

Work environment and related burnout levels: survey among healthcare workers in two hospitals of Southern Italy

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Abstract. *Background and aim of the work.* Safety in hospitals is a structural variable on which depends not only on health, but also on physical safety of patients and employees, whom are increasingly exposed to risks as a result of which they may suffer from occupational diseases and/or develop important psycho-physical consequences. The study aimed to evaluate the association between work environment and perceived burnout levels in two hospitals of Southern Italy. *Method.* From March to August 2019 an observational study was carried out through a survey consisting of four sections: sociodemographic data; the Post Occupancy Evaluation (POE) questionnaire; the perception of the environment and possible causes of stress; the burnout levels perceived through the Maslach Burnout Inventory (MBI). A convenience sample of 169 healthcare workers participated in the study. All nurses (including nursing coordinators), clinicians, support staff of the “Vito Fazzi” Hospital of Lecce (Le) and “San Giuseppe da Copertino” Hospital of Copertino (Le) with at least one year of work experience and who signed the informed consent were recruited. *Results.* The healthcare workers involved in the survey declared limits in handling and usability of the equipment, both for the patient n=77 (45.6%) and for the healthcare worker n=75 (44.4%), a lack of visual privacy n=89 (52.6%) and acoustic n=128 (75.7%). The analysis also shows higher scores on the ‘depersonalization’ scale among the health care workers of San Giuseppe da Copertino” Hospital (LE) (M= 9.36; DS= 9.439) and higher levels on the ‘emotional exhaustion’ scale in the surgical areas (M= 22.0; DS= 11.86) and in the female gender (M= 23.10; DS=. 12.01). *Conclusions.* The study reveals a poor condition of environmental comfort and safety, which generate high levels of stress and burnout in healthcare workers. Such a study can encourage further multicenter studies.

Key words: Burnout; Environmental Safety; Evidence-based Design; Healthcare Workers; Stress; Organizational Well-being; Working Environment.

Introduction

Stress and burnout are two of the main factors affecting the well-being of workers, particularly in the healthcare workers (1-3). Stress is a general adaptation syndrome which aim is to re-establish homeostasis. In

1936, Selye et al. defined it as “a non-specific response of the organism to every request made about it” (4). In 1974, Freudenberger et al. (5) introduced the burnout syndrome, a professional pathology that involves a stressful condition, especially in people who carry out care activities (6), while Maslach et al. (7) defined it as

“a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment which can arise in workers who work in contact with people” (8). Studies in the literature on the problems related to health and safety of workers, which traditionally focused on the physical health of an individual, have strongly increased interest in recent years regarding centrality of the person. A necessary prerequisite for the well-being not only of the individual, but also of the organization. Studies on health and ‘organizational well-being’ have highlighted different approaches and perspectives. Karasek et al. (9) highlighted two different paradigms: that of stress and that of work and the design of the health-care environment have on the psychophysical well-being of the individual. Satisfaction with the physical environment turns out to be a key indicator of both the performance and well-being of workers.

On the other hand, Williams et al. (10), proposes a four-level grid represented by environmental factors (noise level, temperature, space design), physical factors (poor nutrition, fitness, disease), mental factors (self-esteem, stress, depression, anxiety) and social factors (work relations, personal interests, life events). The increasing focus on the needs of patients and healthcare workers, not only in terms of physical and therapeutic aspects, but also in terms of psycho-emotional and social aspects, has opened up new fields of research. There is a growing awareness among healthcare workers and medical planners of the need to create environments that can help patients cope better with the stress that accompanies illness and the influence of well-designed environments on positive patient health outcomes, and poorly designed environments on negative outcomes, including longer hospital stays (11). On the basis of the large number of these studies, an approach to the design of social and health care facilities known as *evidence-based design* has developed. Numerous studies (12) show, in fact, the relationship between environmental factors - such as light (13) and colour, nature (14), art and the potential support of patients’ healing processes (15, 16). Similarly, it has been shown that these factors positively influence staff working conditions, reducing the pathological effects of stressful processes, such as Burnout Syndrome, which typically affects people in the helping professions if they do not respond adequately to the

excessive loads of stress that their work causes them to take on. The increasing attention towards the needs of patients and health care staff in hospitals has opened new fields of research. There is a link between aspects of design and psycho-physical well-being that can be measured through evidence-based design “a process for the conscious, explicit and judicious use of the best and current evidence by research and practice in making critical decisions, together with an informed client, on the design of each project (17). Care settings play an important role in the healing process. Evidence-based design (EBD) is a developing field of study that holds great promise for the benefit of key stakeholders: patients, families, physicians and nurses, as well as other healthcare personnel and organisations. Ulrich et al. (19) believed that decisions regarding the geographical location of the hospital should consider the quality of view from the patients’ windows. The environment should not be thought of as a building, but as an easily renewable facility that can also measure employee participation and involvement in organizational effectiveness, especially about future planning and decision-making policies. Job satisfaction and psycho-physical well-being play an important role in the quality of care provided. Some studies in the literature highlight the correlation between the environment and psycho-physical well-being by focusing attention on the safety and physical health of the individual, introducing the concept of ‘organizational health’ (18, 20, 21). This term refers to the set of cultural nuclei, processes and organizational practices that animate living together in work contexts by promoting, maintaining, and improving the physical, psychological, and social well-being of the working community (22).

Aim

The aim of the study was to investigate how the spatial, functional, relational and psycho-perceptive characteristics of the environment are able to contribute to speeding up the treatment process (18).

The peculiar choice of concentrating the investigation on clinicians, nurses and support staff was aimed to explore their perceptions not so investigated in the literature.

Methods

Design and setting. From March to September 2019 a cross-sectional study was conducted at two hospitals in Southern Italy, convenience sample, not probabilistic.

Instrument. The questionnaire consists of four sections: a first section aimed at collecting socio-demographic data (hospital; working area; professional role; gender; marital status; years of work experience; years of work in the current company; higher level of training; attend a training course on hospital safety; knowledge of the Legislative Decree 9 April 2008, no. 81, implementation of Article 1 of Law no. 123, concerning the protection of health and safety in the workplace).

The second section consisting of 22 items measured by means of 3 response options (Yes, No, I don't know). The section investigates logistical aspects in terms of security (Item 3 "safety is guaranteed during walking"), usability (Item 6 "In the room it is possible to wash hands", accessibility (Item 5 "The internal toilet is easily accessible"), environmental comfort (Item 11 "The furniture of the room is rational for health care operations") and privacy (Item 16 "Acoustic privacy is guaranteed"), through the use of Post Occupancy Evaluation (POE) (23).

The third section consists of 9 items formulated ad hoc, designed to assess: the willingness to participate in a design team; the priorities of restructuring; the availability, willingness and usability of green areas adjacent to the hospital; the correlation between stress and the physical environment in which the operator works. Of these 9 items, 4 items use 3 dichotomous response options, 2 items are open-ended, 1 item presents the possibility of indicating more than one response, 2 items are measured with a Likert scale, varying from 1 to 10 (1 = negative; 10 = excellent).

The last section consists of the Italian validation (24) of the Maslach Burnout Inventory (MBI) (25). The instrument consists of 22 items, with a Likert scale varying from 0 to 6 points (0 = never; 6 = every day) that measure the three independent dimensions of Burnout Syndrome: Emotional Exhaustion (EE, 9 items), Depersonalization (DP, 5 items) and Professional Realization (RP, 8 items). For both EE and DP

sub-scales, the highest scores correspond to higher levels of burnout, whereas lower scores for RP sub-scales correspond to higher levels of burnout.

Procedures for data collection. The survey was carried out by distributing 200 anonymous paper questionnaires, answered by 169 health workers, including clinicians, nurses and health assistants, from the "V.Fazzi" hospital in Lecce (LE) and the "San Giuseppe da Copertino" hospital in Copertino (LE).

Data analysis. Descriptive analyses were conducted for all qualitative and quantitative variables using the Software Statistical Package for Social Science (SPSS), version 17. The continuous variables were synthesized using mean (M) and standard deviation (DS) and the categorical variables using frequencies and percentages. The one-way analysis of variance (ANOVA) were carried out to determine whether there are any statistically significant differences between physical environment and psycho-physical well-being of the health worker.

Ethical considerations. The ethical characteristics of the study were set out in the questionnaire presentation after authorization by the Medical Directors of the facility Prot. N. 06/19 dated 19 February 2019 ("Vito Fazzi" Hospital, Lecce) and Prot. N. 0042223 dated 19 March 2019 ("San Giuseppe da Copertino" Hospital, Copertino, Lecce). It was emphasized that participation was voluntary and that the participants could refuse participation in the protocol whenever he or she wished. Those who were interested in participating were given an informed consent form, which recalled the voluntary nature of participation, as well as the confidentiality and anonymous nature of the information. In addition, to ensure that the questionnaires were anonymous and to enable participants to be identified, a sequential identification number (ID) was assigned to each registered participant. Each questionnaire, therefore, had an ID number that corresponded to the database ID.

Results

Demographic characteristics of the sample

The sample consists of 169 healthcare workers (mean age 45.65, DS=9,38). The females were 62.7%

(n=106). 71% (n=120) worked at the “Vito Fazzi” Hospital, while 29% (n=49) at the “San Giuseppe da Copertino” Hospital.

36.7% (n=62) worked in the surgical area, 27.2% (n=46) in the critical area, 8.9% (n=15) in the maternal-children’s area, 9.5% (n=16) in the medical area and 17.8% (n=30) in the multi-specialist medical area.

64.5% (n=109) of the sample is composed by nurses, 17.8% (n=30) by healthcare assistant, 14.2%

(n=24) from clinicians and 3.6% (n=6) from nursing coordinators.

18.3% of the sample had a work experience of over 30 years (n=31) and 37.3% (n=63) worked 1-5 years in the current company. The prevalence marital status is married (61,5%; n=104). 32.5% (n=55) of the sample has the regional course as highest level of training and 69.2% (n=117) of the sample took part in hospital safety training courses (Table 1).

Table 1. Socio-demographic characteristics of the sample.

	N. (%)
Hospital	
“San Giuseppe da Copertino” (Copertino, LE)	49 (29%)
“Vito Fazzi” (Lecce, LE)	120 (71%)
Mean age (DS)	45.65 – (9.386)
Working area	
Surgical area	62 (36.7)
Critical area	46 (27.2%)
Maternal-children’s area	(8.9%)
Medical area	(9.5%)
Multi-specialist medical area	30 (17.8%)
Professional role	
Nursing Coordinator	6 (3.6%)
Nurses	109 (64.5%)
Clinicians	24 (14.2%)
Healthcare Assistant	30 (17.8%)
Gender	
Female	106 (62.7%)
Male	59 (34.9%)
Missing	4 (2.4%)
Marital status	
Single	20 (11.8%)
Married	104 (61.5%)
Maiden	36 (21.3%)
Widow	4 (2.4%)
Missing	5 (3%)
Years of work experience	
1-5	25 (14.8%)
6-10	20 (11.8%)
11-15	22 (13%)
16-20	28 (16.6%)
21-25	28 (16.6%)
26-30	14 (8.3%) 31
Over 30	(18.3%) 1 (0.6%)
Missing	

Years of work in the current company	
1-5	63 (37.3%)
6-10	14 (8.3%)
11-15	35 (20.7%)
16-20	15 (8.9%)
21-25	11 (6.5%)
26-30	6 (3.5%)
Over 30	23 (13.6%)
Missing	2 (1.2%)
Higher level of training	
Regional course	55 (32.5%)
University Diploma	22 (13%)
PhD	6 (3.5%)
Degree in Medicine and Surgery	16 (9.5%)
Master’s degree	14 (8.3%)
Bachelor’s degree	50 (29.6%)
Master’s degree	1 (0.6%)
Missing	5 (3%)
Attend a training course on hospital safety	
No	51 (30.2%)
Yes	117 (69.2%) 1
Missing	(0.6%)
Knowledge of the Legislative Decree 9 April 2008, no. 81 (implementation of Article 1 of Law no. 123, concerning the protection of health and safety in the workplace)	
No	66 (39%)
Yes	101 (59.8%)
Missing	2 (1.2%)

Environmental analysis

The environmental aspects, analysed through the POE, were the safety, usability, accessibility, environmental comfort, and privacy present in hospital facilities. The study showed that about 45.6% (N=77) of the sample considered that there were not sufficient safety for both the patient and the healthcare worker (44.4%; n=75) patient movement and that easy usability of the equipment to be used is not adequately guaranteed. The study also highlighted logistical-structural deficiencies such as the marked absence of visual (52.6%; n=89), acoustic (75.7%; n=128), and soundproofing (65.7%; n=111) privacy. Moreover, 46.2% (N=78) of the sample reported a limitation in facilitated visual control of the patient.

47.3% (n=80) of the healthcare workers declared insufficient space for family members to rest (Table 2).

Environment and related stress

The healthcare workers were asked if they would participate in a design team of professionals for the functional reorganization of the department 68.6% (n=116) answered in the affirmative way. In addition, 74.6% (n=126) responded positively when asked if there were green areas in their hospital and if a break in these areas would help to reduce stress. Among the factors related to the environment that can cause stress were (Table 3): the disorganized flow of patients (74%; n=125); a noisy working environment (40.2%; n=68); inadequate/obsolete furnishings, poor organization of

Table 2. Environmental analysis through the POE (N = 169)

	N (%)
V.1 Are the usability and safety of patient and equipment handling guaranteed?	
No	77 (45.6%)
I do not know	7 (4.1%)
Yes	84 (49.7%) 1
Missing	(0.6%)
V.2 Are the usability and safety of the equipment guaranteed in patient handling by the healthcare worker?	
No	75 (44.4%)
I do not know	8 (4.7%)
Yes	84 (49.7%) 2
Missing	(1.2%)
V. 3 Is the safety guaranteed during walking?	
No	57 (33.7%)
I do not know	10 (5.9%)
Yes	99 (58.6%) 3
Missing	(1.8%)
V.4 Is sufficient soundproofing guaranteed?	
No	111 (65.7%)
I do not know	18 (10.7%)
Yes	39 (23%)
Missing	1 (0.6%)

V.5 Is the internal toilet easily accessible?	
No	45 (26.6%)
I do not know	3 (1.8%) 121
Yes	(71.6%)
V.6 Can hand hygiene be carried out in the room?	
No	54 (32%)
I do not know	3 (1.8%)
Yes	112 (66.3%)
V.7 Is there ease of access to other healthcare services to and from other Hospital Units?	
No	65 (38.5%)
I do not know	9 (5.3%)
Yes	94 (55.6%) 1
Missing	(0.6%)
V.8 Is there enough space for family members to rest?	
No	80 (47.3%)
I do not know	7 (4.1%) 82
Yes	(48.5%)
V.9 Is there a direct outward communication system?	
No	56 (33.1%)
I do not know	14 (8.3%)
Yes	97 (57.4%) 2
Missing	(1.2%)

V.10 Is the visual check by the assistance staff facilitated?	
No	78 (46.2%)
I do not know	10 (5.9%)
Yes	79 (46.7%) 2
Missing	(1.2%)
V.11 Is the furniture in the room rational for health care operations?	
No	59 (34.9%)
I do not know	2 (1.2%)
Yes	106 (62.7%) 2
Missing	(1.2%)
V. 12 Are the colours and finishes of the room pleasant?	
No	72 (42.6%)
I do not know	2 (1.2%)
Yes	94 (55.6%) 1
Missing	(0.6%)
V.13 Are the colours and finishes of the furnishings pleasant?	
No	76 (45%)
I do not know	3 (1.8%)
Yes	88 (52%)
Missing	2 (1.2%)
V.14 Are there any shading systems on the windows?	
No	67 (39.6%)
I do not know	3 (1.8%)
Yes	98 (58%)
Missing	1 (0.6%)
V.15 Is visual privacy guaranteed in case of need?	
No	89 (52.6%)
I do not know	2 (1.2%)
Yes	77 (45.6%) 1
Missing	(0.6%)
V.16 Is acoustic privacy guaranteed?	
No	128 (75.7%)
I do not know	1 (0.6%)
Yes	40 (23.7%)
V.17 Is there a visual relationship with the outside from the bed?	
No	65 (38.5%)
I do not know	3 (1.8%) 101
Yes	(59.8%)

V.18 Is natural lighting guaranteed?	
No	23 (13.6%)
I do not know	2 (1.2%)
Yes	144 (85.2%)
V.19 Is artificial lighting well distributed?	
No	24 (14.2%)
I do not know	3(1.8%) 142
Yes	(84%)
V.20 Is the temperature suitable for the work requirements?	
No	67(39.6%)
I do not know	4 (2.4%)
Yes	98 (58%)
V.21 Is adequate air exchange generally guaranteed?	
No	42 (24.9%)
I do not know	5 (3%)
Yes	122 (72.2%)
V.22 Is a safe system for the disposal of hazardous waste guaranteed?	
No	19 (11.2%)
I do not know	14 (8.3%)
Yes	136 (80.5%)

the hospital room (37.3%; n=63), inadequate technological equipment (32.5%; n=55), cramped environments (25.4%; n=43) and lack of safety patient (21.3%; n=36).

The mean differences in the burnout subscale scores according to working area, hospital care, professional role and gender were analysed by means of analysis of variance (One-way ANOVA). A significant link emerges regarding the relationship between 'depersonalisation' and work environment (p-value=0.000), higher 'depersonalisation' scores among those working at the "San Giuseppe da Copertino" hospital than among those working at the "Vito Fazzi" hospital. The link between job role and burnout shows that both nurses and clinicians have a higher level of 'depersonalisation' (p-value = 0.001) than the health-care assistant. From these results, it appears that the female gender has a higher level of "nervous exhaustion" (M=23.1; SD=12.01) than the male gender (M=19.2542; SD=11.35113), of "depersonalisation" (M=6.06; SD=7.30), but a lower level of "personal

Table 3. Environment and related stress (N =169)

	N (%)
V.1 If given the opportunity, would you participate in a design team of professionals for the functional reorganization of your department?	
No	38 (22.5%)
I do not know	14 (8.3%)
Yes	116 (68.6%)
Missing	1 (0.6%)
V.2 If yes, what would you indicate as a priority within the restructuring?	
Structural adaptations	35 (20.7%)
Adequate systems inside the building	17 (10%)
Other	6 (3.6%)
Furniture and comfort	20 (11.8%)
Total restructuring	6 (3.6%)
Missing	85 (50.3%)
V.3 Do you think that the availability of small green areas is sufficient in your hospital?	
No	110 (65.1%)
I do not know	10 (5.9%)
Yes	49 (29%)
V.4 If not, would you like to have a green area adjacent to your hospital to use during work breaks?	
No	9 (5.3%)
I do not know	4 (2.4%)
Yes	122 (72.2%)
Missing	34 (20.1%)
V.5 Would you consider that a break in a green area at your hospital would reduce your state of stress?	
No	21 (12.4%)
I do not know	20 (11.8%)
Yes	126 (74.6%)
Missing	2 (1.2%)
V.6 If yes, in your opinion, how could you increase the usability of the green areas of your hospital?	
Other	26 (15.4%)
Creation of green spaces and equipped areas	31 (18.3%)
Missing	112 (66.3%)

V.7 Which among these elements can be the cause of stress caused by the environment?	
Disorganized patient flow	125 (74%)
Patient safety	36 (21.3%)
Narrow environments	43 (25.4%)
Noisy environments	79 (46.7%)
Poor lighting	30 (17.8%)
Inadequate/obsolete furniture	68 (40.2%)
Inadequate technological instrumentation	55 (32.5%)
Poor organization of the room	63 (37.3%)
Other (collaboration between colleagues; company organization; lack of facilities, medical equipment and support staff)	5 (3%)

fulfilment” (mean=38.05; SD=8.21; p value=0.002) (Tables 4 and 5).

Discussion

The aim of the study was to assess the perception of the healthcare workers towards the work environment in terms of safety, usability, accessibility, environmental comfort, privacy, and possible related stress levels. Only half of the professionals believe that usability and safety is guaranteed in the handling of patients and equipment, an aspect that can lead to a higher risk of patients falling with consequent physical damage and higher levels of stress on the part of healthcare workers. Moreover, only half of the professionals believe that this usability and safety of the equipment is guaranteed during patient handling, with possible repercussions on the physical health of the healthcare worker. Worldwide over the past 30 years, low back pain has been the leading cause of disability particularly among nurses, where it was found in the Cultural and Psychosocial Influences on Disability (CUPID) study, covering 47 occupations in 18 countries on six continents (27). Nurses have the highest prevalence of heavy manual lifting compared to other occupations in 94% of countries; most risk factors for musculoskeletal disorders (MSDs) have increased from 2014 to 2019. Based on the European Working Conditions Surveys (EWCS) 47% of health care workers have experienced back pain and 46% other upper body pain in the last 12

Table 4. Descriptive statistics for burnout scales

DESCRIPTIVE STATISTICS					
	N.	Minimum	Maximum	M	DS
Emotional Exhaustion	168	0.00	54.00	21.7381	11.82772
Depersonalization	164	0.00	30.00	5.9512	7.23642
Personal fulfilment	161	6.00	48.00	38.3602	7.99496

Table 5. Difference in mean scores for each scale of the MBI test as a function of work area; research setting (hospital); job role and gender by analysis of variance (ANOVA)

EMOTIONAL EXHAUSTION *WORKING AREA	N	(SD)	F (df1; df2) F =3.164 (1.050)	P value P=0.372
Surgical area	61	22.0000 (11.86873)		
Critical area	46	20.5870 (12.15927)		
Maternal-children's area	15	18.1333 (11.95746)		
Medical area	16	30.9375 (10.66126)		
Multi-specialist medical area	30	19.8667 (9.88113)		
Total	168	21.7381 (11.82772)		
EMOTIONAL EXHAUSTION * HOSPITAL			F (df1; df2) F =1.166 (3.388)	P value P=0.067
“Vito Fazzi” Hospital (Lecce)	120	20.6833 (11.79373)		
“San Giuseppe da Copertino” Hospital (Copertino)	48	24.3750 (11.79373)		
Total	168	21.7381 (11.82772)		
EMOTIONAL EXHAUSTION * GENDER			F (df1; df2) F = 2.165 (2.035)	P value P=0.134
Male	59	19.2542 (11.35113)		
Female	105	23.1048 (12.01435)		
Total	168	21.7381 (11.82772)		
EMOTIONAL EXHAUSTION * PROFESSIONAL ROLE			F (df1; df2) F =3.164 (1.296)	P value P=0.278
Clinicians	24	22.6667 (12.73020)		

Nurses	108	22.6667 (12.15630)		
Nursing Coordinator	6	17.1667 (13.18206)		
Healthcare Assistant	30	18.5667 (9.12247)		
Total	168	21.7381 (11.82772)		

DEPERSONALIZATION

DEPERSONALIZATION *WORKING AREA	N	M (DS)	F (df1; df2) F =3.160 (2.189)	P value P=0.091
Surgical area	61	7.4098 (8.68980)		
Critical area	44	5.8636 (6.44328)		
Maternal-children's area	14	6.6429 (8.18636)		
Medical area	16	6.0000 (8.18636)		
Multi-specialist medical area	29	2.6552 (4.51407)		
Total	164	5.9512 (7.23642)		
DEPERSONALIZATION *HOSPITAL			F (df1; df2) F =1.162 (15.978)	P value P=0.000
"Vito Fazzi" Hospital (Lecce)	117	4.5812 (5.62513)		
"San Giuseppe da Copertino" Hospital (Copertino)	47	9.3617 (9.43957)		
Total	164	5.9512 (9.43957)		
DEPERSONALIZATION *GENDER			F (df1; df2) F =2.161 (6.588)	P value P=0.002
Male	57	4.8947 (5.90001)		
Female	103	6.0680 (7.30063)		
Total	164	5.9512 (7.23642)		
DEPERSONALIZATION *PROFESSIONAL ROLE			F (df1; df2) F =3.160 (1.042)	P value P=0.376
Clinicians	23	8.0000 (7.79277)		

Nurses	105	5.8667 (6.96981)		
Nursing Coordinator	6	3.0000 (2.96648)		
Healthcare Assistant	30	5.2667 (8.17875)		
Total	164	5.9512 (7.23642)		

PERSONAL FULFILMENT

PERSONAL FULFILMENT *WORKING AREA	N	M(DS)	F (df1; df2) F =3.157 (0.643)	P value P=0.588
Surgical area	59	37.9831 (9.65346)		
Critical area	44	38.2273 (6.64678)		
Maternal-children's area	13	36.3846 (7.59976)		
Medical area	16	36.9375 (7.09431)		
Multi-specialist medical area	29	41.0000 (6.49175)		
Total	161	38.3602 (7.99496)		
PERSONAL FULFILMENT *HOSPITAL			F (df1; df2) F =1.159 (1.536)	P value P=0.217
"Vito Fazzi" Hospital (Lecce)	114	37.8596 (7.80161)		
"San Giuseppe da Copertino" Hospital (Copertino)	47	39.5745 (8.40741)		
Total	161	38.3602 (7.99496)		
PERSONAL FULFILMENT *GENDER			F (df1; df2) F =2.158 (1.463)	P value P=0.235
Male	59	38.4237 (7.63432)		
Female	98	38.0510 (8.21913)		
Total	161	38.3602 (7.99496)		
PERSONAL FULFILMENT *PROFESSIONAL ROLE			F (df1; df2) F =3.157 (5.758)	P value P=0.001

Clinicians	24	38.8750 (6.81630)		
Nurses	101	37.3663 (8.18135)		
Nursing Coordinator	6	31.0000 (2.96648)		
Healthcare Assistant	30	42.7667 (4.84721)		
Total	161	38.3602 (7.99496)		

months (27). In a study drawn up by national INAIL (National Institute for accidents at work) in 2017 on the workloads and safety of healthcare workers, shows that about 75% of the workers interviewed suffer from at least one work-related pathology, including musculoskeletal disorders (28). A Danish study from 2018 with 39,000 workers surveyed showed that 37% of nurses and 46% healthcare assistants experienced musculoskeletal pain every week compared to 32.5% of workers in the general Danish working population (27).

Also, regarding acoustic privacy, the results of the present study are in line with another Italian study carried out on a sample of healthcare workers, patients, and family members in three hospitals in central Italy (29).

The present study shows that there is a relationship between the physical environment in which one works and the stress perceived by the healthcare worker, who feels it is an obstacle to the effectiveness and comfort of his work, and does not help him to feel at ease in carrying out his care tasks.

The present study shows that there is also a good percentage of healthcare workers (68.6%; n=116) who would feel willing to participate in a design team, to collaborate with their experience in the creation of more comfortable and appropriate environments for the work of all and for the well-being of patients. The willingness to participate in design teams also emerged in another Italian study at the Human Services Company of "Reggio Emilia City of People" - (Provincial Healthcare Company), where 34 respondents were asked about their involvement in solving problems and

proposing new ideas. 31% of the participants felt they were welcome to propose solutions and ideas exclusively for problems related to the residents and their daily practical work, but not at an organisational or structural level (30). According to this study and as reported by the National Agency for Environmental Protection (ANPA), the absence of acoustic privacy (noisy environments) is a source of stress. As a matter of fact, noise interacts with the psycho-physical well-being of the person and, in the form of an element of stress, can activate various physiological mechanisms, causing changes such as increased blood pressure, heart rhythm and vasoconstriction (31).

A large part of the sample of this study, moreover, considers that there is a scarce availability of green areas in its own hospital and affirms the desire to want one at its own facility, to use them during work breaks, thus reducing the level of stress.

A study conducted in the United States shows that breaks in green areas are useful in mitigating burnout in nurses working in hospital environments (32). Likewise, adequate lighting, choice of colours and design are crucial in creating the right changes between relaxation and stimulating areas, resulting in an overall benefit and improvement in morale for both hospital staff, the patient and their families (33).

Compared to the results that investigates the three classes of burnout, such as nervous exhaustion, depersonalization and personal accomplishment), contrasting data emerged: in the "San Giuseppe da Copertino" Hospital there is a higher level of 'depersonalization' than in the "Vito Fazzi" Hospital.

The association of burnout with the work area shows that there are higher levels of burnout in acute wards in line with another Italian study (34). The survey showed that nurses working in acute wards show a higher level of emotional exhaustion. DP is also higher on acute wards. Low levels of RP (high Burnout) predominantly affect nurses on acute wards. Overall, the MBI shows higher levels of burnout in older professionals. According to other studies, the prevalence of Burnout Syndrome is between 30% and 60% among healthcare personnel (2, 26, 35). Although it is present in every clinical setting, it is more widespread in services where the patient's care and criticality are more intense, and where there is a high workload and a higher risk of death (e.g., Oncology, Emergency and Emergency Units; 3, 36, 37). Furthermore, in a recent study 83% of the respondents identify themselves as being at risk of stress/burnout, in particular coordinators, healthcare assistants and nurses consider themselves to be at high risk (30). Moreover, according to our results, the gender most affected by burnout is female compared to male. Also Zenobi et al. (38) showed the same data. relationships between sociodemographic characteristics and Burnout levels that are reported in much of the literature were not found in the investigated group. It is observed that females report lower values of Burnout than males (EE) Females report low levels of Burnout in the DP subscale, in contrast to males whose majority report high levels of Burnout.

An inadequate working environment, characterized by the presence of structural deficiencies, can be a predictive factor for the onset of burnout syndrome among healthcare workers.

The results of the present study show that inadequate and obsolete furniture is a cause of stress, as stated by Alfonsi et al. (20).

To that end, In Italy, a decree-law was issued on 24 March 2004 (39) on "measures aimed at improving organizational well-being in public administrations" and the Consolidated text on health and safety in the workplace no. 81 of 2008 (40), with the aim of improving the well-being, health, commitment and results of workers through the promotion and improvement of work environments. Every healthcare company should track down what are the structural indicators and use

them to create a healthy environment for patients and healthcare workers, starting with a team of professionals who can identify the merits and defects of the hospital structure and address a structural re-evaluation plan for it.

The results of the study must be considered considering some limits that concern the probable reluctance of the sample not always to declare what he really thinks for fear of possible repercussions despite the anonymity of the questionnaire. In addition, it is important to consider possible selection bias: the results of the study cannot be generalised to the whole category of healthcare workers.

Conclusions

This study highlighted the perceptions of healthcare workers regarding the relationship between work environment and Burnout Syndrome. In particular, it was investigated how an inadequate structural environment can represent an obstacle for the well-being of healthcare workers. The study showed that there is a middle condition of environmental comfort and safety and a poor condition of acoustic and visual privacy, which the hospital and the professional must protect. This condition that can often lead to consequences also in terms of quality of care. We think that this work can be useful, now, for an intervention both from the organisational and structural point of view. It is important to identify more precisely criticalities and risk factors, to recognise and enhance protective factors. This can help to develop a primary prevention of occupational stress and to implement at the same time the more consistent technological equipment of the Hospital. A lack of early preventive action reduces the possibility of adequate management of the hospital's human resources and its problems relating to occupational stress and burn-out, with the risk of forcing the health service to adopt defensive policies, denying the problem, and marginalising who present an unease.

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