Acta Biomed for Health Professions 2015; Vol. 86, S. 2: 116-126

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

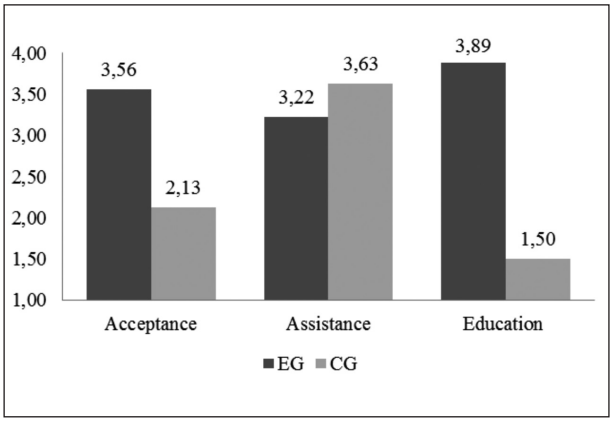
Hypothesis 1.1 was confirmed (Graph 1): psycho-social *activities* practiced by the nurses that participated in the training program (experimental group) were significantly more frequent than those practiced by the untrained nurses (control group), z = -3.06, p = .002 . Instead, no significant differences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

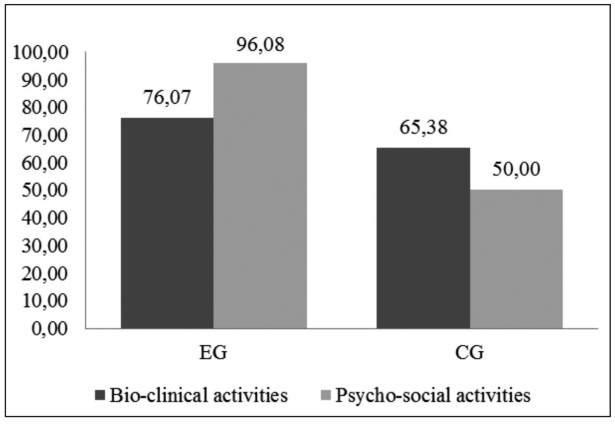
Hypothesis 2.1 was confirmed (Graph 2): the *time dedicated* to the education phase by the nurses who participated in the training program (experimental group) was significantly greater than that declared by the untrained nurses (control group), z = -3.66, p = .000 .

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.

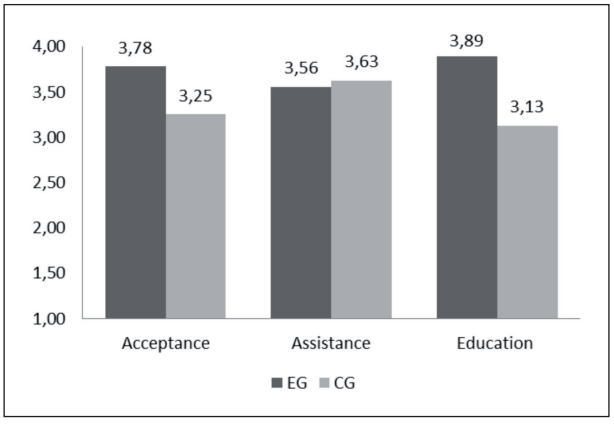
The results regarding the importance assigned to the phases of the nursing process (Graph 3) confirm those just described.



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)



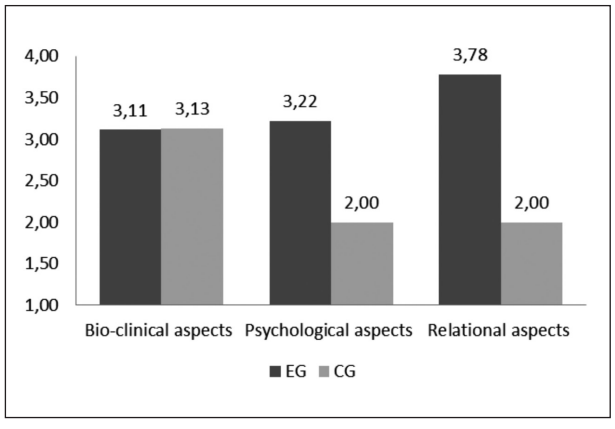
Graph 3. Importance attributed to the three phases of the nursing process: comparison between experimental (EG) and control (CG) group (means; range 1-4).

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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Accepted: 13 July 2015
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