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Gender differences among cancer nurses' stress perception and coping: an Italian single centre observational study

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ABSTRACT. *The literature on gender differences in stress perception and coping has been produced diverse results, and there is a shortage of studies on this topic among cancer nurses. For this reason, the aim of this study was to describe the gender differences related to cancer nurses' stress perception and coping. This study had a cross-sectional design, using a secondary data analysis on dataset (sample = 126 cancer nurses, 74% females). The stress perception and the coping strategies were assessed using Burnout Potential Inventory (BPI) and Health Profession Stress and Coping Scale, nurses' version (HPSCS). Female cancer nurses perceived more stress from personal attacks than males. Indeed, female over 45 years had a significant higher perception of stress, but they used the request for social support (functional coping) as a coping strategy more than males. Our results could help to clearly understand what are the main gender differences in coping and in perceiving stress among Italian cancer nurses, and to incentive more research.*

Key words: coping, gender difference, oncology, nursing, stress.

RIASSUNTO. La letteratura sulle differenze di genere nella percezione dello stress e nell'adozione di meccanismi di coping ha prodotto risultati poco consistenti, inoltre vi è una lacunosità di studi nell'ambito oncologico. Per questa ragione, l'obiettivo di questo studio era descrivere le differenze di genere degli infermieri di oncologia nel fronteggiare lo stress (coping) e nel percepirlo. Lo studio aveva un disegno trasversale ed ha usato l'approccio di analisi secondaria su dataset (campione = 126 infermieri di oncologia; 74% sesso femminile). La percezione dello stress e le strategie di coping sono state valutate tramite il Burnout Potential Inventory (BPI) e il questionario Health Profession Stress and Coping Scale, versione per infermieri (HPSCS). Le infermiere di oncologia percepiscono maggiore stress rispetto agli uomini relativamente all'area degli attacchi personali. Inoltre, le infermiere over-45 anni hanno una percezione di stress significativamente più alta rispetto agli uomini, ma usano maggiore richiesta di supporto sociale (coping funzionale) come strategia di fronteggiamento. I nostri risultati potrebbero essere utili per comprendere meglio quali siano le principali differenze di genere degli infermieri di oncologia italiani nel fronteggiare lo stress e nel percepirlo, oltre che ad incentivare ulteriori studi.

Parole chiave: coping, differenza di genere, oncologia, infermieristica, stress.

Introduction

Nursing is often defined as a stressful profession (1), due to nurses require to face with different kind of stressors, mainly coming from the delivery of their care, which have to be emphatic, cultural sensitive and proficient (2), and from their working environment (3). The literature shows how cancer nurses are particularly exposed to the burnout risk (4-6), because they could tend to empathize with patients' losses, leading cancer nurses to a feeling of futility or failure in their care (7). In this context, cancer nurses' coping strategies play a paramount role to optimize the nursing answering to the stressors and to improve their educational needs (8, 9).

Although many studies describe the relationships between burnout, coping strategies and their working environment in the cancer nursing field (2, 3, 5, 6), there is a shortage of studies aimed to deeply understand the gender differences related to cancer nurses' coping and stress perception. A clearest understanding related to cancer nurses' gender differences on how they cope with stressors and how they percept them, could have a significant influence to improve stress management education and implementation (8), especially in the Italian context where the ratio between male and female nurses is proximally 3:7 (10).

Background

Caring for cancer patients could play as a trigger to develop work related stress, which can result in nurses burnout (5). According to Maslach, Schaufeli and Leiter, the burnout is given from an inability to effectively manage the chronic stress, and it is usually expressed by three different manifestations: (a) the emotional exhaustion, (b) the depersonalisation, and (c) the reduced personal accomplishment (11). Researchers have hypothesized that personality traits (12) and self-efficacy (13) could contribute to burnout, and the same burnout have an effect on nurses' behaviours (14, 15). However, burnout is the edge of a wide range of stressful situations, which is often considered as the result of a mismatch among the nurses' capacity to find internal and external resources and their stress perception (16).

Many studies have also recently assessed the effect of the cancer nurses' stress perception using some theoretical construct, developed by the researches in the cancer field. Among these constructs, the compassion fatigue (i.e., Secondary Traumatic Stress) play an important role (12), because its conceptualization implies that it is closely linked to the therapeutic relationship between the nurses and patient, in that the patients' suffering experience triggers a response, on multiple levels, in the cancer nurses (4). Some researchers have shown that professionals who display high levels of empathy and empathic response to a patient's suffering are more vulnerable to experiencing compassion fatigue (17).

While all three burnout manifestations (i.e., emotional exhaustion, depersonalisation, reduced personal accomplishment) share aspects with compassion fatigue as influencing factors with the therapeutic relationship (17), researchers exploring factors associated with the onset of burnout have shifted their emphasis to work-life issues, such as some contextual characteristics described as 'killer jobs' (18). Killer jobs situations represent workers' stress perception, and they could also be used to assess the nurses' burnout risk (1, 18). Potter (2005) have identified 12 domains to investigate the killer jobs situations, leading to increase the burnout risk, which are: (a) powerlessness, (b) poor information, (c) conflict, (d) poor teamwork, (e) overload, (f) boredom, (g) poor feedback, (h) punishment, (i) alienation, (l) ambiguity, (m) unrewarding, (n) values conflict.

The strategies used by cancer nurse to cope with the stressful situations in their working setting are in relationship with their feelings of failure, continuous pressure and overall negative emotions (19). Moreover, the nurses' coping strategies could also influence the intention to leave the profession (20). For this reason, the assessment of the functional and dysfunctional coping strategies plays an important role to address an effectiveness stress management policy (1). According to Ripamonti (21), it is possible to categorize the functional nurses' coping strategies in problem solving and request for social support, while the dysfunctional strategies could be categorized in emotional distress and problem avoidance.

Although some recent studies show that it seems to be some unclear gender differences among nurses' stress perception and coping (22), to the best of our knowledge there is a lack of evidence related to this topic in the cancer field, and there are no recent studies in the Italian context, aimed to explore these differences among cancer nurses. For this reason, the aim of this study was to describe the gender differences related to cancer nurses' stress perception and coping. Based on current evidence (2, 3, 9, 17, 22), and to best answer to the research aim, the following hypotheses were proposed:

1. there are gender differences related to 'killer jobs' situations and stress perception, where females perceive more stressful situations than males;
2. there are gender differences related to coping mechanism, where females use more emotional strategies than males;

3. the aging worsens the stress perception and 'killer jobs' situation perception of females;
4. the aging enhances the use of dysfunctional coping strategies, especially among the females.

Method

The study had a cross-sectional design.

Procedure and Participants

The study used data from a single cancer centre in Northern Italy. All the full-time employed cancer nurses working in that centre were eligible to be enrolled in this study. Their participation was on voluntary basis. All the study participants have given their agreement to be involved in the study signing a written consensus form. Their involvement consisted in filling the self-report questionnaires used for the study (i.e. measures section). The data were collected in 2014, and the total sample is given by 126 voluntary participants.

Measures

Data collected were: (i) sociodemographic variables, including gender (male/female), marital status (married, unmarried), nationality (Italian, other), education (diploma/degree; master I level; master of science), clinical field (surgical area, medical area, critical area, outpatients), age (years), years of working experience; (ii) Burnout Potential Inventory (BPI); (iii) Health Profession Stress and Coping Scale, nurses' version (HPSCS).

BPI is a self-report questionnaire, consisting in 48 items (9 point-Likert measurement for each item), computed into 12 domains (i.e. killer jobs situations) and in a total score which indicates the risk of burnout (18). Each domain could range from 4 to 36, while the total score, summing each domain scoring, could be used to have an estimation of the burnout risk, and it can range from 48-432. To fill BPI are required approximately 15 minutes.

Instead, HPSCS is a self-report questionnaire created to investigate the potential stressful situations in different working activities as well as the nurses' coping mechanisms (4 point-Likert measurement for each item) (21). Moreover, HPSCS offers a range of potentially stressful work situations to measure both the level of perceived stress and four possible coping mechanisms:

- two functional mechanisms, which are problem solving and request for social support;
- two dysfunctional mechanisms, which are emotional distress and problem avoidance.

HPSCS stressful work situations are given by: (a) clinical emergency; (b) problematic relationships with patients or caregivers; (c) personal attacks; (d) personal devaluation; (e) organizational contingencies. Moreover, HPSCS also permit to assess the over coping mechanisms scoring, an overall stress and the stress perception considering the abovementioned stressful work situations. For HPSCS scoring is needed to follow the authors' indications (21) to compute the scores, which could be categorized as follow: (a) score < 35 = very low use/perception;

(b) 35 ≤ score < 45 = low use/perception; (c) 45 ≤ score < 55 = moderate use/perception; (d) 55 ≤ score < 65 = high use/perception; (e) score ≥ 65 = very high use/perception.

Statistical analysis

Descriptive analysis was carried out using median and 25th-75th percentiles for the quantitative variables and percentages values for the qualitative ones. Normality distribution of quantitative variables was assessed graphically, by the Shapiro-Wilk test and by the skewness and kurtosis values compared to their standard error. To compare the sample characteristics between male and females was used non parametric Mann-Whitney test for quantitative variables and Pearson's χ^2 tests for qualitative ones; moreover, Fisher's exact test was used when the expected frequencies were < 5. To compare the scores of BPI and HPSCS questionnaires between male and females non parametric Mann-Whitney test was used. Statistical significance was taken at the <0.05 level.

All analyses were conducted using SPSS package (version 20 for Windows. SPSS, Inc. Chicago, Ill).

Results

The study participants (n = 126) were mostly female (n = 94; 74,6%). As shown in Table I the sample, stratified by gender, appears homogeneous considering the distribution of marital status, nationality, education, clinical field, and

years of working experience (p-values > 0,05). The sample shows a significant difference related to the age stratification (p-value = 0,014). Considering the descriptive statistics of the age stratification, the under-30 years old male nurses are less than the females (12,5% versus 29,8%), and the over-45 years old male nurses are more than the females (28,1% versus 9,6%).

1. *There are gender differences related to 'killer jobs' situations and stress perception, where females perceive more stressful situations than males*

To test the first hypothesis, we have firstly compered the BPI domains (i.e. killer jobs) and BPI total score between the two genders, using the Mann-Whitney U test. All the median scores and percentiles shown normal scoring, except for the following domains, which were borderline, even if their comparison was not significant:

❖ poor team work: (a) Median $_{males}$ (25°-75° pct) = 10,4 (8,0-16,0); (b) Median $_{females}$ (25°-75° pct) = 12,0 (8,8-16,0); p-value = 0,621;

❖ overload: (a) Median $_{males}$ (25°-75° pct) = 9,5 (8,0-14,0); (b) Median $_{females}$ (25°-75° pct) = 12,0 (8,0-14,3); p-value = 0,461;

❖ poor feedback: (a) Median $_{males}$ (25°-75° pct) = 10,0 (8,0-15,0); (b) Median $_{females}$ (25°-75° pct) = 12,0 (8,0-15,3); p-value = 0,691;

❖ BPI overall score: (a) Median $_{males}$ (25°-75° pct) = 75,5 (64,0-110,0); (b) Median $_{females}$ (25°-75° pct) = 87,0 (68,0-119,3); p-value = 0,362.

Table I. *Sample (n = 126 cancer nurses) characteristics: gender stratification*

		Males		Females		*p value
		N	%	N	%	
Marital Status	Unmarried	15	46,9	54	57,4	0,285
	Married	17	53,1	40	42,6	
Nationality	Italian	30	93,8	85	90,4	0,728
	Other	2	6,3	9	9,6	
Education	Diploma/Degree	27	84,4	83	88,3	0,685
	Master I level	4	12,5	10	10,6	
	MSc(Nursing)	1	3,1	1	1,1	
Clinical field	Surgical area	7	21,9	32	34	0,254
	Medical area	9	28,1	30	31,9	
	Critical area	10	31,3	15	16	
	Outpatients	6	18,8	17	18,1	
Age groups	< 30 years	4	12,5	28	29,8	0,014
	30 - 45 years	19	59,4	57	60,6	
	> 45 years	9	28,1	9	9,6	
Years working experience		N	Median (25th; 75th pct)	N	Median (25th; 75th pct)	0,188
		32	15,5 6,25; 19,00)	94	12 (4,00; 17,00)	

* Mann-Whitney test for quantitative variables and Chi Square or Fisher Exact test for qualitative variables.

Then, we have compared the perceived stress assessed by HPSCS, and within a framework of normal stress values, the females showed a major stress perception only related to the domain of personal attacks: Median $_{males}$ (25°-75° pct) = 43,0 (39,0-48,0); Median $_{females}$ (25°-75° pct) = 48 (39-58); p-value = 0,016. Even considering the HPSCS overall stress, there were not found significant differences: Median $_{males}$ (25°-75° pct) = 44,0 (33,0-50,0); Median $_{females}$ (25°-75° pct) = 47 (40-55); p-value = 0,083.

2. *There are gender differences related to coping mechanism, where females use more emotional strategies than males*

As it is shown in Table II, there are no many gender differences, but two coping strategies implying an emotional work were significantly higher among females. The first coping strategy was the using of emotional distress to face with clinical emergency (i.e. dysfunctional coping), and it is used more frequently by female cancer nurses (p-value = 0,030). The second coping strategy was the problem avoidance to face with organisational contin-

gencies (i.e. dysfunctional coping) (p-value = 0,054). Even the overall request for social support seems to be higher used by female cancer nurses (p-value = 0,057). Also, the emotional distress to face with the personal attacks appeared to have higher scoring among females (p-value = 0,07).

3. *The aging worsens the stress perception and 'killer jobs' situation perception of women*

Considering this hypothesis and according to previous study's approach (1), we had performed a stratification by age groups (i.e. < 30 years; aged between 30-45 years; > 45 years), and then we have studied the gender differences within each age group, considering BPI domains and the HPSCS. Considering BPI domains, there were few differences within younger nurses' group (i.e. aged < 30 years). In fact, there was only a significant difference related to the perception of poor information. In fact, the female nurses perceived to have more poor information than men (p-value = 0,044). Even considering the nurses aged between 30-40 years there were not found any significant

Table II. *Coping strategies: gender stratification*

		Males				Females				*p value
		N	25° pct	median	75° pct	N	25° pct	median	75° pct	
Total	**Request for Social Support**	27	35	46	54	86	42	52	57	**0,057**
	Problem avoidance	27	42	49	53	86	42	45	55	0,515
	Problem solving	25	38	48	55	87	43	49	55	0,515
	Emotional Distress	27	34	41	53	89	39,5	47	53	0,195
Clinical Emergency	**Request for Social Support**	27	37	43	55	85	43	49	55	0,201
	Problem avoidance	28	47	57	62	89	52	57	64,5	0,254
	Problem solving	29	41,5	50	63,5	92	39	50	55	0,145
	Emotional Distress	29	37	44	48	92	37	48	56	**0,030**
Personal Attack	**Request for Social Support**	28	41	48	59,75	92	37	48	52	0,252
	Problem avoidance	26	40	48	57	88	44	53	57	0,592
	Problem solving	29	40	48	54,5	92	36	44	52	0,874
	Emotional Distress	29	33,5	42	53	92	39	46	53	**0,070**
Organizational Contingencies	**Request for Social Support**	26	38,25	47	54	86	40	54	56	0,115
	Problem avoidance	28	36,5	47	52	85	41	47	55	**0,054**
	Problem solving	29	39	39	50	92	39	45	54,5	0,164
	Emotional Distress	29	37	47	55.5	92	37	47	53	0,821
Personal Devaluation	**Request for Social Support**	27	37	48	54	90	43	48	54	0,932
	Problem avoidance	27	39	49	54	88	44	49	54	0,113
	Problem solving	29	37	41	53,5	92	41	51	56	0,068
	Emotional Distress	29	41	47	59	92	41	53	53	0,733
Problematic relationships with patients or caregivers	**Request for Social Support**	26	42,75	49	58	90	44	53	58	0,151
	Problem avoidance	29	37	44	61	92	40	49	58	0,583
	Problem solving	29	35	39	59	92	39	45	55	0,472
	Emotional Distress	29	38	47	52,5	92	38	47	51	0,633

* Mann-Whitney test.

differences between males and females. The scenario was very different considering the cancer nurses aged over 45 years, as shown in Table III. In fact, female cancer nurses over 45 years had a higher significant perception of nine 'killer jobs' situations, and even their overall BPI score was higher than males (p-values < 0,02).

Considering the HPSCS domain related to the perceived stress, there is only a significant difference within the group aged between 30-40 years. This difference was in relation to the stress perceived due to personal attack, where the female cancer nurses perceived more stress then men (p-value = 0,021).

4. *The aging enhances the use of dysfunctional coping strategies, especially among the females*

In this case, there were not significant differences in all the comparisons within the age groups. Moreover, it seems that female cancer nurses over 45 years used better coping strategies than male nurses. This data is given by the overall coping mechanism 'request for social support' (functional strategy) most used by over 45 years female nurses than male colleagues (p-value = 0,033). Considering the other coping strategies, there were not found significant differences.

Discussion

To the best of our knowledge this was the first Italian study aimed to describe the gender differences related to cancer nurses' stress perception and coping. The literature emphasis on this topic is growing (23), but many challenges have to be assessed to properly address the working stress-situations (1, 8). The literature has also guided us to develop four hypotheses to better assess our study aim, and we used both the two scales BPI and HPSCS to test them.

BPI testing did not confirm the first hypothesis, due to there were not found significant differences, even if the descriptive statistics moved in line with the hypothesis. However, females showed a major stress perception related to the HPSCS domain of personal attacks. Personal attacks could amplify the magnitude of the stress perception, and this finding (i.e. female cancer nurses perceive more stress from personal attacks than males) should be consider to address a tailored preventive policy. These could be particularly interesting considering how data from literature show that 18% of employers had experienced some sort of threat or verbal intimidation in the past year (24), and experiences of personal attacks in the workplace could lead to serious consequences for nurses and their care delivery (25). Surely, even in the cancer field, nurses are most exposed to the risk of patient aggression, as they are the most numerous group of healthcare professionals, and considering their longest direct contact with the patients and families in their care activities (26). Moreover, nurses are an 'high touch' profession, considering their nearness with the patients, their emotions and their families (27).

Considering the second hypothesis, female cancer nurses used more emotional distress to face with clinical emergency (i.e. dysfunctional coping). Considering that emotional distress is a predictor of burnout and job dissatisfaction (28), the research should be consider this information to deeper understand what is behind this result. This description is quite innovative in nursing cancer field, even if some authors have already argued that emotional distress is more of a female experience (11). On the other hand, some other authors argued that females could be more protected from men, due to work peers and superiors may perceive women as more likely to burnout than men (29). However, there is enough consensus in assuming that women are more susceptible to stress and

Table III. *BPI score: gender stratification (nurses over 45 years)*

	Male			Females			*p value
	25° pct	median	75° pct	25° pct	median	75° pct	
Powerlessness	4	4	5	6,5	9	13,5	**0,001**
Poor information	4	4	5	5,5	6	11	**0,001**
Conflict	4	4	5,5	5	8	10,5	**0,014**
Poor team work	7	8	9	10	13	17,5	**0,005**
Overload	6	8	9	9	13	17	**0,006**
Boredom	4	4	6,5	5	6	10	**0,020**
Poor feedback	7	8	9	10	13	17,5	**0,010**
Punishment	4	4	4,5	4,5	6	7	**0,017**
Alienation	4	4	4,5	4	6	10	0,070
Ambiguity	4	4	5	4	6	9	0,131
Unrewarding	4	5	5,5	4	5	8	0,289
Conflict of values	4,5	6	7	6,5	8	13,5	**0,008**
Overall SCORE	59,5	65	72	76	108	137	**0,001**

* Mann-Whitney test.

emotion exhaustion than men also as a consequence of individuals stereotypes (30).

The third hypothesis was quite totally confirmed. Female cancer nurses over 45 years had a higher perception of nine 'killer jobs' situations, and even their overall BPI score was higher than males. These results suggest to build up a sound supportive policy to help aging women to find the right internal and external resources, especially when their role begin to change within both their family and society. Another interesting data is that the younger female nurses perceived more personal attacks than older colleagues. This aspect should be deeply investigated to understand what kind of attacks they perceive and by whom.

The results did not confirm the last hypothesis, though they are interesting due to female nurses seem to better use the social support coping strategy than males. Social support should became a real nursing competence (31), due to it can enhance resilience to stress, help protect against developing trauma-related psychopathology, and decrease the functional consequences of trauma-induced disorders (32). It is reasonable to consider for future researches the potential role of social support as a positive predictor of nurses' self-efficacy (13), behaviours (14, 15), and competence (31, 33).

This study had also some limits. Firstly, the data collection was cross-sectional, for this reason could not have any information about stability of the investigated phenomena. Secondly, the sample is referred to a single Italian cancer centre, for this reason the results should be generalizable with caution. Moreover, the moderate displacement of gender distribution in our sample could have an influence on the analysis, however it is in line with the Italian nurses' gender distribution.

Conclusion

To the best of our knowledge, this was the first study aimed to describe the gender differences related to cancer nurses' stress perception and coping in the Italian context. The literature on gender differences in stress perception and coping has been produced diverse results (29). Our study results could boost some important reflections on management, preventing the genesis of misinformation, or non-evidence-based organisational decision making.

Moreover, our results could help to clearly understand what are the main gender differences in coping and in perceiving stress among cancer nurses. These results should be used to build up tailored preventive programs for the stress management, considering the highlighted gender peculiarities. This topic is strategic even because the deeper comprehension of those differences in facing with stressors could help the managers and educators to prevent the distress situations (e.g. burnout, emotional fatigue), hypnotizing an effect on nurses' turnover or intention to live. Future researches are needed to deeply study the phenomena and to test the effectiveness of the preventive stress management policy.

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