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Index

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Foreword

In this supplement of ACTA for health professionals, multiple points of view on the health professions aim to highlight the complexity of this professional field, its strengths and weaknesses. The Editorial Board's precise choice is to add value to the interprofessionalism typical of the healthcare world. The contributions here exposed, in fact, come from different kind of professionals: nurses, midwives, psychologists, doctors. The choice is to enhance this plurality of skills, emphasizing the added value obtained in the questions formulation and in the search for effective answers when these professionals are to interact and, in this way, to simultaneously activate multiple keys to read the complicated phenomena that arise within the healthcare context. Although the recognition of this added value may seem obvious, unfortunately in Italian daily practice we still find a strong resistance to the full use of interprofessionalism.

Often different professionals act on the same problem independently, without discussing and exchanging opinions, implementing multiprofessional but not interprofessional practices. This separation has strong cultural roots that are clearly reflected in the separation of the training courses: moments of common teaching in degree courses for doctors, nurses, rehabilitators, psychologists, and social workers are absolutely marginal if not absent.

The attempt made by this Editorial Board is to make available the same journal for different professionals that deal with topics that are of transversal interest in order to experiment an interprofessional research platform.

The articles in this issue, create a framework that includes the quality of life in the job context, dealing with a critical and delicate topic such as wards' lateral violence, aiming to draw a more defined conceptual framework, able to provide the basis for effective interventions in reducing the phenomenon. Another article deepens the theme of relational difficulties among health professionals, experimentally investigating the roots of these critical issues, providing an illuminating paradigm on the possible dynamics in heterogeneous professional contexts.

The transition from the interpersonal to the intrapersonal sphere is natural, in an "integrated approach" mind set that alternates wide panoramic views with in depth zoom, trying to obtain a complete synoptic picture on health professions. Therefore an article focuses on the economic expenditure, proposing an effective method of nursing care cost and traceability analysis, in order to favour a high-level organization. However, other articles investigate the most intimate and profound areas of the professional, such as emotional and stress resistance, framed in a study of effectiveness of a narrative tool for the professional. In this supplement, the area of development of strategies and techniques available to the healthcare professional is also examined in depth, in accordance with a vision of continuous training, but always with a point of view considering an "holistic" care. One article focuses on the use of an innovative device to reduce pain in children undergoing venipuncture, another one assesses the use of narration to promote empowerment and adherence to the treatment of patients with chronic disease. Finally, there is also a more direct connection to the health profession, taking place with an "eye for patients". One article, then, focuses on the characteristics of patients receiving non-voluntary psychiatric treatment and another one reports outcomes of an intervention project carried out in Senegal aimed to prevent cervical cancer. From these articles emerges the salient role that the well-trained health professional can play in the prevention of serious conditions.

This issue, therefore, aims contributing to make tangible, indeed, "readable" the concept of organizational complexity together with that of holistic care, as they represent the "Rosetta stone" to interpret the contemporary healthcare professional context.

Prof. Leopoldo Sarli
Dr. Chiara Cosentino

Efficacy of the Buzzy System for pain relief during venipuncture in children: a randomized controlled trial

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Abstract. *Background and aim of the work:* procedural pain is a significant issue for paediatric patients. In particular, needle pain is amongst the most stressful for children. Studies revealed that a large number of children do not receive adequate pain prevention during the procedures. Neglecting the prevention of needle pain can cause several psychological effects such as anxiety and phobias, and increase perceptions of pain in the future. We aimed to verify the efficacy of Buzzy System in reducing pain during venipuncture. *Methods:* A randomized control trial was conducted among 72 children aged 3 to 10 years undergoing venipuncture. Children were randomly assigned to The Buzzy with distraction cards group (experimental group) or to "magic gloves" group (control group). Perception of pain was measured through the Visual Analogue Scale (VAS), the Wong-Baker Scale (WBS) and the Numeric Rating Scale (NRS). *Results:* Sixty-four children participated in the study, 34 in the experimental group and 30 in the control group. The experimental group showed significantly lower levels of pain (p=.039; 95% CI: -2,11; -0,06) in terms of the mean=3.65±2.011; median=3, compared to the control group (mean: 4.67±2.14, median=4). Caregivers were satisfied with the Buzzy System. *Conclusion:* The Buzzy System combined to distraction cards showed a greater reduction of perceived pain than "magic glove" technique. This study underlines the importance of active involvement of caregivers during procedural pain in children. Pediatric nurses have an important role in empowering children and caregivers to be interactive during venipunctures.

Key words: venipuncture, children, procedural pain, Buzzy System, pain relief

Introduction

Pain is a sensory and unpleasant emotive experience, which derives from real or potential tissue damage (1). Procedural pain is a clinical manifestation of pain due to a diagnostic or therapeutic intervention (2). In particular, needle pain is amongst the most stressful for children (3). Furthermore, studies revealed

that a large number of children do not receive adequate pain prevention during the procedures (4).

Neglecting the prevention of needle pain can cause several psychological effects such as anxiety and phobias, and increase perceptions of pain in the future (5, 6).

A study has shown that 30% of people presenting needle phobia had experienced in the past a very

painful procedure relating to the insertion of a needle, without sufficient effort by the health professionals to alleviate the pain (7).

There is considerable evidence in the scientific literature regarding the efficacy of techniques both pharmacological and non-pharmacological, for the prevention of acute procedural pain in children (8), depending on the age, personal situation, type of pain, preferences and coping abilities of the child (9).

Based on those findings, a device has been created, called Buzzy, which is composed by a bee-shaped gadget producing vibrations and cooling through freezable wings. The effect of Buzzy is based on the gate-control theory discovered by Melzack & Wall in 1965, which suggests that barriers are able to control the flow of pain information by means of the activation of nociceptive fibres. In this case, the purpose of the cold and the vibrations is to block the transmission of pain signals (10).

Several studies tested the efficacy of the Buzzy System.

In a Turkish study, involving 120 children, aged from 6 to 12 years and who underwent venipunctures, the use of Buzzy brought about a significant reduction in pain ($p<.001$) compared to the control group who were not given any treatment (11). This was confirmed by the study of Moadad et al. (12).

Furthermore, in the study undertaken by Canbulat et al. (13) on 176 children aged from 7 to 12, the Buzzy group showed a significant reduction in the levels of anxiety and acute pain during peripheral venous catheterization.

Another study, conducted by Baxter et al. (14), at an emergency unit examined 81 children between the ages of 4 and 18, divided into two groups, and compared Buzzy to ice spray. They also observed a reduction in median patient-reported pain in the experimental group with Buzzy (-2; 95% CI, -4 to 0).

However, this contradicts the study led by Kearl et al. (15), in which the Buzzy didn't showed superiority towards local anaesthetic (J-tip, needle free injection system) for pain reduction during venipuncture.

Two Italian studies tested the impact of the Buzzy for children. In the study by Schreiber et al. (16) carried out in the "Burlo Garolfo" hospital in

Figure 1. Distraction Cards
Note: Cards used by caregivers to distract the child

Trieste, 70 children with an average age of 9, who underwent venipuncture, were examined. Of these, 34 who were in the group using the Buzzy showed lower levels of pain ($p=.003$) compared to the 36 in the control group (with no treatment). The second study, which was undertaken at the day hospital of the "Filippo del Ponte" hospital in Varese, included 36 children between the ages of 4 months and 14 years who all underwent venipuncture (17). The results showed an average pain score of 6.09 on the Faces, Legs, Activity, Cry and Consolability scale (FLACC scale) and 2.25 on the Visual Analogue Scale (VAS scale). In the same study parental satisfaction towards the Buzzy System was measured and revealed very positive acceptance by parents, independently of pain scores.

Usually Buzzy didn't include also distraction cards. We introduce this intervention because we would like to know if the cold and vibration effect of Buzzy will be improved by the interaction with caregivers, and test the relevance of this relationship in pain relief during invasive procedure in children.

The "Buzzy System", used in this study, associates three different components and modulations of pain:

1. Distraction – cognitive method: distracting the child with "distraction cards" (Figure 1);
2. Vibration: a mechanical effect created by applying a bee-shaped gadget a few centimeters from the needle entry point;
3. Cryotherapy effect: by a removable cold liquid device that the bee-shaped gadget has at its base.

The figure 2 shows how and where the Buzzy is used and placed.
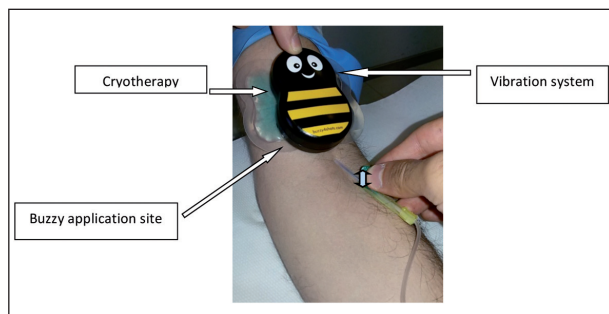
Figure 2. Buzzy Application

Aims

The main aim of our study was to evaluate the efficacy of the Buzzy System in reducing pain during venipuncture in children compared to routinely technique (magic gloves) used in the ambulatory where the study took place.

A secondary aim was to evaluate the satisfaction of the parent/caregiver in relation to the distractive techniques of the Buzzy System and their willingness to use it again for future procedures.

Therefore, our hypotheses/research questions were:

H1: Are the three effects of the Buzzy System (distraction, vibrations and cryotherapy) more efficacious in pain control during venipuncture in children from 3 to 10 years old, than the distraction with solely magic gloves technique?

H2: Are caregivers/parents satisfied with the Buzzy System?

H3: Are there differences according to gender and ages for pain perceptions during venipuncture?

To our knowledge, this is one of the few studies that compared–for children undergoing venipuncture-the Buzzy System including the systematic use of distraction cards, with other active intervention for pain reduction.

Methods

Study design

This was an open, randomized clinical trial. The study's participants were randomly assigned to two groups. The primary endpoint was the pain felt by the child at the moment of venipuncture. The study was designed in accordance with the guidelines of the Consolidated Standard for Reporting Trials CONSORT 2010 (18).

Population, Sampling and Setting

The study was conducted in the Department of Pediatrics at the ASST Fatebenefratelli-Sacco, Luigi Sacco Teaching Hospital, Milan, Italy, in a pediatric ambulatory with outpatient children.

Based on previous studies (16, 17), we hypothesized that children using the Buzzy System distraction techniques would have a mean pain level of 1.5 (SD±1.2) compared to children in the control group with a mean pain of 3.3 (SD±2.0). Considering an alpha level of 5% and a power of 90%, it was necessary to compare 27 children per group. Anticipating the fact that some children would probably drop out of the study, we increased the sample size by 30%. Therefore, the total number of children enrolled was 72.

Inclusion criteria

- Children aged 3 to 10 years.
- Children visiting an outpatient department.
- The presence of at least one caregiver/parent during the procedure who distracted the child with the distraction cards (in the case of the experimental group).
- Children of both Italian culture and language.
- Children in need for a venipuncture.

Exclusion criteria

- Children with a significant altered emotional state.
- Children unable to quantify or express their pain (e.g. severe cognitive deficit).
- Lack of parental consent.
- Absence of a caregiver/parent during the procedure.

The choice of the age group was based on scientific literature, which asserts that children in this age range were particularly responsive to distraction tech-

niques (19).

We chose to involve children of Italian culture and language to reduce variability, as we are aware of the fact that cultural factors can influence the perception of pain.

Randomization

Randomization was carried out using the block method. Blocks of six were used to maintain proportional allocation between the experimental and the control group throughout the study.

The randomization list was created using specific software: whoever assigned the children to the experimental and/or control groups did not take part in the creation of the randomization list and wasn't aware of its contents. For the randomization and assigning of the children to the experimental and control groups we used opaque envelopes. The envelopes were only opened by the nurse carrying out the venipuncture, after receiving consent from the parents of the children involved in the study.

Data collection procedure

Data was collected between September and October 2015. First author explained the study and obtained written consent from parents in the waiting room.

The venipuncture took place behind closed doors with only one child present at a time, ensuring that none of the children included in the study would be influenced by having witnessed the venipuncture on other children. Once allocated to a group, each child underwent the venipuncture using the applicable intervention (experimental or control).

Data collection instruments

Procedural pain was evaluated using an instrument, which integrates three evaluation scales: Visual Analogue Scale (VAS), Numeric Rating Scale (NRS) for children over 6 years old and Wong Baker Scale (WB) for children between 3 and 6 years. This tool showed a good validity and reliability in a pilot study conducted in Italian context and can be used to assess pain in children with different ages (20). Pain levels were documented immediately after the venipuncture.

Procedures
Experimental group

In the experimental group, children were involved in distraction techniques using the Buzzy System during venipuncture.

While the nurses placed the Buzzy with the frozen wings on children's skin, caregivers/parents were invited to interact with their children through the use of the Distraction cards, which are a small amount of images depicting various scenes set in school, countryside or outdoors, and which could be flipped through by the child. Parents continuously asked their child questions about the images, maintaining an interactive dialog during the whole venipuncture. Distraction cards were only used in the experimental group.

The nurse positioned the Buzzy at 2-5 cm from the possible venipuncture location. Before starting the venipuncture, the nurse invited the child to turn on the device in order to start the vibration. Children were offered the possibility to choose the type of vibration released by the Buzzy: continuous or intermittent.

The Buzzy remained on till the end of the venipuncture. Finally, the nurse assessed children's pain perception during procedure with the appropriate pain assessment tool.

Control group

In the ambulatory setting, the "magic glove technique" is routinely used. Before starting the venipuncture, the nurse gently rubbed the area in which the needle was placed in order to free it from the pain. The child, imagining that the nurse is putting the glove and feeling the effect of the massage on his body, would feel a certain numbness in the same area where the sensitivity is lowered.

The nurse who performed the venipuncture was the same during the whole data collection process. Whether in the control or the experimental group, none of the children received pharmacological pain therapies.

Evaluation of parental satisfaction

In order to evaluate the parents' level of satisfaction with the Buzzy System method of pain control in the child and their desire to use it again in future, we used a questionnaire.

The questionnaire was created and used by Friedel et al. (17). The questionnaire items were: 1. My child was comforted by the use of the Buzzy System during the procedure; 2. It was a positive experience; 3. I think the Buzzy System is easy to use; 4. I would like to use the Buzzy System in the future for tests carried out on my son/daughter.

Rating was based on a five points Likert-Scale: 1=No, 2=Probably not, 3=I don't know, 4=Yes, 5=Definitely.

Data analysis

Qualitative data were expressed using numbers or percentages while quantitative data used mean and standard deviation, or median and inter-quartile range (where appropriate). We evaluated the normality of the distribution of the continuous variables using the Shapiro-Wilk test. The continuous variables in the two groups were compared using Student's t test if normally distributed. Categorical variables, on the other hand, were compared using the Pearson Chi-square test. Given that the frequency distribution of the pain levels was not normal, we transformed them with a two ways transformation using SPSS (21). Afterwards, we compared the two distributions with t-test for independent sample. We calculated 95% confidence interval. A p value <0.05 was considered significant. Data analysis was conducted according to the Intention to Treat. All statistical analyses were carried out with SPSS software version 21.0 (Chicago IL, USA) (22).

Ethical considerations

The study was approved by the medical administration and the nursing institutional board of the Teaching Hospital Luigi Sacco in Milan.

Protection of personal data was ensured by not recording the name of the child included in the study.

Instead of that, each child was allocated an alphanumeric code. In order to avoid errors in identification or association of the data for each child, we only noted initials and dates of birth. Given that the children were all minors, parents and caregivers were first informed by a letter about the aim of the study and the methodology used, in particular the methods for assigning the treatment. Parents were informed that their willingness to participate to the study was free, that they could refuse at any time, without any justification and without negatively impacting the care for their child. Written consent was obtained by all participants.

The research was carried out using the ICH Good Clinical Practice guidelines (23), Italian Law 211/2003 and the Helsinki declaration governing clinical experiments.

Results

A total of 72 children were enrolled between September and October 2015, subdivided into two groups of 36 children. These 72 children and their caregivers were the ones approached for the study and none of them declined participation.

Of the 72 children enrolled, 64 participated in the study, 34 in the experimental group and 30 in the control group.

Eight children were excluded as they displayed a significantly altered emotional state at the time of the venipuncture, such as levels of anxiety and fear to a degree that could compromise a valid expression of the actual perceived pain. They were so distressed that the venipuncture was postpone to another day. For this reason, we were not able to consider them in the analysis. Two were randomized to the experimental group (with the Buzzy System) and six were randomized to the control group. In the experimental group one was a girl of six years old, and the other was a boy of eight years old. Both of them were with their mother and never experienced venipuncture before. In the control group three children were girls and three were boys. Four did experienced venipuncture before and two did not. Two children were accompanied by their mothers, two by their fathers and two by both parents. In the control group, children aged from 3 to 10 years.

The distribution of the population is visible in the flow chart below (Figure 3).

The two groups did not show statistically significant differences before the procedure when compared for age, gender, number of venipuncture, if it was their first venipuncture, caregiver attending the procedure, reason for venipuncture (Table 1).

Pain was significantly lower in the experimental group than in the control group (*Student's t test*=-2.16; *df*=62; *p*=.039) (Table 2).

The experimental group showed a lower mean and median pain level (except for 3 outliers, that were included in the analysis within their group of randomization, experimental group) and a narrower interquartile range than the control group. The three outliers were two girls and one boy. Two children were with their mothers and one with both parents. Two children did experienced venipuncture before and one did not.

A greater control of pain was demonstrated with the Buzzy System combined with Distraction cards (Graph 1).

As a secondary analysis we looked at the possible influence of age and gender on the perception of pain within the same group, as evaluated in other studies (12). We chose six years as the cut-off age because it seems during data collection that the techniques employed had a greater effect on children over six years age. Considering the control group and the experimental group separately, we compared the levels of perceived pain by dividing the children into those over the age of six and those aged six or younger. No significant difference was observed (experimental group
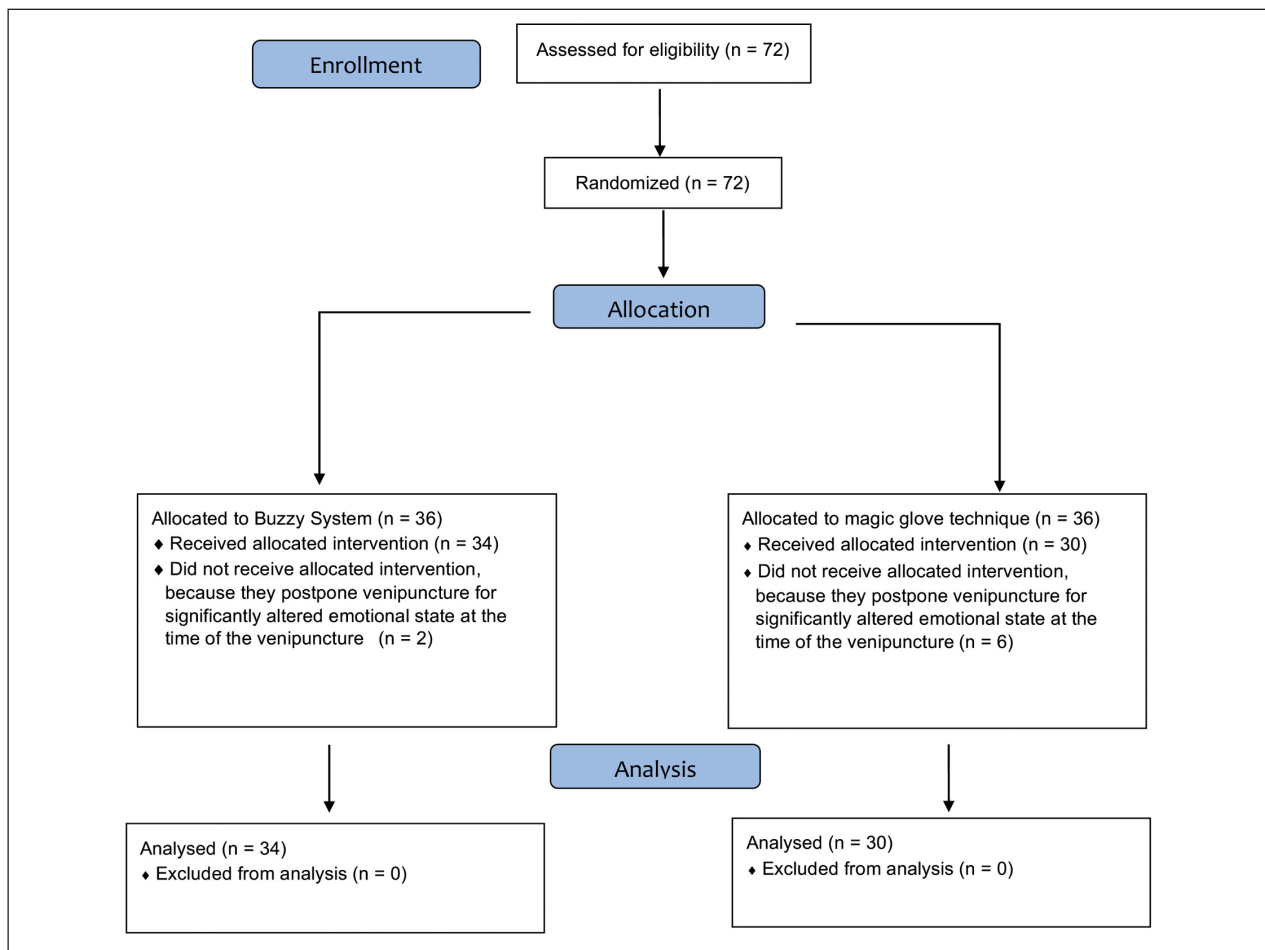
Figure 3. Flow Diagram (CONSORT, 2010)

Table 1. Characteristics of the Participants

	Experimental Group=34	Control Group=30	p value
Age (Mean (± SD^))	6.78 (±2.27)	6.25 (±2.12)	.31[a]
Gender (%)	n (%)	n (%)	
M (%)	17 (47.2)	14 (38.9)	.34[b]
F (%)	19 (52.8)	22 (61.1)	
First venipuncture	4 (11.1)	6 (16.7)	.50[b]
Caregiver attending the procedure	n (%)	n (%)	
Mother	17 (47.2)	18 (50)	.89[b]
Father	8 (22.2)	6 (16.7)	
Both	10 (27.8)	10 (27.8)	
Other	1 (2.8)	2 (5.6)	
Reason for venipuncture	n (%)	n (%)	
Routine blood check	13 (40)	15 (40)	.8[b]
Endocrinology check	10 (30)	7 (20)	
Allergenic check	10 (30)	10 (30)	
Other	3 (10)	4 (10)	

^SD= *Standard Deviation;* [a]= Student's *t;* [b]= *Pearson Chi square.*

Table 2. Description of pain in the two groups

	Experimental Group (N=34)	Control Group (N=30)	CI 95% Lower	Upper	p value[a]
Mean ± SD^	3.66±2.02	4.74±2.07	-2.11	-.06	.039
Median [Q1; Q3][b]	3 [3;6]	4 [4;6]			

^*Standard Deviation;* [a]*t–Test for independent sample;* [b]*Q1= first quartile; Q3= third quartile*

p=.54, control group p=.88). Being older than six years of age was not associated with a greater or lower efficacy.

We also evaluated the possible difference gender may have had on pain perception within the same groups. Again, no significant difference was found (experimental group p=.96; control group p=.68), meaning that the difference in pain perception is not due to gender.

The secondary aim of the study was to measure the satisfaction of the caregivers/parents of the children who underwent the venipuncture with the Buzzy System.

Of the 36 children in the experimental group, two sets of parents did not want to fill out the questionnaire as 'they had no time' and two further questionnaires were not filled out as the children didn't undergo the venipuncture due to significantly altered emotional state. Thirty-two questionnaires on parental satisfac-
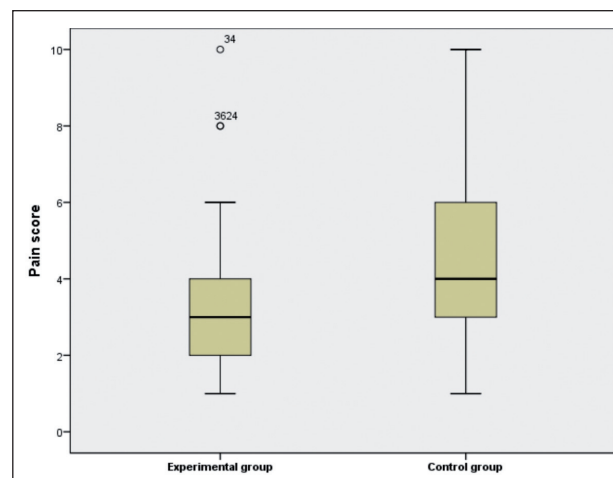
Graph 1. Pain Perception in Experimental and Control Groups
Note: Pain score measured with Visual Analogue Scale (VAS), Numeric Rating Scale (NRS), Wong Baker Scale (WBS); Experimental group= Buzzy System; Control Group= verbal distraction based on magic glove technique.

Table 3. Description of the Results of Caregivers' Satisfaction Questionnaire for the Buzzy System.

Parents' satisfaction (n = 32)	No n (%)	Probably not n (%)	Don't know n (%)	Yes n (%)	Definitely n (%)
My child was comforted by the use of the Buzzy System during the procedure	0	1 (3.2)	6 (18.8)	17 (53)	8 (25)
It was a positive experience	0	1 (3.25)	4 (12.5)	12 (37.5)	15 (46.9)
I think the Buzzy System is easy to use	0	0	1 (3.1)	8 (25)	23 (71.9)
I would like to use the Buzzy System in the future for tests done on my son/daughter	0	0	6 (18.7)	12 (37.5)	14 (43.8)

tion with the Buzzy System were therefore collected. The use of the Buzzy System was met favorably by parents who expressed either a positive or a very positive judgment.

71.9% of parents said they would reuse the Buzzy System in a future venipuncture, while 46.9% of parents said it was definitely a positive experience. No negative opinions were expressed for any of the questions regarding the Buzzy System (Table 3).

Discussion

Our results demonstrated the efficacy of the Buzzy System combined with distraction cards in reducing the perception of pain during venipuncture compared to other distractive techniques. As far as we are aware, this study is one of the few in the international literature evaluating the efficacy of a non-pharmacological system based on the use of several methods (verbal and visual distractions, vibration, cryotherapy), to prevent procedural pain in children, compared to other distractive techniques. Differently from Moadad et al. (12), in our study we did not find a difference in pain perception considering ages and gender. This could be due to the different scales used for each category of ages during data collection. This study combines the effect of distraction, cryotherapy and vibration. Those effects have been analyzed independently in various studies.

Impact of distraction

Regarding non-pharmacological techniques, studies have shown that distraction can diminish the perception of procedural pain in children and adoles-

cents (24-26). Although quality of trials which examined psychological interventions for needle-related pain and distress is questionable, reviews showed that there is an evidence supporting the efficacy of distraction and hypnosis (25, 27, 28). Distraction cards were found particularly powerful in reducing both pain and anxiety levels during venipunctures (29) compared to other distraction techniques such as listening to music or balloon inflation (30).

Triggering interactivity of children during distraction techniques is different than distracting passively children with a doll or a puppet. This is consistent with a study in which a high degree of children's interactivity during insulin injection was found to reduce significantly their distress (31) and with our results.

Impact of cryotherapy and vibration

The effect of cold in pain reduction was demonstrated in several studies (32, 33). Similarly, to vibration, which was found to diminish pain perception (34, 35). The mechanisms underlying those effects can be explained by the role of the gate-control theory developed by Melzack (10). However, in our study the impact of combining the cold effect (frozen wings of the Buzzy) with the vibration (produced by the Buzzy) seems to be more efficacious than the magic gloves techniques alone. The lowered pain scores founded in our study confirmed those founds in other studies related to many invasive procedures (11-13, 16, 30, 36).

Impact of combined cryotherapy, vibration and distraction

A multifaceted approach combining several techniques adapted to age and psychology of children

to prevent or reduce perception of pain is underlined by Landier et al. (37). One of this multimodal approaches is in fact the combination of cryotherapy, vibration and distraction, on which the Buzzy System relies. Mechanisms which could explain this impact can be found through the gate-control theory but also more widely in the growing research related to neurosciences, which indicates the supporting role of various divisions in the anterior cingulate and prefrontal cortices observed in hypnotic responding (38). In fact, distraction is strongly correlated to hypnosis in which some characteristics are found to be similar, namely the specific involvement of adult (nurses or parents), the possibility for the child to make a choice and finally the interactivity of the child with an adult. Compared to the complete absence of any form of treatment, the use of the Buzzy System has therefore shown itself to be efficacious in various invasive procedures, helping to reduce the pain felt by the child. In our study Buzzy System showed to be efficacious in pain reduction also when compared to other distractive techniques.

Role given to caregivers/parents during painful procedures

Acceptability of the Buzzy System by parents was largely confirmed. Just two parents did not answer to the questionnaire because of lack of time. None had a negative experience during its use. Moreover, the majority of parents would reuse the system in the future. In this aspect our results confirmed those of Friedel et al. (17). A randomized clinical trial study conducted by Liossi et al. (39) among a sample of 45 pediatric cancer outpatients exposed to venipuncture showed a beneficial effect of self-hypnosis and a reducing of parental anxiety. In pediatrics, a family-centred approach is a standard of quality care. It underpins the importance to take into consideration not only the child's experience but his relation with his parents. Reducing child's anxiety goes in parallel with comforting parental anxiety. This double effect has been underlined in various studies although focusing mostly on a chronic pain context (40-44). Giving the opportunity to parents to have an active role by using the distraction cards might empower parents in their capacity to comfort their child's pain and anxiety, instead of feeling help-

less and anxious. For children having their parents secured might lower their own anxiety.

Nevertheless, the impact of the Buzzy System may be less efficacious among children who experienced high level of pain in the past and developed needle phobia. This is consistent with the findings of Goffaux et al. (45), which indicated higher doses of analgesic needed for persons who expected to experience pain.

Limitations

The first and major limitation of this study is the fact that we were not able to verify the efficacy of Buzzy System in reducing pain in children with an altered emotional state.

Perhaps this situation could have influenced results in favor to the Buzzy System. Further studies should document degree of anxiety related to needle phobia. Moreover, intervention fidelity was not measured in our study. This means that the amount of distraction provided could vary among caregivers and have an impact on the effectiveness of the intervention (46). We didn't compare Buzzy System with pharmacological intervention, such as anaesthetic, and therefore we can't compare our study to the one conducted by Kearl et al. (15). It will be interesting in the future compare the Buzzy System with distraction cards to pharmacological intervention, to verify at least its equivalence.

Finally, we were not able to match the results of parent's questionnaire with children's scores of pain, because questionnaires were strictly anonymous. It would be useful to compare children's perception of pain with parental satisfaction towards the Buzzy System and look after possible correlation. Taking these limitations, it would be vital to repeat the study conducting a pragmatic, randomized clinical trial, in which the inclusion criteria are less restrictive and therefore the external validity might be increased.

Conclusion and clinical implication

The relevance of our study is that the Buzzy System with distraction cards has proved to be efficacious in reducing pain even compared to other distractive

techniques, which underlines the relevance of all three components (vibration, cryotherapy and distraction). Preventing procedural pain is a very important aspect that nurses need to take into consideration, in order to avoid the potential trauma caused by painful procedures, preventing anxiety or even needle phobias (5,6). An important conclusion that can be drawn from this study is the fact that it is essential to involve the caregivers of the child during the procedure. Giving parents an active positive role during venipuncture empowers them to feel secure which consequently improves child's feelings of confidence. Family-centered care and partnership with parents are the core elements of quality care provided to children.

Acknowledgments

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Demographic and clinical characteristics of patients involuntarily hospitalized in an Italian psychiatric ward: a 1-year retrospective analysis

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Abstract. *Background:* In Italy, psychiatric compulsory treatments are regulated by Law 180 of 13-5-1978 that establishes three criteria: 1) acute psychiatric conditions requiring urgent treatment, 2) patient's refusal of treatment, 3) inpatient treatment is necessary and cannot be postponed. *Aim:* To highlight demographic and clinical risk factors for involuntary treatments. *Methods:* We retrospectively collected all hospitalizations in the Service of Psychiatric Diagnosis and Treatment of a northern Italian town from 1-1-2015 to 31-12-2015. We statistically compared demographic and clinical variables related to voluntarily and involuntarily admitted patients and their hospitalizations. *Results:* We divided our sample into patients voluntarily hospitalized (PVH=236) and involuntarily (PIH=160) according to their voluntary (VH= 304) and involuntary (IH=197) hospitalizations. PIH were older than PVH and, more frequently, lived alone and were unemployed (*p*<0.001). "Acute worsening of psychopathology" for IH and "Suicidality" for VH were the prevalent reasons (*p*<0.001). IH was longer than VH (*p*<0.001). Among PIH, the most frequent diagnoses were "Schizophrenia and Other Psychosis" (ICD-9-CM) and "Ineffective Impulse Control + Disturbed Personal Identity" (NANDA-I) (*p*<0.001). During hospitalizations, PIH more often than PVH presented aggressive behavior (*p*<0.001). At discharge, PIH were more frequently sent to another psychiatric ward or protected facility with long-acting injectable antipsychotics (*p*<0.001). *Conclusions:* Our involuntarily admitted patients were affected by severe psychiatric disorders with social maladjustment and required complex therapeutic and rehabilitative programs to counteract aggressive behaviour, poor therapeutic compliance and prolonged hospitalizations. The assessment of patients' characteristics can help clinicians recognize who are at risk for compulsory treatment and prevent it.

Key words: involuntary hospitalization, compulsory treatment, mental health legislation, aggressive behaviour, acute psychiatric ward

Background

Involuntary or compulsory hospitalization is a controversial topic in psychiatry due to ethical and legal issues of treatment against the patient's will (1-3). Human rights of patients affected by mental disorder are of increasing importance and many countries are now committed guarantee and respect of these rights, in accordance with the United Nation Convention on the Rights of Person with Disabilities (13 December 2006) (4) and the Declaration of Dresden against Coerced Psychiatric Treatment (7 June 2007) (5). On the other hand, the autonomy of people suffering from psychiatric disorders can be a complicated construct.

In situations where patients lack either insight about psychiatric illness or therapeutic adherence due to severe disorders as psychosis, major depression or manic state, finding the balance between patient autonomy and need for treatment may be challenging (6). Patients with psychosis often lack awareness of illness due to the psychiatric disorder itself. They do not show a capacity to deeply understand social consequences of the disorder and the need for treatment (7). And for these reasons psychiatric disorders represent the only group of illnesses where admissions, discharges and other clinical procedures are governed by legislation in most countries (8). Despite the efforts of the World Health Organization to internationally standardize strategies for mental health care delivery, the regulation for involuntary admissions and treatment of patients with psychiatric disorder markedly differ across countries up to now (9). The basic requirement for involuntary admissions in all countries is that the patient suffers from a mental disorder (2), but the type and severity of mental disorder that qualify a person for compulsory treatment vary across jurisdictions (10).

The statement of "preventing harm to oneself or to others" is the most common requirement of mental-health legislation (9). The "criterion of dangerousness" (threatened or actual danger to oneself or to others) is the most common additional one (2), which in some countries is the only criterion justifying or permitting someone to be treated involuntarily (11). In Italy, danger to oneself and/or to others is not considered a criterion for involuntary admission, but, according to Law 180 (12), 3 criteria have been established: 1) acute psychiatric conditions requiring urgent treatment, 2) patient's refusal of treatment, 3) inpatient treatment is necessary and cannot be postponed. This is very different from the dangerousness criteria used in most other countries (10).

In fact, the Italian Constitution (13) guarantees, through Article 32, the citizen right to physical and mental health care, which must be implemented respecting the dignity and freedom of the person. The psychophysical wellbeing of the subject is set as a goal, giving particular attention to the safeguarding of individual freedom. However, in specific situations it is challenging to achieve this goal while maintaining the principle of "inviolable individual freedom" (Article 13 of the Italian Constitution) (13). In this case, the law regulating psychiatric admissions in involuntary regime is Law 180 of 13 May 1978 entitled "*Assessments and voluntary and mandatory health treatments*" (12). This law is a part of a broad reform of health care that led to the establishment of today's National Health Service (14). As specified in Article 33, voluntary health care must be considered the norm, guaranteeing the patient's right to freedom and health, making the involuntary treatment an exception, justifying its implementation only if there are certain conditions, that are clearly stated in Law 180 as above reported (14). The same 180 Law of 13 May 1978 (12), which regulates involuntary hospitalization, established the definitive closure of psychiatric hospitals and the opening of new acute psychiatric 15-bed wards, so-called Service of Psychiatric Diagnosis and Treatment (SPDT), located in a General Hospital, which cater for patients with acute mental disorders requiring voluntary and involuntary hospitalizations.

Involuntary admissions to psychiatric hospital can be problematic on several levels. The clinical benefit of admitting patients involuntarily has been disputed and there are legal and ethical issue related to coercive treatments. It is a basic principle that health services should be based on consent and that coercion should be reduced to the minimum possible (15).

The establishment of regular and effective monitoring processes focusing on involuntary psychiatric hospitalizations would be an important step forward (2). An European Commission funded the EUNO-MIA study aimed at evaluating the application of coercive measures in Psychiatry setting in 12 European countries (16). In particular, this research, which was focused on patients involuntarily admitted due to acute mental illness, highlighted that high levels of psychotic symptoms were associated with the use of coercive measures. Moreover, EUNOMIA showed a mutual relation between the severity of perceived coercion at admission and the use of coercive procedures, confirming that high levels of perceived coercion can be detrimental on therapeutic relationship and long-term treatment outcome (17).

Assessing the patient's demographic and clinical characteristics can help clinicians recognize patients

who are at risk for involuntary treatment (3,16,18). These factors should be taken into consideration by state programs aimed at reducing the use of involuntary treatment in the psychiatric ward.

This work aims to analyze the variables associated with patients who require compulsory treatment in order to highlight the risk factors related to this treatment.

Methods

Design of study and observation period

This descriptive retrospective survey was performed in an Italian acute psychiatric ward (SPDT), located in a General Hospital of a northern Italian town, where patients from a catchment area of about 500,000 inhabitants, suffering from psychiatric disorders, are voluntarily and involuntarily hospitalized, according to Italian Law 180 of 13-5-1978 (later included in Law 833 of 23-12-1978) (12,14).

Population and selected variables

The sample, represented by all patients hospitalized in the SPDT from 1-1-2015 to 31-12-2015, was divided into two groups: patients voluntarily (PVH) and involuntarily hospitalized (PIH). In order to compare these two groups, we extrapolated demographic and clinical variables from ward electronic record system and from patient medical records.
  a) *Demographic variables*
    • Age.
    • Gender.
    • Nationality.
    • Living environment.
    • Work.
    • Legal guardianship.
  b) C*linical variables*
    • Reasons for hospitalization: Acute worsening of psychopathology, Familial relational conflicts, Suicidality, Substance and/or alcohol intoxication/withdrawal, Social maladjustment, Non-adherence to therapy.
    • Nursing Diagnoses, according to the interna-

tional NANDA-I classification (19) formulated at admission to the ward.
• Pharmacological therapy: Route of therapy administration during hospitalization, Mono-therapy/Poly-therapy and Drugs prescribed at discharge.
• Organic comorbidity and extra psychiatric medical activities carried out during hospitalization: Supplementary laboratory and clinical tests, Non-psychiatric drug therapies and Consultations.
• Aggressive and escape behaviour: Mild (verbal), Moderate (verbal + physical), Serious (physical violence requiring intervention by hospital security guard and/or pharmacological and physical restraint, with possible injury to patient and/or professional), Escape from the ward.
• Nursing Care activities: Fall prevention, Personal daily care, Rehabilitative activities aimed at patient autonomy, Behaviour control.
• Duration of hospitalizations in days.
• Diagnoses at discharge: main psychiatric diagnosis according to the International Classification of Diseases (ICD-9-CM) (20).
• Destination at discharge: Outpatient community service, Transfer to other hospital wards, Transfer to protected facility/community, Private specialist or General Physician.

Statistical analysis

The data collected in this way were analyzed by:
• descriptive statistics: percentages for dichotomous variables, averages and standard deviations for continuous variables;
• chi2 test for the comparison of percentages and *t*-test for comparison of continuous variables;
• multiple logistic regression regarding the correlation between the variables described above, as independent variables, and voluntary ("0") and involuntary ("1") hospitalizations, which represent our dependent variable;
• single linear regression to correlate the length of hospitalization (dependent variable) and the in-

voluntary and voluntary state of hospitalizations as an independent variables.

A probability (*p-value*) <0.05 was considered statistically significant.

Statistical analysis was conducted using the STATA-12 programs (2011).

Results

Demographic variables of our sample

In the period of observation, we collected 501 hospitalizations in the SPDT and 396 patients hospitalized: 236 patients were voluntarily hospitalized with 1.28 hospitalizations per patient and 160 patients involuntarily admitted with 1.23 hospitalizations per patient. The demographic characteristics of the two groups are reported in Table 1.

The age of our sample ranged between 14 and 90 years, with an average age of 42 years; patients involuntarily hospitalized presented a higher age (43.73 years on average) in comparison with others, with a statistically significant difference (t=-3.32; p<0.001; t-test).

Regarding gender, we found 244 males and 148 females, without a statistically significant difference between the two genders, in the both group of patients voluntarily and involuntarily admitted.

Italians were prevalent in both groups (79.44%), followed by the presence of non-European citizens (15.12%) and, to a lesser extent, European citizens (5.44%), without a statistically significant difference between the two groups of patients.

Concerning the living environment, the largest percentage of both voluntarily and involuntarily admitted patients lived in a family, but PIH more frequently lived alone with a statistically significant difference (Pearson chi2=43.24; p<0.001).

In both the two groups, the highest percentage of patients were unemployed (36.86% in PVH and 37.50% in PIH), with a statistically significant difference between the two groups of patients (Pearson chi2=37.07; p<0.001).

Only a small percentage of patients in both groups was supported by a legal guardian (4.55% of the total),

without a statistically significant difference between PVH and PIH.

Clinical variables related to voluntary and involuntary hospitalizations

We collected 304 voluntary hospitalizations (VH) and 197 involuntary hospitalizations (IH) from 01-01-2015 to 31-12-2015. The clinical variables are shown in Table 2.

We found a statistically significant difference among the clinical motivations for hospitalizations: the most frequent reason in all admissions of our patients, with a percentage of 60.48% in VH and 77.11% in IH, was "Acute worsening of psychopathology", followed by Suicidality only for VH (Pearson chi2=32.93; p<0.001).

The duration of VH and IH statistically significantly differed: 13.33 days on average for IH and 8.82 days on average for VH (t=-2.99; p=0.002; t-test; Table 2). We also highlighted that the duration of hospitalizations was positively related to the compulsory status of hospitalizations in a statistically significant way (Beta Coeff.=4.50; Standard Error=1.50; p=0.003; 95% Confidence Inter.: 1.55-7.46, single linear regression).

Although most patients in our sample did not present any type of aggressiveness (84.03%), the aggressive behaviour resulted more frequent in compulsory hospitalizations (Pearson chi2=26.64; p<0.001). The percentage of patients with mild and moderate aggressiveness was higher among involuntarily admitted patients (15.74%) compared to those voluntarily admitted (6.25%), whereas all patients who presented severe aggressive behaviour (1.20%) were involuntary hospitalized.

Regarding extra-psychiatric medical activities, we have shown that most of our patients (78.84%) did not need further investigation and medical treatment, whereas only 13.77% of patients had undergone more than one extra psychiatric activity (Table 2).

The percentage of organic co-morbidity was statistically different between voluntarily (50%) and involuntarily (65.45%) admitted patients, showing that PVH suffered from more pathologies than PIH (Pearson chi2=14.49; p<0.001).

Table 1. Demographic variables of patients hospitalized in SPDT from 1-1-2015 to 31-1-2015

Variables	Patients voluntarily hospitalized N=236 (60%)	Patients involuntarily hospitalized N=160 (40%)	Total N=396 (100%)	Statistical Test Probability
Age, m±SD				
Years	38.89±15.64	43.73±16.03	41.92±16.17	$t=-3.32$ $p<0.001$, t-test
Gender, n (%)				
Males	141 (59.75%)	103 (63.38%)	244 (61.62%)	Not significant
Females	94 (40.25%)	54 (36.62%)	148 (38.38%)	
Nationality, n (%)				
Italian	193 (81.78%)	119 (77.60%)	312 (79.44%)	
European	10 (4.24%)	8 (4.69%)	18 (5.44%)	Not significant
Extra-European	33 (13.98%)	33 (17.71%)	66 (15.12%)	
Living environment, n (%)				
Alone	21 (8.90%)	43 (26.88%)	64 (16.16%)	
Parental Family	58 (24.58%)	37 (23.13%)	95 (23.98%)	Pearson chi_2=43.24
Marital Family	57 (24.15%)	52 (32.50%)	109 (27.53%)	$p<0.001$
Protected facilities, community, etc.	36 (14.26%)	16 (10%)	52 (10.14%)	
Unknown	64 (27.12%)	12 (7.50%)	76 (19.19%)	
Employment, n (%)				
Employed	42 (17.80%)	51 (31.88%)	93 (23.48%)	
Unemployed	87 (36.86%)	60 (37.50%)	147 (37.13%)	
Student	15 (6.36%)	5 (3.13%)	20 (5.05%)	Pearson chi2=37.07
Retired	12 (5.08%)	20 (12.50%)	32 (8.08%)	$p<0.001$
Invalidy pension	4 (1.70%)	7 (4.37%)	11 (2.78%)	
Unknown	76 (32.20%)	17 (10.63%)	93 (23.48%)	
Legal guardian, n (%)				
Present	10 (4.23%)	8 (5.00%)	18 (4.55%)	
Not present	208 (88.14%)	146 (91.25%)	354 (89.40%)	Not significant
Unknown	18 (7.63%)	6 (3.75%)	24 (6.05%)	

The care and rehabilitation activities carried out by the ward staff during hospitalizations are presented in Table 2: 32.53% of patients did not require any particular activity, with a statistically significant difference between PVH (55.59%) and PIH (47.72%); Personal daily care was the most requested activity during voluntary hospitalizations (36.51%); on the contrary, the need for behaviour control (15.57% of all hospitalizations), was almost exclusively related to involuntary state of hospitalization (39.09%); 4.59% of all patients required fall prevention (6.25% of VI and only

with 1.32% of PIH) and 1.80% of patients required rehabilitation activities aimed at autonomy (Pearson chi2=178.22; $p<0.001$).

At discharge, we found that 56.29% of patients were sent to the outpatient psychiatric service, 175 PVH (57.57%) and 107 PIH (54.31%), 29.34% of patients were sent to protected facilities/communities, with an important difference between PVH (32.24%) and PIH (24.87%). 10.58% of patients were transferred to other hospital wards, including psychiatric hospitals in other hospitals, public or private, and only 1.40% of

Table 2. Clinical variables related to all hospitalizations in SPDT from 1-1-15 to 31-12-15

Variables	Voluntary hospitalizations N=304	Involuntary hospitalizations N=197	Total N=501	Statistical Test Probability
Reasons for hospitalizations, n (%)				
Acute worsening of psychopathology	164 (57.24%)	154 (81.17%)	328 (65.48%)	
Relational conflicts	4 (1.32%)	1 (0.51%)	5 (1.00%)	
Suicidality	79 (25.99%)	16 (8.12%)	95 (18.96%)	Pearson chi2=32.93
Alcohol and/or substance intoxication or withdrawal	38 (12.50%)	24 (12.18%)	62 (12.38%)	$p<0.001$
Social maladjustment	6 (1.97%)	1 (0.51%)	7 (1.40%)	
Non-adherence to therapy	3 (0.99%)	1 (0.51%)	4 (0.80%)	
Duration of hospitalizations, m±SD				
Days	8.82±9.38	13.33±23.39	10.55±16.42	t=-2.99, p=0.002, t-test
Aggressive and escape behaviour, n (%)				
Absent aggressive behaviour	274 (90.13%)	147 (74.62%)	421 (84.03%)	
Mild aggressive behaviour	19 (6.25%)	31 (15.74%)	50 (9.98%)	Pearson chi2=26.64
Moderate aggressive behaviour	10 (3.29%)	6 (3.06%)	16 (3.19%)	$p<0.001$
Severe aggressive behaviour	0 (0.00%)	6 (3.06%)	6 (1.20%)	
Escape	3 (0.99%)	3 (1.52%)	6 (1.20%)	
Extra-psychiatric medical activities, n (%)				
One or more than one	53 (17.4 %)	54 (27.42%)	106 (21.16%)	Not significant
No medical activities	251 (82.57%)	144 (73.10%)	395 (78.84%)	
Organic comorbidity, n (%)				
Present	152 (50%)	65 (32.99%)	217 (43.31%)	Pearson chi2=14.49
Absent	152 (50%)	130 (67.99%)	282 (56.29%)	$p<0.001$
Nursing care activities, n (%)				
Fall prevention	19 (6.25%)	4 (1.32%)	23 (4.59%)	
Personal daily care	111 (36.51%)	17 (8.63%)	128 (25.55%)	Pearson chi2=178.22
Rehabilitative activities	4 (1.32%)	5 (2.54%)	9 (1.80%)	$p<0.001$
Behaviour control	1 (0.33%)	77 (39.09%)	78 (15.57%)	
No activity	169 (55.59%)	94 (47.72%)	163 (32.53%)	
Destination at discharge, n (%)				
Outpatient services	175 (57.57%)	107 (54.31%)	282 (56.29%)	
Other psychiatric ward	26 (8.55%)	27 (13.71%)	53 (10.58%)	Pearson chi2=14.81
Protected facility or community	98 (32.24%)	49 (24.87%)	147 (29.34%)	$p<0.001$
Private specialist or General Physician	5 (1.64%)	13 (6.59%)	18 (3.6%)	

patients, all involuntarily hospitalized, were not sent to any service due to their voluntarily discharge (Pearson chi2=14.81; $p<0.001$; Table 2).

The evaluation of discharge therapy (Table 3) highlights a situation of great heterogeneity with a statistically significant difference between PVH and PIH (Pearson chi2=49.17; $p<0.001$). Patients involuntarily hospitalized were more frequently prescribed long-acting antipsychotic therapy, whereas PVH more often were prescribed antidepressant drugs. The majority of patients (73.85%) were treated with polytherapy, in particular PIH (77.49%), without a statis-

Table 3. Therapy variables related to all hospitalizations in SPDT from 1-1-15 to 31-12-15

Variables	Voluntary hospitalizations N=304	Involuntary hospitalizations N=197	Total N=501	Statistical Test Probability
Pharmacological drugs at discharge, n (%)				
Benzodiazepines	12 (3.95%)	3 (1.52%)	15 (2.99%)	
Antipsycotics	39 (12.83%)	30 (15.23%)	69 (13.77%)	
Antidepressants	17 (5.59%)	0 (0.00%)	17 (3.39%)	
Mood stabilizers	3 (0.99%)	4 (2.03%)	7 (1.40%)	
Long-acting injectable antipsychotics	1 (0.33%)	5 (2.54%)	6 (1.20%)	Pearson chi2=49.17
Benzodiazepines + antipsychotics	58 (19.08%)	52 (26.40%)	110 (21.96%)	*p*<0.001
Antidepressants + other psychiatric drugs	62 (20.39%)	11 (5.58%)	73 (14.57%)	
Mood stabilizers + other psychiatric drugs	47 (15.46%)	31 (15.74%)	78 (15.57%)	
Long-acting injectable antipsychotics + other psychiatric drugs	55 (18.09%)	54 (27.41%)	109 (21.76%)	
Not specified	10 (3.29%)	7 (3.55%)	17 (3.39%)	
Mono- or poly-therapies at discharge, n (%)				
Mono-therapy	81 (26.73%)	43 (22.51%)	124 (24.75%)	Not Significant
Poly-therapy	222 (73.27%)	148 (77.49 %)	370 (73.85%)	
Route of therapy administration during hospitalization, n (%)				
Oral	230 (75.66%)	118 (59.9%)	348 (69.46%)	Pearson chi2=37.14
Injective	26 (8.56%)	6 (3.05%)	32 (6.39%)	*p*<0.001
More than one route	48 (15.78%)	71 (36.05%)	119 (2.38%)	

tically significant difference compared to PVH. Oral drug administration was registered for the majority of hospitalized patients (67.86), with a higher percentage in PVH (75.66%) compared to PIH (55.84%), with a statistically significant difference (Pearson chi2=37.14; *p*<0.001; Table 3).

Medical and nursing diagnoses of patients voluntarily and involuntarily hospitalized

The psychiatric diagnoses formulated at discharge, according to the ICD-9-CM (16), were grouped into 7 categories for statistical reasons (Table 4). We have shown a statistically significant different distribution between VH and IH at discharge (Pearson chi2=52.00; *p*<0.001): the majority of patients (39.92%) at discharge had a diagnosis of Schizophrenia and Other Psychosis, with a percentage of 38.87% in VH and 47.72% IH, followed by Personality Disorders, the second most represented category. The diagnoses of Major Depressive Episode and Dysthymia as well as Anxiety and Adjustment Disorders were recorded

with higher frequency among patients voluntarily hospitalized, whereas Manic Episode in Bipolar Disorder, Dementia and Organic Psychosis were more frequent among patients involuntarily hospitalized; Alcohol and Substance Abuses presented an overlapping distribution between the two patient groups.

NANDA-I Diagnoses (Table 4) (19), formulated at the admission of the patient in the ward, overlapped to the admission reasons above highlighted (Table 2), presented a statistically significant different frequency between patients voluntarily and involuntarily admitted (Pearson chi2=50.99; *p*<0.001). The majority of patients (22.16%) were diagnosed Ineffective Health Management followed by Ineffective Impulse Control Diagnosis associated with Disturbed Personal Identity (20.76%), with a very similar percentage in the two groups. We found that the diagnosis of Risk for Suicide presented a much higher percentage among PVH (26.97%) than in PIH (7.6%). The Dysfunctional Family Processes represents 17.37% of all nursing diagnoses with an overlapping percentage between the two groups. Ineffective Impulse Control was identified

Table 4. Diagnosis variables related to all hospitalizations in SPDT from 1-1-15 to 31-12-15

Variables	Voluntary hospitalizations N=304	Involuntary hospitalizations N=197	Total N=501	Statistical Test Probability
Psychiatric diagnoses (ICD-9-CM) at discharge, n (%)				
Schizophrenia and other psychosis	106 (38.87%)	94 (47.72%)	200 (39.92%)	
Personality disorders	63 (20.72%)	25 (12.69%)	88 (17.56%)	
Depressive disorders	53 (17.43%)	8 (4.06%)	61 (12.18%)	
Manic Episode in Bipolar disorders	18 (5.92%)	29 (14.72%)	47 (9.38%)	Pearson chi2=52
Anxiety Disorders - Adjustment disorders	21 (6.91%)	6 (3.05%)	27 (5.39%)	*p*<0.001
Dementia and other organic psychosis	9 (2.96%)	16 (8.12%)	25 (4.99%)	
Alcohol and substance abuse and dependence	14 (4.61%)	10 (5.08%)	24 (4.79%)	
Others	20 (6.58%)	4 (2.03%)	24 (4.79%)	
Nursing diagnoses (NANDA-I) at admission, n (%)				
Ineffective Health Management	65 (21.38%)	46 (23.35%)	111 (22.16%)	
Ineffective Impulse Control + Disturbed Personal Identity	61 (20.07%)	43 (21.83%)	104 (20.76%)	
Risk for Suicide	82 (26.97%)	15 (7.6%)	97 (19.36%)	Pearson chi2=50.99
Dysfunctional Family Processes	49 (16.12%)	38 (19.29%)	87 (17.37%)	*p*<0.001
Ineffective Impulse Control	13 (4.28%)	28 (14.21%)	41 (8.18%)	
Disturbed Personal Identity	18 (5.91%)	23 (11.68%)	41 (8.18%)	
Others	17 (5.6%)	3 (1.52%)	20 (3.99%)	

in 14.21% of patients involuntarily admitted and only in 4.28% of patients voluntarily admitted. Disturbed Personal Identity was diagnosed in 8.18% of the sample, with a difference between IH (11.68%) and VH (5.91%).

The variables related to the status of hospitalizations according to our model of single and multiple logistic regression

After extrapolating the variables that correlated in a statistically significant way to the hospitalization status (VH=0, IH=1) to the single logistic regression, we subsequently applied the multiple logistic regression model, correlating all the statistically significant variables to the status of hospitalization. In Table 5, the variables with an Odds Ratio >1 statistically significantly correlated with IH are shown: the manifestation of aggressiveness during hospitalization, the absence of organic co-morbidity, the need for extra-psychiatric medical services, assistance and rehabilitation activities during hospitalization and a complex therapy that requires multiple routes of administration.

Discussion

Our sample was sufficiently representative of patients admitted to a SPDT over a full calendar year. During the observation period of our study, we reported 501 hospitalizations, of which 60% were voluntary and 40% were compulsory treatment. This data is in line with scientific literature, in particular, with a recent Norwegian study, which in 2013 evaluated the predictors of involuntary hospitalizations, reporting 56% patients in VH and 44% of patients in IH (6).

The first observation that emerges from our demographic data is related to the age of involuntary patients, significantly higher than voluntary patients. Although we could expect an opposite result, since many psychiatric disorders begin at young age, recent literature confirms our result. In fact, two studies, carried out in Norway (6) and in China (21), respectively in 2013 and 2014, showed that the average age of patients involuntarily admitted (30.9 years in the Chinese study and 40.4 in the Norwegian study) was significantly higher than those admitted voluntarily. This data can explain the high percentage of our PIH who

Table 5. Variables statistically significantly related to dependent variable (VH=0, IH=1) in our multiple regression logistic model

Variables	Odds Ratio	Standard Error	Probability	95% Confidence Interval
Aggressive behaviour (mild, moderate, severe): present vs not present*	2.49	0.72	0.002	1.41-4.39
Organic comorbidity: not present vs present*	2.17	0.48	0.0001	1.41-3.34
Medical activities: present vs not present*	1.72	0.44	0.030	1.05-2.82
Rehabilitative activities: present vs not present*	1.63	0.1	0.0001	1.44-1.83
Route of therapy administration: more than one vs oral administration*	1.52	0.18	0.001	1.2-1.92

* reference variable

had retirement pension (12.5%), similar to the Norwegian study above mentioned (6), which showed 7.9% of retirees among involuntary patients, in both studies higher than voluntary patients. This result suggests that severe mental disorders which induce patients to refuse treatments can be an important antecedent of disability and/or early retirement, as other authors reported (22).

Regarding the nationality, the majority of our patients was Italian, followed by 15.12% of non-European patients, which reflects the immigrant percentage of 12% of total population registered in Emilia Romagna region (23).

Among demographic variables, the percentage of male patients was more represented, with a slightly higher frequency among involuntary patients, result in line with the literature (3): a recent study carried out in Dublin (24) reported a percentage of male patients involuntarily admitted comparable to ours (59.4%).

Among the demographic variables analyzed, we highlighted that involuntary patients more frequently lived alone, indicating relational difficulties or social maladjustment, in accordance with literature (25).

With regard to the clinical features evaluated, we have shown that patients in IH were more frequently hospitalized for Acute worsening of psychopathology, whereas voluntary patients for Self-injurious Behaviour or Suicide Risk. This observation highlights the different clinical profile of the two groups of patients

concerning the adherence to treatment and indirectly suggests the appropriateness of hospitalizations.

We observed a statistically significant difference also in the length of the hospitalization which, in accordance with literature (25), was longer in IH compared with VH, which could indicate greater difficulties in treating involuntary patients.

A similar assessment has also emerged from the previously mentioned Norwegian study which reported an aggressive behaviour that often required police intervention during the hospitalization process with a higher percentage among IP compared to PVH (6,26-28). This finding is in line with the data concerning PIH care needs; in fact, behavioral control was necessary for a greater number of patients in IH than those admitted voluntarily, which was also confirmed by the statistically significant positive correlation between IH and need for assistance, as evidenced by the multiple logistic regression model.

The complexity of PIH management is further indicated by the data on therapy administration in the ward. We have indeed observed that, although the majority of patients in both groups took oral therapy, the percentage of patients undergoing compulsory treatment taking multiple-pathway medications, particularly intramuscular long acting therapies, was much greater, a result that can be explained by the need to prescribe a more complex therapy or with the PIH refusing therapy due to lack of compliance.

Regarding the psychiatric diagnosis at discharge (ICD-9-CM) (20), the most representative among PIH was Schizophrenia or Other Psychosis (47.72%) in higher percentage compared to the group of PVH (38.87%). This data is in line with the results of the latest research, as shown by the study carried out in Switzerland in 2011 which, reports that among all the diagnostic groups, patients with schizophrenia are more likely to be hospitalized with mandatory medical treatment (18, 29).

This pathology frequently induces serious behavioral changes and refusal of treatment, as clinical experience teaches. According to 2014 ISTAT report (30), the diagnosis of Schizophrenia or Other Psychosis was the most frequent among patients discharged from compulsory medical treatment in Emilia Romagna in 2014: 512 patients out of a total of 984 patients discharged from IH, corresponding to 52% of the total (30).

We found significant difference in the frequency of the discharge diagnosis of Major Depressive Episode and Dysthymia as well as Self-injurious behaviors or Risk of Suicide as a diagnosis for admission, which were more present among PVH. Another frequent association that we have found is between PIH and diagnosis of Manic Episode in Bipolar Disorder, that can be justified by the symptom characteristic of this pathology: a state of excitement with megalomaniac experiences that, especially if severe with psychotic symptoms, can lead to a refusal of therapy.

The patients of our sample admitted involuntarily presented psychiatric disorders with a low prevalence of comorbidity. In our analysis of multiple logistic regression, the absence of organic comorbidity correlated significantly with compulsory hospitalization.

With regard to NANDA-I nursing diagnoses (19), we found that they overlapped the reasons for hospitalization, both having been formulated at the time of admission.

We found that the diagnosis of Suicide Risk (7.60% in PIH) was present in 26.97% of patients admitted to voluntary treatment, totally in line with the reasons for hospitalization (Self-injurious behaviors or Suicidal risk) and psychiatric medical diagnosis (Major Depressive Episode and Dysthymia). Moreover, in line with the reasons for hospitalization and medical diagnosis, a high percentage of PIH (14.21%) was di-

agnosed as Ineffective Impulse Control. This data was also related to the need for Behaviour Control, most frequently present in the group of patients in IH in comparison with voluntarily admitted patients, who more often required Personal daily care. We have to notice that the different care needs can have been conditioned by the different age of patients.

We must also emphasize that both nursing diagnosis and psychiatric medical ones presented an overlapped statistically significant different distribution in the two groups, which therefore appeared different from the psychopathological point of view.

Regarding the discharge destination, we reported that PIH more frequently than PVH were transferred to other hospital departments, including psychiatric wards located in other public or private affiliated hospitals. This observation could indicate that patients admitted in compulsory regime more often presented such serious and complex clinical conditions as to require additional long-term treatment in another psychiatric ward or protected health care facility, where they were transferred since only urgent and short-term treatments can be provided in SPDT, according to our national and local guidelines.

Another important result concerning discharge modality is the percentage of 3.55% of PIH who were not sent to any service due to their self-discharge. This data suggest that the original refusal of treatment expressed by these patients, who had then required compulsory procedure, was persistent and difficult to modify even after a period of treatment, indicating the most serious pathology.

Another clinical variable we analyzed was the therapy prescribed for discharge. In this regard, we observed that antidepressants, in mono-therapy or in poly-therapy, were prescribed with a much higher percentage to patients in VH compared to those in IH, in agreement with other characteristics of this group of patients (motivation of hospitalization, medical diagnosis and nursing).

On the contrary, antipsychotics, both in mono-therapy and in poly-therapy, were prescribed in a higher percentage to PIH, also in line with the characteristics associated with these patients.

We have also found that long-acting injectable antipsychotics was prescribed in a much higher per-

centage to patients admitted to compulsory treatment, suggesting that, even at discharge, these patients did not have a total adherence to therapy and therefore required a prescription of a drug that did not require a voluntary daily intake.

Finally, we have to note that the potential risk factors for compulsory hospitalization, according to our multiple logistic regression model, were aggressive behaviour, care and rehabilitative needs and multiple routes of therapy administration, all conditions which indicate the clinical severity and management complexity of PIH.

Some limitations have to be mentioned regarding this study. A limit of our study can be represented by its retrospective design, in which the diagnostic and assistance hypothesis was formulated on the basis of the data obtained from medical and nursing records and not from direct observation of the patient. A further limitation can be identified in the difficulty of obtaining complete and exhaustive information for all patients in the sample. Moreover, given the large number of the sample and the retrospective design, we were not able to formulate a complete nursing assistance plan, assessing the totality of the patients' care needs. In this regard, nursing diagnoses were hypothesized on the basis of admission reasons, retrospectively extracting them from information obtained from medical and nursing records. We must stress that this is a preliminary study whose results are not exhaustive due to the heterogeneity of our sample by age and other variables. To assess the predictability of the risk factors we have highlighted, more detailed analyses and prospective research are needed. Despite these limitations, this study was able to show the prevalent characteristics of a group patients compulsorily treated in an Italian acute psychiatric ward.

Conclusions

Our results highlight that patients who required compulsory treatments were affected by the most severe psychiatric disorders with social maladjustment, needing complex therapeutic and rehabilitative strategies in order to counteract aggressive behaviour, poor therapeutic compliance and prolonged hospitalizations.

In particular, our patients involuntarily admitted, in comparison with voluntarily hospitalized patients, were older, living alone, retired, not having organic comorbidities but requiring medical treatment for tests and therapies. They suffered from Schizophrenia or Other Psychosis, requiring assistance for behavioral control and daily rehabilitative activities. Moreover, they were prescribed long-acting antipsychotics, required prolonged hospitalizations, showed severe aggressive behavior and were more often sent to a protected facility at discharge.

Our results highlight that involuntary state of hospitalization represents a high risk factor for the lengthening of hospitalizations, confirming that it is an extreme therapeutic intervention, that is necessary and cannot be postponed, as stated in the 180 Law, in serious and complex clinical situations.

We hope we have contributed to reflections on the practice of compulsory medical treatments. Following the introduction of the Basaglia 180 Law in 1978 (12), which overcame the stigma of "social danger" as a reason for hospitalization, the improvement of psychiatric practice and the reduction of coercive measures in the psychiatric field have clearly been achieved.

Assessing patients' demographic and clinical characteristics can help clinicians recognize patients who are at risk for involuntary treatment. These factors should be taken into consideration by health policy programs with the aim to reducing the use of involuntary treatment in psychiatric ward. By addressing modifiable factors like poor social support, poor functional status and poor adherence to medication, compulsory admissions could be prevented.

Despite the willingness to reduce the percentage of involuntary admissions, as stated in the regional directives, the possibility of applying involuntary treatments can represent the only possible procedure for increasing prevention and treatment in a few, but extremely severe, clinical situations.

Therefore, this practice should not be demonized, as showed by our study, but should be absolutely limited to patients not otherwise treatable in order to treat and rehabilitate them, always in accordance with the ethical criteria of good professional practice.

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Cervical cancer prevention in Senegal: an International Cooperation Project Report

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Abstract. *Background:* Cervical cancer is the second most common women's cancer in less developed regions and it is the leading cause of cancer mortality among women in Senegal. Because of the high costs, cervical cancer prevention is very rare in developing countries and it is often based on visual inspection methods. The University of Parma (CUCI) and the MANI association have developed a cervical cancer screening project addressed to rural Senegal communities. The aim of the project was to disseminate the cytocervical sampling technique among Senegalese nurses and midwives, as a completion to the local visual inspection method. Other objectives were to verify the prevalence of precancerous lesions and to evaluate cervical cancer knowledge and attitudes among women who participated at the screening campaign. *Interventions:* A theoretical and practical training plan on cervical cancer screening was provided to the local health workers at various levels. The screening was performed through a first step visual inspection exam to 203 women, followed by a Pap smear in case of positive outcome. 20 women participated also to a structured interview. *Results:* The Pap smear material was adequate in all the samples collected where this indicates that the objective to disseminate cervical cancer screening techniques has been achieved. Of the 203 women involved in the screening project, 68 were tested positive at the first step and 38 of them were submitted to Pap tests. *Conclusion:* The difficulties encountered confirm how Pap tests have overall proved inordinately complex and expensive for developing countries. It seems more sensible to deal first with global health in terms of basic hygienic sanitation, including an educational component in screening programs in order to sensitize women to the risk factors of cervical cancer.

Key words: cervical cancer, prevention, screening, cervix, pap test, pap smear, international cooperation, Senegal, global health

Background

Cancer of the cervix uteri is the 4th most common cancer among women worldwide, with an estimated of 527,624 new cases and 265,672 deaths in 2012 (1). In particular, it is the second most common cancer in women living in developing regions with an estimated 445,000 new cases in 2012 (84% of the new cases worldwide) (2). The spread of Papanicolau (Pap) screening test has progressively reduced the mortality of cervical cancer disease in middle-and high-income countries.

Cervical cancer is the first cancer, recognized by the World Health Organization, attributed to an infection: HPV infection. The development of Papillomavirus vaccines can effectively contribute to reduce the incidence of cervical cancer through primary prevention, by interrupting the origin of the chain from

infection to cancer. While incidence and mortality rates have fallen significantly in developed countries, cervical cancer still remains the leading cause of cancer deaths in limited resource countries. It is estimated that the prevalence of genital infections due to HPV ranges from 2% to 44% all over the world, with the highest percentage in Senegal.

In developing countries, due to socio-economic conditions and a poor health system, cervical cancer prevention is very rare due to the high costs and it is often based, according to WHO guidelines, on visual inspection methods using acetic acid (VIA) or Lugol's iodine (VILI) without the use of the colposcope; the socalled "see-and-treat" approach is the only one used in the most equipped sites (3). VIA, with or without VILI, is a good screening, simple test, has low cost and high sensitivity in comparison to Pap smear. Visual inspection methods appear overall effective for primary screening but they are still prone to subjectivity, requiring well trained staff (3, 4). Furthermore, as far as low-cost, point-of-care, relying on low technology, they have a poor positive predictive value, leading to significant over-treatment or over-referral of women with positive tests. Finally, establishing reliable quality control is just as difficult (5-7). Despite these limits, the opportunity to introduce cytology screening programs has largely been considered in the last decades, but it has failed in most developing countries. Due to competing health priorities and lack of resources, including health infrastructure (trained cytotechnologists, diagnosis and treatment facilities), human and financial resources (8), the implementation of new strategies to improve cervical cancer prevention is required (9). Factors associated with peculiar attitudes towards cervical cancer screening can constitute an additional barrier to the spread of the screening in limited resources countries (10, 11).

Cervical cancer is the most common cancer in Senegal in women between 15 and 44 years of age; 4.43 million is the number of the female population aged over 15 who is at risk of contracting this tumor. Current estimates indicate that 1,482 women develop cervical cancer every year and 858 die from the disease (12). About 2.3% of women in the Senegalese general population are estimated to harbour cervical HPV-16/18 infection at a given time, and 44.6% of invasive

cervical cancers are attributed to HPVs 16 or 18 (12). Most of these women have not been diagnosed, nor do they have access to treatment that could cure them or prolong their lives (13).

Considering the scale of the problem and its burden, the University of Parma (CUCI)[1] and the MANI[2] association have developed the project *Doors open to women's health: Organization of a screening program for the prevention of female tumors,* funded by the Emilia Romagna Region (Italy), on the prevention of cervical cancer in a Senegal rural area as part of the international cooperation initiatives ongoing since 2010. The project was developed starting from Senegalese nurses and midwives, who expressed their training need for the Pap test technique.

Objectives of the project

This international cooperation project had three main objectives. The first one was to disseminate cervical cancer screening, in particular the cytocervical sampling technique as a completion to current visual inspection methods, in five rural villages of Senegal, as requested. The second objective was to verify the prevalence of precancerous lesions and the last one aimed at evaluating cervical cancer knowledge and attitudes towards screening tests among women belonging to these villages.

The project was carried out with the collaboration of the FEEDA[3] association in five "Center de Santé" in Thiés region (Senegal).

Interventions

A theoretical and practical training plan on cervical cancer screening was provided to the local health workers at various levels.

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[1] CUCI: Centro Universitario per la Cooperazione Internazionale (University Centre for International Cooperation)
[2] MANI: association promoting cooperation initiatives in countries with limited resources
[3] FEEDA: Femme, Education, Eau et Développment en Afrique

The training has been designed in 3 steps:
1) targeted training to ASC[4], relais[5], bajenu gox[6], matrone[7] on the genital infection due to human papilloma virus (HPV) and on the preventive approach; information and awareness-raising campaigns to the women of the villages;
2) theoretical training of midwives and nurses on screening methods conducted by two experienced Italian midwives: both meetings, lasting 4 hours each, have taken place with the support of the cultural mediation of the head nurse;
3) screening under the supervision of Italian midwives as part of the "Open doors to health" campaign in the rural areas of Pire, Thienaba, Dioll Kad (Kombole), Keur Bakar (Fondiounge), Sokone. The screening, offered free of charge, has been divided in three phases: visual inspection using acetic acid and Lugol's iodine addressed to all female population without any restriction; selection of positive cases to be submitted to Pap-test; execution of Pap-test after 48 hours. The Pap-test material adequacy was used as an indicator to verify the achievement of this goal.

The activity took place from March 26th 2016 to April 5th 2016.

Women involved in the screening were 203. They were also invited to participate in a structured interview and 20 of them agreed. The questionnaire took approximately 15 minutes to complete and was designed in French, translated and interviewer-administered in Wolof, the language spoken in Senegal, by a trained research assistant. Participants did not receive any incentive to participate. This oral survey comprised thirty multiple-choices that covered three sections: socio-demographic factors; health factors; cervical cancer knowledge.

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[4] ASC (agent de santé communautaire): Community Health Workers
[5] Relais: she has the task to inform and sensitize the community in order to prevent the most widespread diseases
[6] Bajenu gox: she promotes maternal, newborn and child health at the individual, family and community level
[7] Matrone: she helps the mother during pregnancy, labor, delivery and puerperium

Results

203 women underwent the visual inspection: 119 in Pire, 57 in Keur Amath Seune (Sokone) and 27 in Nioro Alassane Tall (Sokone). Every women joined the first step of the screening campaign, that is visual inspection using acetic acid and Lugol's iodine, upon collecting personal data and anamnesis (parity, methods contraceptives and previous gynecological interventions). 40 women were tested positive in Pire, 20 in Keur Amath Seune and 8 in Nioro Alassane Tall. Unfortunately the second phase (Pap-test) was held only in Pire due to poor agreement among the parts. Of the 40 women that were tested positive in Pire, 38 of them were submitted to the Pap test on March 29, 2016. Two women were excluded for bleeding.

The Pap smear material was adequate in all the samples collected in Pire where this indicates that the objective to disseminate cervical cancer screening techniques has been achieved.

Speaking of numbers, 45 was the medium age of the women submitted to the visual inspection who resulted to be positive and 37 was the medium age of the ones who resulted negative. All women, either positive or negative, had their first pregnancy at the middle age of 20. But what makes the difference are gravidity and parity. The negative ones had an average of 4,5 pregnancies and 3,9 deliveries. The positive ones had 6,1 pregnancies and 5 deliveries. As for family planning there has not been significant difference: the 54% of the negative ones took some contraceptives against the 52% of the positive ones.

Of the 38 women who were Pap-tested, one of them was diagnosed with epidermoid carcinoma, 13 had to undergo a biopsy for further investigation and 6 were scheduled for another check-up within six months.

Regarding follow-up no data have been accessible, except for 4 women who have undergone surgery, without further specification.

Of the 20 women included in the interview, all were married or had been married, 70% had polygamous marriage contract, 90% were illiterate, 50% had their first sexual intercourse before fifteen years of age. The 60% had received information about the screening program from their family or friends but only 2

Table 1. Participants characteristics and screening results

Age	Job	Age of first pregnancy	Gravidity	Family planning	Visual inspections results	Pap-test results
ND	Housewife	25	8	No	Positive	Negative
ND	Housewife	17	10	Pill and injection	Positive	LSIL. Colposcopy-directed biopsy recommended
50	Housewife	16	9	No	Positive	HSIL. Colposcopy-directed biopsy recommended
51	Seller	ND	5	ND	Positive	Negative
54	Housewife	22	8	No	Positive	Negative
32	Housewife	ND	5	Injection	Positive	ASC-US. Pap-test or HPV-DNA test within 6 months necessary
38	ND	25	5	No	Positive	Negative
64	Housewife	25	11	ND	Positive	Check after anti-inflammatory treatment necessary
52	ND	19	11	Injection	Positive	ASC-H. Colposcopy-directed biopsy recommended
38	Housewife	20	11	Pill	Positive	Negative
64	Housewife	44	11	ND	Positive	Negative
52	Matron	22	5	Injection	Positive	Negative
20	Housewife	15	2	Injection	Positive	Negative
69	ND	30	8	No	Positive	Negative
42	ND	20	7	ND	Positive	HSIL. Colposcopy-directed biopsy recommended
69	ND	15	7	ND	Positive	HSIL. Colposcopy-directed biopsy recommended
25	Housewife	ND	2	No	Positive	Check after anti-inflammatory treatment necessary
57	Housewife	18	7	No	Positive	HSIL. Colposcopy-directed biopsy recommended
41	ASC	27	6	ND	Positive	ASC-US. Pap-test or HPV-DNA test within 6 months necessary
ND	Housewife	18	5	No	Positive	ASC-US. Pap-test or HPV-DNA test within 6 months necessary
49	Matron	20	2	No	Positive	Epidermoid carcinoma
32	Trader	18	4	Injection	Positive	Negative
26	ND	22	2	Injection	Positive	Negative
20	Housewife	19	1	Yes	Positive	Negative
29	ASC	18	3	Injection	Positive	ASC-US. Pap-test or HPV-DNA test within 6 months necessary
42	Trader	15	8	Injection	Positive	LSIL. Colposcopy-directed biopsy recommended
35	ND	18	4	Injection	Positive	HSIL. Colposcopy-directed biopsy recommended
44	Housewife	15	5	No	Positive	ASC-H. Pap-test or HPV-DNA test within 6 months necessary
46	Farmer	17	7	No	Positive	ASC-H. Pap-test or HPV-DNA test within 6 months necessary
60	ND	18	9	ND	Positive	Check after anti-inflammatory treatment necessary
41	ND	20	4	ND	Positive	Negative
66	ND	24	9	ND	Positive	Negative
36	ND	20	6	Yes	Positive	ASC-US. Pap-test or HPV-DNA test within 6 months necessary
55	Housewife	18	5	ND	Positive	Check after anti-inflammatory treatment necessary
44	Housewife	No	0	ND	Positive	Cell atypia. Colposcopy-directed biopsy recommended
42	Trader	18	7	No	Positive	ASC-H. Pap-test or HPV-DNA test within 6 months necessary
34	Trader	15	4	Injection	Positive	ASC-US. Pap-test or HPV-DNA test within 6 months necessary
54	Trader	15	12	No	Positive	Cell atypia. Colposcopy-directed biopsy recommended
54	ND	25	5	No	Positive	Not done because of bleeding
61	Trader	15	7	Pill and injection	Positive	Not done because of bleeding
45,62		**20,22**	**6,175**			

of them had already been screened before because of lack of information. The interviews show that women wouldn't feel ashamed if they had a cervical cancer and the majority of them would talk to someone about this problem (14 of them with their own mother and 4 of them with their own husband). The limited number of interviews collected and communication difficulties did not make possible the complete collection of all the information required for an assessment of attitudes towards screening in the group of women interviewed.

Discussion

The collected data confirm the prevalence of cervical cancer among Senegalese women. The use of Pap-test screening, in addition to the visual method, has allowed to enroll women with precancerous lesions into a diagnostic and therapeutic path. Unfortunately, the difficulties in communication and in material transport, together with the lack of means of travel and travel arrangements for women, as well as the underlying cultural clash made it possible to carry out the Pap smears only in the village of Pire. This shows how such a project requires to be supported by a well-organized and detailed plan and confirms how pap smear-based prevention approaches, as far as successful in preventing cervical cancer where implemented correctly, have overall proved inordinately complex and expensive for developing countries (14). It's important to point out that in order to undergo a surgical procedure, women must find money inside the families, through a sort of charity collection, which is not often enough either.

Many of the factors that increase HPV acquisition and promote the oncogenic effect of the virus are largely widespread in Senegal. These include: polygamous marriages, high parity, the early age of first sexual intercourse and early pregnancies. Polygamy is accepted in many societies in Africa and this may increase the probability for a girl to catch HPV infection at first intercourse with her husband. Polygamy is reported to increase the risk of cervical cancer twofold and the risk in-creases with increasing number of wives (15). High parity, which is the norm in some cultures in Africa, is also a recognized, independent, HPV-related co-factor for the development of cervical

cancer (16). The only protective factor is circumcision as applicable to the majority of Senegalese men (17).

The early age of first sexual intercourse and early pregnancy have been as well identified as risk factors for invasive cervical cancer in developing countries and our data confirm previous studies (18, 19). These factors are closely linked to both low education, sociocultural level and widespread illiteracy.

It's indispensable to include an educational component in screening programs for women in the reproductive age in order to sensitize women to the risk factors of cervical cancer. Considering the early age of first pregnancy, the educational program should start at the primary school.

A different approach to the problem should consider the introduction of anti-HPV vaccination, but the assessment of the cost/benefit ratio of a vaccination campaign is outside the competences of the project participants. Moreover, if on the one hand the vaccine offers an immediate solution, on the other hand it exposes to the risk of missing proper information about sexually transmitted infections.

Conclusions

The absence of a health system that guarantees access to treatment and the lack of health care impose some considerations: it seems more sensible to deal first with global health in terms of basic hygienic sanitation, especially aiming at education as a whole, before applying methods which, as much as really effective tailored to our context, might turn out to be useless in contests with limited resources and striking cultural and health-care inequalities (19).

As a matter of fact, to properly legitimize a prevention project in such contests with limited resources, it is a priority to dwell on the anthropological study of the population considered. It is necessary to start from a deep insight into the targeted context, not just to ensure its overall understanding, but to guarantee the respect for the local hierarchies. This is meant both in terms of regard for the local culture and mentality and in terms of effectiveness. To be effective, any planned intervention needs to be first agreed with the people at the top of a certain healthcare setting. We

had proof of it throughout the whole project. Along the way we also got to learn the will of local midwives belonging to different villages to receive the training in one unique centre, separate from their work setting, in order to bring the acquired know-how into their villages at a later stage. These midwives are really proud to implement new skills, once acquired, however it is just as important for them to avoid prejudices, feeling subordinate to western midwives in front of their local people. In this respect, it is therefore essential to guarantee expenses and logistics for the transports from their villages to the training centre as part of the project budget.

In conclusion, we believe our project could be expanded taking into account school education, sexual education, as well as hygiene and health promotion, both among the local health workforce and in the general population, in order to ensure a collective improvement in assistance and support.

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Expressive writing. A tool to help health workers of palliative care

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Abstract. *Background and aims:* From a previous study (1) was highlighted that Expressive writing is an important strategy for preventing and managing the effects of compassion fatigue (2). It helps educate caregivers in recognising these feelings and providing them with a "space" and a time for their reflection. This, in turn, results in significant positive repercussions on the quality of service, reducing burnout risk, implementing coping strategies, and increasing perceived work satisfaction. Reflecting occasionally in writing about ambiguous and emotionally charged situations helps in many ways: it facilitates clarification and problem-solving, and makes one more spontaneous and present in social situations, more in tune with others and available to interact. People begin to interact differently with others and see themselves in a new light after writing about an emotional subject. The objective of thi study is ascertain and confirm the results of the previous study using a reduced methodological approach. Infact, the difference from the previous research is the use of only two expressive writing sessions. *Methods:* A comparison was made between the expressive writing and neutral writing of two randomized groups of health care professionals of palliative care. They were evaluated pre- and post-intervention using several scales and an ad hoc questionnaire. *Results:* After analyzing the texts, this study confirm previous results, using only two sessions.

Key words: coping, emotions, expressive writing, working satisfaction

Background

From a previous study (1) it was highlighted that Expressive Writing (EW) is an important instrument to improve individual strategies for preventing and managing the effects of compassion fatigue (2). It helps educate caregivers in recognizing these feelings and providing them with a "space" and a time for their reflection. This, in turn, results in significant positive repercussions on the quality of service, reducing burnout risk, implementing coping strategies, and increasing perceived work satisfaction (1-6). Reflecting occasionally in writing about ambiguous and emotionally charged situations helps in many ways: It facilitates clarification and problem-solving, and makes one more spontaneous and present in social situations, more in tune with others and available to interact. People begin to interact differently with others and see themselves in a new light after writing about an emotional subject.

The interventions of EW in literature show a differentiation in the methodological structure. The writing methodology includes time and numbers of writing sessions.

In the meta- analysis of Smith (7) we notice that *"…the numbers of the writing sessions and the length of each session do not influence the effects of the technique. We*

obtained positive results letting patients write from 3 to 6 days and for a period that varies from 15 to 20 minutes for each session…" and Smyth concludes that *"…writing once per week instead of 3 or 4 times during the following days increases the effects in the set of variables took into account in the different works. This effect depending on the interval among sessions could suggest the need of a longer period of time to allow the processing of what was written"* (8).

Another meta-analysis (4) analyzed studies where participants were asked to write for 20 minutes per 3 o 4 days but also once or twice per week per several weeks taking into account few other variables but nobody has ever experimented a shorter writing program. A further study (9), led on patients affected by leukemia and lymphoma, shows that also an only, brief exercise of expressive writing is linked to an improvement in terms of quality of life.

Imrie & Troop (10) employed the expressive writing in a day-hospice setting. The three sessions of 20 minutes each occurred in a gap of one week to each other, according to the visit frequency of patients to hospice; this study highlighted physical and psychological benefits: The patients who experienced the expressive writing increased the level of self-compassion and self-confidence.

In the study about the expressive writing for metastatic breast cancer patients, Low, Stanton, Bower and Gyllenhammer (11) asked participants to write at home for four sessions of 20 minutes in a gap of three weeks. The results show that the expressive writing is effective to reduce the pain in those patients with a low level of anxiety.

Milbury, Lopez, Spelman, Wood, Matin, Tannir, Jonasch, Pisters, Wei and Cohen (12) arranged a study to identify the groups with the highest possibilities to benefit from the expressive writing. The participants (277 patients affected by kidney cancer) were assigned to complete four writing sessions of 20 minutes at home throughout a period of 10 days with at least 1 day and not 3 days among the sessions. The results underlined that the patients with recognition of baseline depressive symptoms and social support as intervention moderators may lead to improved patient selection for EW interventions. The results showed also that the same patients obtained better results for QOL.

Aim

Based on the literature, the objective of this study is to evaluate whether a reduced methodological approach will confirm the results of the previous study (1). In fact, only two expressive writing sessions were scheduled for the intervention.

In particular, the hypotheses are that:
- The use of the expressive writing improves or maintains the work satisfaction;
- the use of the expressive writing increases the employ of the adaptive coping strategies (social support, active participating, problem - orientation) and reduces the maladaptive coping strategies (avoidance);
- the use of the expressive writing reduces stress and the burnout risk;
- the benefits on work situation and adaptive coping strategies are higher in professionals that use the Expressive Writing compared to the ones that employ the Neutral Writing.

Method

Study Design

This study is quantitative, multicenter, prospective with quasi experimental 2x2 design with two groups (experimental group expressive writing/neutral control group) and two measurements (pre/post test with a minimum interval of 1 day and not more than 3 days) (13).

Participants

Participants were selected through a balanced sampling for setting and years of professional experience. Professionals that work in the Palliative Care field, speak and write Italian, have been included.

The professional in this study was selected in the Palliative Care operating units and Hospice and Local Health Service like as:
- Hospice of Vertova (BG) e ADI (Italian nursing Home Care system) "Foundation of Cardinal Gusmini";

- Hospice of Bergamo "Beato Luigi Palazzolo home care";
- Hospice of Cremona "San Camillo home care";
- Home Care Operating Unit of oncology of Scandiano;
- ADI (Italian nursing Home Care system) of Carpi (Modena).

Participants who expressed the desire to participate in the study, after signing the informed consent, were assigned by randomization to the experimental or control group.

Instruments

A personal-social questionnaire has been given to participants in the pre-test phase. In this stage, we asked:
- Age;
- sex;
- marital status;
- education level;
- job.

To evaluate the effects of the EW vs the Neutral Writing on the investigated constructions (work satisfaction, coping strategies and burnout) during the pre-test and at the end of the last writing session, we used:

1) Coping Orientation to the experienced (COPE-NVI-25) (13), a reduced version of the COPE-NVI scale that measures faster and easier the coping strategies. In particular, this test is made of 25 items that investigate five dimensions:
- Problem orientation;
- transcendent orientation;
- positive aptitude;
- social support;
- avoidance strategies.

The questionnaire requires answers that follow a 6 points Likert scale (1=I never do it, 6=I always do it) about what to do and how to behave in situations of high stress.

2) Stress evaluation thermometer a tool consisting of a Likert scale with a score range of 0-10. 0= emotional distress absence and 10=the maximum of emotional distress perceived.

The participant is asked to circle the number that describes better his/her distress during the last week.

3) Maslach Burnout Inventory (MBI) (14)

At the beginning , it was aimed to caregiving professions or those jobs that involve a considerable emotional interaction between the professional and the user (for instance psychologists, voluntary and social workers, teachers, nurses, doctors, etc.) but over time, its use increased involving all those jobs and professions that require a constant relation with the audience or people in need.

The MBI is made up of 22 items that measure 3 dimensions and are independent from the burnout:
1) *Emotional exhaustion* that examines the feelings of being emotionally withered and exhausted with the job.
2) *Depersonalization* that measures impersonal and cold answers of service users.
3) *Personal fulfillment* that evaluates feelings about his/her own competence and success desire in the work with others.

Each one of the 22 items requires to show the frequency of the feeling concerning each item, following a 7 points Likert scale (0=never; 1=sometimes per year; 2=once per month or less; 3=sometimes per month; 4=once per week; 5=sometimes per week; 6=everyday).

4) Questionnaire about the work satisfaction (15)

It is made up of 31 items that investigate 8 subject areas:
1) Explicit recognition (salary, incentives, etc.).
2) Work - family balance.
3) Organization of working hours.
4) Colleagues.
5) Social interaction opportunities.
6) Professional opportunities.
7) Praises and recognitions.
8) Control/responsibility.

For each one of the 31 items, it is asked to specify the satisfaction level on a 5 points Likert scale (1=maximum dissatisfaction and 5=maximum satisfaction).

5) Questionnaire about the writing session evaluation

It is an ad hoc questionnaire developed to evalu-

ate the usefulness of writing in relation to the constructions analyzed in a brief time (during the last days before the first session). It is made up of 4 items:

1) How much is the writing experience useful?
2) Did you find solace in the writing during last days?
3) Were you uncomfortable with the using of the writing?
4) Would you suggest someone the use of writing?

For each questions, the participant is asked to tick the item that identify the usefulness of the writing: not at all useful, slightly useful, quite useful, very useful. This tool was given to participants that joined the *Expressive Writing* group in the *post-test* phase.

Intervention

The intervention procedure in the experimental group was an expressive writing protocol, while the control group was given a neutral writing protocol (Figure 1), like a previous study. In fact, Expressive writing is a tool through which the subject describes his/her most profound thoughts and feelings about emotional events. In contrast, neutral writing is a comparison tool, through which the participant describes in a more objective way an event that is devoid of emotions, thoughts or feelings.

Procedure

Before its development, we explained the study and its procedure to each professional. Furthermore, we asked each professional his/her informed consent signature, showing the information and consent on personal data treatment in accordance with the Legislative Decree 196/2003 pursuant to the standards of good clinical practice (Legislative Decree 211/2003). A form, which contains the all Socio-Demographic details of the sample, has been completed. The anonymity of the study has been guaranteed through the creation of a personal code for each enlisted professional. This code is the result of coded information.

Experimental sessions were divided into two days:

Session 1: Socio-Demographic Questionnaire (sex, age, level of education, years of practice, Role currently held), Pre-Intervention, Sheet with Code Instructions, expressive writing session, Evaluation

Session 2: paper with Code Instructions; writing mandate with writing sheets, post-intervention.

In particular, both groups of the first writing session were required to complete the socio-demographic questionnaire and scales requested by the study.

Thereafter, participants were asked to complete the first writing session following the directions his/her own mandate. At the end of the second writing

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Expressive writing instructions

*Over the next three days, we would like you to write about your most profound thoughts and feelings about an important traumatic, emotional or stressful event that has affected your life. Write for 20 consecutive minutes. Do not worry about the grammar, spelling or structure of the writing. We would like, in your text, for you to examine your moods and deeper thoughts about this experience. It can be about any topic. But whatever it is, it should be something that struck you very deeply. It could be something about the past, the present or the future. The ideal would be if you choose something you did not talk about, in detail, with anyone. It is essential that you let yourself go and come into contact with your emotions and deeper thoughts. In other words, write what happened, how then did the episode feel, and what it means to you now. You can write about different experiences during each session, or about the same experience for all three days. At each session, the choice of the subject is entirely up to you. All your writing will be completely confidential and anonymous. The only rule is that once you start writing, you continue **until the end of 20 minutes for 3 consecutive days**.*

Neutral writing instructions

*We would like you to write for the next 3 days for 20 minutes continuously, without interruption, about how you use your time. In this writing we would like you to be as objective as possible. We are not interested in your emotions or opinions. We want you to be completely objective. Feel free to be as detailed as possible. In today's writing we would like to describe what you did yesterday since you got up, until you went to bed. For example, it might start when the alarm clock goes off and you get out of bed. It could include things you ate, where you went, what buildings or objects you saw. The most important thing in this writing is to describe your days as accurately and objectively as possible. All the writings will be completely confidential. Do not worry about spelling, grammar, or sentence structure. The only rule is that once you start writing, continue **until the end of 20 minutes for 3 consecutive days.***

Figure 1. Mandatory Expressive Writing and Neutral Writing

session, participants received the same scale given in the pre-test phase before the writing session and in addition also an ad hoc questionnaire for the experimental group to evaluate, "Would you suggest someone the use of writing?"

Data analysis

Quantitative results were analyzed using SPSS 23. A descriptive analysis of all variables and non-parametric statistical analysis was performed for intra- and between-group comparison (expressive writing vs. neutral writing). The expressive writing samples were analyzed using the paper and pencil method through a coding of positive and negative emotions.

Results

As stated, there were 26 health palliative care professionals who participated in the study. Average age was 46,15 (D.S.=7,842; minimum age=28 years; maximum age=59 years).

The sample is made up of: N=16 nurses (61,5%); N=1 psychologist (3,8%) e N=9 health care assistants (34,6%).

The respondent group was composed mostly of females (N=88, 5%; male N=11,5%). Of these, 61.5% were nurses (N=16); 34,6% by health care assistance (N=9) and one psychologist.

Of the group, 88.5% (N=23) did not have previous writing experience before attending the study; 11.5% (N=3) wrote in the past: personal diary and creative writing.

Finally, N=11 (42.3%) recruited employees were tasked with neutral writing, while N=15 (57.7%) employees received the expressive writing task.

Comparison within the Expressive Writing Group

Friedman's non-parametric test for related samples was used for the analysis within the experimental group in the 2-stroke (pre / post) (Table 1).

It highlighted a significance relating to avoidance and transcendent strategies, depersonalization, and colleagues justifying the analysis post hoc with the

Table 1. Comparison within the expressive writing group

Scale	Chi2	Sig. (2-way)
Avoidance strategy	19,333	0.023
Orientation strategy	7,600	0.749
Transcendent strategy	37,600	0.000
Positive strategy	12,000	0.528
Social Support Strategy	10,133	0.683
Emotional exhaustion	13,067	0.668
Depersonalization	30,800	0.001
Personal fulfillment	12,000	0.606
Explicit recognition	6,000	0.740
Work - family balance	8,867	0.545
Work hours	9,467	0.852
Colleagues	14,000	0.016
Social interaction	9,200	0.758
Professional opportunity	8,400	0.677
Praises and recognitions	9,600	0.476
Responsibilities control	7,333	0.884

use of the Wilkoxon test for dependant paired samples (Table 2).

The experimental group and the control group were paired compared in each phase using the Mann–Whitney U test. From this comparison, we noticed a significant difference in the use of the avoidance strategy (U=58; p<.05) and in the colleagues relationship (U=5.6; P<.05) (Table 3 and 4).

It is interesting the existence of a statistical significance (U= 232: p<.05) of the job satisfaction in the post intervention measured with the McCloskey Mueller Satisfaction Scale. In the control group, there is a decrease in the satisfaction concerning the work with colleagues from the PRE Phase=3 (Mdn) to the POST Phase=2.9 (Mdn). This does not occur in the experimental group that reports in the PRE Phase=3 (Mdn) and in the POST phase=3.8 (Mdn).

Table 2. Post hoc analysis: pre/post sample group comparison through Wilkoxon test

Pre/post Variable	Test Statistic (Z)	Sig. (2-way)	Median Value (Mdn1)/(Mdn2)
Avoidance strategy	157	,11	(1,50)/(1,50)
Transcendent strategy	52	,59	(2,37)/(2,37)
Depersonalization	74	,45	(,30)/(,20)
Colleagues	274	,00	(4,50)/(4,50)

Table 3. Mann Whitney test between EWgroup and Cgroup in Baseline

Scales	EWgroup (Mdn)	Cgroup (Mdn)	U	Sig. (2-way)
Avoidance	2.5	3.0	58	.049
Transcendent	2	1.5	603	.427
Positive aptitude	3.24	3.24	524	.816
Social support	3.4	3.2	632	.248
Problem orientation	4.5	4.5	592	.522
Emotional exhaustion	3	3.25	1.4	.495
Depersonalization	4.3	3.33	.574	.750
Personal fulfillment	4.25	4	45	.434
Explicit recognition	4	3.5	38	.526
Work-family balance	3.75	3.75	2.1	.211
Work family	3.25	2.5	3.1	.289
Colleagues	3	3	5.6	.002
Social interaction	3.4	3.4	1.9	.385
Professional opportunities	3	3	.96	.617
Praises and recognitions	3	3	.463	.793
Responsibilities control	3	2.8	4.6	.099

Table 4. Mann Whitney test between EWgroup and Cgroup in Post treatment

Scales	EWgroup (Mdn)	Cgroup (Mdn)	U	Sig. (2-way)
Avoidance	1.2	3.0	98	.002
Transcendent	2.25	2	218	.821
Positive aptitude	3.8	3.37	178	.423
Social support	3.8	3.3	199	.793
Problem orientation	4.75	4.5	145	.864
Emotional Exhaustion	2.5	3	123	.310
Depersonalization	3.6	3	134	.311
Personal fulfillment	3.75	3.25	289	.104
Explicit recognition	4	3.5	278	.168
Work-family balance	3.25	3.125	224	.486
Work hours	2.5	2.75	178	.423
Colleagues	3.8	2.9	232	.001
Social interaction	3.4	3.1	208	.990
Professional opportunities	3.3	3.3	261	.133
Praises and recognitions	3.2	3.2	234	.392
Responsibilities control	3.25	1.9	243	.479

These questionnaires measure long- distance variation and it is for this reason that and ad-hoc questionnaire was developed to evaluate the perception of short term effectiveness of professionals. The 53,3% of the sample (N=8) consider the expressive writing very useful and 33,3% (N=5) quite useful. Only 13,3% consider the expressive writing slightly useful. A 40% of the sample (N=6) found quite solace in using the expressive writing while 33,3% (N=5) found a lot of solace. Only 20% (N=3) found a little solace. A 6,7% (N=1) found no solace.

The 46,7% of the sample (N=7) felt a little uncomfortable using the expressive writing while 33,3% (N=5) did not feel uncomfortable at all. Only 20% (N=3) felt quite uncomfortable.

In the end, the majority of the sample, the 66,7 (N=10), deeply suggests the use of the expressive writing while 26,7% (N=4) quite suggest it. Only 6.7% (N=1) slightly recommend the expressive writing.

Discussion

The Expressive Writing is a writing intervention developed to improve the psycho-physic wellness through the strengthening of the emotional and cognitive processing of events.

Through the writing of the traumatic event, the individual changes the emotional perception of the event with the re-elaboration of the emotional and cognitive reactions and the recovery of his/her own identity; this allows an improvement of the coping strategies and a reduction of the emotional distress (16).

The results of the study highlight that the avoidance and transcendent strategies are reduced from the pre- expressive writing phase to the post- expressive writing phase. This element confirms the idea that coping with a stressful or traumatic situation directly instead of avoid it reduces the physiological work of inhibition and the biological stress (17). The comparison with the trauma helps people to understand and internalize the event (17, 18). When they are organized, the events are smaller and easier to deal with. The choice of not speaking and writing about negative experiences could be harmful causing inhibition: stopping and avoiding the solution of traumas imply a continuous cohabitation with others. The same occurs when maladaptive coping strategies like avoidance are used.

The writing is a useful tool to encourage self-understanding and the comprehension of past experiences.

From the comparison within the experimental group, there is a significant difference in a dimension that identifies the burnout: the depersonalization that evaluates the cold and impersonal answer of professionals to service users. The heath workers provide treatments with difficult and stressful work condition taking into account the fact that they deal with illness, human suffering, pain, chronicity, and death continually. When the pain is not recognized, faced and developed may become chronic and cumulative with serious personal and professional consequences. The Expressive Writing represents a useful tool that allows professionals to think about experienced stressful events, deal with the feelings associated with them that may overwhelm the capabilities of professionals and avoid

their emotional distance from experiences in the long term.

Consequentially, the psychological resilience of professionals affects the quality of the patient treatment.

From the comparison within the experimental group, it emerges a significant difference in the job satisfaction relating to colleagues. In the daily work, the professionals deal with many stressful events (difficulties in communication, death, responsibilities, verbal or physical abuse, long working hours) and these aspects can modify the individual job satisfaction and have consequence on the quality of assistance; it is necessary a support. The expressive writing is an efficient intervention, cheap, easy to apply and able to support healthcare workers in stressful situations. The expressive writing represents an important strategy to help healthcare workers: it allows a reduction of the maladaptive strategies, it improves the self- understanding, the past experiences acknowledge , and the professional's capability to cope with difficulties. It has significant positive repercussions on the quality of assistance and the professional's work quality with a reduction of the burnout risk, an implementation in the coping strategies and an increase in the work satisfaction.

In this study, the quantitative analysis allowed to highlight the presence of some important effects that an only expressive writing intervention can ensure to professionals. In fact, in the previous study led by Tonarelli (1) comparing the two groups (experimental and control), it emerged a significant difference in the working hour satisfaction. The use of the expressive writing, maybe with the effects of the emotional processing and the recognition of the positive emotions, would have had a "buffering effect" on the working hour satisfaction that has no deflection from t1 to t2 in the experimental group. Connversely, Control Group has a continuous downward trend in the values of this variable. The difference reduces and disappears in the follow up, giving the idea that later there is a nullification of the expressive writing positive effect. This result aligns with the recently data, highlighted in literature: they introduce a new methodological model that is completely new compared to the classic Pennebacker (4, 12). It suggests to vary the writing sessions (1 or 2 times) and the time distance between each session

(minimum 24 hours, maximum 72) in order to obtain more stable and longer-lasting results. Furthermore, compared to the first study, it has been used a different protocol to confirm possible changes in the short term.

The limited numbers of participants makes impossible to generalize the results limiting the encountered significance. Many values showed a trend towards significance that could be completed and confirmed with a bigger sample. A further limit of the study is the use of questionnaire that measure long-term modifications and for this reason it is necessary to develop an ad-hoc questionnaire to evaluate the sort-term modifications.

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The narrative interview in therapeutic education. The diabetic patients' point of view

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Abstract. *Introduction:* Due to the rise of the average age, chronic-degenerative diseases, including diabetes, are in constant increase, resulting in high complications, in terms of social-economical costs and of the quality of life of the people affected by it. For these reasons, adherence to therapeutic prescriptions becomes essential. Through the implementation of motivation, clear information and follow-up, health professionals can help patients with diabetes to increase therapeutic adherence and maintain healthy lifestyles. *Aims:* The aims of this study were to explore the diabetic patient's adherence and their illness perceptions and the role of the Case-Care Manager in improving the empowerment of patients. *Method:* For this purpose, a semi-structured interview was used, and submitted by 30 patients (19 males; age range: 20-65; mean age: 49.9) belonging to two diabetological centres of Emilia-Romagna (Italy). *Results:* In the both contexts, knowledge of diabetes is limited and 2/3 of patients found out about diabetes almost by chance. As for the correct lifestyle (diet and physical activity), patients have initially started to change but the behaviour was not maintained and not perceived as an important part of the disease management. It emerged that a health specialist could help them keep a healthy lifestyle. *Conclusions and discussion:* The CCM, in particular, can effectively intervene on the poor knowledge of the disease, on difficulty in getting used to the new lifestyle and on the lack of motivation. In fact, The CCM deals specifically with information and education of the patient, promoting self-care and monitoring the patients' paths and outcomes.

Key words: interview, chronicity, diabetes, therapeutic education, Case-Care Manager

1. Introduction

The therapeutic education is the combination of educational activities for specific categories of people. It covers transmission of knowledge and training, in order to get the necessary skills and promote habit changes.

The therapeutic education is also based on values like autonomy, freedom and responsibility; in other words, the ethic component of the care approach (1).

The therapeutic education is a complex action, because it is not only prevention-aimed, but it is also cure-aimed. It will create a patient/caregiver who is competent and able to apply the theory of *knowing, knowing what to do and knowing what to be* (2).

The therapeutic education carried out by expert and trained staff should lead the patients to adopt an appropriate lifestyle. For example, the changes in the lifestyle (body weight reduction of 5/7%, exercise for at least 150 minutes per week) have been more effective than dosing one drug (metformin) in pre-diabetic patients. (3). In order to reach a correct lifestyle, the therapeutic education is extremely vital.

However the healthcare professionals interrupt patients on average every 23 seconds during a consultation; in this way not only significant information risks to be lost, thus compromising the diagnostic accuracy, but the patients end up feeling poorly listened and not adequately understood (4).

"For the practitioners it is advisable to establish an educational dialogue, which is "bi-directional", by starting with a careful listening and carefully choosing the language and the "timing" of communication. Through the educational dialogue, the professionals have the opportunity to bring to the surface the real knowledge and conjectures about illness and treatment" (5).

Moreover, the narration should help those with a chronic disease to make order, to give a sense to their experiences and to place them on a space-time level, thus becoming a therapeutic mechanism (6).

In the last few years in the clinical-care field, there has been an increasing multi-professional interest in the adoption of the narrative approach, both in the clinical and the educational/ethical context, to which medicine and all the health sciences are related (7).

"Narrative medicine" is substantially an alternative and innovative medicine, an expressive form through which health concerns are structured and conveyed by patients, relatives and friends, as well as by medical staff, in conversations, presentations and reports of specific cases (8).

The tool mainly used by narrative medicine is the narrative interview, which is based not only on the analysis of the cultural meanings of the disease, but above all on their production, being aimed at the active participation of the patients in the process of elaborating a sense to their events (9).

More and more professionals recognize the importance of using narrative approaches in medicine, by emphasizing the value of a "patient-centered educational approach".

This approach, based on holistic understanding, hermeneutical dialogues and a high degree of narrative ability, produces different ways of offering care and assistance.

The benefits deriving from the use of this methodology are different; for example, a better understanding of the needs, resources and perspectives of the patient by creating positive effects on the care results (10).

In a recent qualitative study conducted on diabetic adults in Japan (11) a perception of impotence experienced in relation to their condition was detected through structured interviews, meetings, analysis of clinical documentation. The state of impotence is not only an emotional condition but also a combination of sensations, perceptions and thoughts; therefore, it is important to understand the stories that the patients tell.The results suggested improving the nursing approach; firstly, by listening carefully to the patients as they tell about themselves; secondly, by grasping the signs of inadequacy in order to create situations in which they can express themselves freely, talking about their stories, personal thoughts and difficulties.

Depression is another condition that is frequently found in diabetic patients. It can negatively affect the ability to keep the disease under control with diet, exercise and any insulin injections. The reasons why many diabetics are prone to depression are not clear. Perhaps diabetes causes biochemical changes that can induce depression. In any case, from a meta-analysis (12), it emerges that the subjects with diabetes were twice as likely to show symptoms related to anxiety and depression compared to the healthy population; this probability was higher among women than among men, 28% against 18%.

A recent study conducted in Nepal (13). showed a strong relationship between the disease and the perception of depressive symptoms among diabetic patients. Furthermore, the knowledge of the disease made patients implement an active coping behaviour that led them to prevent depressive symptoms and to better control diabetes

2. Aim

This main goal was to study in depth, through a qualitative and exploratory methodology, the efficacy

of the narrative interview as an instrument that allows to plan a personalized assistance for diabetes mellitus type 2 patients. The aims were to explore the diabetic patient's adherence, their illness perceptions, and the role of the Case-Care Manager in improving their empowerment.

3. Method

For this purpose, a qualitative and explorative methodology based on interviews was chosen.

3.1 Setting

The chosen organizational context was the Diabetes Center.

According to a convenience sampling, two organizational-sanitary ambulatory contexts in North Italy, and in Emilia-Romagna (Italy) have been examined.

The first one is the Diabetological Center of Reggio Emilia, which is endowed with its own resources and functional autonomy. Approximately 11,200 patients are treated here.

The second one is the Diabetological Center of Guastalla, which is endowed with its own resources and functional autonomy. Approximately 11,900 patients are treated here.

The target of chronicity, which is typical of the outpatient care, has made it possible to analyse the diabetic path during the not acute phase.

3.2 Participants

Exclusion criteria
Patients who were in the acute phase of their disease, or in new diagnosis and pregnant women because of a lack of chronicity were excluded.

Children were excluded, too, since they usually suffer from diabetes type I, as well as elderly people, who are often patients with different diseases.

Inclusion criteria
Patients suffering from diabetes type II, aged 18-65 and in chronic stage.

Finally, 30 patients were randomly recruited (15 for each context).

3.3. Instrument

Patients have been interviewed with open questions about the stages of the disease:

- **Pre-Diagnosis**: data about the disease, how the diagnosis was formulated (through specific exams or symptoms) and the lifestyle of the patients (diet and physical activity).

The questions were, for instance: "How did you find out you had diabetes?", "Did you have any important symptoms before?", "How was your lifestyle before the disease?"

- **Diagnosis**: data related with emotional consequences of having a chronic disease, with fears linked to the new life condition, with the information given through the diagnosis were appropriate and if patients know who they can rely on in times of need.

The questions were, for instance, "How has your lifestyle been affected after discovering the disease?"; "How has your mood been affected after discovering the disease?" "Did any professionals help and take care of you during the first stages of the disease?"

- **Post-Diagnosis**: we have analysed if the interviewed patients agree with the idea of having a professional following them from the diagnosis onwards.

The questions were, for instance, "What has your chronic disease changed in your lifestyle?", "What do you fear most about your illness?", "What do you think if there was a professional following you throughout this new life condition?", and "what would you like to say to this professional?"

3.3 Data Analysis

This study has analysed the level of acceptance of the disease; the changes in the patient's lifestyle; the level of adherence during treatment; the skills gained by the patients in managing their own state of health autonomously and the importance of a guide who is with them during the "chronic disease" phase. Each macro-area illustrated below was accompanied by some significant patient quotes

4. Results

4.1 Pre-Diagnosis

Knowledge Area

It has been analyzed the awareness of the interviewed patients of the diabetes before diagnosis was confirmed, what they knew about the disease and where they had taken the relevant information.

In Reggio Emilia, 2/3 of the interviewed patients did not have or had a little information about diabetes, even though this is one of the most widespread diseases; the patients aware of it (4/15) knew about diabetes as friends or relatives were diabetic.

"*I didn't know about diabetes so much; I had only heard about if before*" (Patient 5).

"*I had almost no information about it*" (Patient 10).

In Guastalla, 9/15 patients did not know anything about diabetes, 4 knew a little and the 2 knew about it because they had one or more relatives with diabetes.

"*I had absolutely no knowledge of it before*" (Patient 14).

"*I knew something about it as my aunt who lived with me had diabetes. As a consequence, I knew what to do more or less.*" (Patient 12).

How diabetes was diagnosed

It has been analyzed how patients were diagnosed with type II mellitus diabetes.

The purpose was to understand if patients had had specific tests after recognising some symptoms or they had been diagnosed accidentally.

According to our data, in Reggio Emilia the diagnosis is mostly accidental (7 /15), thanks to exams and tests like routine check-up or for surgeries or pregnancy. In almost half of the interviews patients the diagnosis is linked to symptoms they had had for long but seemed not to be alarming.

"*I found it out by accident, after having a traditional blood test*" (Patient 15).

"*I was tired, my legs hurt, and I wasn't able to do some actions*" (Patient 8).

In Guastalla, the patients were diagnosed after some tests they had done by chance; relevant symp-

toms were in few of them (2 / 15) and were not recognised as symptoms of a disease.

"*…by having a test, I usually have a test twice a year*" (Patient 13).

"*It was a friend of mine who alarmed me: I came home from a transfer and I was very thirsty, even if it was in winter*" (Patient 2).

Lifestyle area: diet and physical activity

Diet

The patients' diet both before and after the diagnosis has been analysed. The purpose was to understand how the diagnosed disease would affect the patients' diet and nutrition. Before the diagnosis, patients used to eat irregularly and a lot, especially carbohydrates.

In Reggio Emilia, 2/15 patients said they did not make any changes in their diet, while the other 13 have changed it, partially or completely. These changes, yet, were only temporary, undermining the results obtained.

"*To be honest, I'm not a model patient. I try to find a compromise between curing myself and having a social life so that I don't feel lonely or excluded…very often I don't eat much in the evenings, but it's a constant struggle with myself*" (Patient 5).

"*Now I'm trying to be careful with what I eat, but I am not able to…actually, at all*" (Patient 4).

In Guastalla, all the patients had a irregular an irregular or too abundant diet. Most of them had obesity issues. 13/ 15 patients started a proper diet suggested by the Diabetes Centre and dietician and, over the time, 6 of them adhere to the prescription; other 6 followed the diet irregularly and 1 decided to interrupt it. 2 instead, never accepted to follow the prescriptions.

The interviewed patients who accepted to change their usual diet were more aware of the mistakes made in their previous diet. They also realised that a change would lead them to a better and healthier life, with less fear of the future and of the complications. Changes occurred in the patients who were treated with insulin therapy.

"*If I only think of going on a diet, I just go crazy*" (Patient 8).

"*I have been on a diet for years and now I'm used to it*" (Patient 14).

Physical Activity

In the Reggio Emilia, 9/15 patients started some physical activity and 6 did not; however, only 2 out of 9 who started doing physical activity, kept on doing it.

"I have no time for me, so also time for physical activity is zero" (Patient 1).

"I do no physical activity, which is a bad thing" (Patient 8).

In Guastalla, even though the nursing staff has dealt in depth with the physical activity of the patients and all the patients think that physical activity is very important, the majority of them have not put their awarness into practice, have not even started a physical activity or undervalued it and stopped after a while (only 8 of them continued some physical activity).

The few patients who started with physical activity and declare they know about the correlation between physical activity and their glycaemia keep the suggested physical activity (6 are constant while 2 have quit).

"I have a bad knee due to arthritis, my bunion hurts and so do my legs and I am not able to walk" (Patient 8).

"At the beginning I pretended my back hurt, but then I started and now I walk a little bit everyday and I am feeling well." (Patient 12).

Data shown that physical activity is not constantly done even if this affects some achievements, such as weight loss, reduction of blood levels of *glycated hemoglobin* and nutrition control.

In sum, the patients know that the physical activity is important, but it is also difficult to keep on doing it, since it affects their consolidated habits.

4.2 Diagnosis Phase

Emotional Aspects

In Reggio Emilia, 10/15 patients had shown feelings of fear related above all to the complications, to the change of life quality. For one patient, the fear is linked to the possibility of passing the disease on to his own children. The remaining 5 declared they have no fears.

"I tell you the truth: I, considering that diabetes causes no pain.. I, at the moment, I have no fears". (Patient 5)

"But it knows how to die first because we do know that diabetes is a bastard".

In Guastalla, 9/15 patients had declared to have fear..In the specific, they have talked about physical pain, complications (above all ulcers in lower limbs, eyes problems, amputations) and fear of the insulin therapy and of the diet. 4 patients declared they have no fears and some of them are convinced they can control the disease following the provided prescriptions. 2 patients stated they felt a lot of anger.

"Well undoubtedly yes, some mothers of my friends have had their foot cut off" (Patient 6).

"I'm angry... I just needed that" (Patient 8).

Informative Support

This area explores if the information provided by the team of doctors has been complete at the diagnosis phase, referring in particular to the lifestyle. In Reggio Emilia almost the majority of the patients were satisfied with the instructions received, only one patient reported some circumstances where he didn't feel really supported. 2 patients revealed that the first information received was too much to elaborate and internalize.

"The doctor was very clear about the important things to do in order to feel good and live with this problem, then also the nurses of the centre, when I go checking, ask me what's my lifestyle, how much I move…" (Patient 15).

"But… I was told many things! The doctor told me I have to be careful and to take care of myself otherwise I need the insulin" (Patient 9).

Among the patients interviewed in Guastalla, 12 report they have been satisfactory informed about how to be on the best behaviour.

"The centre has given me enough information" (Patient 1).

For 2 of them the prescriptions were too much, while 1 patient has mostly compared his situation with acquaintances who have the same disease in order to know how to behave.

"There are always some doubts because then you feel dazed by all the things you are told… especially the first time" (Patient 13).

Points of Reference

In Reggio Emilia, for 8 patients the most important person is the Case-Care Manager of the Diabetes Center; for 5 of them is the Case-Care Manager plus the Center in its entirety., besides the Case-Care Manager of the Diabetes Center, who is certainly the prevailing person, 2 patients considered the possibility of activating an emergency number (SOS DIABETES, Reggio Emilia's telephone number available from Saturday afternoon to Monday morning, and public holidays during the week).

"*The doctor gave me her telephone number, if the glycaemic indexes increase, I'll call her right away*" (Patient 9).

"*At the diabetes ward, they are were good at their job*" (Patient 6).

In Guastalla 10 interviewed patients declared that the professional reference is the Diabetes Center and for 5 of them is the Case-Care Manager. Among those that said the Diabetes Center, 1 out of these 10 also stated to have a go-to person that can be a friend, a relative (cousin), 1 patient also searches for news on the web.

"*The Center has always been my sanitary reference image*" (Patient 7).

"*I'm with my primary care physician, at the Center they always change doctors…*" (Patient 9).

4.3 Post-Diagnosis Phase

The last area investigated if, in patient's opinion, it could be beneficial to have a professional as a point of reference during their pathway.

In Reggio Emilia, for 8 patients it wasn't necessary, since they felt already protected by the staff that has been following them. 1 patient was unsure about this opportunity, considering that it could be "interfering. 6 patients would be in favour of this opportunity because it might help them to follow the therapeutic prescriptions and to increase their motivation and their the information in a more efficient way.

"*No, in my case I already have a doctor who monitors me…*" (Patient 13).

"*Well, I'd probably live it as interfering, if somebody called me and asked me "How's your glycaemia?" perhaps,*

I'd feel controlled. But, at the same, it could be good for me keeping the attention alive. Let's say that it always depends on how a person would do this" (Patient 11).

In Guastalla 12/15 patients have declared that it would be a positive thing to have only one reference sanitary manager, while 3 of them did not feel the need to have more continuity service than that they've been receiving until now.

"*I've already asked for it, I go to the Case-Care Manager and I only want to go there, she already knows my name, so together we are reaching a goal*" (Patient 4).

"*I feel a little bit more protected, you have a different approach, you know that he already knows your story, if you have something that changes you say it*" (Patient 15).

Conclusions and discussions

Qualitative strategies are an important care instrument whose aim is not only gathering standard information about the disease, but also about the emotions, about the illness.

The main objective of the study was to examine the importance of the narrative talk as a tool of investigation for the health professionals with educational and managerial functions in order to plan a personalized assistance of the patient who accesses the diabetic clinic. The goal of the study was to understand if all this can be an effective guide in the context of chronic disease and in particular, if it could be considered a construction tool within the aid relationship. In this perspective, it emerged from this study that the narration should help those patients who have a disease to make it clear, to give a sense to their experiences and to put them on a space-time level, in order to turn them into a therapeutic mechanism.

According to this model, this work is based on the narrative nursing perspective. It is in fact focused on the person and the feeling about illness and sickness, and what could possibly mean starting a treatment path together with its own therapist or a reference sanitary group of care. It was proved a valid instrument for the promotion of the current educational paradigm that is centred on the engagement of patient and the caregiver in their own path of care (16). The Integrated Narrative Nursing Model (INNM) is based on such

an approach and it integrates the qualitative with the quantitative methodology. This model has been successfully applied in valuating chronic patients (15) and recently applied in the phase of education (Integrated Narrative Nursing Education, INNE).

The narration becomes an efficient instrument during the therapeutic education, thanks to which the patient can retrace his disease path and reinsert, relocate, also the contents provided by the Case - Care Manager.

At the Diabetes Center in Reggio Emilia we noticed that, the knowledge related to the diabetes disease was always very poor, and in certain cases null. After the diagnosis, the patients held an unhealthy lifestyle, had wrong food habits and used to live sedentary lives.

After the diagnosis, almost all the patients interviewed tried to change their daily habits but none of them succeeded in keeping them in the time.

The prevailing emotional state that has been told by the patients interviewed was that of fears for complications and fears of dealing with the changes in their lifestyle.

Almost all the patients consider themselves satisfied with the information received at the moment of diagnosis and they find in the image of the Care manager of the Diabetes Center the reference sanitary image. The Case/Care Manager allows to plan a care path and to give the opportunity to observe also the patient's behaviour and its way of taking in charge, by using the account of the experience of the disease, provided by the patient, through all the different stages.

It is probably for this reason that more than a half of the patients don't consider necessary the presence of another professional who follows them during all the stages of their treatment path.

At the Diabetes Center in Guastalla as well, fear for complications related to the disease and the anger are the emotions reported, felt at the moment of the diagnosis. All the patients interviewed had a sedentary lifestyle, with wrong food habits, but this habits were all modified by the patients after the diagnosis of diabetes, succeeding in keeping a correct lifestyle.

The Diabetes Center is the reference sanitary image for the majority of patients interviewed, even if they did not specify a precise professional inside the Center. They reported they would like to have a sani-

tary professional to go and speak to and that follows them during the entire treatment path, establishing a relationship based on trust.

During all the interviews, all the participants, even the most skeptical ones, told their life, their story, and made us live through their own words all the difficulties they found . They also re-evaluated their actions and their approach with the disease, increasing the awareness of their knowledge, their uncertainties and weaknesses. The use of qualitative strategies appeared, therefore, an efficient help for reading and understanding the difficulties met by patients daily, providing directions for improving the performance in the working environment.

In a historic moment where the gap between technical dimension and human dimension is always more evident, the qualitative strategy allows the patient to be closer with the professionals becoming an efficient tool also during the therapeutic education. The risk of failing the care's goals comes in fact from the probable misalignment of meaning between the healthcare professional and its patient.

An integrated-type approach requires the use of qualified human resources from health organizations, opportunely trained and motivated to learn, to always improve.

Such process, inevitably, increases costs, but it increases patients and their families' satisfaction, improving the quality of care and services.

In conclusion, we cite the thought of Arthur W. Frank's book, *The renewal of generosity*, (17) in which the author offers the sense of the above expressed:

"As doctors and people that take care of other human beings, we inevitably become characters of their stories; the most important thing we can do then is to become some characters that can help them telling their stories in the best way".

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Original article: Organizational features in the healthcare environment

Workplace incivility, lateral violence and bullying among nurses. A review about their prevalence and related factors

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Abstract. *Background:* Negative interactions among nurses are well recognized and reported in scientific literature, even because the issues may have major consequences on professional and private lives of the victims. The aim of this paper is to detect specifically the prevalence of workplace incivility (WI), lateral violence (LV) and bullying among nurses. Furthermore, it addresses the potential related factors and their impact on the psychological and professional spheres of the victims. *Methods:* A review of the literature was performed through the research of papers on three databases: Medline, CINAHL, and Embase. *Results*: Seventy-nine original papers were included. WI has a range between 67.5% and 90.4% (if WI among peers, above 75%). LV has a prevalence ranging from 1% to 87.4%, while bullying prevalence varies between 2.4% and 81%. Physical and mental sequelae can affect up to 75% of the victims. The 10% of bullied nurses develop Post-Traumatic Stress Disorder Symptoms. Bullying is a predictive factor for burnout (β=0.37 p<0.001) and shows a negative correlation with job efficiency (r=-0 322, p<0.01). Victims of bullying recorded absenteeism 1.5 times higher in comparison to non-victimized peers (95% CI: 1.3-1.7). 78.5% of bullied nurses with length of service lower than 5 years has resigned to move to other jobs. *Conclusions*: There is lack of evidence about policies and programmes to eradicate workplace incivility, lateral violence and bullying among nurses. Prevention of these matters should start from spreading information inside continue educational settings and university nursing courses.

Key words: workplace incivility, lateral violence, bullying, nurses, prevalence, review

Background

Currently, negative relationships among nurses are an issue well-recognized worldwide and reported by the literature, even because this phenomenon can determine negative consequences for the professional and private lives of the victims.

A review performed by Spector et al. in 2014 (1), showed that on a total sample of 151307 nurses, derived from 136 studies, the 36.4% was exposed to physical violence (PV) and the 67.2% to the non-

physical one (NPV). In Europe, there was an exposure of the 35% to PV and 59.5 % to NPV, the latest being usually perpetrated by other nurses or physicians (1).

In view of this evidence, this work focused on the three main forms with which dysfunctional interactions among nurses can occur: lateral violence, bullying and workplace incivility.

Lateral violence is as a subset of the global concept of 'workplace violence' (2), as well as bullying.

Since clear definitions and classifications of these antisocial behaviours at workplace are still lacking and

sometimes debatable, epidemiologic comparisons between these issues can be problematic.

The most common manifestation of lateral violence is the psychological harassment resulting in hostility, as opposed to physical aggression.

These harassments include: verbal abuses, threats, humiliations, intimidations, criticism, innuendo, social and professional exclusion, discouragement, disinterest, and denied access to information (3).

Vice versa bullying has been described as an enduring offensive and insulting behaviour worsened by an intimidating, malicious, and insulting pattern (4).

This specific type of harassment amounts to power-abuse, while the victims experience feelings of humiliation, menace, vulnerability and distress (4).

A further distinction between bullying and lateral violence refers to their frequency of occurrence. Lateral violence can be isolated and sporadic while bullying is displayed when the negative acts are repeated weekly or more often, for six or more months (5).

In literature, many labels have been used to define workplace's bullying. In Europe, the most common term for bullying is 'mobbing' (6).

The antecedents of these workplace's deviant behaviours are related with a professional incivility attitude, described as deterioration in the workplace relationships among peers. For example: to leave a paper jammed printer unfixed, withholding important information, unauthorised use of victims' personal items and, social exclusion.

Workplace incivility differs from (physical or verbal) workplace violence for its ambiguity in the intent to damage the victim (7). Therefore, workplace violence is displayed as soon as the intent of negative behaviours becomes clearly to harm the person (7).

The aim of this review is to highlight the extent of workplace incivility, lateral violence and bullying among nurses. Moreover, their related factors and the theoretical basis of their genesis are showed.

Methods

We performed a review of the available literature according to the following PECO: Population-Exposure-Comparison-Outcome.

'Population' is related to the nurse professional category. 'Exposure' is defined as experiencing incivility, lateral violence and, bullying. 'Comparison' is the act to evaluate the exposed and non-exposed subjects. 'Outcome' represents the negative collateral effects in private and professional lives of the targets.

Three different biomedical databases were investigated: Medline, CINAHL and Embase.

The keywords used for the research of papers were: "incivility", "nursing", "hostility", "bullying", "mobbing", "lateral", "horizontal", "violence".

The inclusion criteria settled for the research were: English-Italian language and human being subjects. None limitation of time was applied.

Google Search (provided by Google©) was also used in the process of gathering information, as an adjunct to the three databases explored (8).

The exclusion criteria were: studies on workplace violence against students and inside the academic settings, qualitative research studies, and all the secondary literature.

After the preliminary removal of double records and non-pertinent abstracts, we retrieved all the full-text articles matching the inclusion criteria (quantitative research studies, original mixed methods studies, systematic reviews and meta-analysis).

After the screening, seventy-nine original papers were selected.

Results

Workplace incivility: prevalence and related factors

The number of papers focused on workplace incivility among nurses was 16 (Table 1).

Most of these original studies have been carried out in Canada and a minority in the USA.

Workplace incivility point prevalence and period prevalence are seldom investigated within the studies. Published studies mainly reported average values of specific scores as the Workplace Incivility Scale tool.

However, when reported, the overall percentage of workplace incivility still remains remarkable: between 67.5% (9), and 90.4% (10). Furthermore, workplace incivility among peers, account for values higher than 75% (9, 10).

Table 1. Workplace incivility among nurses. Prevalence and consequences

				disorders	
Ceravolo et al. (2012) (16)	4000 nurses and 1100 nurse students in 5 U.S. hospitals. Respondents to the 1st survey: 703 (34%) to the 2nd survey 485 (23%) (4 yrs after).	Verbal abuse recorded in the 1st survey: 90% (n. 634); 2nd survey: 70% (n. 370).	NR	NR	Turnover and vacant job positions: 8.9% in the 1st survey; in the 2nd survey, 6% and 3%, respectively.
Elmblad et al. (2014) (17)	1700 certified CRNAs in Michigan (USA). Respondents to the survey: 385 (22.6%).	NR. The mean composite score of WI from all professionals was 63.5 (median of 65.0). WI mean score from peers was 51.3 (median of 50.0).	NR	NR	A linear correlation exists between WI and professional burnout in CBI (p<0.0001).
Hutton & Gates (2008) (11)	145 nurses and 33 nurses assistants in a U.S. hospital.	Mean WI frequency was 2.13 (SD=0.50), to be intended for slightly over "rarely".	No correlations between WI and respondents' demographics.	NR	The mean cost for reduction of annual productivity in nurses assistants was \$1235.14, whilst in nurses was \$1484.03 WI from immediate superiors and patients correlated with productivity (r=0.284, p=0.000 e r=0.204, p=0.006, respectively). WI coming from other direct care factors did not correlate with productivity.
Laschinger et al. (2014) (*15)	3600 Canadian nurses. Respondents to the survey: 1241 (35%).	NR. Only average scores from the scales used for the study.	NR	NR	WI from peers correlated with the global empowerment (r= -0.25), the emotive exhaustion (r=0.23), and the work satisfaction (r=-0.20).
Leiter et al. (2010) (13)	522 Canadian nurses.	There were no statistically significant differences in mean levels of WI from peers between the "Baby boomers" and the "X generation"	NR	WI among peers correlated with physical symptoms (r=0.17).	WI correlated with turnover intention (r=0.19), emotive exhaustion (r=0.25), and cynism (r=0.33).

Table 1. Workplace incivility among nurses. Prevalence and consequences

Author (year)	Sample/Settings	Prevalence	Related factors	Psychophysical disorders	Professional impact
Lewis et al. (2011) [21]	2160 U.S. nurses. Respondents to the survey: 164 (8%), with other professional, determining 659 respondents as total.	553 (84.8%).	The nurse managers' awareness of WI was a predictive factor for the ability to manage the WI (z=23.896; p<0.001). ICUs and medical-surgical wards showed less WI scores than ORs and EDs (p<0.001).	NR	No statistical significant differences in the loss of productivity between real work environments and healthy work environments. However, there was a negative correlation between WI and productivity.
Oyeleye et al. (2013) [12]	400 nurses from 2 U.S. community hospitals and one tertiary hospital. Respondents to the survey: 61 (15%).	NR. Only average scores from the scales used for the study.	Total length of service (yrs) correlated with WI (p=0.007).	NR	WI correlated with turnover intention (p<0.0001), stress (p=0.001), and burnout (p=0.005).
Shy et al. (2018) [18]	903 registered nurses in China were invited. Ultimately, 696 new nurses (<3 service years) completed valid questionnaires. The effective response rate was 77.1	Workplace Incivility: (range 1-5) mean 1.89 (SD±0.53)	WI has a positive prediction function to generate anxiety (β=0.364, p<0.01) and job burn-out (β=0.240, p<0.01) of new nurses. Anxiety also had a positive influence on job burn-out (β=0.405, p<0.01), Moreover, the influence of the interaction between WI and resilience on job burn-out was significant (β=−0.564, p<0.01). It showed that resilience moderated the relationship between incivility and anxiety, and anxiety partially mediates the relationship between WI and job burn-out	NR	This model suggests that nursing managers should pay attention to the growth and development of new nurses in the practice of nursing management, improving the resilience of new nurses and reducing their anxiety. This will help to reduce job burn-out of new nurses, thereby promoting the work efficiency and saving management cost.
Slem & Seada (2017) [20]	100 Staff Nurses (Mansura University Hospital, Egypt	Workplace incivility mean 72.48 (SD±23.95) Gossiping (rank 2); Exclusion (rank 1); Hostility (rank 3);	A significant correlation was found between workplace civility climate and total score of incivility (r=.24 p=0.001**). And between intolerance for	NR	Highest percentage (59 %) of studied nurses never experienced hostility behaviours. While low

Table 1. Workplace incivility among nurses. Prevalence and consequences

Author (year)	Sample/Settings	Prevalence	Related factors	Psychophysical disorders	Professional impact
		Invasion of privacy (rank 4)	incivility subscale and total score of work place incivility behavior (r=0.28, p=0.00*).		percentage (2%) of them perceived that they subjected to exclusion behaviours every day.
Smith et al. (2010) (10)	250 nurses (Ontario, Canada). Respondents to the survey: 117 (51%).	90.4% of respondents reported WI from peers.	NR	NR	WI was an independent predictive factor of commitment to work (β=-0.189, t=-2.01, p=0.047).
Spence Laschinger et al. (2009) (*9)	1106 workers in healthcare system, among which, 612 nurses (Ontario, Canada).	77.6% of nurses experienced WI from peers; 67.5% experienced WI from supervisors	NR	NR	WI was a predictive factor for turnover intention (8.5%, P<0.001).
Spence Laschinger et al. (2009) (**22)	245 neo-graduate nurses (Ontario, Canada).	Workplace civility (range 1-5): mean 3.67 (SD±0.88). Conflict among nurses (range 1-5): mean 2.39 (DS±1.09).	NR	NR	Workplace civility was a significant predictive factor for emotive exhaustion (β=-0.18, p=0.003). Emotive exhaustion (sub-scale of Maslach Burnout Inventory-General Survey); there is burnout if the score is >3: the respondents showed a mean of 3.43 (DS±1.38).
Spence Laschinger et al. (2012) (23)	755 nurses responded to the 1st survey, and 573 to the 2nd survey, performed in 32 hospital wards in Nova Scotia, and in 19 wards in Ontario (Canada).	WI (range 1-5): mean level reported were 0.61(SD±0.71) and 0.85 (SD±0.86).	NR	NR	NR
Laschinger et al. (2013) (24)	833 neo-graduate nurses (Ontario, Canada). 272 respondents to the survey.	WI (range 1-5): mean 1.7 (SD±0.73); 12% reported daily episodes of WI from peers.	NR	The episodes of WI correlated with low levels of mental health, i.e. rage, fear and sadness (r=0.36, p< 0.05). High levels of	NR

Table 1. Workplace incivility among nurses. Prevalence and consequences

Author (year)	Sample/Settings	Prevalence	Related factors	Psychophysical disorders	Professional impact
				resilience were associated to reduced WI from peers (B=-0.19), and less mental health disorders (B=-0.31).	
Wing et al. (2013) (25)	1400 neo-graduate nurses (Ontario, Canada); 546 (39%) respondents to the survey.	NR	NR	NR	Empowerment correlated with WI (ß= -0.286; p<0.001), general health symptoms (ß=-0.221, p<0.001), and mental health symptoms (ß=0.307, p<0.001).
Zia ud-Din (2017) (19)	184 medical nurses working in healthcare organization in Faisalabad City (Pakistan)	Workplace incivility: mean 48.91 (SD±5.32)	There is a relation between WI and employee absenteeism. The independent variable (WI) R value is 0.447 and R square 0.200, ß value 0.058, SE value 0.011. The organization commitment is moderate between these two variables. Data shows that Workplace incivility R value is 0.447 and R square 0.200, ß value 0.058, SE value 0.011. Moderate variable organization commitment which one type is OACO (Organization Affective Commitment) is strong regress to dependent and independent variable R value 0.680, R square value 0.462, ß value 0.813, SE value 0.087. Second type of moderate variable OCCO (Organization continuance commitment) is less regress from affective commitment, R value 0.653, R square value 0.426, ß	NR	Absenteeism which is seen as work behaviour should be checked and controlled since it can lead to more serious conflicts. To achieve this, absence policy should be put in place by organizations to check and control employee wilful absences.

Table 1. Workplace incivility among nurses. Prevalence and consequences

Author (year)	Sample/Settings	Prevalence	Related factors	Psychophysical disorders	Professional impact
			value 0.527, SE value 0.062. Lastly, third type of moderate variable is ONCO (Organization Normative Commitment), also less regress from affective and continuance commitment R value is 0.616, R square 0.379, Coefficient 0.525, SE value 0.073.		

Legend: CBI – Copenhagen Burnout Inventory; CRNA - Certified Registered Nurse Anaesthetist; ED – Emergency Department; ICU – Intensive Care Unit; NR – Not Reported; OACO: Organization Affective Commitment; OCCO: Organization Continuance Commitment; ONCO: Organization Normative Commitment; OR – Operating Room; Pt. – Patient; SD – Standard Deviation; WI – Workplace Incivility;

According to the available data, there are no correlations of workplace incivility with specific demographic features (11), except for the total years of nursing job's experience (p=0.007) as reported by Oyeleye et al. (12).

Concerning emotional and physical side effects, there is a weak correlation between workplace incivility among peers and physical symptoms (13).

Laschinger et al., highlighted how a strong resilience attitude was related with less presence of incivility among colleagues (B=-0.19), and less symptoms of mental discomfort (B=-0.31) (14).

Workplace incivility have a significative correlation with professional burnout (p<0.0001) (17), emotional exhaustion (r=0.25), cynicism (r=0.33) (12) and poor job's satisfaction (r=-0.20) (15).

Several studies also related workplace incivility with the request of turnover (8.9%) (16) and turnover intentions (9, 12, 13), and with nurses' job commitment, especially if the workplace incivility arose from patients or superiors (11).

Shi el al. (18) found that workplace incivility was positively related to anxiety (r=0.371, p<0.01) and job burn-out (r=0.238, p<0.01). On the contrary, workplace incivility was negatively related to resilience (r=–0.191, p<0.01) and has a positive prediction function to generate anxiety (β=0.364, p<0.01, M2) and job burn-out (β=0.240, p<0.01, M5) of new nurses. The resilience moderated the relationship between workplace incivility and job burn-out.

Zia-ud-Din Arif & Shabbir (19) found a significant relationship between workplace incivility and employee absenteeism (β=0.058, SE value 0.011), but with varying degrees to the facts of employee absenteeism. Among absenteeism, withdrawal behaviours was found to be the most prevalent practice of nurses as response to incivility. Organization commitment was negatively correlated with employee absenteeism and workplace incivility. The relationship was found to be negative between organization commitment and workplace incivility.

Slem & Seada (20) revealed a statistical significant negative correlation between workplace civility climate and total score of incivility behaviour while there was no significant correlation between group norms and workplace incivility behaviours among staff nurses. Find-

ings suggest that perceived workplace civility climate can play a role in the incidence of incivility behaviours among staff nurses, while group norms for civility is not a predictor of occurrence of incivility behaviours.

Lateral violence: prevalence and related factors

The number of papers on lateral violence matching the inclusion criteria was 25. This topic, compared to the previous one, seems to be more globally widespread than just the Northern America area. In fact, there is a greater variability in its prevalence, according to the studies reported (Table 2).

The prevalence range is wide: from the 1% of Armmer & Ball (26), up to 87.4% described by Dunn on a population of operating room (OR) nurses (both from USA) (27). The European area shows a lower range of lateral violence (1.3%-5.3%), as recorded by the NEXT study (28).

Similar findings were reported from Italy, by Magnavita et al., showing a 9.9% of non-physical aggressions from colleagues (29).

Some exceptions were represented by a Spanish study (74.2%) (30) and two recent Italian surveys performed in Emergency and Intensive Care Unit (ICU) settings, showing values of 81.6% (31) and 79.1% (32), respectively.

Morrison et al. (49), in Jamaica, found that exposure to lateral violence was reported by 96% of participants, and 3/4 rated the exposure as moderate to severe. Lateral violence created a hostile environment, and the behaviours in response to lateral violence among nurses included professional disengagement, retaliation, avoidance and intent to resign, as indicated by half of the nurses surveyed. The Nurse Managers were the main perpetrators of lateral violence (63%). The pervasiveness of lateral violence among the nurses studied indicates the need to implement appropriate workplace violence policies.

Ayakdaş & Arslantaş (50), in Turkey, found that 47% (n=366) of nurses had suffered lateral violence and the 80.1% encountered mobbing behaviors, including humiliation and degradation. The reasons for colleague violence reported were: for the 10.3% the jealousy, for the 10.1% to have higher level of education, for the 8.2% the rivalry, for the 4.6% to be a beginner in the

clinic, for the 4.3% the workload and the patient density, for the 3.8% the differences in political views, and for 3.2% the physical appearance.

Identification of specific services or units at high-risk of lateral violence can be difficult due to the broad variability inside the explored settings, confirming that lateral violence is firstly a "cultural problem" in nursing profession (33).

According to the NEXT study, intensive care units and operating rooms were the most affected areas by lateral violence (7.4%), followed by the elderly care units (7.0%) (28). In addition, an Italian survey showed the ORs as the most exposed environments to lateral violence (32).

As opposed, data collected in South Africa have identified obstetrics wards as the most affected service (40%) (34).

Finally, a survey from Purpora & Beglen (2015) pointed out that ICUs and surgical wards were the most affected by lateral violence (35).

Overall, gender, age, seniority and nursing education are not related factors of lateral violence among nurses in clinical settings (27, 31, 32, 36, 37).

The only exception is from the study of Sellers et al. (38). The authors have shown higher lateral violence rates among the senior versus junior nurses (p<0.05), as well as female versus male (p<0.05) (38).

Nurses working with daily shift are the most affected by lateral violence (28, 31).

Natural tendency for selfishness (β=0.13) and not yet specified peculiar work environment (β=0.13), both represent antecedents for work related bullying (39).

Nurses involved in lateral violence experience reported psycho-physical consequences on a range from 3.2% (29) to 65.2% (31). The symptoms' description is summarized in Table 5.

Mild negative correlations exist between lateral violence and quality of patients care (r=-0.469; p<0.01), plus errors and adverse events (r=0.442; p<0.01) (35).

Authors reported that variable percentages of nurses victimized by lateral violence performed their duties not matching the minimum safety requirements. Some examples are: drugs administration with unclear prescription, lifting patients without support and using medical devices without asking for supervision (40).

Furthermore, there is a significant positive corre-

Table 2. Lateral violence among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical disorders	Professional impact
Alspach G. (2008) (43)	96 U.S. nurses	NR. Virtually 100% (the survey started just asking about the experienced LV).	NR	NR	NR
Armmer & Ball (2015) (26)	300 nurses, Michigan (USA). Respondents to the survey: 104 (36%).	1% - 80.8%.	NR	NR	LV correlated with the intention to leave the job (r=0.214, p<0.05).
Ayakdaş & Arslantaş (2018) (50)	779 nurses (336 from a university hospital, 243 from a training and research hospital in Izmir province; 170 from a state hospital in Aydin province, Turkey)	47% (n=366) of the nurses reported at least one colleague psychological violence; the 80.1% encountered mobbing behaviours, the most including humiliation and degradation. The 42.1% (n=154) reported that they were being subjected to violence for less than 1 year	10.3% (n=38), 10.1% (n=37), 8.2% (n=30), 4.6% (n=17), 4.3% (n=15), 3.8% (n=14), and 3.2% (n=12) reported the reasons for colleague violence as jealousy, having a higher level of education, rivalry, being a beginner in the clinic, workload and patient density, differences in political views and physical appearance.	NR	The first three effects on nurses exposed to psychological violence from colleagues at work are that: 85.5% of the participant nurses deeply felt sorry when they remembered the behaviour, 81.7% repeatedly recalled the behaviour, and 81.1% felt stressed and tired.
Bambi et al. (2013) (31)	444 nurses (EDs and ICUs) from 5 Tuscan hospitals (Italy). Respondents to the survey: 360 (81%).	294 (81.6%).	LV were more frequent in ED rather than ICU (90% and 77.2%, respectively); p=0.0038). Day-shift nurses experienced more LV than night-shift nurses (93% vs 78.4%; p=0.0019).	235 nurses (65.2%) reported at least one symptom related to LV.	17.7% asked for changes in ward assignation. Only 6.9% really changed their ward of assignation in the last 12 months. 6.9% expressed the desire to leave the nursing career. The claim to swap unit was associated with presence of symptoms related to LV (13% vs 5%; p=0.039).
Bambi et al. (2014) (32)	1504 Italian nurses from Critical Care Units Emergency and Department and Out of	951 (79.1%) experienced LV. 269 (22.4%) experienced	There were no statistical significant differences between LV and demographics, even if nurses in Southern Italy seem to be more	829 (69%) reported symptoms related to LV	136 (11.3%) nurses asked for change in ward of assignation, only 43 (3.6%) really changed their ward of assignation in

Table 2. Lateral violence among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical disorders	Professional impact
	Hospital Emergency Service Emergency and Operating Room. Respondents to the survey: 1202 (79.9%).	lateral bullying.	victimized compared to others (88.5%, χ^2=5.887, p=0.0527).		the last 12 months. Head nurses changed ward of assignation more than the other nursing roles (7.3%; χ^2=6.233, p<0.05). Similar findings were recorded in victims of lateral bullying (8.5% and 2.1%, respectively; χ^2=23.022, p < 0.01).
Camerino et al. (2008) (28)	34.107 nurses from 567 healthcare institutions in 8 European countries. Respondents to the survey: 55.1%.	Range from Holland (50; 1.3%) to Poland (530; 12.3%).	LV occurred mainly in ICU and OR (7.4%), long-term geriatric unit (7.0%), medical surgical wards (6.2%). LV victimized foreign nurses in 6.4%, versus native nurses (5.4%); head of nurses (6.6%); nurses (5.2%); day-shift nurses (6.4%), night-shift nurses (5.8%).	NR	NR
Dumont et al. (2012) (37)	955 U.S. nurses.	82% (n. 778) was victim of LV or witnessed LV, on a daily or weekly basis.	No correlation was found between the effects of LV and length of service. A weak correlation between LV prevalence and length of service. Male respondents showed more effects of LV than females (84%, vs 63%, respectively, p=0.003). LV was less frequent among junior nurses, but the PhD graduates seemed the most victimized (despite their respondents' number was low).	Insomnia, headache, abdominal pain, demoralization due to absence of feedback.	LV not mentioned for fear of retaliations; afraid to questioning for possible mockery; unpleasant feelings about the job due to the relationships with peers.
Dunn H. (2003) (27)	500 OR nurses in New Jersey (USA). Respondents to the survey: 145 (29%).	125 (87.4%).	No statistical significant differences between the role of victims/perpetrators of LV and demographics	NR	NR
Griffin M. (2004) (42)	26 U.S. newly qualified nurses.	12 (47%).	NR	NR	NR

Table 2. Lateral violence among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical disorders	Professional impact
Khalil D. (2009) (34)	471 nurses from Cape Town (South Africa).	29%.	LV occurred: 40% in obstetrics, 32% in general wards, and 20% in psychiatric units.	NR	NR
Magnavita et al. (2011) (29)	275 nurses from a general hospital (Italy).	9 nurses (9.9%) reported non-physical aggressions by colleagues.	NR	Fear - 13 (13.8%), rage - 9 (9.6%), irritation - 42 (44.7%), anxiety - 19 (20.2%), humiliation - 8 (8.2%), to feel guilty - 3 (3.2%), annoyance - 27 (28.7%), sensation of lack of help - 12 (12.8%), desire of revenge - 10 (10.5%), believe the others are wrong - 11 (11.6%).	Intent to change the job's career - 29 (30.5%); thinking to modify personal behaviour 18 (18.9%).
McKenna et al. (2003) (3)	1159 nurses from New Zealand. Respondents to the survey: 551 (47%).	188 (34%); 170 (31%) reported major levels of distress from the incidents. The perpetrators are nurses, with different roles and job positions	NR	Reduced self-esteem, fear, frustration, sadness, irritability, headache, depression, loss of weight, fatigue. Rare cases of increased self-confidence, and load of energy.	24/170 (14%) reported absence from workplace, 58/170 (34%) planning to leave the nursing profession.
Morrison et al. (2017) (49)	114 registered nurses of a Kingstone of Hospital (Jamaica) The response rate was 93% (n= 107).	Exposure to LV was reported by 96% of participants, and 3/4 rated the exposure as moderate to severe. Nurse Managers were the main perpetrators of LV (63%).	NR	NR	The behaviour in response to LV among the nurses included professional disengagement, retaliation, avoidance and intent to resign.
Oh et al. (2016) (39)	255 nurses from 4 university hospitals in South Korea.	NR. Only mean values of LV and bullying scales are reported.	Negative affectivity is statistically significant predictor for all the subsets of workplace bullying. Significant antecedents of work related bullying are individualism (β=0.13), and special work-settings (β=0.13). Verbal abuse predictors were: weekly working hours ≥41, type of hospital, and negative	NR	NR

Table 2. Lateral violence among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical disorders	Professional impact
Purpora et al. (2012) (36)	215 nurses from California (USA). Respondents to the survey: 175.	37 (21%).	affectivity (adjusted R²=0.17, F=3.64). Gender, nursing basic education program, and length of service were not predictors of LV. ICUs experienced more LV than other wards.	NR	NR
Purpora & Blegen (2015) (41)	1278 U.S. nurses. Respondents to the survey: 175 (13.8%).	NR	There was a negative correlation between LV and relationships among peers (r=-0.641; p<0.01).	NR	LV was negatively related to the job satisfaction levels (r=-0.466; p<0.01). LV negatively affect the job satisfaction: ß=-0.462 (F(1,172)=46.63, p<0.001). LV negatively affect the relationship among peers: ß=0.641 (F(1,172)=119.92, p < 0.001).
Purpora & Blegen (2015) (**35)	234 nurses from California (USA). Respondents to the survey: 175 (18.8%).	139 (79.4); 37 (21.1%) nurses reported daily or weekly LV frequency.	LV was more frequent outside ICUs and medical-surgical areas (p>0.05), and for nurses without a certified university education program (p>0.05). There was a negative correlation between LV and relationship among peers (r=-0.640; p<0.01). LV was a predictor for reduction of relationships among peers. LV negatively correlated to patients' quality of care (r=-0.469; p<0.01). LV was a predictor of poor quality of care. LV was related to errors and adverse events (r=0.442; p<0.01). LV was a predictor of errors and adverse events.	NR	NR

Table 2. Lateral violence among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical disorders	Professional impact
Reynolds et al. (2014) (44)	63 nurses from a perinatal service in a Californian hospital (USA). Respondents to the survey: 62.	LV among nurses was larger than other professional categories.	The total score of hostilities was higher in association with reported patients' negative outcomes (mean=47.50, SD=8.73) unlike who did not report negative outcomes (p=38.45, DS=12.27, t(58)=2.40, p=0.02).	NR	NR
Sellers et al. (2009) (45)	108 nurses, New York (USA).	24.3%-29.4%.	NR	NR	NR
Sellers et al. (2012) (38)	2659 nurses from hospitals of New York (USA). Respondents to the survey: NR.	NR	LV frequency appears higher for experienced nurses (p<0.05), and in female nurses groups (p<0.05).	NR	NR
Stanley et al. (2007) (46)	1850 nurses and nurses assistants (USA). Respondents to the survey: 601 nurses (91%).	46% of respondents reported high levels of LV. 65% reported LV from peers.	LV were more frequent in medical and surgical wards.	NR	NR
Topa & Moriano (2013) (30)	388 nurses from 2 Spanish hospitals.	74.2%	LV was associated to work- related stress (r=0.34, p<0.01), team support (r=-0.38) and team-identity (r=-0.40). Linear regression showed that LV and work-related stress were positively associated (ß=0.23, p<0.01), while LV was negatively associated to team support and team identity (ß=0.14, p<0.05 e ß=0.22, p<0.01, respectively).	NR	NR
Walrafen et al. (2012) (47)	227 nurses (USA).	19.9%-53.3%; 28.4%-77% witnessed LV	NR	NR	NR

Table 2. Lateral violence among nurses. Prevalence and consequences

Study	Sample				episodes towards other people.
Wilson et al. (2011) (48)	130 (26%) nurses respondent to the survey, from a community hospital in USA.	105 (85%) observed LV towards others or themselves in the last 6 months.	NR	NR	23 (19%) decided to leave their current job position.
Wilson & Phelps (2013) (40)	500 nurses from a U.S. hospital. Respondents to the survey: 130 (26%).	78 (60%) witnessed presence of LV.	NR	NR	The main effects on patients' safety were: 30 (13%) drugs administration by nurses despite unclear prescriptions, without asking for clarifications; 11 (25.6%) performing obese patients' mobilization without asking for help; 5 (10%) nurses used unfamiliar medical equipment without supervision.

ED: Emergency Department; ICU: Intensive Care Unit; LV: Lateral Violence; NR: Not Reported; OR: Operating Room; Pt: Patient; SD: Standard Deviation; US: United States; USA: United States of America

lation between lateral violence and work-related stress ($\beta=0.23$, p< 0.01) (30).

In addition of these data, lateral violence exerts a negative impact on job's satisfaction ($\beta=-0.462$; $F_{(1,172)}=46.63$, p<0.001) (41).

At last, literature pointed out the link between lateral violence and the intent to quit from nursing career (r=0.214, p<0.05) (26). A range from 11.3% (31) to 30.5% (29) of nurses victimized, decided to resign from their position. From 6.9% (31) up to 34% (3) of the targets even consider quitting the profession.

Nurses that have witnessed lateral violence report and share the experience with other people up to 58% (40) of the episodes (recipients are line managers, peers, friends, relatives…).

On the contrary, a direct facing with the aggressor appears to have a broad range of percentage: from 17.3% (36) to 100% (42).

Bullying. Prevalence and related factors

The number of papers focused on bullying among nurses was 38 (Table 3).

The prevalence reported also for this topic is widely variable, from 2.4% (51) to 81% (52).

Unlike the lateral violence, the variability of prevalence recorded in the studies on bullying, is mainly connected to its operational definition, then to studied settings and instruments used to record this phenomenon.

Bullying (as lateral violence) is not related to specific demographic factors, levels of education and nurses' job position (5, 53).

Exceptions are given by data retrieved from Pakistan (54) and Iran (55).

Findings have shown that female nurses are significantly more prone to experience abuses, if compared to the male colleagues (56).

In Turkey, Yildirim (58) and Çevik Akyil et al. (59), have identified the younger age as a main risk factor for bullying in nursing profession (58). In a study conducted in Neonatal Intensive Care Units in Greece, the female professionals and those with a job experience ranging from 5 to 10 years were more exposed to bullying (57).

Vessey et al. showed that a length of service of less than five years was a risk factor for bullying (76). A

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
Abe & Henly (2010) (52)	881 nurses from 19 hospitals in Tokyo (Japan).	81%.	NR	NR	NR
Aksakal et al. (2015) (78)	650 nurses from a university hospital in Turkey. Respondents to the survey: 538 (82.7%).	88 (17.1%).	NR	Victims of bullying showed higher anxiety score in comparison with those were not victimised, despite clinically speaking, it was not significant. (2.78, vs 2.18, p=0.001).	Nurses not bullied have showed higher level of job satisfaction when compared to the bullying's victims (72.1% and 47.2% respectively) (p=0.0001); victimised nurses reported stronger intention to change job rather than not-victimized nurses (73% vs 57.2%, respectively, p=0.005). These findings are also confirmed by willingness to leave the nursing profession (81.2% vs 67.2, respectively, p=0.011). 3 nurses moved to another job.
Allen et al. (2015) (60)	762 Australian nurses.	61% reported at least 2 episodes of bullying in the last 12 months.	Bullying was correlated with the weekly number of work hours (r=0.11, p<0.05).	NR	Bullying and burnout syndrome were positively related (r=0.38, p<0.001); bullying was a predictor of burnout (β=0.37, p<0.001).
Arcangeli et al. (2014) (66)	206 nurses from 3 hospitals in central and north Italy.	21.4%. None mention of bullying perpetrated by peers.	NR	The total score of NAQ-R showed correlation with loss of safety (r=0.38, p<0.05), social consequences (r=0.30, p<0.05), anxiety and depression (r=0.37, p<0.05), and a score of General Health Questionnaire 12 (r=0.40, p<0.05).	NR
Berry et al. (2012)	5000 nurses in 3 states	43 (21.3%) nurses were	NR	NR	There was a negative

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
(72)	of USA. Respondents to the survey: 197 (3%).	exposed to bullying on a daily basis; 36 (18.2%) nurses were exposed more times in a week.			correlation between bullying and work productivity (F=0.045, r=-0.322, p<0.01).
Bortoluzzi et al. (2014) (61)	238 nurses from Italy. Respondents to the survey: 175 (73.5%).	59 (34%) nurses were at risk of bullying.	Predictive factor for bullying was the participative leadership (β=-1.035, p<0.05) with a lack of human resources (β=-1.845, p<0.005).	NR	NR
Chatzioannidis et al. (2018) (57)	398 healthcare professionals (doctors, nurses) working Neonatal intensive care units in Greece	53.5% exposed to bullying; 53.1% doctors and 53.6% nurses	Female significantly more exposed to bullying (56.4%vs36%, p=0.009); professionals with 5-10 years of job experience significantly more exposed to bullying (p=0.048)	Lower level of psychological health status for employees being bullied (12.9±5.7 vs 8.5±4.6, respectively, P<0.001)	NR
Çevik Akyil et al. (2012) (59)	256 nurses from a university hospital in Turkey. Respondents to the survey: 180 (70.3%).	NR, the mean score of bullying perception reflects how nurses were often exposed (mean 155.51, SD ± 14.956). 94 (58.9%) nurses suffered bullying acts by direct supervisor, 4 (2.4%) were bullied by peers instead.	Bullying is more perceived by nurses with the following features: age 18–25 years (mean=160.16, SD=± 14.858), married (media=161.62 ± 14.226), absence of university certifications (mean=160.55, SD=± 9.220), worked in a clinical settings (mean=156.56, SD=± 14.872), professional experience < 1 year (media=159.44 ± 13.846), length of service in the current workplace < 1 year (mean = 160.97, SD=± 12.731), length of service in the current workplace ≥10 years (mean=162.15, SD=± 8.338), and caring for ≥ 30 pts in a day (mean=167.33, SD=± 16.388) (p < 0.05).	NR	NR
Chen et al. (2008) (62)	231 nurses and nurses assistants in a psychiatric hospital in	15.8%; In 11.4% of cases, the perpetrator was a staff	Higher than moderate levels of anxiety increased the probability of verbal abuses	PTSD score > 14 for the 17.6%.	NR

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
	Taiwan. Respondents to the survey: 222.	member.	(adjusted OR 4.3, CI95%: 1.5-11.8), and so the length of service: <5 years, > 20 years.		
Chen et al. (2009) (79)	157 nurses in a psychiatric hospital in Taiwan. Respondents to the survey: 87%.	Incidence in period of 2 years: 33 cases (3.1%).	NR	NR	NR
Hesketh et al. (2003) (80)	12332 Nurses from Alberta (Canada's province). Respondents to the survey: 6526 (52.8%).	56% of emotional abuses was perpetrated by peers.	Emotional abuses were reported by the 25.5 % of ICU nurses, 10.5% by medical-surgical wards nurses, 8.1% by ED nurses, and 13.4% from nurses from other services.	NR	NR
Kivimäki et al. (2000) (73)	Hospital employees, 647 male and 4981 female (Finland).	302 (5%).	The absences from work bullying-related were not dependent to the demographic.	Bullied victims were more prone to experience chronic illnesses and had a BMI slightly higher than the not-victims.	Certified absences for illness and self-certified absences were 1.5 (CI 95%:1.3-1.7) and 1.2 (CI 95%: 1.1-1.4) times higher than the rest of staff
Kwok et al. (2006) (77)	1650 nurses in a hospital of Hong Kong. Respondents to the survey: 420 (25%).	Verbal abuse: 73%; bullying between 40% and 50%. The nurses were the most frequent perpetrators after pts. and relatives.	The settings most affected by bullying were: ED, community nursing services, traumatology and orthopaedic department.	Bullying was positively associated to depression (r=0.51; p<0.001). Depression was determined by bullying and workloads (β=0.54; F=56.61; P < 0.001).	Bullying was associated with commitment to the job (r=0.49; p <0.001), concentration on the work (r=0.48; p<0.001), productivity (r=0.46; p<0.001), motivation (r=0.44; p<0.001), relationship with patient (r=0.42; p<0.00), manager (r=0.47; p<0.001) and colleagues (r=0.45; p< 0.001).
Jaradat & Niensen (2018) (65)	341 Palestinan Nurses	27.3% exposed to workplace aggression in the previous 12 months	NR	Females exposed to workplace aggression (adjusted mean difference 1.5, 95% CI 0.3, 2.7, R²=0.05) and verbal aggression (adjusted mean	NR

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
				difference 1.4, 95% CI 0.2, 2.6, $R^2=0.04$) reported higher psychosomatic symptoms than unexposed. Males exposed to bullying reported higher psychosomatic symptoms than unexposed (adjusted mean difference 3.2, 95% CI 1.0, 5.5, $R^2=0.09$).	
Johnson & Rea (2009) (5)	767 nurses member of the Emergency Nurses Association in Washington (USA). Respondents to the survey: 249 (32.5%).	68 (27.3%). 17 nurses (38%) reported to be bullied by peers.	No correlation was found with demographics, education level, and job position.	NR	Victims of bullying showed intention to leave their current job at least 2 times more frequent than not- victimised nurses ($p<0.001$); victims of bullying reported a possible intention to leave nursing profession in the next 2 years 3 times more often than not-bullied nurses ($p<0.001$).
Hutchinson et al. (2010) (6)	5000 nurses from private and public healthcare institutions. Respondents to the survey: 370.	NR	3 organizational factors promoting bullying: informal alliances, tolerance, and rewards in organization, negative use of legitim authority, processes and procedures.	NR	NR
Korhan et al. (2014) (81)	282 nurses from 3 private and public hospitals in Turkey.	53.2%. 46.7% of respondents experienced bullying during the 1st year of work. 48% of cases was lateral bullying.	NR	NR	NR
Laschinger HK.	641 nurses from	NR	NR	NR	Bullying was related to

(continued)

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
(2014) (**74)	hospitals in Ontario (Canada). Respondents to the survey: 336 (52%).	Only mean values of scales used in the study were reported.			nosocomial infections (r=0.18), perceived risk for pts (r=0.33), relatives' complaints (r=0.26), total amount of adverse events (r=0.23). Bullying was negatively related to the quality of care (r=-0.23).
Laschinger et al. (2010) (70)	415 nurses with length of service < 3 years in Ontario (Canada).	33% of the newly qualified nurses were bullied.	All the bullying aspects measured with NAQ-R were statistically significant in relation with the aspects of burnout syndrome measured through MBI.	NR	NAQ-R work-related bullying correlated with MBI-GS exhaustion subscale (r=0.53; p<0.01); total of NAQ-R was related to MBI-GS cynism subscale (r= 0.53, p<0.01).
Linton & Power (2013) (53)	224 university students (Canada).	37.5%.	No statistical significant differences in between males and females victims of bullying. To be victims and contemporary perpetrators of bullying were 2 conditions strongly associated. The most of characteristics of bully (machiavellianism, narcissism, psychoticism) and measures of aggression are associated with bullying's experience as a victim.	NR	NR
Pai & Lee (2011) (63)	700 nurses from Taiwan. Respondents to the survey: 521 (74.4%).	261 (51.4%) nurses reported psychological violence; 155 (29.8%) nurses experienced bullying, and 67 (12.9%) sexual harassment. Peers and supervisor were at the 3rd place (after pts and relatives) in the frequency of perpetrators' role.	Age < 30 years (OR= 2.4; CI 95%=1.34 – 4.46) and high level of anxiety (OR = 4.7; IC 95% = 1.09–6.93) were associated to verbal violence.	32.3% of nurses experienced variable levels of anxiety; 1/4 of the victims reported symptoms of PTSD.	NR

(continued)

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
Pai et al. (2018) (56)	269 healthcare professionals in Southern Brazil	15.2% physical violence; 48.7% psychological violence; 24.9% moral harassment; 8.7% racial discrimination ; 2.5% sexual harassment	Females more exposed to physical violence (19.7% vs 9.8%, p=0.027) moral harassment (32.5% vs 16.1%, p=0.002) racial discrimination (12.1% vs 4.5%, p=0.030) Nurse technicians, compared to nurses and physicians, were more exposed to physical violence (p=0.001) and moral harassment (p=0.015)	NR	NR
Pinar et al. (2015) (51)	4343 nurse and obstetrics in Turkey.	91 (2.4%) respondents experienced bullying; verbal abuses were reported in 1701 (56%) cases.	NR	NR	NR
Read & Laschinger (2013) (68)	342 newly qualified nurses in Ontario (Canada).	NR. Only mean values of scales used in the study were available.	The psychological capital is negatively related to bullying (r=-0.21) and to WI by peers (r=-0.19).	Physical health status is related to bullying and to WI by peers (r=0.39, and 0.28, respectively). Reduced mental health wellbeing correlated with bullying and WI by peers (r=0.32 and 0.25, respectively).	Bullying correlated with job satisfaction (r=-0.46), turnover (r=0.19), and emotional exhaustion (r=0.46). WI from peers correlated to job satisfaction (r=-0.37), turnover (r=0.19), and emotional exhaustion (r=-0.31).
Rekner et al. (2014) (67)	1582 Norvegian Nurses	NR	Anxiety (β=0.11,p<.01), depression (β=0.12,p<.01), and fatigue (β=0.10,p<.01) predict an increase in bullying behaviour reporting	Exposure to bullying behaviour predicts an increase in anxiety (β=0.06, p<0.01) and fatigue (β=0.06, p<0.01) one year later	NR
Rush et al. (2014) (82)	245 nurses from Colombia Britannica (Canada).	242 (39%).	NR	NR	NR
Simons S. (2008) (75)	511 U.S. nurses.	159 (31%)	NR	NR	Bullying and willingness to leave the work organization are correlated (r=0.51;

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
Simons et al. (2011) (83)	1000 nurses from Massachusetts (USA). Respondents to the survey: 511 (51.1%)	94%	NR	NR	p< 0.001). Bullying is a predictor of the willingness to quit.
Somani et al. (2015) (54)	458 nurses from public and private hospital in Pakistan.	33.8%; 48% of nurses experienced bullying by peers.	Females were more bullied than males (71.6% n=111/155 vs 28.4% n=44/155; medical/ surgical wards (32%) and ICUs (21%) reported more bullying related incidents than other services.	NR	NR
Terzioglu et al. (2016) (84)	1034 nurses from 3 U.S. university hospitals. Respondents to the survey: 772 (75%).	NR. Only mean values of the scales used in the study were reported.	Moderate correlation between mean values of Organizational Justice Scale total score and Mobbing scale in the workplace total score (r=-0.422; p < 0.05). Moderate correlation between mean values of Organisational Culture Inventory total score and Mobbing Scale in the Workplace total score (r=-0.398; p < 0.05).	NR	NR
Teymourzadeh et al. (2014) (55)	413 hospital nurses in Teheran (Iran). Respondents to the survey: 301 (73%).	28.9%; In 8.53% of cases, the perpetrators were staffs' colleagues.	Females were more exposed to bullying than males (30.71% versus 10.32%, respectively, p=0.03).	NR	NR
Ulrich et al. (2006) (85)	4346 nurses members of the American Association of Critical Care Nurses (USA).	Negative behaviours from nurses: discriminations (340; 8.4%); verbal abuses (709; 17,6%).	NR	NR	NR
Ulrich et al. (2009) (86)	5562 nurses members of the American Association of Critical Care Nurses (USA).	Negative behaviours from nurses: discriminations (6.2%); verbal abuses (16.6%).	NR	NR	NR

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
Vessey et al. (2009) (76)	212 U.S. staff- nurses.	Medical-surgical area: 48 (23%), ICU: 38 (18%); ED: 25 (12%); OR: 19 (9%); Obstetrics: 15 (7%); Outpatients service: 12 (6%); Endoscopy and interventional radiology department: 9 (5%).	Nurses with length of service < 5 years were more bullied than the others.	NR	78.5% of nurses with a length of service < 5 years resigned looking for another job; absence from work were recorded in 48 cases (23%); 103 (49%) nurses reported progressively loss of interest in the work.
Waschgler et al. (2013) (71)	1484 nurses and nurses assistants from 11 hospitals in Murcia, Spain. Respondents to the survey: 70.48%.	NR	NR	NR	Bullying by peers was related to psychological distress (r=0.29, p<0.001), anxiety (r=0.26, p<0.001), and depression (r=0.25, p< 0.001). Work-related bullying was related to depression (r=0.24, p<0.001), anxiety (r=0.19, p<0.001), and cynism (r=0.19, p<0.001). Passive workplace bullying was related to anxiety (r=0.20, p<0.001), cynism (r=0.19, p<0.001), and depression (r=0.19, p<0.001). Personal-related bullying was related to emotional exhaustion (r=0.26, p<0.001) and anxiety (r=0.25, p<0.001).
Yildirim D. (2009) (58)	495 nurses from a university hospital in Ankara, Turkey. Respondents to the survey: 286 (58%).	21%	Bullying was positively associated to workload (p<0.01) and total length of service (p<0.05), while it was negatively associated to the age (p<0.01). Logistic regression showed how bullying was related to age, workload, and total length of service's years (ß=0.48; F=39.70; p<0.001). 45% of bullied nurses were affected by workload (p <0.001)	NR	NR

Table 3. Bullying among nurses. Prevalence and consequences

Author (year)	Sample/Setting	Prevalence	Related factors	Psychophysical consequences	Professional impact
Yildirim & Yildirim (2007) (64)	710 nurses from 6 private and public hospitals in Istanbul (Turkey). Respondents to the survey: 505 (71%).	7.3%-55.2%.	NR, and the 15% were affected by the younger age (p<0.01).	14.3%-75%.	72% worked harder and worked smarter, 70.5% performed more attentively (to avoid criticism); 40.6% planned to quit their job position.
Yun & Kang (2018) (69)	301 nurses of South Korea Hospitals	21.9% exposed to bullying	Relationship-oriented organizational culture has a negative direct effect on workplace bullying (β=-0.48, p < 0.001);	Bullying has direct (β=0.36, p < 0.001) and total (β=0.51, p < 0.009) effects on psychological symptoms	Bullying has an indirect effect on turnover intention (β=0.20, p< 0.007) symptom experience.

Legend: BMI – Body Mass Index; CBI – Copenhagen Burnout Inventory; CI: Confidence Interval; ED – Emergency Department; ICU – Intensive Care Unit; MBI -– Maslach Burnout Inventory – GS – General Survey; NAQ-R – Negative Act Questionnaire Revised; NR – Not Reported; OR – Operating Room; SD – Standard Deviation; Pt. – Patient; PTSD – Post-Traumatic Stress Disorder; WI – Workplace Incivility.

mild positive correlation has been found between bullying and the amount of work hours per week (r=0.11, p<0.05) (60). Moreover, the perception of inclusive leadership or understaffing represent items in the predictive modelling for bullying (61).

Moderate to high levels of anxiety represent a risk factor as well, (adjusted OR 4.3, IC95%: 1.5-11.8) (62). This finding is also upheld by Pai & Lee (OR=4.7; IC 95%=1.09–6.93) (63).

Negative psychophysical outcomes of bullying can affect up to 75% of the victims (64).

Jaradat & Niensen (65) found that female and male nurses exposed to workplace aggression and bullying reported higher mean levels of psychosomatic symptoms than unexposed (respectively adjusted mean difference 1.5, 95% CI 0.3, 2.7, R^2=0.05, and adjusted mean difference 3.2, 95% CI 1.0, 5.5, R^2=0.09).

The nurses targeted by bullying have shown moderate correlation for loss of confidence (r=0.38, p<0.05), social consequences (r=0.30, p<0.05), depression-anxiety (r=0.37, p<0.05), and a general deterioration of the wellness status in accordance to the General Health Questionnaire 12 (r=0.40, p<0.05) (66).

Also Reknes et al (67), showed through a longitudinal study, that nurses exposed to bullying behaviour at T1 evaluation reported one year later increased symptom of anxiety (β=0.06, p<.01) and fatigue (β=0.06, p<.01) even when controlling for age, gender, night work, job demands. This study also remarked the presence of a vicious cycle causing nurses with higher anxiety (β=0.11, p<.01), depression (β=0.12, p<.01), and fatigue (β=.10, p<.01) at T1 evaluation, to report more bullying behaviour.

Chen et al., reported levels of symptoms of post-traumatic stress disorder (PTSD) even higher than 14 in 17.6%, recognizing that 10% of that sample unfortunately developed this syndrome (62).

Different authors have found a direct correlation between bullying among peers and physical health status (r=0.39), likewise the mental health status (r=0.32) (68).

In a recent study (69), bullying showed a direct effect on the arise of psychological symptom in nurses (β=0.36, p<.001) and an indirect effect through the reported symptom on turnover intention (β=0.20, p<0.007).

Allen et al. (60) found that bullying is a predictive factor for the burnout syndrome (β=0.37, p<0.001), as also reported by Laschinger et al. (70) and by Waschgler et al. (71). Moreover there is a negative correlation between bullying and work productivity (F=0.045, r=−0.322, p<0.01) (72).

Nevertheless, Kiwimaki et al. (73) showed how targets of bullying usually tend to collect sick absence from the workplace more than the average staff's trend: 1.5 (IC 95%: 1.3-1.7) times, 1.2 times (IC 95%: 1.1-1.4), respectively.

Laschinger (74). found a negative correlation between bullying and the quality of delivered nursing care delivered (r=-0.23). Findings reported a correlation with hospital-acquired infections (r=0.18), perception of patients' safety risk (r=0.33), relatives' complaints (r=0.26), and overall adverse events (r=0.23).

Unsurprising, increasing of bullying experience directly influences the targets' intention to quit from their job position (r=0.51; p<0.001) (75), also because there is a negative correlation with the job satisfaction (r=-0.46) (68).

A survey performed in Turkey (64). showed a percentage up to 40.6% (in the sample of population investigated) of nurses planning resignation due to bullying. In addition, data from Vessey et al. (76) lead us to a concerning scenario: the 78.5% of nurses with a seniority less than 5 years, left their position for different careers.

Finally, a percentage from 25% (61) to 82% (77), put in practice different countermeasures to cope with the bullying experienced. Strategies were (64): sharing the experience with significant others or other professionals/institutions, reporting the episodes to line managers, and to face directly the bully (67.3%).

Risk factors

Several authors state that there are two different variables bringing the risk of bullying and negative behaviours in the workplace (Table 4). First is the job market's fluctuation (local or global), forcing professionals to endlessly careers' changes. The second is represented by the social environment, where people according to their background and resources are coping-reacting against problems or conflicts (87). This assumption appears to be valid for both, targets and perpetrators.

A quality analysis of incident reports related to working incivility and violence among healthcare professionals has identified two main factors as possible catalysts for their occurrence: behaviour at work and job planning.

The first factor includes unprofessional conducts, arguments about tasks, and disagreement on the nursing care strategy plus disappointment on peers job performance. The second one includes possible conflicts and aggressions due to a failure in the adherence to protocols, right assignation of patients, limited resources, and high levels of nursing workload (89).

Bullying seems to be more expected in clinical environments with high technical skills demands instead of clinical areas where relationships are the predominant nursing activities (76).

Table 4. Risk factors for workplace bullying occurrence (87, 88)

Variable	Subject	Role	Characteristics
Labour market	Organisations		Organisational issues Work control/task Work control/time Uncertainty Organizational changes
Society - Environment	Persons	Victim	Less assertive Less competitive More conscientious Less extroverted Less balanced

In nursing settings, the bullying attitude seems to be a consequence of previous learning of negative behaviours (a sort of 'imprinting'), a deviant attitude acquired from the professional pack and the existing social environment (90).

Nonetheless, different authors spotted that perpetrators of bullying acts, forcing to conceal themselves a poor self-esteem, lack of social competence, useless leadership plus self-promotion micro-politics, because they are craving career progression (91). Others distinctive features of bullies are their narcissistic personality, a sense for revenge, tyranny plus a bad habit to spread accusation and rage over the people (91).

Often, the abuses instigators are prone to forgive themselves, assuming their misconduct is free of risks or collateral effects (92).

Finally, there is an escalation of bullying frequency in published literature due to a boosted clinical complexity of patients, spending review of budgets (less resources) along with a mounting workforce turnover (91).

Getting into the details, research from the United States of America have shown how the junior staff nurses category, especially the more youth, are at highest risks for bullying. It could be related to their lacking job experience, less confidence in their fresh job role and a scarce awareness of the unspoken rules inside the work environment (when compared to senior staff) (91).

Psychological and physical impact

A systematic review of the literature classified the bullying effects on the victims according to several categories (87):
- Decreased self-confidence
- High levels of stress
- Poor job satisfaction
- Overreaction to mental stress
- Psychological symptoms
- Certified sick leave
- Self-certified sick leave
- Cardiovascular disease
- Psychosomatic disorders
- Chronic illness

The values of percentages reported about nurses'

Table 5. Classification of bullying related symptoms and illnesses (3, 29, 37, 62, 63, 87, 88, 94).

Typologies	Symptoms and illnesses
Physical	Insomnia
	Irritable Bowel Syndrome
	Sweating/Tremor
	Stomach-ache
	Abdominal pain
	Fatigue
	To feel/to be sick
	Arterial hypertension
	Headache
	Loss of appetite, loss of weight
	Asthma
	Rheumatoid Arthritis
	Osteoarthritis
	Sciatic Nerve Pain
	Back pain
	Diabetes
	Dizziness
Psychological	Loss of self-confidence
	Rage
	Guilty feelings
	Lack of help sensation
	Hyper-surveillance
	Want to cry sensation
	Anxiety, panic attack
	Depression
	Sensation of fear
	Post-Traumatic Stress Disorder
Behavioural	Irritability
	Aggressiveness
	Unable to relax, incapability to knock off work
	Excessive double check for every actions; obsessive attention at work
	Increase consumption of tobacco
	Tendency to isolation
	Attempting suicide/suicide contemplation

physical and psychological health status, are widely variable (i.e. 12%-75%) (93).

Table 5 summarises the category of symptoms and disorders bullying related, according to the consulted literature.

Conclusions

The scientific literature covers a wide range of prevalence of workplace incivility, lateral violence and bullying in nursing.

Multiple reasons could be the explanation behind so many differences. For example, a workplace context based on various 'in-groups', sometimes quite dissimilar within same place or unit. Also the differences in the used measuring tool should be taken in account, because its features may directly influence the detection of lateral violence and bullying episodes and their frequencies as well. Even the operational definitions of these cases are subjects to this methodology's choice.

A clear exemplification of this issue is the bullying/mobbing definition itself: "at least one negative act, weekly or more often, for six or more months" (95) or, according to other authors, "at least of two typologies of abuses, weekly or more often, for six or more months" (96).

Finally, the complexity in the data collection process retrieved from summarising tables was a challenge, due to the ambiguity of terminology (as already mentioned) plus the heterogeneity of tools employed. To rule out between workplace incivility, lateral violence and bullying-mobbing sometimes was quite difficult.

However, this review showed that workplace incivility, lateral violence and bullying are widespread in the clinical settings of nursing profession, and also that the consequences of lateral violence and bullying can be serious for the victims and the organizations.

Psychophysical symptoms and increasing of nurses' turnover are the major expressions of these consequences.

Because the emotional and physical impact on victims cannot be neglected and the amount of people having the intention to leave the profession is alarming, the prevention becomes a priority.

So far, the strategies implemented were: get better awareness of the issue between peers and managers, the promotion of educational campaign for prevention, to provide personal resources to handle conflicts and improve communication's skills, supporting authentic leadership practices and zero-tolerance policy against abuses (97).

Unfortunately, we observe a systematic response from the nursing management not fully supported by scientific evidence, plus the failure of zero-tolerance and informative policies is well recognized (98).

Definitive solutions for this matter, mainly based on the complexity of the humans' social interaction, are not at fingertips. However, because its nature, a cultural-based response could be a possible approach.

It should start from the nursing academic education (basic and advanced), throughout workplace environments, becoming part of the continued education programs in the arrangement of 'raising awareness' dedicated events. At the same time, a call for action to isolate and to contain any workplace incivility or violence should be promoted.

As an adjunct to these interventions, an official stance from the nurse management and leaders would be desirable, in synergy with a systematic monitoring of these phenomena by occupational health departments.

In summary, we found a lack of evidence about policies and programmes to eradicate bullying and lateral violence. Prevention of these phenomena should start from a widespread information inside continue educational events and the university nursing courses.

Key points

- Workplace incivility, lateral violence and bullying are described as a continuum related to their intensity, frequency and presence of intention to harm the target.
- Prevalence of these phenomena in the nursing profession is variable, reaching considerable values (87% for lateral violence, 81% for bullying).
- In terms of emotional and physical impact, negative outcomes can seriously affect the victims (up to 75% of cases). A wide range of physical and psychological symptoms may occur.
- Two main factors were identified as possible catalysts with their occurrence: behaviour at work and job planning.

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Hope for the future, ingroup threat and perceived legitimacy in three healthcare professional groups

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Abstract. *Background and aims of the work:* All societies are organised as hierarchies based on prestige or status. Similarly, healthcare organizations (as well as many other types of organization) are composed by professional hierarchies in which some professional groups are powerful and higher in status and other groups are powerless and lower in status. This research investigated the effects of social status and hope for future group advancement on perceptions of social identity threat and legitimacy of social stratification. Physicians (the dominant professional group), nurses and healthcare operators (the dominated professional groups) were led to believe that professional stratification would change in the future, but that the nature of the change was unforeseeable. *Method:* A quantitative study was conducted, proposing to the participants an instrument consisting of a series of validated questionnaires for the measurement of: group status, Ingroup threat, hope for future ingroup improvement, legitimacy of the professional hierarchy and Check for status differences. *Results:* The results indicate that in the context of social instability, the dominant group perceived greater ingroup threat than the dominated groups. Hope for future advancement was negatively associated with perception of ingroup threat, regardless of group membership. Perception of ingroup threat was negatively associated with the perceived legitimacy of social stratification. Finally, perceived threat mediated the relationship between group status and perceived legitimacy. These results support social identity theory's contention that the legitimacy of social stratification is linked to social identity needs such as avoidance of ingroup threat.

Key words: social identity, hope for improvement, ingroup threat, legitimacy, stability

Spes, ultima Dea
[Hope, the last Goddess]

Introduction

All societies are organised as hierarchies based on prestige or status. Similarly, healthcare organizations (as well as many other types of organization) are composed by professional hierarchies in which some professional groups are powerful and higher in status (i.e., physicians) and other groups are powerless and lower in status (i.e., healthcare operators) (1). The maintenance of these hierarchies is linked to the legitimacy of status differences among the groups: a legitimate difference is more likely to be resistant to change (2). Legitimacy has also profound impact on interprofessional collaboration given that collaboration is more likely to be effective when professionals perceive that professional differences are fair and just (3). As stressed by McNamara (4), legitimacy is "important for developing a context for successful collaboration" (p. 127). This means that from a psychosocial point of view the

extent to which social and professional stratification is perceived as legitimate by advantaged and disadvantaged groups is a critical question.

Legitimacy of Social Stratification: A Social Identity Approach

The legitimacy of status difference has been at the core of social identity theory (SIT) since it was introduced (5). SIT posits that people prefer to belong to high-status groups that are positively evaluated with respect to other groups because allows them to achieve and maintain a positive social identity and hence high self-esteem. High-status group members are expected to be motivated to maintain their dominant position, whereas low-status group members are expected to be motivated to try to improve their negative social identity. Moreover, SIT specifies that intergroup behaviour of both dominant and dominated groups depend on the legitimacy and stability of status differences and the permeability of group boundaries. Here we deal only with the legitimacy and stability of status differences. Where social stratification is perceived as legitimate and stable, it is expected that neither low- nor high-status groups will dispute the existing social hierarchy. In fact, high-status group members' social identity is not threatened, whereas members of dominated groups are expected to manage their threatened social identity in ways that do not dispute the social hierarchy (i.e. social creativity strategies) (6, 7). Where, instead, social stratification is perceived as illegitimate and unstable, low-status groups are more likely to contest the hierarchy overtly and to challenge the dominant position of higher status groups. High-status groups are expected to experience social identity threat and to try to protect their social position (6).

There is a wide range of evidence in favour of the assumptions of SIT, but in most of this research the legitimacy and stability of social stratification are treated as moderators of intergroup behaviours such as intergroup discrimination, prejudice and perceived ingroup threat (8). Unfortunately, the foundations of the perception of legitimacy of social stratification and the factors which may change that perception have been largely neglected in SIT research. Moreover, legitimacy and stability have generally been treated as orthogonal variables and researchers have neglected the possibility that stability could affect the perceived legitimacy of a social hierarchy. Recently, however, these issues have begun to be explored and there is some evidence that, in line with SIT, the perception of legitimacy of status difference may be affected by group interests such as the desire to maintain group's social advantage and avoid social identity threat (9-11). More precisely, it has been suggested that high- and low-status groups are motivated respectively to legitimise and delegitimise the existing social stratification, in order to manage existing or future social identity threat. Legitimacy of a social hierarchy favours dominant groups as it allows them to maintain their positive difference from dominated groups and thus avoid social identity threat. A related suggestion is that high- and low-status groups' perceptions of the legitimacy of a social hierarchy should depend on its stability. Instability of the social hierarchy poses a threat to the social identity of members of high-status groups, who may feel that they risk losing their social advantage (12, 13). In contrast members of low-status groups may perceive social instability as an opportunity and foresee the possibility of improving their position and hence regard the unstable hierarchy as more legitimate (9, 12).

Actually, the relationship between instability and the legitimacy of social stratification may be more complex. Groups often do not know where instability will lead, for example, members of the dominant group might believe that instability would result in them losing their advantages and hence perceive the instability as a social identity threat. Alternatively, they might believe that instability will increase their social advantage by lowering the status of dominated groups and hence not feel threatened by it. Similarly, members of dominated groups might see instability as an opportunity to increase their social status (not a threat) or as a route to continued or increased social disadvantage (increased threat). Thus, hope for future advancement may affect the extent to which group members perceive instability as a threat to their social identity independently from group status. The concept of hope for future advancement has recently been linked to legitimacy of social stratification by Owuamalam and collaborators (10), who demonstrated that low-status

groups' justification of the system was related to their belief that instability would lead to an increase in their group's social status.

Aims and Hypotheses

The aim of this research was to investigate how social identity processes affect the perceived legitimacy of professional hierarchies amongst members of dominant and dominated groups. We tried to merge the classical social identity approach with the recent suggestion from Owuamalam and collaborators (10), using a real professional hierarchy and inducing participants to believe that the social hierarchy would change unpredictably in the near future. As indicated in Figure 1, we expected that in the context of instability of social stratification, group members' perceptions of ingroup threat would depend on ingroup status and hope for future advancement. More precisely, perception of ingroup threat would be higher for the higher status groups that have to most to lose from an unstable social hierarchy (hypothesis 1). Moreover, we expected that ingroup threat would be negatively related to the group members' expectation to improve their social position, i.e. their hope for future improvement (hypothesis 2). A further expectation was that perception of ingroup threat would be negatively related to perceptions of the legitimacy and fairness of the hierarchy (hypothesis 3). Finally, we expected to find an indirect effect of status on legitimacy, mediated by ingroup threat (hypothesis 4).

Method

Participants

After having requested authorization from the General Direction in a randomized, non-stratified manner, the names of health professionals were extracted. Seventy-one professionals agreed to participate in the study, and were therefore enrolled in this study: 26 physicians, 25 nurses and 20 healthcare operators (mean age=40.27 years, *SD*=6.81, 53% men, three participants did not report their gender). 21 professionals (30%) worked in medicine care unit, 11 (15%) worked in Ger-

Table 1. Characteristics of participants according to their profession

	Physicians	Nurses	Healthcare operators
Age			
M	42.46	39.08	38.90
SD	4.02	7.42	8.35
Gender			
Men	22	7	7
Women	2	18	12
Care Unit			
Medicine	4	8	9
Geriatric/Rehabilitation	5	3	3
Surgery	10	3	7
Critical care	7	11	1

iatric/Rehabilitation care unit, 20 (28%) worked in surgery care unit and 19 (27%) worked in critical care unit. Table 1 reports characteristics of participants according to their profession. As one can see, professional groups appeared to be not equivalent for gender composition ($\chi^2(2)=22.67$, $p<.001$) as physicians were more likely to be men than both nurses and healthcare operators.

Procedure

Phase 1: Cover story. The experimenter met participants in a quiet room equipped with a portable computer, and all instructions were delivered via computer. Participants were told that the research involved collecting opinions about health professions and provided consent to participation before the experimental procedure began.

Phase 2: Measuring status of profession. After explanation, participants' belief about status of professional groups were collected.

Phase 3: Induction of instability belief. Participants were presented with a bogus newspaper article which explained that the government was considering changing organisational norms in the healthcare system. The article stressed that experts on healthcare policy believed that these changes would have a profound effect on relations between the healthcare professions, but that it was still unclear how relations between physicians, nurses and healthcare operators would evolve.

Phase 4: Collection of measures. After the bogus article, manipulation check items and other relevant measures were collected.

Phase 5: Debriefing. At the end of the experiment participants learned that the story they had read was fictitious and bore no relation to government policy. Participants were then invited to express again their consent to use collected data.

Measures

Group status. In order to assure realism, we considered real professional groups as an indicator of status differences. In fact, within the healthcare system physicians are the highest status group, followed by nurses and then healthcare operators (1).

Ingroup threat. Four items taken from the Primary Appraisal of Identity Threat scale (14) measured ingroup threat (i.e. "I experienced the situation described in the article as a threat to my group" and "In the article, I had the feeling that the members of my group, including myself, were totally depreciated"). Participants indicated their agreement with each statement using a six-point Likert-type scale (1=*definitely disagree*; 6=*definitely agree*). Reliability was good (Cronbach's α=.99).

Hope for future ingroup improvement. Participants were asked to indicate, based on the article, whether the status of physicians, nurses and healthcare operators would improve, worsen or remain the same in the future using an 11-point Likert scale (-5=much worse; 0=the same; 5=much better). To calculate relative ingroup improvement the mean of the outgroup ratings was subtracted from individuals' ingroup ratings, thus negative scores indicate a belief that the status of one's ingroup would worsen relative to the outgroups.

Legitimacy of the professional hierarchy. Participants were asked to indicate the extent to which they believed that the differences between a) nurses and physicians, b) nurses and healthcare operators and c) healthcare operators and physicians would be fair if the changes described in the article were implemented using a ten-point Likert-type scale (1=completely unfair; 10=completely fair). Reliability was good (α=.87).

Check for status differences. Participants were asked to rate the prestige of physicians, nurses and healthcare operators on a six-point Likert-type scale (1 = low status; 6=high status).

Plan of analysis

The perception of status differences among professionals was checked with a 3 (rater's profession) x 3 (rated profession) mixed-model ANOVA with rater's profession as the between-subjects factor. Associations among considered variables were preliminarily investigated with zero-order Pearson product-moment correlation coefficient. Hypotheses were then tested through a path analysis approach with maximum likelihood estimation and robust standard error was used. Status was dummy-coded using two dummy variables, with physician (the highest status group) as the reference category. The first dummy variable (D1) distinguished between nurses (coded 1) and physicians (coded 0), whilst the second dummy variable (D2) distinguished between healthcare operators (coded 1) and physicians. Given that groups differed in hope for future improvement ($F(2,68)=29.03$, $p<.001$, $\eta_p^2=.46$, $M_{physicians}=-1.35$, $M_{nurses}=1.26$, $M_{healthcare\ operators}=-0.40$), hope for future improvement scores were centered within professional groups in order to avoid to confound effects.

Results

Checking for Perceived Status Differences

There was an effect of rated profession ($F(2,136)=716.83$, $p<.001$, $\eta_p^2=.91$) indicating that physicians were rated higher (all post hoc tests $p<.001$) in status ($M=5.32$, $SD=0.47$) than both nurses ($M=4.06$, $SD=0.33$) and healthcare operators ($M=2.70$, $SD=0.60$). This effect was independent of rater's profession ($F(4,136)=0.31$, $p=.87$, $\eta_p^2=.01$), indicating that all participants recognised that physicians were higher in status than nurses and healthcare operators.

Hypothesis Testing

Table 2 shows zero-order correlations and descriptive statistics for continuous variables. Perceived legitimacy was negatively correlated with ingroup threat and positively correlated with hope for improve-

Table 2. Zero-order correlations and descriptive statistics of measured variables

	M	SD	Ingroup threat	Hope for improvement (group centered)
Perceived legitimacy	5.53	1.08	-.45**	.53**
Ingroup threat	3.17	1.61	-	-.64**
Hope for improvement (group centered)	0.00	1.21		-

** p < .001. N = 71

ment. In turn, hope for improvement was negatively correlated with ingroup threat[1].

The path analysis[2] indicated that, consistent with hypothesis 1, physicians perceived a greater ingroup threat than both nurses (b=-1.95, SE=0.21, Z=-9.16, p<.001) and healthcare operators (b=-1.62, SE=0.29, Z=-5.57, p<.001). In line with hypothesis 2, perception of ingroup threat decreased as hope for future improvement increased (b=-0.84, SE=0.09, Z=-9.94, p<.001). Perception of ingroup threat was, in turn, negatively related to perceived legitimacy of social hierarchy (b=-0.34, SE=0.08, Z=-4.08, p<.001). Finally, as expected,

the relationships between both D1 and D2 and perceived legitimacy were mediated by perception of ingroup threat (D1: b=0.66, SE=0.18, Z=3.68, p<.001, 95% CI=0.31-1.02; D2: b=0.55, SE=0.16, Z=3.39, p=.001, 95% CI=0.23-0.87). The two mediation effects were similar (χ^2(1)=1.23, p=.27). Neither D1 (b=-0.07, SE=0.24, Z=-0.28, p=.78) nor D2 (b=-0.53, SE=0.46, Z=-1.15, p=.25) directly affected perceived legitimacy when threat was taken into account. The model in Figure 1 without dotted lines had satisfactory fit (χ^2(5)=9.07, p=0.11, CFI=0.95, RMSEA=.107, p=.14, 90%CI=0.000-.196).
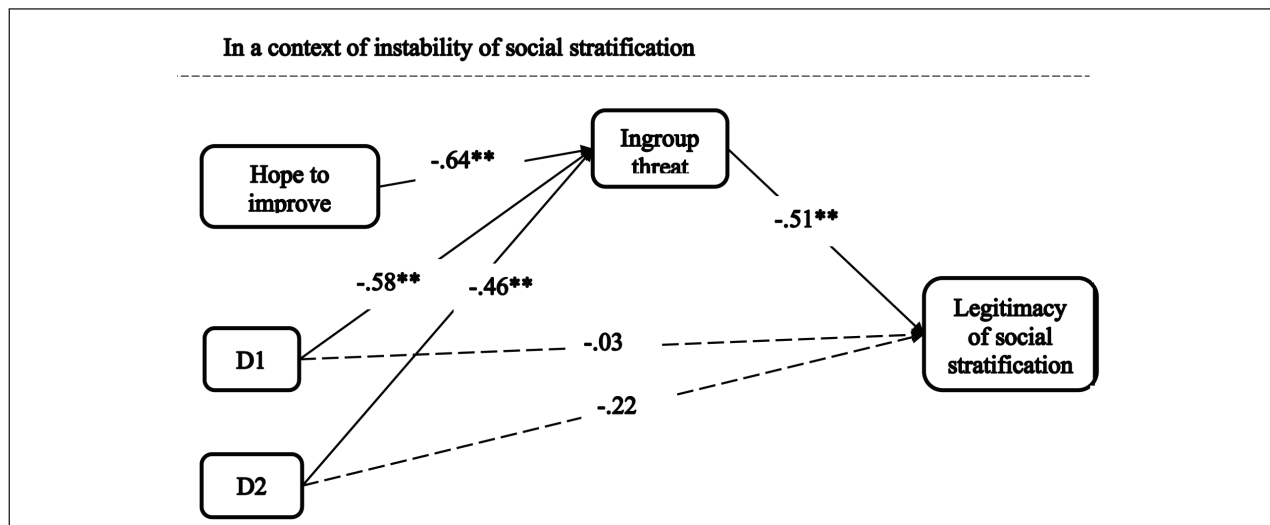
Figure 1. The research model and estimations from path analysis. **p<.01; N=71
Standardized coefficients are reported. Model fit without dotted line: χ^2(5)=9.07, p=0.11, CFI=0.95, RMSEA=.107, p=.140, 90%CI=0.00÷.196.

[1] We also considered the interaction between status and hope of future advancement in order to take into account the conditional effects of these two variables. Also in this case, hope for future improvement scores were centered within professional groups given that the interaction was of interest. After centering, the interaction with hope was computed for each dummy variable. There was no interaction between hope of improvement and D2 (b=0.27, SE=0.47, Z=0.57, p=.57) and a marginal interaction between hope of improvement and D1 (b=0.37, SE=0.19, Z=1.96, p=.05), but no omnibus interaction between status and hope for future improvement (χ^2(1)=1.30, p=.25). There was thus no evidence of an interaction between group status and hope for future improvement; this issue is not discussed further in this paper.
[2] Given that professions were not equivalent for gender, we analysed also a model with gender as covariate. Results were virtually unchanged. Thus, we do not consider further gender in order to maintain as many participants as possible.

Discussion

The research presented here looked at how social identity processes affect the perceived legitimacy of a social hierarchy. We induced members of different real-life groups to believe that the existing group differences in status would change in future in an unforeseeable way. The results indicated that, in the context of unstable stratification, members of the dominant group perceived their ingroup's status to be under greater threat than did the two lower status groups. This is consistent with SIT and previous evidence showing that dominant groups are more sensitive to ingroup threat than dominated groups, because they have more symbolic and material resources to lose (15). The results also indicated that, independently of group status, hope for future improvement has a strong effect on perceived ingroup threat: the greater participants' belief that their ingroup would benefit from instability the less threatened they felt by the instability. This is a novel result, as hope for future advancement has rarely been investigated in studies of intergroup relations. It is only recently that Owuamalam and collaborators (10) demonstrated that hope for future group advancement mediated the relationship between instability and perceived legitimacy of a hierarchy amongst members of low-status groups. Our results corroborate and extend Owuamalam and collaborators' evidence (10), showing that hope for improvement works independently of group status. More importantly, our findings indicate that perceived legitimacy of social stratification is directly and indirectly related to perceived threat to the ingroup. Firstly, the higher the ingroup threat, the lower the perceived legitimacy, which suggests - in line with SIT- that the perceived legitimacy of status differences may be dependent on group interests: a condition which threatens a particular social identity is less likely to be perceived as legitimate and fair by that group (9). Secondly, ingroup threat mediated the relationship between group status and perceived legitimacy.

The cross-sectional design, limited sample size and reliance on self-report data are shortcomings that limit the generalisability of these results and mean that they cannot be use as the basis for causal inferences; nevertheless these results are novel and suggest that

perceptions of the legitimacy of status differences are affected by group interests and desire to protect social identity or meet social identity needs.

Practical implications

In a time of profound organizational changes in healthcare organization, interprofessional relations appear to be of crucial importance in order to efficaciously manage the transition from old to new professional arrangements. Perceived legitimacy of interprofessional differences, in terms of status, decisional power and autonomy, is a key aspect that may help professional groups to cooperate. Present findings suggest that a situation of uncertainty about the future of the professional ingroup is detrimental for interprofessional relations. Indeed, uncertainty appears to increase threat perception and fear, especially for dominant professions (i.e., physicians), that in turn negatively affect perceived legitimacy of differences among professionals. In sum, avoiding uncertainty and threat appear to be beneficial for the management of organizational changes, increasing perception of legitimacy and fairness and thus reducing barriers to interprofessional collaboration. Healthcare managers should take expecial care in explaining how and why organizational changes will affect professional groups and the way in which professional will interact one to another.

Conclusion

These findings contribute to understanding of the foundations of the legitimacy of social stratifications in the eyes of dominant and dominated groups. The results support and extend the SIT account of the legitimacy of social hierarchies and the relationship between their legitimacy and stability. The results suggest that instability may affect relative legitimacy in the eyes of dominant and dominated groups, via its impact on members' hopes for future improvement in ingroup status and their perceptions of social identity threat.

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Original article: Organizational features in the healthcare environment

Fee payment system for nursing performance: an operational proposal through the use of I.C.A. (Indexes of Complexity of Assistance) methodology

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Abstract. *Background and Aim of the Study:* The objective of this study is to demonstrate the feasibility of a possible fee system based on the performance of the nursing function, validating the theoretical and methodological assumption of an economic analysis for nursing. *Method:* The I.C.A. Methodology (Indexes of Complexity of Assistance) was chosen as a system able to produce the reading, in an economic sense, of nursing performance to a sufficiently accurate degree, by its use of "assistance settings" and "nursing assistance plans". For the planning of assistance, the Nursing Interventions Classification (NIC) was used, as it is a validated and shared language. For the cost of each single operation/intervention and recovery, the "weight intervention" algorithm of the I.C.A. methodology was used. This research project was carried out in the form of a pilot study which investigated a sample of 30 patients, and a multi-center cross-sectional and observational retrospective study conducted on a sample of 135 patients coming from three Region of Liguria Hospitals. *Results:* The study was concerned with 165 cases. It highlighted 65 D.R.G.s, of which 17 were selected, containing comprehensively 61 cases. The results obtained confirm that it is possible to use this proposed approach to calculate the direct and indirect costs of nursing activity, and that it is also possible to compare it to the present D.R.G. system. *Conclusions:* It is necessary to create a multidisciplinary payment system for a patient's care. This must be able to monitor the whole treatment process, and therefore all of the activities carried out for the patient's benefit. The present D.R.G. system is not able to register the care provided by nursing services.

Key words: fees, analysis of costs, and traceability of nursing care

Introduction

Health services economics today constitute, more than ever, for all health services practitioners, an essential analytical tool for understanding the mechanisms which regulate the health services system from a clinical administration point of view. This serves to develop responsible behavior, guarantee a more appropriate use of the resources needed, and meet health needs[1].

The main goal of this study was to show the feasibility of a possible fee system for nursing activities by using the theory and the methods of an economic analysis.

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Secondary goals were: to define the necessary elements to determine the fee, to produce specific indicators for the cost of nursing assistance, to identify a useful methodology for the definition of a cost based on the assignation and customization of care, and to identify through this study a useful and user-friendly classification system.

Bibliographic research was undertaken based on this research question. The period of investigation dated from January 2000 to June 2016. No restrictions related to language were applied, as the research brought to light many works in many different languages other than English and Italian with abstracts in English. The articles highlighted in the PubMed research bibliography are eighty-one in number. The abstracts of these were read, and then the complete text was requested for twenty-nine of these articles. Among the twenty-nine, no study appeared which analyzed a fee system for nursing services.

In the articles analyzed, nursing assistance and that of the health professionals is always seen as an indirect cost that derives from medical activity and is measured by the hour. The operational and quality aspect of the activity is never faced, along with their related complexity.

Method

Instruments used

- The integrated system for the measurement of the complexity of assistance with a methodology which uses assistance complexity indexes (I.C.A.)[2], and a multi-dimensional driver which uses process indicators specific to the health services professions and able to produce an economic reading of performance.
  I.C.A. methodology uses a "dictionary of activities" to build a multidimensional driver. This is composed of three elements:
  o Categories: The structure chosen for the study consists of nine categories of need (respira-

tion, feeding, hydrating, urinary and intestinal elimination, hygiene, movement, rest and sleep, circulatory function, and a safe environment and communication interaction) and two process categories (therapeutic procedures and diagnostic procedures);
  o Operations/interventions: 495 nursing intervention acts are included;
  o The "weight" of the intervention is represented by an algorithm which the I.C.A. methodology uses to determine the relative complexity of each single intervention on a five level scale going from one to five, where five represents the highest level.
- The Intervention Cost Index algorithm is derived by using the I.C.A. methodology's "intervention weight" to determine the analytic cost of the operations/interventions.
- The Nursing Interventions Classification (N.I.C.) was created by a research group at the University of Iowa in the United States[3].

The study was divided into two phases:
- Pilot Study: Experimentation of the study protocol on a small scale, to verify the feasibility of the project, define the size of the study sample, and better contribute to the improvement of the measurement and archiving of the data collected.
- Multi-centric Study: The demonstration, using the determining of fees, of the feasibility of the study's hypothesis.

To determine the Intervention Cost Index, the average hourly cost of nursing personnel in 2014 was chosen. This was provided by the Region of Liguria, and was seen to be equal to € 23,64[4].

Participants

Pilot Study – Retrospective Cross-sectional Observation Study
The sampling carried out to decide the elements

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[4] The data provided by the Regione Liguria came from its Ligurian Health Services structures through the use of a ledger sent to the management administration of each single entity.

for the sample was of a non-probability type with representative elements.

The representative elements were selected from within a population which the researcher felt was coherent with the research's objectives.

A sample of thirty patients was chosen:
o Fifteen from medicine and oncology;
o Fifteen from surgery.

Thirty hospital medical records were analyzed for each Operational Unit. Fifteen of these were then selected by using their "entry diagnosis" as a representative element for the patients, hospitalized between September 1, 2015 to November 31, 2015.

Pilot Study –Retrospective Cross-sectional Observation Study

The sample size was calculated taking into account the number of beds in the three hospital structures:
o ASL 5 Spezzino: 612[5];
o ASL 3 Genovese: 681[5];
o Ente Ospedaliero – Ospedali Galliera [Hospital]: 414[5].

The total number of beds in the three structures numbered 1707.

Having hypothesized on the use of a population of 3000 people for the study's sampling, the number of the significant sample needed to be 135 patients from the three Regione Liguria hospitals. The 45 hospital records collected from each hospital were selected by simple randomized sampling.

ASL 5 Spezzino [La Spezia]: The operational units involved were the surgery, medicine and emergency care areas. Each provided 15 hospital records from January 1, 2016 to March 31, 2016.

ASL 3 Genovese [Genoa]: The operational units involved were the medicine, cardiology, and surgery areas. Each provided 15 hospital records from September 1, 2015 to December 31, 2015.

Ente Ospedaliero – Ospedali Galliera [Galliera Hospital]: The operational units involved from April 1, 2016 to May 31, 2016, were surgery (providing 12

records), internal medicine (20 records) and emergency care (13 records).

Analysis of the Data

The data collected from the assistance programs in the pilot study and the multi-center study were analyzed by the use of STATA 14/SE[6] software.

Statistical analyses carried out on the sample were: distribution by sex, distribution of the sample based on age and days in the hospital, distribution based on Diagnosis Related Group (DRG), and the comparison of DRG and the length of stay in the hospital.

Statistical analysis carried out for each single DRG analyzed the most important information extrapolated from the data, done by the use of the applicative ICAcode© (I.C.A. methodology)[7].

The following were calculated:
- Delta: DRG number – Nursing Assistance Cost;
- Average daily cost for nursing assistance and days of hospital stay;
- Average daily cost for nursing assistance;
- Average daily cost for nursing assistance: Average, Standard Deviation, Interquartile 1st and 3rd (25th P - 75st P), and Median.

Results

Pilot Study

DRGs with a frequency greater than or equal to two cases were analyzed to observe any variations and/or similarities.

The DRGs analyzed and compared were the following:
o DRG 290: Thyroid operations (11 cases);
o DRG 395: Abnormalities in red blood cells in patients over 17 years of age (2 cases);
o DRG 404: Lymphoma and non-acute leukemia without CC (4 cases);
o DRG 420: Fever of unknown origin in patients over 17 years of age without CC (3 cases).

[5] Bed situation and patient numbers at the Ligurian hospital entities, ASL, IRCCS, Enti Ospedalieri Liguri (2014 2016), Attachment 7, https://www.galliera.it/files/documenti/piano-strategico-2014-2016/allegato 7.

[6] Statistical software – www.stata.com
[7] Software distributed by Bit Italia

The analysis of the assistance scheduling grouped together in DRGs allowed for the analysis of the assistance scheduling for the recovery event, highlighting the following parts: assistance for the operation/intervention, operational time, the frequency of intervention by the nursing staff, the cost index for the operation and its total cost (the frequency of nursing intervention multiplied by the operation's cost index).

Table 1 shows an example of nursing assistance scheduling for the recovery event.

Example: Diagnosis Related Group (DRG) 290–Thyroid Operations.

Table 2 shows the difference between the value attributed to the actual Diagnosis Related Group (DRG) 290 System and the total cost of nursing assistance. The discussion remains open regarding the value, called "delta", shown in column five. This value is contained in the actual fee or represents an incremental cost for care.

By observing the eleven cases, we note that for the same length of stay (3 days), the cost of the recovery event can vary from a minimum of € 318.46 to a maximum of € 623.69. The variation in daily cost is due to assistance scheduling (the sum of the interventions undertaken), for which the presence of co-morbidity in the patient can be a factor.

Table 3 shows that the average daily cost for nursing assistance, with reference to the Diagnosis Related Group (DRG) 290 System, can vary from a minimum of €106.15 to a maximum of €207.89.

Table 1

Planning assistance	Time intervention (minutes)	Frequency nursing interventions	Cost index intervention (€)	Cost total interventions (€)
Maintenance of access to veins	10	4	5,23	20,92
Intravenous administration of drugs	15	10	8,26	82,6
Subcutaneous administration of drugs	10	3	5,12	15,36
Monitoring of vital parameters	10	9	5,12	46,08
Oral administration of drugs	15	5	8,08	40,4
Administration of analgesics	20	5	11,69	58,45
Preparation for surgery	30	1	19,56	19,56
Laboratory tests at patient's bedside	15	2	8,76	17,52
Monitoring of liquids	20	3	11,45	34,35
Management of nausea	20	4	10,78	43,12
Bladder catheterization	15	1	9,09	9,09
Management of urinary elimination	10	2	5,61	11,22
Bathing	20	1	9,88	9,88
Assistance for self care	20	3	10,34	31,02
Care of the surgical cut	15	1	8,25	8,25
Dressing / Undressing	15	1	7,56	7,56
Wound care	15	2	8,93	17,86
Help in sleeping	15	4	8,26	33,04
Pain management	30	9	11,68	105,12
Management of the environment	30	1	15,51	15,51
Assistance upon admittance	20	1	10,1	10,1
Improvement of security	15	1	8,26	8,26
Documentation	15	10	7,08	70,8
Identification of risks	50	1	28,1	28,1
Reduction of anxiety	30	1	17,2	17,2
Infection control	20	1	11,47	11,47
Promotion of physical activity	30	2	16,51	33,02
Environmental management: well-being	15	1	6,55	6,55
Cost nursing assistance event recovery (€)		812,41		

Table 2

	Recovery days	Cost DRG 290	Nursing assistance cost for DRG 290	Difference
1° Case	4	€ 3340	€ 812,41	€ 2527,59
2° Case	3	€ 3340	€ 623,69	€ 2716,31
3° Case	3	€ 3340	€ 594,73	€ 2745,27
4° Case	3	€ 3340	€ 584,76	€ 2755,24
5° Case	3	€ 3340	€ 532,16	€ 2807,84
6° Case	3	€ 3340	€ 507,27	€ 2832,73
7° Case	3	€ 3340	€ 489,16	€ 2850,84
8° Case	3	€ 3340	€ 477,05	€ 2862,95
9° Case	3	€ 3340	€ 471,47	€ 2868,53
10° Case	3	€ 3340	€ 470,46	€ 2869,54
11° Case	3	€ 3340	€ 318,46	€ 3021,54

Table 3

	Recovery days for nursing care	Average daily cost
1° Case	4	€ 203,10
2° Case	3	€ 207,89
3° Case	3	€ 198,24
4° Case	3	€ 194,92
5° Case	3	€ 177,39
6° Case	3	€ 169,09
7° Case	3	€ 163,05
8° Case	3	€ 159,01
9° Case	3	€ 157,16
10° Case	3	€ 156,82
11° Case	3	€ 106,15

Figure 1 shows the variation on the average daily cost for DRG 290 amounts to €101.74.

Table 4 shows how the average daily cost for nursing assistance has been analyzed in detail.

The pilot study shows that the elements which contribute to the determination of the cost of assistance scheduling are:
- The sum of the "intervention cost indexes" with regards to the frequency in which they are carried out;

Table 4

Average	Standard deviation	Interquartile 1st and 3rd (25th P - 75st P)	Median
€ 172,07	€ 29,23	€ 157,16 - € 198,24	€ 169,51

- The length of the hospital stay;
- The complexity of the assistance given to the patient;
- The appropriateness of the interventions carried out.
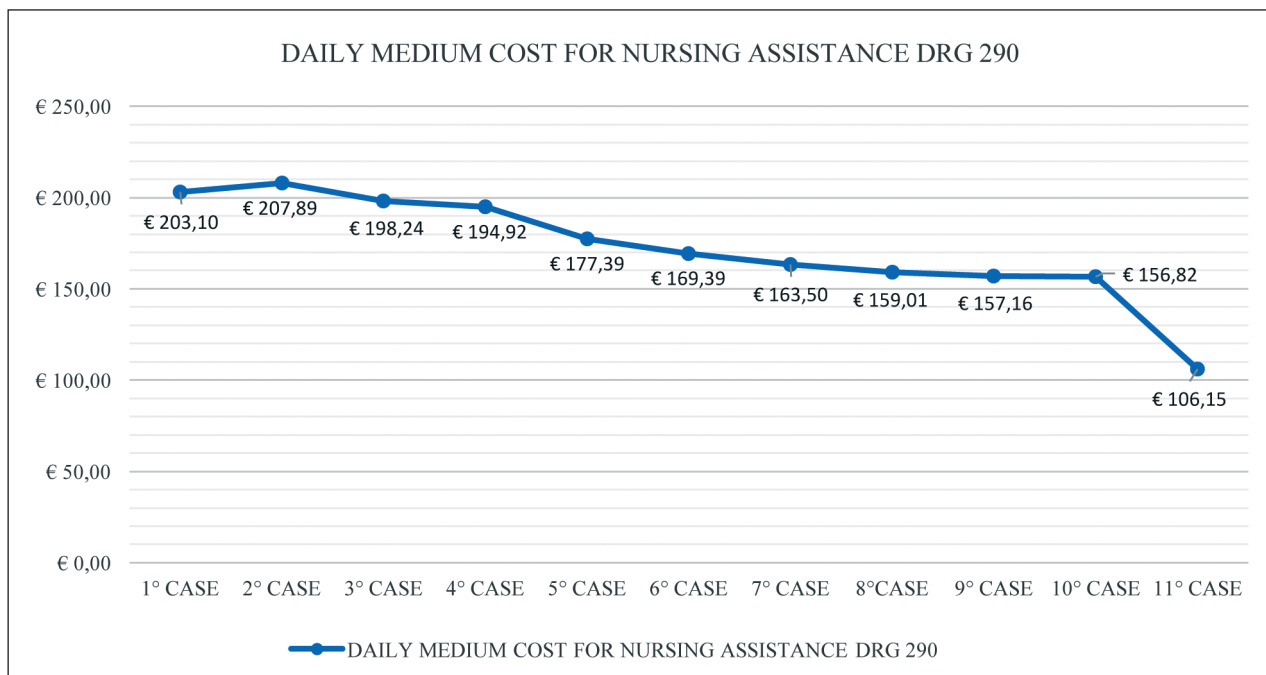
Figure 1.

Multi-Center Study

DRGs with a frequency greater than or equal to three cases were analyzed to observe any variations or similarities.

The DRGs analyzed and compared are as follows:
o DRG 127: Heart failure and shock (12 cases);
o DRG 87: Pulmonary edema and respiratory failure (10 cases);
o DRG 174: Gastro-intestinal hemorrhaging with CC (6 cases);
o DRG 118: Heart pacemaker substitution (4 cases);
o DRG 152: Minor operations on the small and large intestine with CC (4 cases);
o DRG 201: Other hepatobiliary or pancreas operations (4 cases);
o DRG 75: Major operations on the chest (3 cases);
o DRG 121: Cardiovascular diseases with acute myocardial infarction and major complications, discharged alive (3 cases);
o DRG 143: Chest pains (3 cases);
o DRG 160: Hernia operations, with the exception of inguinal and femoral hernias, in patients over 17 years of age without CC (3 cases);
o DRG 172: Malignant neoplasms of the digestive system with CC (3 cases);
o DRG 569: Major operations on the large and small intestine with CC with greater gastrointestinal diagnosis (3 cases);

o DRG 570: Major operations on the large and small intestine with CC without greater gastrointestinal diagnosis (3 cases).

The analysis of the assistance scheduling grouped together in DRGs allowed for the analysis of the assistance scheduling for the recovery event, highlighting the following parts: assistance for the operation/intervention, operational time, the frequency of intervention by the nursing staff, the cost index for the operation and its total cost.

Example: Diagnosis Related Group (DRG) 127 - Heart Failure and Shock.

Table 5 shows the difference between the value attributed to the Diagnosis Related Group (DRG) 127 System and the total cost of nursing assistance for a patient hospitalized for heart failure and shock.

In the first case the asterisk* indicates that the DRG has a threshold value of 21 days of hospital stay. The final cost of the DRG must bear in mind the five days of stay that extend beyond the threshold. As a result, the fee calculated for DRG 127 amounts to € 3,052, to which the €179 (the cost for days of hospital stay beyond the threshold) for the five days must be added, bring the total to € 3,947.

Table 6 shows the average daily cost for nursing assistance for DRG 127- Heart Failure and Shock.

Observing the fourth case, with its ten days of hospital stay, the scheduling of assistance has an average daily cost of € 86.63. In contrast, the eleventh case with only five days of stay, shows that the scheduling of assistance reached an average daily cost of € 205.46.

Table 5

	Recovery days	Cost DRG 127	Nursing assistance cost for DRG 127	Difference
1° Case	26*	€ 3052,00 + € 895 (€ 179 x 5 gg fuori soglia) = € 3947	€ 3836,57	€ 110,43
2° Case	12	€ 3052,00	€ 2133,23	€ 918,77
3° Case	11	€ 3052,00	€ 1832,59	€ 1219,41
4° Case	10	€ 3052,00	€ 866,31	€ 2185,69
5° Case	8	€ 3052,00	€ 1513,39	€ 1538,61
6° Case	7	€ 3052,00	€ 1288,04	€ 1763,96
7° Case	7	€ 3052,00	€ 1183,85	€ 1868,15
8° Case	7	€ 3052,00	€ 1127,38	€ 1924,62
9° Case	6	€ 3052,00	€ 1154,79	€ 1897,21
10° Case	6	€ 3052,00	€ 1091,47	€ 1960,53
11° Case	5	€ 3052,00	€ 1027,29	€ 2024,71
12° Case	5	€ 3052,00	€ 819,06	€ 2232,94

Table 6

	Recovery days	Average daily cost for nursing care
1° Case	26	€ 147,56
2° Case	12	€ 177,77
3° Case	11	€ 166,60
4° Case	10	€ 86,63
5° Case	8	€ 189,17
6° Case	7	€ 184,00
7° Case	7	€ 169,12
8° Case	7	€ 161,05
9° Case	6	€ 192,46
10° Case	6	€ 181,91
11° Case	5	€ 205,46
12° Case	5	€ 163,81

Table 7

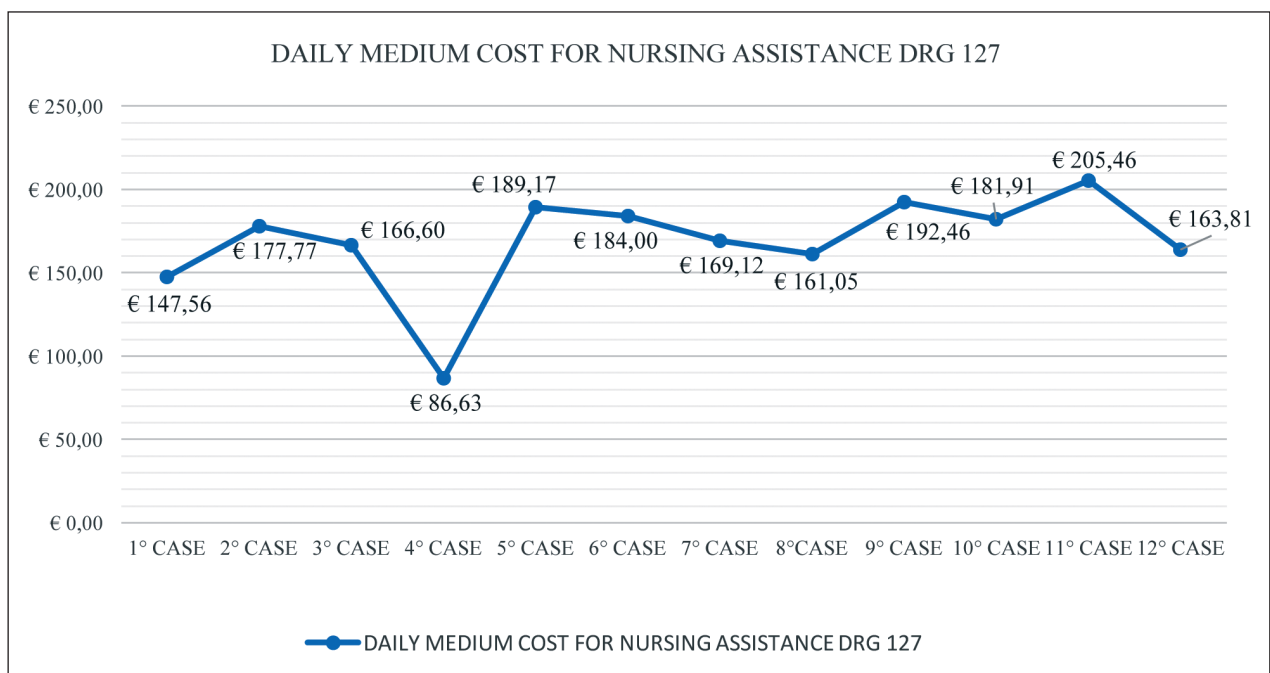| Average	Standard deviation	Interquartile 1st and 3rd (25th P - 75st P)	Median
€ 168,79	€ 30,29	€ 161,74 - € 187,88	€ 165,55

sistance schedule for each patient (which may be due to the presence of comorbidity in the patient, or his/her lack of autonomy in daily life) and the duration of his/her recovery (days of hospital stay).

Conclusion

Pilot Study

The pilot study sample was composed of thirty cases. The sampling was distributed across the Diagnosis Related Group (DRG) system with 14 different DRGs.

The pilot study rejected ten DRGs with less than two cases, and analyzed the four DRGs which had more than two cases.

Figure 2 shows the variation of the average daily cost for DRG 127 is € 118.83.

Table 7 shows the analysis of the average daily cost for nursing assistance.

The analysis of the data regarding the multi-center study shows – as in the case of the pilot study – that the deviation in the final fee for assistance depends on the sum of each single intervention inserted in the as-

Figure 2.

Multi-center Study

The multi-center study sample was composed of 135 cases. The sampling was distributed across the Diagnosis Related Group (DRG) system with 65 different DRGs.

The multi-center study rejected DRGs with less than three cases, and analyzed the thirteen DRGs which had more than three cases.

The results obtained by the two studies have allowed us to confirm that it is possible – by using the proposed approach – to calculate the direct and indirect costs of nursing activities, and also compare them with the present DRG system to analyze specific characteristics. In fact, a highly significant correlation has emerged ($p<0.001$) between nursing costs and the length of hospital stay, which is equal to 0.8923. The present system misses important elements which serve for a correct fee structure for care, as, for example, the autonomous activities of health professionals.

It is important to underline that a DRG doctor cannot completely realize the quality and quantity dimension of nursing care. In particular, understanding of the quality aspect is completely lacking.

It would be advantageous to create a monitoring and fee system that respects the multi-disciplinary aspect when taking charge of a patient. And so, we should be speaking of a DRG for the patient which takes into consideration the whole process of patient care, and therefore all the necessary provisions of service required.

Discussion

The advantages of this study can be seen in the relevance of the subject. It allows for a better definition of the nursing profession (of the health services professions) and would simplify the creation of investment plans that guarantee adequate care for patients. Up till today, the calculation of the fees can be seen to be partial, in that it is exclusively designed to pick up the service of doctors with a reduced "Time" item for health service professionals.

We feel that this study has amply demonstrated that time as a single variable is no longer sufficient to nurture the fee system that is presently employed. For this reason, we feel that it is important to propose the creation of a permanent national observation unit for the health profession. This could work in synergy with the present National Commission for Essential Levels of Assistance (L.E.A.) analogously with the present D.R.G and/or Delisting sub-groups which are, at present, intended to make the system adequate and applicable. Its structure should guarantee the creation of local, regional, and national data flows with figures dedicated to the creation of systems of traceability for nursing services (health service professionals). This would permit validation with regards to the standardization of assistance interventions. On a national scale this would enable the application of the "intervention cost index" across the whole of Italian territory.

The activation of a pilot plan at regional level would be auspicious. The plan should be able to define the roles, the necessary skills, and the organization structures which would accommodate them.

The pilot study activity could be made concrete by the creation of standardized packages (Assistance Settings) able to define the best practice for nursing services to guarantee the length of hospital stay. These would improve the setting of fees both in terms of daily cost as in the overall recovery event.

In a second phase, it would be useful to insert into the present DRG system, specific DRGs for nursing assistance related to autonomous activities (which up to now have not been registered by the DRG system). An improvement of the calculation of DRG fees is also to be desired, as today only the size of the collaborative activities of the health service professionals is noted.

This must be able to overcome the simple and generic time variable (only the "Minute" entry for the health professions appears in today's DRG) with greater traceability based on the type of operation/intervention connected to a specific outcome.

This study also proposes another and very important question which can find an adequate response only by carrying out the phases discussed above. The costs of nursing care represented in this work – as presented in the example of the case shown in Table 1, equal to € 812.41 (including nursing assistance costs for the recovery stage) – is a fee that derives from the actual D.R.G. shown in Table 2. Further possible hypotheses

can plan for an increased value of the fee itself. At present, the data in our possession does not allow us to formulate an adequate decision which could be taken up for further in-depth studies.

Limits

The limits of this study can be seen in three factors:
- The cases analyzed have been classified by the Diagnosis Related Group (DRG) because it is the only instrument present on Italian territory.
- The fee should be calculated on a national scale. The cost of standard nursing assistance of the recovery event should be analyzed respecting the main principles of "good practice" and guarantee required and safe outcomes.
- The following costs should be analyzed on a national scale:
  o Health services material and material from other sources;
  o Equipment used (maintenance and depreciation);
  o Transfers (for indirect services for the patient);
  o Indirect representation of the costs of productive factors attributed to the production unit, but not directly used in the production of each individual service (for example: cleaning, utilities, electrical consumption, etc.).

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