Relación entre Burnout y las características personales y laborales de los asistentes de enfermería brasileños

Relationship between Burnout and personal and work-related characteristics of Brazilian nursing assistants

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RESUMEN

Marco Teórico: El objetivo del estudio fue investigar la asociación entre el Burnout y el género, los rasgos laborales y personales de los profesionales de enfermería brasileños. **Método:** Participantes: 310 técnicos y auxiliares de enfermería, siendo 236 mujeres y 74 hombres. Instrumentos: el cuestionario demográfico y el Inventario de Burnout de Maslach (MBI-HSS), teniendo un nivel de confianza del 95%. **Resultados**: Los niveles altos de Agotamiento Emocional y Despersonalización estuvieron presentes en 28.4% y 31.6% respectivamente, mientras que el 22.9% mostró bajos niveles de Realización Personal. El agotamiento emocional más alto estaba relacionado con la educación superior, viviendo solo, sin hijos, la duración del servicio, las ausencias laborales y los problemas de salud. La despersonalización se asoció con el acceso a servicios médicos. El logro personal estuvo influenciado por las condiciones de vida y la duración del servicio. Se identificaron diferencias personales y relacionadas con el trabajo entre sexos y géneros en las características personales y variables relacionadas con el trabajo, incluyendo el tiempo de servicio, el uso de medicamentos, el consumo de alcohol y el absentismo. **Conclusiones**: Los factores personales múltiples influyeron diferencialmente las puntuaciones en los 3 dominios del MBI-HSS. El sexo ejerció una fuerte influencia. Otras características personales asociadas reflejan roles y creencias societarias de género. Es posible que se necesiten estrategias proactivas dirigidas a subgrupos específicos de trabajadores de atención hospitalaria para asegurar su capacidad de cuidar a sus pacientes con empatía y competencia y reducir el riesgo de Burnout. Las estrategias preventivas probablemente tendrían un impacto significativo en la calidad general de vida de los trabajadores y disminuirían el absentismo.

Palabras clave: burnout, estrés ocupacional, rasgos de género, agotamiento emocional, enfermería.

ABSTRACT

***Theoretical framework**: The objective of the study was to investigate the association between Burnout and the gender, personal and work characteristics among Brazilian nursing professionals. **Method:** Participants: 310 nursing technicians and auxiliaries, being 236 women and 74 men. Instruments: the demographic questionnaire and the Maslach Burnout Inventory (MBI-HSS), having a confidence level of 95%. **Results:** High levels of Emotional Exhaustion and Depersonalization were present in 28.4% and 31.6% respectively, while 22.9% showed low levels of Personal Accomplishment. Higher Emotional Exhaustion was linked with higher education, living alone, being childless, duration of service, work absences and health problems. Depersonalization was associated with accessing physician services. Personal Accomplishment was influenced by living conditions and duration of service. Multiple sex/gender personal and work-related differences were identified in personal characteristics and work-related variables, including length of service, medication use, alcohol use and absenteeism. **Conclusions:** Multiple personal factors differentially influenced scores in the 3 domains of the MBI-HSS. Sex exerted a strong influence. Other associated personal characteristics reflect gendered societal roles and beliefs. Targeted proactive strategies may be needed for specific sub-groups of hospital care workers to ensure their ability to care for their patients with empathy and competence and reduce risk of Burnout. Preventative strategies would likely have significant impact on workers' overall quality of life and decrease absenteeism.*

***Key words:** burnout, occupational stress, gender, exhaustion emotional, nursing.*

Theoretical framework.

Occupational stress has been associated with role ambiguity and overload, lack of autonomy over one's work (Hayes & Bonner, 2010; Maissiata, Lautert, Dal Paic & Tavaresd, 2015; Adriaenssens, Gucht & Maes, 2015a), and translates to huge financial costs for companies in terms of lost productivity, as well as the impact on health and quality of life costs for employees (Adriaenssens, Gucht & Maes, 2015a). Occupational stress can lead to diverse physical and mental health problems, as well as a broader psychological outcome termed burnout, characterized as emotional and physical exhaustion resulting from a combination of exposure to environmental and internal stressors and inadequate coping and adaptive skills (Maslach, Schaufeli & Leiter, 2001; Bianchi, Schoneld & Laurent, 2015a).

Globally, health professionals have been identified as being at higher risk for burnout compared to other professions and workplaces (Yao, Yao, Wang, Li & Lan, 2013; Adriaenssens, Gucht & Maes, 2015b). In Spain, burnout is considered an occupational disease with prevalence rates highest among health professionals (Vargas, Cañadas, Aguayo, Fernández & Fuente, 2014; Cañadas-De la Fuente et al., 2015), in particular, professional nurses. One Spanish study found 26% of Emergency Department nurses suffered from burnout (Cañadas-De la Fuente et al., 2015). Occupational stress experienced specifically by health care providers can lead to what has been termed Burnout Syndrome, defined as

"the loss of interest for the persons somebody cares for, including the somatic exhaustion, which is characterized by emotional exhaustion where the professional does not have any more positive feelings of sympathy or respect for the clients/patients" (Maslach & Jackson, 1981). In addition to signs of exhaustion, health care providers who experience Burnout Syndrome exhibits an increasingly negative attitude toward his or her job, low self-esteem, and personal devaluation (Adriaenssens, Gucht & Maes, 2015a; Yao, Yao, Wang, Li & Lan, 2013; Bianchi, Schoneld & Laurent, 2015b).

According to the World Health Organization (WHO) a healthy workplace is "one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and wellbeing of all workers and the sustainability of the workplace" (WHO, 2016). One of key elements is that all workers have some authentic voice in decision-making and some autonomy within their work responsibilities. However, nurse technicians and assistants in Brazil (equivalent to licensed practical nurses, nursing aides and care assistants in North America) may be considered on the lower end of the traditional hierarchy of health care providers and thus have less autonomy, less opportunities to contribute to workplace decisions and policies and less day to day recognition for the services they provide. It is worth noting that the Brazilian healthcare workforce consists of 1.5 million healthcare providers (excluding physicians), of which 52% of them are nurse technicians and assistants (Almeida-Filho, 2011). These system-related factors, as well as

individual sociodemographic factors may place this group of health care providers at increased risk for Burnout Syndrome (Karasek, 1979; Bakker & Demerouti, 2007).

According to Maslach, the Burnout Syndrome consists of three dimensions: Emotional Exhaustion, Depersonalization and low sense of Personal Accomplishment. Emotional Exhaustion refers to a feeling of excessive physical exertion and mental fatigue in interactions with the work team and clients (Maslach & Jackson, 1981). Depersonalization reflects the development of cold, negative and cynical attitudes towards others (colleagues and clients). Finally, sense of low Personal Accomplishment arises from a tendency to negatively evaluate day to day events, in addition to overall feelings of unhappiness and dissatisfaction with one's professional performance (Maslach & Jackson, 1981; Hakanen & Schaufeli, 2012). The Personal Accomplishment dimension was not present in the original definition of the Burnout Syndrome, leading some researchers to question the legitimacy of its inclusion (Bianchi, Schoneld & Laurent, 2015a; Hakanen & Schaufeli, 2012). However, standardized tool to measure the dimensions of the Burnout Syndrome includes all three.

Empirical evidence lends support to the conceptualization of the Burnout Syndrome as a consequence of chronic occupational stress, caused by a persistent mismatch between the demands associated with the work and the individuals' resources (Maslach, Schaufeli & Leiter, 2001; Hobfoll & Shirom, 2001). Studies using this conceptualization have reported associations between

Burnout Syndrome and absenteeism, poorer performance at work, labor demands, incapacity for work, depression symptoms and greater number of medical leaves and pensions in health care providers (Bianchi, Schoneld & Laurent, 2015a; Adriaenssens, Gucht & Maes, 2015b; Leiter, Day & Price; 2015). Heavy workload, inexperience, lack of resources and administrative support and difficulties in interpersonal relationships have been identified as overarching risk factors for the development of Burnout Syndrome (Yao, Yao, Wang, Li & Lan, 2013).

Multiple international studies have reported data from each of the three domains rather than a global prevalence rate of those experiencing Burnout Syndrome. A Spanish study with hospital nursing staff (N=177) reported low levels of Personal Accomplishment in 34.5% of the nursing staff, whereas high levels of Emotional Exhaustion and Depersonalization were reported in only 24.4% and 7.6%19). High levels of Emotional Exhaustion (67%) and Depersonalization (59%) were reported in a group of Irish Emergency department nurse (O'Mahony, 2011). A Brazilian study with university-educated nurses found high levels of: (a) Emotional Exhaustion in 43%; (b) Depersonalization in 17%; and low Personal Accomplishment in 32% (Sarmento Silva et al., 2015). Interestingly, another Brazilian study with 534 nursing assistants reported lower percentages across two domains (Emotional Exhaustion 23.6% and Depersonalization 21.9%) but higher percentage of the participants reported low levels of Personal Accomplishment (Ferreira & Lucca,

2015). An Australian study with hemodialysis nurses found that Emotional Exhaustion was significantly associated with lower overall job satisfaction and higher job stress (Hayes & Bonner, 2010).

The significant variability across the three domains and across studies suggest that other factors influence the scores within specific domains. Specific work environmental factors, personal characteristics and position within the organization may be important factors to consider. In a randomized multidisciplinary sample of health care providers (N=441: 135 physicians, 127 nurses and 179 emergency care assistants), those that had been exposed to physical and verbal violence presented significantly higher scores on measures of anxiety, Emotional Exhaustion and Depersonalization and evidence of Burnout Syndrome compared with those who had not been subjected to any aggression in the work environment. Importantly, it was emergency care nursing assistants who experienced the most verbal and physical violence (Bernaldo-De-Quiros, Piccini, Gomez & Cerdeira, 2015).

Significant limitations of many of these studies include data that were not separated by type of health care professional or specific level of nurse and missing data regarding relevant aspects of specific work demands and personal characteristics. The different types of nurses have different degrees of physical and technical demand, autonomy within their respective responsibilities and involvement in setting policy and decision-making. Sociodemographic characteristics may vary across sub-groups of nurses. These distinguishing work

and personal characteristics may differentially influence risk of Burnout Syndrome.

The goal of this study is to examine Burnout Syndrome and its three domains in a homogeneous population of nurses who are at lower level of autonomy and experience more physically heavy demands in the workplace. Specifically, this cross-sectional study aim was to investigate the association between Burnout and the gender variable, personal and work characteristics, among nursing technicians and assistants, working in a tertiary care hospital in Brazil.

METHODS.

Participants

The study population was comprised of male and female nursing technicians and nursing assistants (registered/licensed practical nurses) who had worked in the hospital for at least one year. In this practice setting, the nursing team was composed of RNs (BScN prepared), nursing technicians (complete a 2-year post-secondary program) and nursing assistants (complete a 1-year training program). Given that nursing assistants and the technicians share similar work responsibilities and salary structure and the majority of sample were nursing assistants (85%), we considered them as one sub-group of nurses and in this paper are termed nursing assistants.

The sample size was calculated using the formula proposed by Silva (Silva, 2001). To address those that withdrew after enrollment or provided only partial responses (estimated at 20%) the required sample was increased to 338. A stratified random sample of 338 nursing technicians and assistants was chosen from the total population of these categories of workers (N=1135). Of these, 8.2% refused to participate in the research, thus the final sample involved 310 participants.

Measures

To characterize the population, a sociodemographic questionnaire was developed to gather work-related data (service time in the practice setting, total length of service, work schedule, absences from work) and personal characteristics (gender, schooling, marital status, religion, number of persons residing in the household, number of children, number of physician visits in the past year and reasons, use of medications, self-reported health problems and any alcohol and tobacco use).

To identify Burnout Syndrome, the Portuguese validated version of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) was used (Lautert, 1995). The psychometric properties of the MBI-HSS are well established. The survey consists of 22 questions divided into three dimensions, Emotional Exhaustion composed of 9 items, Depersonalization (D) with 5 items and Personal Accomplishment (PA) with 8 items, and Likert five-point

categories ranging from "never" to "always". In a similar fashion to other Brazilian research groups, high levels were defined as scores above 75th percentile for Emotional Exhaustion and Depersonalization, while scores below 25th for Personal Accomplishment were considered high (Lautert, 1995).

The independent variables for the whole sample corresponded to sociodemographic variables: gender, schooling; marital status; religion; service time in the sector; length of service in as a nurse; number of employment contracts; work schedule; number of persons residing in the household; number of children; number and reason for physician visits in the past year; use of medications; absence from work; self-reported diseases and alcohol and tobacco use. The Associations between the main outcome (Burnout Syndrome) and sociodemographic variables, work and health, were measuring through association tests, performing chi-square test, with a correlation coefficient Pearson and logistic regression considering 0.05 significance level.

We further explored the contribution of sex (being male or female) and also of variables that can be considered as reflecting gendered roles and societal norms within Brazilian society. Evidence to support the inclusion of these variables as reflecting gender comes from data that show that women have increased role in child care and household responsibilities (Marynard & Blain, 2005), increased vulnerability to stress and depression (Hegadoren, Lasiuk & Couplant, 2006; Fandinõ-Losada, Forsell & Lundberg, 2013; Yang, Spector, Chang, Gallant-Roman & Powel, 2012), increased likelihood of seeking health

services and higher rates of use of psychotropic medications (Borges, Miasso, Vedana, Telles Filho & Hegadoren, 2015); gender differences have also been observed in coping strategies and vulnerability to alcohol-related disorders (Feingold, Capaldi & Owen, 2015).

Data analysis

Prior to data analysis, Cronbach's alphas were calculated to check internal consistency and reliability of the scale within this study. The overall scale scored 0.86, which indicates good reliability. However, the results for each domain differ. The Cronbach's alpha calculations for Emotional Exhaustion (0.88) and Depersonalization (0.60) were similar to the original scores; however, the result for Personal Accomplishment was lower (0.74 compared to the previously reported 0.94) (Adriaenssens, Gucht & Maes, 2015b; Maslach & Jackson, 1981; Lautert, 1995). Across studies from other countries, calculated Cronbach alpha for the Depersonalization domain varied from 0.63 to 0.79 (Adriaenssens, Gucht & Maes, 2015b), which some authors believe to be related to the limited number of items in the survey, to the conceptualization of depersonalization and/or to local expectations of a "good health care provider" (Adriaenssens, Gucht & Maes, 2015b). In some populations it may difficult for the person to admit such attitudes at work, even within an anonymous survey. Our lower result for the Personal Accomplishment domain may also be related to definitional issues in Brazil or the impact of the specific type of nurse on how

a nursing technician or assistant perceives one's sense of Personal Accomplishment.

The descriptive statistics of population characteristics and the variables include frequency distributions, absolute numbers and percentage, averages, standard deviations and ranges. Initially, Chi-square tests and Pearson's Correlation Coefficients were used to examine associations between the dimensions of Burnout Syndrome and sociodemographic characteristics, working conditions and health. These statistical strategies were followed by multivariate logistic regression to examine if the dimensions remained significantly associated with personal characteristics, work and health, and could predict risk of Burnout Syndrome. The Receiver Operating Characteristic (ROC) curve was calculated for each logistic regression model to evaluate and compare algorithms. The results were considered significant if the p value was ≤ 0.05 and all confidence intervals (CI) were $\geq 95\%$. SPSS version 23 was used to analyze the data.

Research design

This cross-sectional study was set in an urban tertiary care hospital located in the state of São Paulo, Brazil.

This study was approved by the Ethics in Research Committee of the Ribeirao Preto College of Nursing, University of São Paulo. All ethical procedures were respected.

RESULTS.

The population consisted mostly by women, ranging from 20 to 68 years of age, married or with a partner, with children and who followed the Catholic religion. Most was nursing assistant (completed the 1 year nursing assistant training program), worked in highly complex practice settings, with an average length of service of 12.6 years and currently working 30 hours per week (Table 1).

Overall, Table 2 summarizes the data on the three domains involved in the Burnout Syndrome. It is possible to observe that between the women 85.2% present high levels of Emotional Exhaustion (p= 0,018) and 73.5% had high levels of depersonalization. Between the men these percentages were low, 14.8% and 26.5% respectively.

Whereas the original conceptualization of the Burnout Syndrome reflected a phased linear trajectory, with Emotional Exhaustion emerging as the first phase of the syndrome, followed by changes in Depersonalization and Personal Accomplishment, our data were not wholly consistent with this conceptualization. Indeed, 52.6% of technicians and nursing assistants had changes in only one or two of three domains.

Table 1 – Sociodemografphic and work characteristics of nursing assistants and nursing technicians in a tertiary care setting in Brazil.

Variables		n(%)	Mean ± SD
Gender	Female	236 (76.1)	---
	Male	74 (23.9)	
Age (years)	20 - 29	27 (8.7)	47.19 ± 10.94
	30 - 39	109 (35,2)	Range 20-68
	40 - 49	102 (32.9)	
	50 - 59	60 (19.3)	
	60 - 68	12 (3,9)	
Schooling	Elementary school	29 (9.4)	---
	High school education	209 (67.4)	
	Faculty	72 (23.2)	
Marital Status	Married or with partner	180 (58.1)	---
	Single or widower	82 (26.5)	
	Divorced	48 (15.5)	
Had children	Yes	231 (74.5)	---
	No	79 (25.5)	
Religion	Catholic	165 (53.2)	---
	Evangelic	69 (22.6)	
	Protestant	6 (1.8)	
	Spiritism	44 (14.2)	
	Agnostic	23 (7.3)	
	Other	3 (0,9)	
Profession	nursing assistants	198 (63.9)	
	nursing technicians	107 (34.5)	
	nurses*	5 (1.6)	
Professional Position held	nursing assistants	265 (85.5)	---
	nursing technicians	45 (14.5)	
Practice setting	Medium complexity	35 (11.3)	---
	High complexity	275 (88.7)	
Time work in the hospital (years)	5 years or less	84 (27,1)	12.6 ± 8.75
	6 - 10	50 (16,1)	Range 1-42
	11 - 15	95 (30,7)	
	16 - 20	31 (10,0)	
	21 - 25	22 (7,1)	
	26 or more	28 (9,0)	
Working hours per week	30 hours	242 (78.0)	---
	up to 30 hours	68 (22.0)	

N=310 nursing assistants and technicians.

* Nurses, but who occupy the position of nursing technicians or nursing assistants.

Table 2 - Distribution of nursing assistants in a tertiary care setting in Brazil according Burnout Syndrome dimensions and gender.

Dimensions of Burnout	Level	n (%)	By gender	n(%)*	
Emotional Exhaustion**	Low	222 (71.6)	Female	161(72.5)	
			Male	61 (27.5)	p=0.018
	High	88 (28.4)	Female	75 (85.2)	
			Male	13 (14.8)	
Depersonalization	Low	212 (68.4)	Female	164 (77.4)	
			Male	48 (22.6)	p=0.455
	High	98 (31.6)	Female	72 (73.5)	
			Male	26 (26.5)	
Personal Accomplishment	Low	71 (22.9)	Female	59 (83.1)	
			Male	12 (16.9)	p=0.117
	High	239 (77.1)	Female	177 (74.1)	
			Male	62 (25.9)	
Total		310 (100.0)			

*Pearson Chi-Square Tests, burnout dimension and gender association:
** $p \leq 0.05$.
N=310 nursing assistants and technicians

Overall, the incidence of Burnout Syndrome differed if original definition was used (high levels of Emotional Exhaustion and Depersonalization) (13.2%) or if definition also included low levels of Personal Accomplishment) (7.4%). No gender differences were observed with these two variables.

The most common pattern (found in 14.2% of participants) was that of low levels of Emotional Exhaustion and high levels of Depersonalization and Personal Accomplishment, followed closely (9.8% of participants) with the pattern of high levels of Emotional Exhaustion and Personal Accomplishment and low levels of Depersonalization. Only 4.1% showed a pattern of low levels in all three domains; whereas 7.4% showed the most troubling pattern of high

levels of Emotional Exhaustion and Depersonalization with low levels of Personal Accomplishment.

In the sample as a whole, logistic regression modeling showed that age, living with someone (partner, spouse, family or friend) and absenteeism were predictors of Emotional Exhaustion (Table 3). Physician consultation in the last year was predictive of high levels of both Emotional Exhaustion and Depersonalization.

Table 3 - Logistic Regression analysis between emotional exhaustion, depersonalization, work-related data and personal characteristics of nursing assistants in a tertiary care setting in Brazil.

Variables	Emotional Exhaustion					Depersonalization				
	B	Sig.	Exp (B)	95% C.I. for EXP(B)				Exp (B)	95% C.I. for EXP(B)	
				Lower	Upper	B	Sig.		Lower	Upper
Gender	0.626	0.196	1.869	0.724		-0.030	0.940	0.970	0.444	2.119
Age	-0.052	0.045	0.950	0.903	0.999	-0.018	0.435	0.982	0.939	1.027
Schooling	0.199	0.562	1.220	0.623	2.389	-0.135	0.688	0.873	0.451	1.692
Marital Status	-0.178	0.477	0.837	0.513	1.367	0.190	0.386	1.209	0.787	1.858
Religion (yes/no)	-0.259	0.487	0.772	0.373	1.599	0.467	0.206	1.595	0.774	3.287
Living with someone (yes/no)	-1.479	0.026	0.228	0.062	0.837	0.734	0.271	2.084	0.564	7.699
Children (yes/no)	-0.747	0.072	0.474	0.210	1.069	-0.382	0.319	0.682	0.322	1.447
Time work in the hospital	0.404	0.057	1.497	0.988	2.268	-0.140	0.460	0.869	0.599	1.261
Time profession	0.274	0.219	1.315	0.850	2.033	0.187	0.342	1.206	0.820	1.774
Hours worked per week	-0.008	0.985	0.992	0.403	2.439	0.185	0.647	1.203	0.545	2.656
Absenteeism*	1.053	0.003	2.866	1.442	5.696	0.130	0.676	1.139	0.618	2.098
Physician consultation*	2.155	0.052	8.631	0.979	76.126	2.149	0.044	8.573	1.062	69.177
Medication use*	-0.363	0.299	0.696	0.351	1.380	-0.121	0.706	0.886	0.474	1.658
Smoke use*	0.059	0.933	1.060	0.272	4.133	-0.124	0.834	0.884	0.279	2.804
Alcohol use*	-0.725	0.136	0.484	0.187	1.257	0.511	0.185	1.666	0.784	3.542
Constant	-1.440	0.627	0.237			-6.849	0.020	0.001		

N=310 nursing assistants and technicians; * yes/no in the last 1 year

Age and living with another person were protective factors against high levels of Emotional Exhaustion, whereas absenteeism and having had consultation with a physician were risk factors for high levels. Predictive probability of the regression model was 0.763 [Receiver Operating Characteristic (ROC) area under the curve]. Only having had consultation with a physician was shown to be a risk factor for high levels of Depersonalization. The predictive probability of the regression model was 0.665 (ROC area under the curve). We did not observe any relationship between any personal or work-related variables, thus no regression modelling was completed.

Bivariate analyses of the same variables by sex/gender revealed that women have more years of service in the hospital (p= 0.023), have spent more years in the profession (p= 0.050), had more physician consults in the past year (p= 0.025), more women used at least one medication on a regular basis (p= 0.000) and more women had high levels of Emotional Exhaustion (p= 0.018), whereas men had more alcohol use (p= 0.000) (Table 4).

Further analysis of reasons for physician consultation in the past year and types of medication used also revealed subtle sex/gender differences. No significant differences were observed in the numbers of men compared to women who visited a physician and the most common reasons for a visit (routine health assessment or follow-up for a specific health problem). However, more women consulted a physician for an injury (19.3% vs. 7.9%; p = 0.033). Data was not collected on source of the injury. The frequency distribution of

type of drug for men were cardiovascular = endocrine (each 31.4%) > psychotropic (28.6%) > musculoskeletal (22.8%) drugs. For women the frequency distribution was psychotropic (32.2%) > cardiovascular (26.9%) > gastrointestinal = endocrine (each 20.9%) > hormone (19.1%) > musculoskeletal (18.3%). All other categories (urinary, respiratory, antihistamine and ophthalmic) were used in less than 5% of men or women.

Table 4 - Association between gender, work-related data and personal characteristics of nursing assistants in a tertiary care setting in Brazil.

Variables		**GENDER (%)**		**Total**	**p**
		Male	**Female**		
Time work in the hospital	1 to 5 years	30 (35.7)	54 (64.3)	84	0.023
	6 to 10 years	11 (22.0)	39 (78.0)	50	
	11 to 15 years	16 (16.8)	79 (83.2)	95	
	16 to 20 years	4 (12.9)	27 (87.1)	31	
	21 or more	13 (26.0)	37 (74.0)	50	
Time profession	1 to 5 years	11 (33.3)	22 (66.7)	33	0.050
	6 to 10 years	17 (27.9)	44 (72.1)	61	
	11 to 15 years	24 (27.9)	62 (72.1)	86	
	16 to 20 years	4 (8.3)	44 (91.7)	48	
	21 or more years	18 (22.0)	64 (78.0)	82	
Physician consultation*	No	14 (38.9)	22 (61.1)	36	0.025
	Yes	60 (21.9)	214 (78.1)	274	
Medication use*	No	48 (32.4)	100 (67.6)	148	0.000
	Yes	23 (14.6)	135 (85.4)	158	
Alcohol use*	No	37 (15.9)	196 (84.1)	233	0.000
	Yes	37 (48.1)	40 (51.9)	77	
Emotional Exhaustion	Low	61 (27.5)	161 (72.5)	222	0.018
	High	13 (14.8)	75 (85.2)	88	
Total		**74 (23.9)**	**236(76.1)**	**310 (100.0)**	

N=310 nursing assistants and technicians; * yes/no in the last 1 year

Significant differences ($p \leq 0.001$) were also found in type of coping strategies used by sex/gender. Although problem-focused strategies were the most common strategies for both men and women, there were differences in relative frequency (79.7% and 51.7%, respectively) and use of other strategies, with women reporting higher use of faith-based strategies (25% vs. 8.1%) and social support (22% vs. 9.5%).

We observed several sex/gender differences in the regression modeling of predictors of Emotional Exhaustion and Depersonalization. Women who were absent from work in the last year were 2.6 times as likely to have high levels of Emotional Exhaustion (CI=1.219 – 5.62). The predictive probability of the regression model was 0.75 (ROC area under the curve). In comparison, a higher level of schooling ($p= 0.044$) and having any religious affiliation ($p= 0.027$) were protective factors for men against high levels of Depersonalization. Predictive probability to the regression model was 0.919 (ROC area under the curve).

DISCUSSION.

In this study we investigated levels of Emotional Exhaustion, Depersonalization and Personal Accomplishment among nursing assistants and their association with personal and work-related characteristics. Scores for a significant proportion of the sample reflected increased risk of Burnout Syndrome. Previous literature considers Emotional Exhaustion as the initial

dimension to emerge along the trajectory towards developing Burnout Syndrome; however, our cross-sectional design cannot address which of the three dimensions emerged first. It has also been considered its core characteristic, although the full syndrome may not yet be developed (Benevides-Pereira, 2010).

More than 25% of the participants reported high level of Emotional Exhaustion, suggestive of moving along the trajectory towards Burnout Syndrome. However, the diversity of patterns observed (e.g. high levels of Depersonalization, but not of Emotional Exhaustion) suggest that Emotional Exhaustion may not always be the first dimension that emerges, or that scores of each of the dimensions may change over time.

Including having a low sense of Personal Accomplishment in the definition cut the incidence of Burnout Syndrome by almost 1/2 (7.4 % vs.13.2%), suggesting that including this dimension may provide an under-estimate of those whose interactions with co-workers and more importantly patients are affected by Emotional Exhaustion and Depersonalization. Indeed, having high levels of one or both of these two core attributes of Burnout Syndrome have multiple implications for optimal patient care and for patient-centered care models of delivery, with fundamental challenges to the development and maintenance of a therapeutic nurse-patient relationship. Low levels of Personal Accomplishment, present in 22.9% of the participants, would likely be associated with lower job satisfaction, impacting the individual's quality of life and well-being.

Our data showing an association between Emotional Exhaustion and longer length of service (6-10 years) is not consistent with others who found that the highest incidence occurs in entering the labor market (Benevides-Pereira, 2010; Freitas, Carneseca, Paiva & Paiva, 2014). However, literature base is quite small, so differences in the design and data collection methods may have influenced the results. High levels of Emotional Exhaustion was also associated with not having children. This seems counterintuitive but may reflect the development of diverse strategies to manage the balance between parenthood and professional responsibilities, enabling overall better coping with stressors (Benevides-Pereira, 2010).

Living with someone proved to be a protective factor against high levels of Emotional Exhaustion, Depersonalization and the development of Burnout Syndrome. Being in a stable supportive relationship, irrespective of type of relationship (familial, intimate or friendship) improves measures of quality of life and thus can attenuate risk of Burnout Syndrome (Lautert, 1995; Carreiro, Ferreira Filha, Lazaerte, Silva & Dias, 2013). In entire sample, reporting high levels of Depersonalization occurred more in participants who consulted a physician in the last year (OR = 3.28).

Although there was no statistical difference in the numbers of men compared to women who reported high levels of Depersonalization (35% vs. 30.5%), more women consulted a physician ($p \leq 0.025$). These findings may reflect the well recognized but complex phenomenon of female gender bias in

seeking health care (Thompson, Anisimowicz, Miedema, Wodchis & Aubrey-Bassler, 2016; Buffel, Van de Velde & Bracke, 2014). Use of alcohol was not associated with any Burnout dimensions. These findings may reflect the small number of men in the sample (N=74) compared to women or it may be related to the data collection. Demographic question was whether the participant had had any alcohol in the last year. As expected, more men responded yes (50%) compared to women (17%); however, these data do not allow us to relate frequency and quantity of alcohol use to Burnout dimensions.

The percentages of participants reporting high levels of Emotional Exhaustion (28.4%) and Depersonalization (31.6%), and low Personal Accomplishment (22.9%) in this study are similar to those reported in other studies with nursing assistants (Ferreira & Lucca, 2015; Bernaldo-De-Quiros, Piccini, Gomez & Cerdeira, 2015). However, the use of broad categories of nurses or health professionals in other studies make it more difficult to interpret similarities and differences from our data. This underscores the importance of studies with health care providers that consider the contextual characteristics of each sample, type of health service, working characteristics, professional skills and methodological approaches of each study.

Of the three dimensions of Burnout Syndrome, only Emotional Exhaustion reflected a gender difference, with more women reporting high levels compared to men (OR = 2.6). Other factors that increased risk for Emotional Exhaustion were lower education and living alone (OR = 3.4). The association between

educational status and Burnout Syndrome and its three dimensions is also reported by others and this finding has been linked to higher professional expectations and liability4), as well as perceptions of fatigue and lack of training in self-identifying behaviours and perceptions related to Burnout Syndrome (Lautert, 1995; Guido, Silva, Gulart, Bolzan & Lopes, 2012; Leatt & Schneck, 1985).

This study investigated how personal and work-related characteristics of nursing assistants affect risk for developing Burnout Syndrome or for reporting high levels of Emotional Exhaustion and Depersonalization and low levels of Personal Accomplishment. These health care providers represent more than 50% of the workforce in the majority of Brazilian health services and are responsible for numerous tasks related to health care directly to people (Paim, Travassos, Almeida, Bahia & Macinko, 2011).

Thus, targeted supports specific to nursing assistants to attenuate risk of Burnout Syndrome is imperative if the workforce is to continue provide a stable optimal level of care. Interestingly, even though there are attempts being made in Brazil to replace all nursing assistants with nursing technicians, nursing assistants represented 85% of the sample in this study. This suggests that there will be a fairly lengthy transition period, despite the minimal financial implications for health care agencies. The financial and human resource pressures will be more on educational institutions as they evolve one year programs into two year programs.

There are a number of notable limitations. In this study we did not include the means to investigate the relationship between role ambiguity, workload and autonomy and Burnout Syndrome. The participants would likely have limited autonomy in work activities, but have a high job demands. Yet, 77.1% reported high levels of Personal Accomplishment. Qualitative studies may clarify if the meanings of the questions related to this dimension were perceived as intended or if the participants found a sense of accomplishment in their every-day work responsibilities, despite feeling emotionally exhausted and/or a sense of depersonalization.

This is an important area for further exploration, as it suggests that there is a risk that their sense of accomplishment may hide the core dimensions that increase risk for developing Burnout Syndrome. Other limitations include small numbers of male compared to female participants, which did not allow for full exploration of gender differences. We also did not collect sufficiently detailed information on the types of health problems, reasons for physician visits, types of medications (prescription or non-prescription) and their purpose and duration and alcohol use patterns. These areas offer future opportunities to understand how to develop appropriate supports for this group of health care providers. For example, further exploration of patterns of alcohol use could be very helpful, given the evidence that stress and gender are regarded as major factors in the initiation and continuation of alcohol (Feingold, Capaldi & Owen, 2015; Guido, Ailva, Gulart, Bolzan & Lopes, 2012; Brady & Sonne, 1999).

CONCLUSIONS.

The significant numbers of nursing assistants with high levels of Emotional Exhaustion and/or Depersonalization highlight a serious issue for both the individual employee and the employer. The costs of not addressing this issue are high. The potential personal cost to the employee in terms of their physical and mental health and well being, as well as the financial cost to the organization related to absenteeism, poor performance, increased risk to patient safety and poor patient satisfaction all point to the need for action. Healthy work environments provide individual supports, as well as create policies where each member of the health care provider team is acknowledged for their contributions, is given clear responsibilities and area of autonomy and is involved in day to day decision-making. Addressing both work-related characteristics and personal modifiable risk factors could attenuate risk of developing core characteristics associated with Burnout Syndrome. Health care providers themselves share the responsibility in creating and maintaining a health workplace, through personal health promoting activities, self-awareness about patient-centered care and personal strategies to enhance resilience.

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