroke, urinary incontinence etc.)
- Drugs taken (amount exceeding 4, type of medication)
- Fluid intake (amount of fluid intake, pattern of nutrition and hydration, level of autonomy)
- Laboratory indicators (specific weight and colour of urine, serum sodium, the relationship between values of blood urea nitrogen and creatinine).

The higher the number of indicators present in the list (Figure 2), the greater the risk of dehydration.

Experimental Study

Verifying the use of the Checklist

The collection of data in the "Dehydration Risk Appraisal Checklist" was made by observation of the patient and an interview with the latter or with a caregiver; analysis of the clinical administration of this assessment tool enabled us to identify its strengths and weaknesses.

Among the disadvantages highlighted, the analysis emphasizes the unclear interpretation of the results: the checklist does not establish, in fact, the degree of risk of dehydration (e.g. high, medium or low risk) with a specific score; one can only infer that the higher the number of indicators present in the list, the greater the risk of dehydration. Considering that the checklist must be completed using multiple sources of information, another difficulty may arise in cases where there is no cooperation from the person or in the absence of the caregiver. In addition, not all laboratory indicators are always present in the medical record (e.g. specific gravity of the urine).

The strengths of the instrument are its ease of preparation and the possibility of a multidimensional assessment; the latter is very important in care planning, since it leads to a good knowledge of the patient and to a simultaneous evaluation of multiple care issues.

Analysis of the use of indicators

The difference between the values of the indicators of dehydration, calculated at the time of the survey conducted at admittance and the survey conducted at the time of discharge in the two groups was not statistically significant, either in the sample analyzed in Parma or the one analyzed in Piacenza. This can be explained by several considerations:

- The measurement unit attached to the indicators, that is, the assignment of one point in time when it detects the presence, does not allow for a high differentiation of the real state of dehydration. One could think of using the actual values of each indicator, but this was not possible because one of them is not represented by a numerical value.

Besides, at admittance the state of dehydration was not homogeneous throughout the total population: 14 patients had two or more positive indicators, while the remaining 28 had one, in all cases the ratio of blood urea nitrogen to serum creatinine. (positive when more than 20 mg/dl). The Figure 2, from a review of the literature, is almost always positive in the elderly population due to changes in renal function resulting from the physiological ageing process. Thus, an altered ratio of blood urea nitrogen and creatinine, although it is considered an indicator of dehydration, may also be present in people who are not dehydrated. It was only in the comparison between the control group and that of the experimentation group of OU complex Geriatric Clinic of the University Hospital of Parma that a slightly significant difference was observed (p 0.03), probably due to the fact that in the experimental group there were some patients in whom at the time of admittance it a severe state of dehydration was noted, who thus deviated from all other patients observed, in whom, as mentioned above, there was not a serious state of dehydration.

In Figures 3 and 4 are graphically represented the data (Table 2 and 3) divided into two structures identified for testing.

DEHYDRATION RISK APPRAISAL CHECKLIST

The greater the number of characteristics present, the greater the risk of hydration problems.

Personal Characteristics
Age > 85 years Female sex Body-mass index < 21 or > 27
Significant Health Conditions
Dementia or positive screening for cognitive impairment Depression or positive screening for depression Cerebrovascular accident Diabetes Urinary incontinence Renal disease Cardiac arrhythmia Malnutrition History of dehydration History of repeated infections
Medications
> 4 medications Laxatives Angiotensin-converting enzyme inhibitors Steroids Diuretics Psychotropics: antipsychotics, antidepressants, anxiolytics
Intake
Requires assistance to drink Has dysphagia or chokes Can drink independently but forgets Semidependent, regarding feeding Poor eater (eats < 50% of food given) Fluid intake of < 1,500 mL/day Spills while drinking Receives tube feedings
Laboratory Abnormalities
Urine specific gravity > 1.020

Figure 2. Reprinted with permission from Mentes JC and the Iowa Veterans Affairs Nursing Research Consortium. Evidence-based protocol: hydration management. In Titler MG, series editor. *Series on evidence-based practice for older adults.* Iowa City, IA: the University of Iowa College of Nursing Gerontological Nursing Interventions Research Center, Research Translation and Dissemination Core; 2004

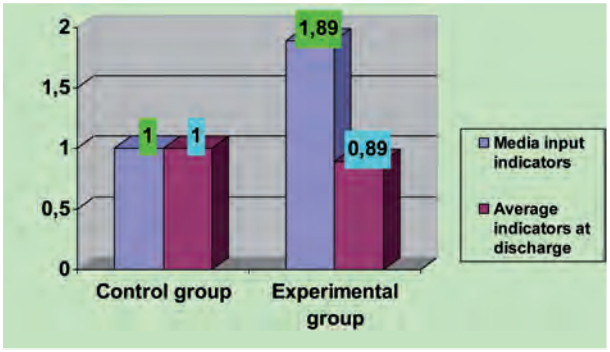

Figure 3. Media indicators of dehydration in the control group and experimental OU complex Geriatric Clinic of the University Hospital of Parma, at admittance and at discharge

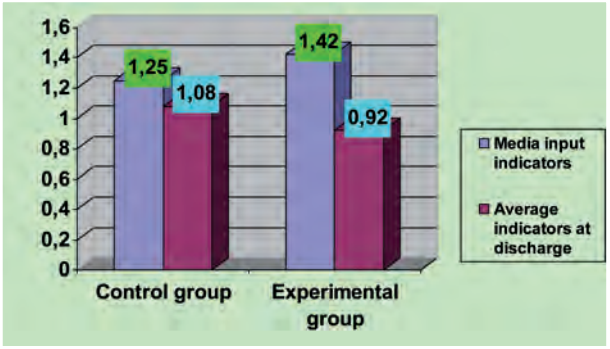

Figure 4. Media indicators of dehydration in the control group and experimental OU Geriatrics and long-term care unit of the Azienda USL Piacenza, at the entrance and at discharge

Conclusions

The literature review enabled the retrieval of a guideline in the National Guideline Clearinghouse database found to be very specific to the topic of research. This document refers to a tool for assessing the risk of dehydration of the elderly called "Dehydration Risk Appraisal Checklist", which is considered useful in the assessment and prevention of the risk of dehydration in the elderly.

To confirm or refute this hypothesis, it was decided to experiment with this instrument with the objective of demonstrating that the checklist increases the sensitivity to the problem of dehydration in the elderly population, leading to earlier recognition of the problem and enabling it to be tackled and managed more effectively.

Table 2. Indicators of the presence of dehydration at admittance and at discharge within the two groups at The OU complex Geriatric Clinic of the University Hospital of Parma (Mann Whitney test)

Parma				
group	**t0**	**t1**	**delta**	
control	9	9	9	*N°*
	1	1	0	average
	1	1	0	*median*
experimentation	9	9	9	*N°*
	1,89	0,89	-1	average
	2	1	-1	*median*

Table 3. Indicators of the presence of dehydration at admittance and at discharge within the two groups at the OU Geriatrics and long-term care unit of the Azienda USL Piacenza (Mann Whitney test)

Piacenza				
group	**t0**	**t1**	**Delta**	
control	12	12	12	*N°*
	1,25	1,083333	-0,166667	average
	1	1	0	*median*
experimentation	12	12	12	*N°*
	1,42	0,92	-0,5	average
	1	1	-0,5	*median*

The checklist was tested in two groups, one experimental and one control, consisting of patients of both sexes, all over the age of 65, hospitalized at the OU Geriatrics and long-term care unit of the Azienda USL Piacenza and at the OU complex Geriatric Clinic of the University Hospital of Parma.

Although the results deriving from the statistical tests carried out show that the relative difference in the presence of number of indicators of dehydration at admittance and at discharge was not statistically significant, it can still be noted that the analysis did not show any worsening of the patients in either group; in fact, the score attributed to the indicators of dehydration at the time of discharge was always equal to or less than that calculated at admittance.

For this reason, and because the assessment of the state of hydration/dehydration of the elderly person is not so simple since some of the signs and symptoms

may be nonspecific and are also found in healthy elderly people, or they may be secondary to a variety of other diseases or conditions, it can be concluded that the use of the "Dehydration risk appraisal checklist" can be considered an especially useful assessment tool in cases where it is possible to use multiple sources of information and there is cooperation from the patient or from the caregiver. Its systematic use may also increase the sensitivity of healthcare professionals and caregivers with regard to this problem that is so prevalent in the elderly population.

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Cultural Competence Assessment Instrument: Initial Italian validation and proposed refinement

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Abstract. *Background and aim of the work:* Italy has become a target of immigration in the last three decades. Accordingly, the Italian population is progressively changing, becoming increasingly culturally different. Cultural competences are a fundamental requirement for many industries and, especially, for healthcare organizations. The aim of this paper is to propose an initial Italian validation of the Cultural Competence Assessment Instrument (CCAI) and to propose a refinement of this scale in terms of measured constructs. *Methods*: The CCAI was translated into Italian through a team-based iterative approach and then administered to a sample of 289 nurses with symbolic and realistic threat scale and social dominance orientation scale. An on-line cross-sectional survey questionnaire was used. *Results*: Confirmatory factor analysis revealed that the original two dimensions of the CCAI can be divided into two other sub-scales, thus leaving us with the following dimensions: cultural awareness, cultural sensitivity, seeking information and active behavior. These dimensions appeared to be sufficiently reliable and independent one from another. Moreover, they showed specific and different correlations with other measured constructs. *Conclusions:* The Italian version of the CCAI would seem to be a useful instrument for measuring both attitudes and behavioral intention of nurses with respect to intercultural care. Using four dimensions instead of two appears to increase the understanding of professionals' cultural competence and supply a deeper picture of dimensions which compose cultural competence in healthcare settings.

Key words: cultural competences, immigration, scale validation, healthcare organization

Introduction

Cultural diversity is continuously increasing in all European and American countries, and intercultural relations, particularly between majority and ethnic minority groups, have become an important concern for governments as well as healthcare organizations. Several industrialized countries, such as Canada, the USA and Australia, have a long history of immigration, and immigrants have constituted strong and well-known communities which contribute to the cultural diversity of these countries. Other countries, however, have been seeing immigration only in the last few decades. Among these nations, Italy has become a target of immigration in the last three decades. Accordingly, the Italian population is progressively changing, becoming increasingly culturally different (1). Cultural competences are thus a fundamental requirement for many industries and, in particular, for healthcare organizations. The aim of this paper is to propose an initial Italian validation of the Cultural Competence Assessment Instrument (CCAI) and to propose a refinement of this scale in terms of measured constructs.

Cultural diversity and healthcare settings

Cultural diversity is a challenge for healthcare organizations, given that people belonging to different ethnic groups may require different approach to health and have a different understanding of care and illness (2). It has been shown that clinical encounters with patients belonging to different ethnic groups may be difficult and tense, affected by misleading communication, influenced by stereotypes and prejudices and even leading to misdiagnosis (3). Such culturally blinded encounters may contribute to the exclusion of minority groups and favor dominant groups (4).

This situation is problematic for both patients and professionals, given that cultural misunderstanding and conflicting worldviews regarding health and illness may generate stress and conflict in the healthcare processes. Seminal works by Leininger suggest that caring must be culturally congruent, that is to say that care must take into account the people's values and meanings (5, 6). In this sense, caring refers to decisions and behavior which are based on the cultural diversity that professionals discover within patients' values, beliefs and practices. Thus, health care professionals are faced with the need to acquire intercultural competencies in order to recognize their own cultural norms, understand the patient's values and representations, and supply effective and maximized care. Accordingly, intercultural competence among professionals is becoming an important feature that healthcare organizations are trying to improve. Intercultural competence can be defined in health care settings as the ability to deliver "effective, understandable, and respectful care that is provided in a manner compatible with [patients'] cultural health beliefs and practices and preferred language" (7, p. 80865).

Measuring cultural competencies

In order to improve healthcare deliveries, it is fundamental to be able to measure practitioners' cultural competencies. Accordingly, several instruments have been developed to capture this construct. One of those is the Cultural Competence Assessment Instrument (CCAI) (8), a recently developed scale which has several positive features. The theoretical background of CCAI is the cultural competence model proposed by Doorenbos and Schim (9) which has four key elements: cultural diversity, cultural awareness, cultural sensitivity and cultural competence behavior. Cultural diversity refers to the people's recognition that diversity is the rule of the game in the healthcare setting and that it is a complex and dynamic reality. Cultural awareness refers to professionals' knowledge of differences and similarities of cultural expression, not simply in terms of knowledge of language or religion, but rather in terms of awareness that such aspects determine the way in which minority or ethnically different groups approach the reality of care. Cultural sensitivity, however, refers to professionals' attitudes, beliefs and representations about features of others, such as heritage, openness to "otherness" and respect for cultural issues. Finally, cultural competence behavior refers to those observable behaviors that are influenced by diversity experience, cultural awareness and increased sensitivity. According to Doorenbos et al. (8), cultural competence markers are behaviors "focusing cultural assessment, asking about explanatory models and expectations for care, adapting interventions to respect cultural practices or taboos, and seeking additional information and resources" (p. 326).

Based on the cultural competence model, Doorenbos et al. (8) developed the CCAI, an instrument composed of 27 items on a 5-point Likert scale ranging from strongly agree, agree, disagree, strongly disagree, and no opinion. The scale measures two main factors: the Cultural Awareness and Sensitivity dimension (CAS), composed of 11 items, and the Cultural Competence Behaviors (CCB), composed of 16 items. The scale has been developed and tested in several research studies and has been demonstrated to be sufficiently reliable. Moreover, this scale has several qualities. Firstly, it is specifically directed to healthcare professionals and settings. Secondly, CAAI is supported by a broad definition of culture, which makes the instrument applicable to a large set of contexts and suitable across a spectrum of disciplines and different educational levels. Moreover, the scale is relatively short and easy to administer. Thus, the CAAI has many positive features which make the scale a good instrument for assessing cultural competence among health workers.

Critical points and expectations

Despite its positive features, we believe that CCAI can be further developed in order to refine its measurement capacity. We are particularly concerned about the factor structure of the scale, which, as stated above, is restricted in two dimensions. A first criticism regards the merger of awareness and sensitivity to become only one factor. Indeed, as CCM suggests, cultural awareness (i.e. to be aware that many cultural aspects may influence people's behaviors) and cultural sensitivity (i.e. to be sensitive and respectful of cultural differences) are different constructs. In fact, one person may be well aware of cultural differences and, at the same time, be very insensitive to those differences. In the same way, people may be very open to cultural difference but unaware of its effect in a given context. For this reason, we believe that the original dimension of CCA should be analyzed trying to separate the aspects linked to cultural awareness from those linked to cultural sensitivity. More precisely, we hypothesized that items 1, 2 and 8 would pertain to sensitivity rather than to cultural awareness. Regarding these two dimensions, a further specification regarding item 7 is required. This item, "I enjoy working with people who are culturally different from me", expresses liking or disliking and then it actually measures emotional aspect of a prejudicial attitude. In other words, it is not of the same logical level as other items which, instead, ask practitioners to express their cognitive view on cultural difference (e.g. "Spirituality and religious beliefs are important aspects of many cultural groups"). For this reason, we excluded this item from the scale.

A further concern relates to the CCB dimension. In the original version, the dimension of CCB groups many items referring to differing aspects of competent behavior. We propose that CCB would measure at least two different kinds of behavior: one linked to seeking information about cultural difference (i.e. "I seek information on cultural needs when I identify new clients and families in my practice") and the other linked to active action oriented to address intercultural concerns (i.e. "I act to remove obstacles for people of different cultures when I identify such obstacles"). Thus, we expected to be able to discriminate two dimensions of CCB: seeking information and active behavior.

To summarize, our main expectations were a) to find two different dimensions, awareness and sensitivity, in the CAS dimension and b) to find two different dimensions, seeking information and active behavior, in the CCB dimension.

Method

Scale translation and adaptation

In order to translate the items, a team-based iterative approach (10, 11) was used. More precisely, three independent researchers prepared three translated versions of the scale. These translations were then compared in a research-group committee in which disagreements were solved through discussion in order to reach a preliminary version of the scale. The preliminary version was then pre-tested and administered to several professionals in order to assess whether the scale was comprehensible and clear. The committee then analyzed the items again, considering the concerns which were verbally expressed by professionals, until a definitive version of the scale was reached.

Compared with the original scale, the translated version (CCA-Itv) has the following characteristics: 1) the scale of response of CAS was changed from a Likert scale to a Likert-type scale in which only extreme points were labeled and 2) the scale of response was changed from a 5- to a 6-point one (1 = strongly disagree, 6 = strongly agree for CAS dimensions, and 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often, 6 = always for CCB dimensions). This was done because originally the intermediate point was labeled as "no opinion" and assigned a score of 3. However, as many authors have pointed out (e.g. 12), this is not actually an "intermediate" score, but rather expresses a lack of attitude. In order to avoid this problem and to increase the variability of responses, the scale was widened to 6 points, labeling only the extreme values (1 and 6).

The resulting scale was composed of 26 items, 10 items referring to the awareness/sensitivity dimension measured on a 6-point Likert-type scale, and 16 items referring to the competent behavior dimension measured on a 6-poinl Likert scale.

Procedure and participants

The Italian version of the CCAI scale was inserted into a questionnaire aimed at assessing several constructs; an on-line procedure was used. Participants were contacted and invited to enroll in research regarding attitudes toward health care delivery and to complete an online questionnaire. On the first page, participants were informed that participation was voluntary, that data was collected anonymously and used for research purposes only and that submitting the questionnaire would be assumed at the participants' agreement to participate. Finally, it was stated that the questionnaire could be left off at any time.

Measurements

The CCA-Itv was then inserted in a questionnaire in which other measurements were collected. For each measurement, the final score was computed as the mean of intended items. In this way, higher scores indicate higher levels of the measured construct.

Realistic and symbolic threat was measured by 10 items on a 6-point Likert-type scale (1 = strongly disagree, 6 = strongly agree) taken from Stephan et al. (13) and Stephan, Ybarra, & Bachman (14). Four items measure realistic threat (i.e. "I think that immigrants have too much economic power in the Italian society") which revealed a good reliability (a = 0.90), while 6 items measure symbolic threat (i.e. "Immigration is undermining the Italian culture") with a reasonable internal reliability (a = 0.64).

Social Dominance Orientation (SDO) was measured by the short form of the scale proposed by Pratto et al. (15), which is composed of 4 items on a 6-point Likert-type scale (1 = strongly disagree, 6 = strongly agree). This scale measures people's desire to see social groups arranged along a hierarchy of prestige and power (i.e. "Superior groups should dominate inferior groups"). Reliability was not optimal (a = 0.51) but this may be due to the shortness of the scale compared with the complexity of the construct.

Results

Participants

289 professionals returned the questionnaire, 33 of whom were excluded because they were not Italian. The final sample was thus composed of 256 professionals, of whom 50 (20%) were men and 199 (80%) were women (7 participants did not report their gender). 92 participants (36%) were aged between 20 and 30, 61 (24%) between 31 and 40, 72 (28%) between 41 and 50 and 31 (12%) were more than 50 years of age. Average tenure was 13.25 years (SD = 11.07).

Assessing the dimensionality of the scale

According to the theoretical background, several models were tested through confirmatory factor analysis (CFA). More precisely, the following models were compared:

1) one-factor model; 2) two-correlated-factor model (one factor measuring CCA and another factor measuring CCB) which is the original factorial structure of the scale; 3) three-factor model (awareness, sensitivity and CCB) and 4) four-factor model (awareness, sensitivity, seeking information and active behavior).

As suggested by Kline (16), a model can be said to have a satisfactory fit when the χ^2/df ratio is lower than 3, CFI and TLI are higher than 0.90 and RMSEA is 0.08. Table 1 shows the results of CFA analysis. As one can see, in accordance with expectations, the four-factor model had a better fit than the other models. Thus, the results seem to support the idea that the scale has a four-factor structure.

However, given that the fit index was not satisfactory, we used modification indexes to assess whether errors of items measuring the same dimension would be correlated. Correlating some item errors, the goodness-of-fit increased to reach satisfactory values ($\chi^2(281) = 479.45$, $p < .001$, χ^2/df = 1.71, CFI = 0.915, TLI = 0.901, RMSEA = 0.053 90%C.I. = 0.045-0.060, $p = 0.28$, SRMR = 0.068). Moreover, all items were significantly represented by the intended dimension (all ps < 0.001). In sum, CFA analysis confirmed the expected four-factor structure of the scale. Dimensions

Table 1. Fit indexes of different tested models

	χ^2 (df)	CFI	TLI	RMSEA	SMRS	BIC
One factor	1502.204 (299)	.482	.437	.125	.117	21629.756
Two factors $\Delta\chi^2$ (1) = 87.33, p < .001	1277.296 (298)	.578	.540	.113	.102	21361.298
Three factors $\Delta\chi^2$ (2) = 35.16, p < .001	1237.968 (296)	.594	. 555	.111	.099	21324.673
Four factors $\Delta\chi^2$ (3) = 482.41, p < .001	928.797 (293)	.726	. 696	.092	.080	20960.588

Note: Chi-sqared differences are computed on Satorra-Bentler scaled Chi-squared

scores were computed by averaging raw scores of the intended items. Table 2 shows items and dimension of CCAI.

Table 3 shows descriptive statistics of dimensions and zero-sum correlations and reports reliability coefficients (Cronbach's alpha) on the diagonal. As shown, all constructs but Sensitivity had satisfactory reliability. The fact that Sensitivity had a low value of reliability can be imputed to the fact that this dimension is composed of only three items and that the construct of cultural sensitivity is complex and wide. Moreover, as one can see, Seeking Information and Active behavior were significantly and positively correlated, although the magnitude of this correlation was lower than 0.70, thus supporting the idea that the two dimensions can be separated and can measure different, albeit related, constructs. Surprisingly, Awareness and Sensitivity were not correlated, underlining the fact that to be aware of cultural difference and to be sensitive to what this cultural difference implies are different aspects of cultural competence. Moreover, according to expectations, both seeking information and active behavior were positively correlated to Awareness, while only active behaviour was negatively correlated to Sensitivity.

Concurrent and divergent validity

Table 4 shows correlation coefficients (Pearsons' r) among CCA dimensions and other measured variables. As one can see, correlation coefficients confirmed that the four dimensions of CCAI have different meanings. Indeed, only Active behaviour and Sensitivity are significantly and negatively correlated to real and symbolic threat and SDO, while seeking information and awareness are not correlated. This seems to indicate that, as expected, people who perceive a real and symbolic threat from immigration are social dominant oriented, less sensitive to cultural difference and less likely to behave actively to address intercultural issues in a healthcare setting, independently of their awareness of intercultural difference and their seeking of information. Thus, the correlations supported the idea that seeking information and active behavior as well as cultural awareness and cultural sensitivity are distinct aspects of cultural competence which have different meanings in terms of intercultural openness.

Conclusion

The work presented in this paper aims to supply a first Italian validation of the CCAI. At the same time, we propose a refinement of this scale in terms of measured constructs. The results appear to support our expectations about the factor structure of the CCAI: differently from the original version, which is composed of two dimensions (i.e. Cultural Competence Behaviors and Awareness and Sensitivity), our data seem to be better fitted by four factors. More precisely, Awareness and Sensitivity appear to be two distinct, and unrelated dimensions. In fact, correlation between dimensions is close to zero, indicating that nurses can be aware of cultural difference and not sensitive to this difference and vice versa. Moreover, awareness and sensitivity showed specific and different correlations with other measurements linked to intergroup

Table 2. Items and their standardized coefficients on the CCAI dimensions

	Cultural Awareness	Cultural Sensitivity	Seeking information	Active behavior
Many aspects of culture influence health and healthcare.	.487**			
Aspects of cultural diversity need to be assessed for each individual, group, and organization.	.652**			
If I know about a person's culture, I do not need to assess their personal preferences for health services	.482**			
Spirituality and religious beliefs are important aspects of many cultural groups.	.798**			
I understand that people from different cultures may define the concept of "healthcare" in different ways.	.532**			
I think that knowing about different cultural groups helps direct my work with individuals, families, groups and organizations.	.617**			
Individuals may identify with more than one cultural group.	.590**			
Race is the most important factor in determining a person's culture.^		.586**		
People with a common cultural background think and act alike.^		.517**		
Language barriers are the only difficulties for recent immigrants to the United States.^		.468**		
I include cultural assessment when I do client or family evaluations.			.657**	
I seek information on cultural needs when I identify new clients and families in my practice.			.853**	
I have resource books and other materials available to help me learn about clients and families from different cultures.			.730**	
I use a variety of sources to learn about the cultural heritage of other people.			.705**	
I ask clients and families to tell me about their own explanations of health and illness.			.708**	
I ask clients and families to tell me about their expectations for care.			.639**	
I document cultural assessments.			.567**	
I document the adaptations I make with clients and families.			.514**	
I avoid using generalizations to stereotype groups of people.				.615**
I recognize potential barriers to services that might be encountered by different people.				.467**
I act to remove obstacles for people of different cultures when I identify such obstacles.				.710**
I act to remove obstacles for people of different cultures when clients and families identify such obstacles to me.				.777**
I welcome feedback from clients about how I relate to others with different cultures.				.681**
I welcome feedback from co-workers about how I relate to others with different cultures.				.531**
I find ways to adapt my services to client and family cultural preferences.				.718**
I learn from my co-workers about people with different cultural heritages.				.653**

^ reversed scored items; ** $p < .001$

prejudice, discrimination and dominance. More precisely, it was only Sensitivity to be negatively linked with realistic and symbolic threat perception and with social dominance orientation. Awareness, instead, was not correlated with that construct. This is not surprising, given that to be aware of cultural difference may drive people to perceive a threat or not depending on the way in which this difference is interpreted (i.e. as a

Table 3. Descriptive statistics, reliability and correlation of CCAI dimensions

	M	*SD*	CCB.SI	CCB.AB	CAS.AW	CAS.SE
CCB Seeking for information	3.18	1.08	0.88	.50**	.25**	-.09
CCB Active Behaviour	4.37	0.92		0.86	.35**	.14*
CAS Awareness	4.78	0.83			0.78	.08
CAS Sensitivity	4.56	1.01				0.53

*p< .05, **p < .001; Cronbach's alpha on the diagonal

Table 4. Zero-order correlations among dimensions of CCAI and other variables

	Real threat	Symbolic threat	SDO
Seeking for information	-.05	-.19**	-.04
Active behaviour	-.23**	-.32**	-.25**
Awareness	-.09	-.06	-.05
Sensitivity	-.45**	-.34**	-.19**

** p < .01

threat or as a richness). These findings appear to support the idea that it is not completely justified to mix cultural awareness and sensitivity in one single factor. On the contrary, these two dimensions appear to supply different information about the cultural competence of healthcare operators. In other words, our data suggest that cultural awareness is a necessary but not a sufficient prerequisite for culturally competent care delivery.

Moreover, the data also supported our idea that measured cultural behaviors are actually divided into two dimensions: seeking information and active behavior. Differently from awareness and sensitivity, these two kinds of behavior appeared to be correlated, although the strength of correlation indicates that these two dimensions do not overlap with each other. Also in this case, it is only the active behavior dimension, that is, the dimension capturing behaviors which require more effort and attention, that is correlated to discrimination-linked constructs. Also in this case, the distinction as to two different kinds of behavior appears to be justified and to supply more information about professionals' cultural competence.

In sum, these results seem to supply a wider look at the cultural competence of health care professionals. Moreover, CCAI is confirmed as a good instrument to measure both attitude and behavior of professionals and it could be used in both the assessment of professionals' cultural competence and the evaluation of educational training oriented to improve cultural competence.

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Review

Strategies for pain management: a review

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Abstract. *Problem/Background:* Pain management is a major worldwide health problem. It manifests itself in a variety of forms involving in turn a multiplicity of responses and therapeutic strategies. Following from this, the training of health personnel must deal with this situation and must not only offer technical assistance, but must also deal with the psychological and social aspects of the problem. In recent years various guidelines and protocols have become popular for pain management. The aim of this paper is to present a literature review of the major international databases. *Type of research:* Systematic review. *Objective:* To identify relevant studies in the literature on pain management and identify the guidelines recognized by the scientific community. *Materials and methods:* A literature search was conducted using the keywords "pain management" and "nurse" published since 2000 in English and Italian in the following databases: PubMed, CINAHL, Med Line. Excluding items which did not meet the inclusion criteria, 49 articles were included in the review. *Results:* Despite a growing availability of evidence-based guidelines, drugs for pain control and the enactment of legislation to promote the use of opioid analgesics in pain therapy, a substantial proportion of the European population continues to have pain. Estimates of the prevalence of pain symptoms in the literature show that between 40% and 63% of hospitalized patients reported pain, peaking at 82.3% in cancer patients in advanced stages of the disease or terminally ill (in hospital or at home). Several studies published in recent years have agreed on a definition of some key points in the management of pain. Studies agree that pain should be recognized as the 5th vital sign, hence the need for validated scales whether single or multi-dimensional, quantitative or qualitative. The approach to the management of pain must be multi-professional, and the use of pharmacology must be in accordance with the WHO three-step approach. Several studies have demonstrated that communication and training of operators, associated with accurate information to patients, are effective elements to improve health care delivered to patients. These studies have led to the publication of guidelines by various scientific societies, indicating timely strategies for effective pain management both in hospital and in the territory. A possible development of this research could be to conduct a retrospective study in accordance with the AUDIT methodology so that we can check the implementation of guidelines and propose corrective actions to meet the defined standards.

Key words: pain management, healthcare organization, health professionals, nurse, audit methodology

Introduction

Pain management is a major worldwide health problem. It manifests itself in a variety of forms involving in turn a multiplicity of responses and therapeutic strategies. Following from this, the training of health personnel must deal with this situation and must not only provide technical assistance, but must also deal with the psychological and social aspects of the problem. One of the important objectives in the control of

acute and chronic pain, whether from cancer or other conditions, is to reduce the negative clinical outcomes and to improve the conditions of the underlying diseases, in order to prevent secondary, lasting disabilities and to give rise to a significant improvement in the quality of life (1). This is important because it would also have favorable effects on the social impact, leading to a reduction in costs for the National Health Service (2).

The International Association for the Study of Pain (IASP) defines pain as "an unpleasant experience, sensory and emotional, associated to an actual or potential tissue damage." Pain is a subjective experience and is therefore influenced by cultural factors and other psychological variables. In addition to the sensory pain secondary to an organic lesion, the definition indicates the experience of pain in more complex terms, i.e. biopsychological.

Of significant importance is the document of the Emilia Romagna region, "Dossier 194-2010", which states the channels of clinical-organizational orientation to deal with pain in the medical area to improve the diffusion of good clinical practices, considering regional guidelines on "hospital-territory without pain", hence integrating primary care and ensuring continuity of care (2).

The attention to pain as a social and economic problem is high, as shown in the literature, with a high percentage of hospitalized patients reporting these symptoms, despite the guidelines, the use of drugs for pain control and regulatory measures that promote the use of opioid analgesics. Furthermore, there is also a considerably high percentage of the European population such as cancer patients in advanced stages of terminal illness (both in hospital and at home) in whom pain symptoms are not well controlled (3).

It is significant that Italy is in third place in Europe for the prevalence of chronic pain, and in first place for the prevalence of severe chronic pain (4).

The World Health Organization has for many years emphasized the importance of the prompt and full treatment of this symptom. The Joint Commission on Accreditation of Healthcare Organizations requires, in its standards of quality, that all patients are assessed for pain and that this assessment results in an appropriate treatment. All international experts therefore agree on the necessity and possibility of measuring pain, and the Joint Commission Standards of the American Pain Society (2009) identified the measurement of pain as being the fifth vital sign to be detected at each step of the treatment of a patient. From the above and on the basis of the daily professional activity, there arises the need to think in terms of a pain management path in operational units. The foundations of this path are as follows: the centrality of nursing; the need for continuous training of personnel; the need to integrate the activities of "care" with that of algologists and with those already present in the area (general practitioners and nursing home care); the need to operate in the utmost safety; and finally the ambitious goal of answering to the needs of the sufferer in the best possible way through a process that is effective in optimizing the resources available.

Pain continues to be a challenge for effective management and remains a priority for patient care. In the nursing profession, a greater awareness of pain management is currently evident.

In clinical terms, pain is currently seen as the fifth vital sign after respiratory and heart rate, temperature and blood pressure, with "the obligation to register the detection of pain within the medical record" as stated in art. 7, paragraphs 1 and 2 of Law 38 of 15 March 2010.

Method

Design and procedure

To identify relevant studies in the literature on pain management and identify the guidelines recognized by the scientific community, we conducted a literature search using the keywords "pain management" and "nurse" published since 2000 in English and Italian. By searching the following databases: PubMed, CINAHL and Med Line, 192 studies were found, to which were added 5 documents from the literature.

To include studies in the analysis the following criteria were chosen: Studies in surgery and/or medical units, studies conducted in hospitals, studies with patients aged> 19 years.

Hence studies involving pediatric patients or those conducted in the hospice and territory were ex-

cluded, as were studies that did not take into account out health but were descriptive of the activities performed by nurses in the process of pain management.

The studies that were reviewed, including studies from the literature, were 49 in number.

Analysis of literature

Despite a growing availability of evidence-based guidelines, drugs for pain control and the enactment of legislation to promote the use of opioid analgesics in pain therapy, a substantial proportion of the European population continues to have pain. Estimates of the prevalence of pain symptoms in the literature show that between 40% and 63% of hospitalized patients reported pain (3, 5, 6), peaking at 82.3% in cancer patients in advanced stages of the disease or terminally ill (in hospital or at home) (7).

The variability of the data is due to the heterogeneity of the population, both from the epidemiological and from the clinical point of view (cancer patients with chronicodegenerative diseases, undergoing surgery, different care setting etc.). A recent national study on pain in the hospital (8) has revealed that admission to a non-cancer setting represents an independent risk factor for receiving inadequate treatment of pain. In particular, the area of internal medicine is more associated with inappropriate management of pain than that of cancer, suggesting the need for a greater commitment to training in this area. Italy is the third largest in Europe, after Norway and Belgium, with regard to the prevalence of chronic pain and in first place with regard to the prevalence of severe chronic pain (13%) (4).

Several scientific societies and agencies over the last 20 years, starting from the historic guideline (9), have produced documents on pain based on reviews of the best available evidence in the literature. Most of these documents are specifically about cancer pain (10-12), stating that it is controllable in about 90% of cases thanks to the WHO three-step pharmacological approach, which for moderate to severe pain involves the use of opioid analgesics.

Numerous studies have been conducted to validate this methodological approach: over 8000 patients in different countries and in different clinical settings (hospital and home) were seen. The various case studies report effective pain control, ranging from 71% to 100% of patients treated (10).

Among the studies performed to validate the approach of the WHO, one in particular (4), conducted on 1229 patients followed for two years, has shown that the transition from the 1st to the 2nd step is due in about half of the cases to side effects and in the other half ineffectiveness analgesic, while the transition from the 2nd to the 3rd step is primarily due to the ineffectiveness of the analgesic. In recent years there has been an increasing use of opioid analgesics for the control of chronic non-cancer pain. There are no randomized controlled trials that demonstrate the analgesic efficacy and tolerability, even in chronic therapy, of opioids.

Recent years have also made available several guide line/clinical recommendations (13-15) on the use of opioids for chronic non-cancer pain, some of which addressed the sick elderly (16, 17).

These findings have some limitations arising in particular from the scarcity (both quantitative and qualitative) of the available studies, especially when compared to a clinical practice that is taking on sizeable dimensions in some European and American countries.

The International Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage." Pain is a subjective experience and is therefore influenced by cultural factors and other psychological variables. In addition to the sensory pain secondary to an organic lesion, the definition thus indicates the experience of pain in more complex terms, i.e. bio-psychological. In particular, chronic pain reflects more clearly the character of the disease for the pathophysiological mechanisms that support it. Besides, chronic pain is taking on more and more the characteristics of a public health problem. Numerous studies have found a prevalence of chronic pain in developed countries ranging between 10% and 40% of the general population. Chronic pain can seriously and profoundly affect the quality of life of a person, in turn generating conditions such as depression and anxiety, making it an ethical priority to provide the sick with an effective treatment (18). A review of recent literature and pain guidelines published in the last 3-4 years does not suggest major changes in the management of pain,

but rather a few refinements and increased strength of the evidence supporting it. The evidence regarding the management of non-cancer pain points to on a set of general considerations about the therapeutic guidelines to be adopted in order to prescribe the correct medication. In order to ensure the control of pain in all people admitted to the medical area, during hospitalization, and also within other contexts of care (at home or in residential facilities), assuming the continuity of taking care throughout the care pathway, the main stages of the assessment and treatment of pain according to the algorithm described in figure 1 should be followed.

Given the huge number of pathological conditions related to pain, it is recommended to individual companies to develop diagnostic and therapeutic solutions that are interdisciplinary and specific to the most recurring diseases (e.g. painful conditions of the spine, pain from chronic inflammation in the patient with rheumatological disease, neuropathic pain in diabetes, ischemic pain).

These pathways involve medical personnel (internist, general practitioner and pain therapist) and the nurse, and from time to time individual relevant specialists (rheumatologist, orthopedic specialist, angiologist, diabetologist, neurologist, surgeon, etc.). The assessment and indications of pain treatment must be consistent with the underlying conditions (19, 20). The translation of the 2002 Guidelines RNAO, published by the Centre for Studies EBN Bologna (21), does not suggest major changes to the approach to pain management, but rather a few refinements and increased strength of the evidence supporting it in some aspects:

- The assessment of pain as the 5th vital sign;
- The integrated approach among several professionals with custom design;

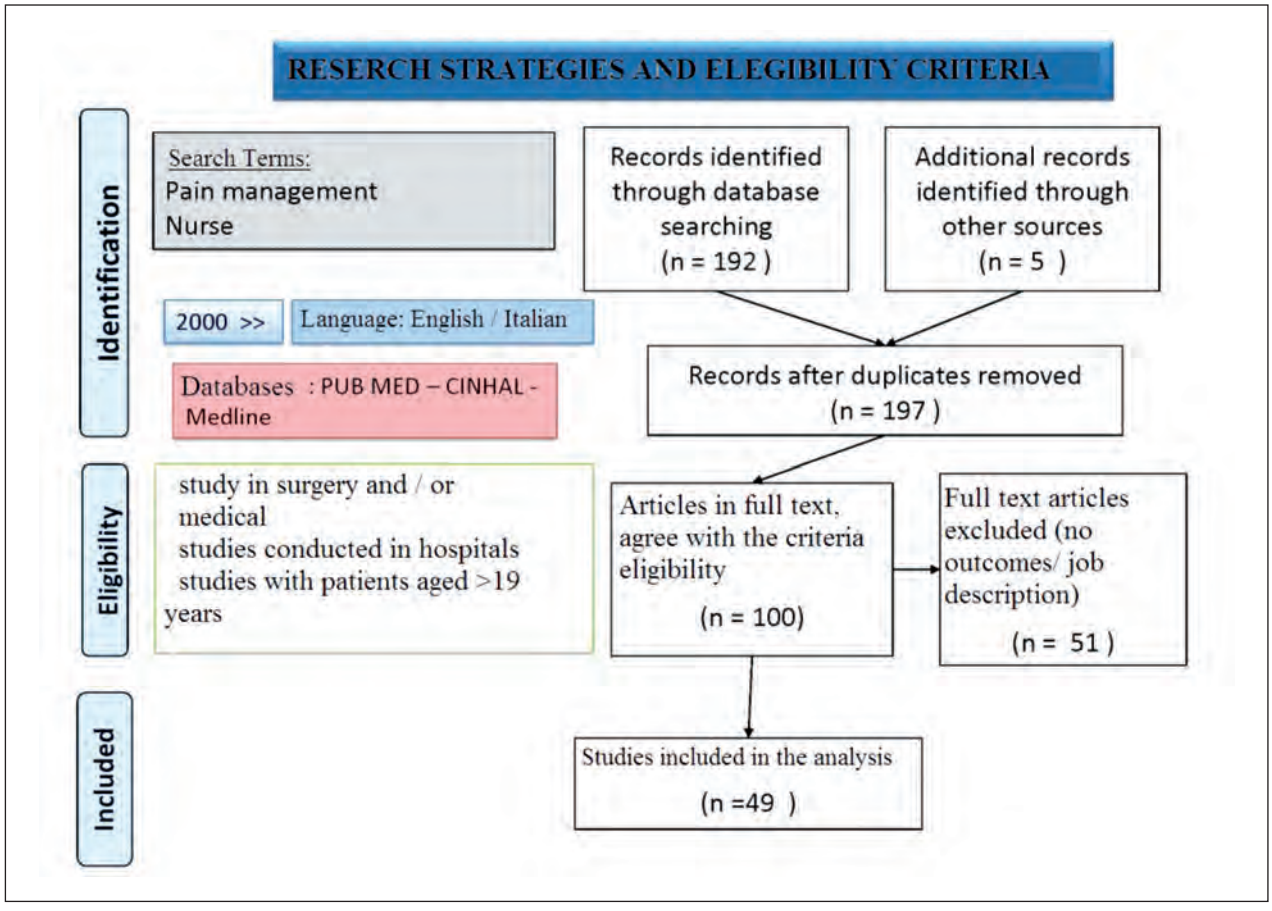

Figure 1. Flow chart

- The appropriate pharmacological management also as regards the management of early therapy;
- The correct therapeutic education of the patient and family use of analgesics, including with regard to the management of side effects;
- The importance of documenting all pharmacological interventions with a systematic pain record that clearly identifies the effect of an analgesic on pain relief .

More specifically, the guidelines indicate that pain treatment involves the measurement of pain with validated scales. This measurement includes both chronic pain and breakthrough pain (BTP). The one-dimensional and multidimensional validated scales for patients with cognitive impairment or who are uncooperative must be provided and available in the Services and Departments.

In the literature there are several validated scales for the measurement of pain, some one-dimensional and quantitative such as NRS (Numerical Rating Scale) (22, 23), (VAS) Visual Analogue Scale) (24), quantitative verbal scale (VRS -Verbal Rating Scale) (25, 2), verbal numeric scale (VNS), and Painad (pain assessment in advanced dementia) (26).

Others are qualitative: analogue scale color (a scale with facial expressions that is useful for the detection of pain in children).

The literature also describes different multidimensional scales , in addition to assessing the physical dimension of pain through other dimensions (sensory-discriminative, motivational-affective, cognitive-evaluative). The main ones are the following: Edmond symptom assessment (ESAS) (27), McGill Pain Questionnaire (MPQ) (28), and The Brief Pain Inventory (BPI) (29).

In relation to the assessment of pain, it should be noted that the Regional Committee for the fight against pain of Emilia-Romagna, in accordance with Law no. 38/2010 (30), has chosen to adopt the numerical scale (NRS) - already widely used in the region - as a single tool for measuring pain, both in hospital and in the territory.

The nurse must work out a medical plan of the manner and frequency with which the pain parameters must be measured - at least once a day, and up to several times a day depending on the clinical conditions and therapeutic indications. The nurse assesses the pain on admittance of the patient to the ward and thereafter up to several times a day whenever there is a pain issue (e.g. changes in the clinical evaluation of the effectiveness of therapies, the execution of invasive procedures) (30).

The guidelines recommend that the doctor prescribes for pain therapy and continuous administration of a rescue dose (or salvage dose) for possible episodes of intense pain. In this regard, we want to point out that it is also important to evaluate more precisely the painful episodes that emerge, in a well-controlled pain situation, from chronic analgesic therapy (at fixed times) (30); in the case of cancer patients with poorly controlled pain, the medical treatment schedule should be continuously revised, verifying the correctness of the dosing interval.

The guidelines indicate that for episodes of intense pain or breakthrough pain the doctor should prescribe the rescue dose and verify its effectiveness on a numerical scale, reviewing the therapeutic treatment if it proves ineffective (31).

Organizational procedures concerning overall management must take into account the multidisciplinary and multi-professionalism of the approach to the problem (32). The complexity of the multidisciplinary management makes it necessary to provide, at least once a year, a clinical-organizational comparison (audit) in order to verify the recommended procedure (32).

To ensure continuity of care between hospital and territory and/or residential facilities (nursing home/ residential care homes/hospice…), the guidelines indicate the use of instruments for passing information between professionals of the two care structures.

Assessment of patient satisfaction in relation to the pain treatment received is by means of the usual tools of measuring the satisfaction of the perceived quality (33).

It is advisable to follow a certain sequence in administering drugs, initiating therapy with non-opioid agents, such as acetaminophen, then moving on to anti-inflammatory drugs and, in cases of moderate and severe pain, minor and major opioids respectively (9). The routine meals at a designated time of the day (10, 12) must be accompanied by the prescription of

the rescue dose, or a dose of analgesic rescue if breakthrough pain occurs.

For pain management to be implemented effectively, it is essential to consult an algologist to ensure the diagnostic and therapeutic success of the pain plan, both for "difficult" cases and for cases where the approach can be optimized using the best that medicine today makes available (34-36)

Other recommendations on pain management in the literature include the WHO "THREE-STEP" analgesic ladder approach.

The 1996 WHO proposals for the pharmacological management of pain, including that of cancer, involve a scale with three steps based on the intensity of the pain (37): when the pain is mild (values from 1 to 4 on the NRS scale) the use of NSAIDs or paracetamol + adjuvant is indicated; when the pain is moderate (values from 5 to 6 on the NRS scale) the use of NSAIDs or minor opioids + paracetamol + adjuvant is indicated; when the pain is severe (values from 7 to 10 on the NRS scale) the use of major opioids + NSAIDs or paracetamol + adjuvant is indicated .

The modern approach provides a flexible use of this scale with a quick transition to the next step in the case of therapeutic ineffectiveness.

Some studies report the following information about the use of non-opioid drugs: Acetaminophen should be considered the drug of choice for the treatment of chronic pain, especially bone and joint.

NSAIDs and aspirin are the foundation of the treatment of chronic inflammatory diseases. Considering the toxicity of these drugs, there is no "fast"consensus (within a few days) to shift to more treatment options in the case of poor control of symptoms (16, 17)

The analgesic efficacy of opioid drugs is well proven in chronic therapy and in the treatment of arthritic or severe neuropathic pain (38, 39). Specific problems arising from the continuing use of these drugs are psychic dependence, physical dependence and the tolerance phenomenon involving the need of a higher dose of the drug to achieve the same effect. There is also a general agreement on the use and therapeutic role of opioids in elderly patients.

In refractory chronic pain the use can be considered, in combination with the most common analgesics, of drugs called adjuvants such as antiepileptics, antidepressants, neuroleptics, corticosteroids, benzoiazepine and central muscle relaxants (35).

The most common side effects from the use of opioids affect the gastrointestinal system, and constipation is certainly the most common effect. Also possible are drowsiness, dizziness, difficulty to concentrate or urinary retention (40-42). The side effects of opioids may be a limit to their effectiveness because they limit the possibility of titration of the drug on the basis of therapeutic response. Possible strategies to optimize the therapeutic efficacy and minimize toxicity are: dose reduction, symptomatic treatment of side-effects, opioid rotation, change of route of administration.

Invasive techniques are used in chronic pain refractory to drug therapy. Invasive methods are the epidural injection, placement of the epidural catheter, neurolytic techniques and neuromodulation (31, 32, 43-48).

With a view to a multidisciplinary approach to the treatment of chronic pain, the use has been validated of physical (e.g. exercise) or behavioral interventions (e.g. Technical self-help). These methods require the active involvement of the patient and aim to distract him from pain to improve control (49, 50).

In the literature there are studies in which communication and training are essential elements in the management of pain. They allow for the recognition of pain and its management by professionals and for the promotion of the relationship between hospital and territory throughout the care pathway to the patient and his family (51, 52).

Conclusion

The presence of so many well articulated studies and guidelines in the literature contrasts with the data reported as to the presence in hospital of patients who complain about pain. A study conducted in 2009 in the hospitals of the Emilia Romagna region showed a significant increase in the level of satisfaction of hospitalized patients regarding pain management (53); nonetheless, in relation to the need to implement: a) the standard required by the accreditation procedures; b) Law 38/2010, (specifically art. 7: obligation to report

the detection of pain within the medical record); c) the Guideline Project "Hospital without pain", we have identified the objectives for a study to be conducted in hospital, which can be outlined as follows:

- Evaluate the path adopted in order to make explicit the assessment, treatment and re-evaluation of pain
- Implement the procedure to "effectively manage the pain in all patients"
- Evaluate the extent to which guidelines indicated in the literature and the Region are applied in the Hospital
- Assess how the guidelines are implemented in three main clinical areas present in the Hospital, namely Surgical, Medical and Geriatric
- Propose corrective actions to achieve the standards set

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