ORIGINAL RESEARCH

Impact of nursing students' profile on burnout syndrome and hardiness personality

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ABSTRACT

Objective: The stressful college environment may cause Burnout Syndrome in nursing students, but few of them present stress resistance and do not show Burnout signs. Investigations that simultaneously assess these groups are limited. So, we assessed the impact of nursing students' profile (biosocial and academic features) on the occurrence of Burnout Syndrome and Hardiness Personality.

Methods: Cross-sectional, analytic and quantitative study. We applied a biosocial and academic form, the Maslach Burnout Inventory and the Hardiness Scale in 570 Brazilian nursing students. Logistic and linear regression analysis were used to assess the impact of biosocial and academic features on Burnout and Hardiness. The Ethics Research Committee at the University approved this project under protocol No. 0380.0.243.000-10.

Results: Interest of keeping enrolled in course, sedentary lifestyle, semester and number of disciplines taken by students significantly contributed to increase the Burnout scores. Age, absence of children, living with family, dissatisfaction with nursing course and the unemployment significantly increased Hardiness scores. The variable "academic load" contributed to both phenomena.

Conclusions: While biosocial features strength the hardy components in nursing students, protecting them from negative stress outcomes, nursing training characteristics seem negatively impact on student's health. Thus, identifying the factors that contribute to stress resistance and those that may increase the risk of Burnout, will support interventions that to promote Hardy personality and prevent Burnout in academic environment.

Key Words: Nursing, Professional, Burnout, Stress, Psychological, Students, Nursing

1. INTRODUCTION

Starting the nursing degree program is an important step towards preparation as a nurse. In the first two years, theoretical courses–biology, anatomy, physiology and others-comprise most of college activities, what requires an effective time management skill to attend college and personal demands. Also, clinical and laboratorial classes generally begin in third year, when students experience patients' suffer-

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ing, manage the human and material resources, and perform nursing interventions.

For Brazilian students, stressors include in program expectations, academic exams and homework, and changes in the levels of requirements between high school and college.[1,2] Data from other nursing student populations reveal additional information about academic stressors. It includes the first 12 months' college activities; the traumatic experiences with a patient's death; the responsibility of taking care of terminal patients; the interpersonal relationships; their insecurity in doing clinical procedures; and the adaption to academic requirements.[3–6] Also, nursing students' biosocial and academic characteristics may contribute to the stress occurrence.[2,3] Most of them are young, unmarried, female, unemployed, without professional experience and take public transportation (with a heavy traffic) to get at college.[7] According to a research conducted with 160 nursing students from São Paulo (Brazil), taking subway, sedentary life style, lack of time to leisure activities and work increased the stress levels.[2]

Stress occurs when any situation – from internal or external sources- is evaluated as exceeding the individual's adaptive resources.[8] From 130 nursing students assessed in South Brazil, 9.23% had high stress levels and 67.69% moderate stress levels.[9] To manage the stressors, individuals should select an effective strategy to relieve or control stress levels, and, consequently, prevent physical and mental outcomes from stress.[10] When individuals do not use effective strategies to cope with stress, it may become chronic and cause the Burnout Syndrome. Emotional exhaustion (feelings of exhaustion regarding study demands), Cynicism (a detached attitude face the academic assignments) and Professional Inefficacy (self-perception of incompetence) are the features that explain this.[7,10–12] Researchers found 48.6% of US medical students[13] and 17% of Brazilian dental students[14] suffering from Burnout.

Although the stressful situations experienced for students during the university training, evidences show low and moderate levels of stress in these population.[12,15] It may be justified by individual features–Control, Commitment and Challenge- that allow resistance to stress and comprise the Hardiness Personality.[16] Hardy individuals can control situations that occur in life (control domain); are strongly engaged in the daily activities (commitment domain); and are able to assess situations as challenges important to personal growth (challenge domain). This Personality can be developed over time from the life experiences and it is related to better physical and mental health.[16] Research performed with 112 Brazilian medical students evidenced high Control (52.67%), Commitment (53.67%) and Control (48.21%) in the sample. The association of these dimensions demonstrated 23.21% students with Hardiness Personality. Also, Hardiness was correlated to low stress, confirming the presence of low stress in Hardy individuals.[17]

Several biosocial and academic features (profile) make nursing students more likely to experience Burnout. Otherwise, previous investigations demonstrated that few students are resistant to stress and, so, are more protected against health issues, including Burnout. However, although the association of biosocial and academic characteristics of college students with Burnout Syndrome is evidenced,[18,19] few studies assess the impact of nursing students' profile on Hardiness and Burnout occurrence, comparing the set of features that contribute to these phenomena in each group.

Thus, this study aimed to assess the impact of nursing students' profile on Hardiness Personality and Burnout Syndrome. Once hardy students are emotionally resistant to stress while those experiencing Burnout infectively deal with stressors, we hypothesized that: student's profile related to Burnout is different from that linked to Hardiness Personality.

2. METHODS

2.1 Study design and inclusion criteria

We conducted this analytic, cross-sectional and quantitative study at three Brazilian Universities - two in Southeast and one in South Brazil. Undergraduate students enrolled in any semester of three nursing degree programs; and aged over 18 years were included. Students not enrolled in courses of nursing department; unable to conclude the curriculum for exceeding the college time limit; absent in data gathering; and studying abroad were excluded from the sample.

2.2 Data gathering

We gathered data from April 2011 to March 2012. Students were approached during classes after a prior arrangement with the teaching staff.

An initial population of 732 nursing students, regularly enrolled in the three nursing colleges, were invited to participate of this investigation. However, 14 students were not taking courses in nursing department; three were unable to conclude the curriculum for exceeding the time limit at college; 91 were absent during the data gathering; three were getting bachelors abroad; four aged under 18 years; 34 did not return the research protocol; and four participated in this investigation as researchers. Thus, 53 students did not met criteria for inclusion leading to a sample of 578 nursing students. Once eight students declined to attend the study and one let

the Hardiness Scale (HS) options in blank, 570 individuals comprised the final sample.

Data were gathered through self-report tools, as follows: biosocial and academic characterization form; Maslach Burnout Inventory-Student Survey (MBI-SS);[20] and Hardiness Scale.[21]

The biosocial and academic characteristics gathered were: birthdate; number of children; time spent to get in college; number of disciplines and academic load taken in semester; daily study time; gender; marital status; persons who students live with; sports practice; leisure activities; institution and semester that students are enrolled in; attendance of research/study groups; scientific scholarship; professional experience in health field; other degrees; interest in dropping the course; and work activity.

The MBI-SS, translated and adapted to Brazilian context,[20] assesses the Burnout Syndrome occurrence in college students. It is comprised for three subscales: emotional exhaustion, cynicism, and professional efficacy[20] in which 15 items are arranged, as follows: emotional exhaustion– 1, 4, 6, 8, and 12; cynicism– 2, 9, 10, and 14; and professional efficacy– 3, 5, 7, 11, 13, and 15.[20] The responses are marked in a seven-point Likert scale, where: 0– never; 1– at least once a year; 2– less than a few times a month; 3– a few times a month; 4– once a week; 5– a few times a week; and 6– every day.[20]

HS was translated for the Brazilian reality in 2009,[22] being validated in 2012.[21] The 30 items that comprise the instrument are arranged in three domains: control– 2, 3, 8, 9, 12, 15, 18, 20, 25, and 29; commitment– 1, 6, 7, 11, 16, 17, 22, 27, 28, and 30; and challenge– 4, 5, 10, 13, 14, 19, 21, 23, 24, and 26 (Serrano, 2009). Questions are filled in a four-point Likert scale (0– not true; 1– somewhat true; 2– almost completely true; and 3– completely true) and the response scale of items 3, 4, 5, 6, 8, 13, 16, 18, 19, 20, 22, 23, 25, 28, and 30 must to be reversed before scores analysis.[22]

2.3 Data analysis

The analyses of the instruments were conducted using standardized scores that were calculated for each subscale (MBI-SS) and domain (HS). Individual responses were summed and the resultant amount was subtracted from the minimum possible values sum in each subscale/domain. The result was divided for the value obtained from the calculus (also made for each subscale-domain): maximum total value–sum of the minimum possible values. It produced a standardized score ranging from 0 to 100%. So, we classified students with scores above 50% as high in the respective domain or subscale. Thus, students showing high emotional exhaustion, high cynicism, and low professional efficacy were classified as suffering of Burnout. Hardy individuals were those presenting high control, commitment and challenge concomitantly.[21]

The Statistical Analysis System (SAS), version 9.01, SAS Institute, and Statistica, Version 9.0, StatSoft, were used for data analysis. Absolute (n) and relative (%) values summarized qualitative variables; and descriptive statistics (mean, standard deviation, minimum and maximum values) resumed the quantitative information. We used the logistic regression analysis to assess the impact of biosocial and academic features on Burnout and Hardiness scores–data described in Beta and p values. Linear regression analysis was applied to verify the impact of these features on dimensions' scores - data described in Odds Ratio(OR) and p values, for those we assumed a 95% confidence interval. Cronbach's alpha was applied for the instruments' reliability assessment.

2.4 Ethical Issues

This investigation arise from a greater investigation named Stress, Coping, Burnout, Depressive Symptoms and Hardiness in nursing colleges and Faculties. The Ethical Council, at University in South Brazil, approved the project under protocol No. 0380.0.243.000-10. Then, an amendment to expand the data collection to other schools was requested and approved for the Committee. The voluntary agreement to participate in this study was taken by signing two copies of free and informed consent forms.[23]

3. RESULTS

Cronbach's alpha for all MBI's items was 0.596. In its subscales, we found Alphas of 0.769 - emotional exhaustion, 0.623- cynicism, and 0.612-professional efficacy. The Cronbach's for HS were: 0.781 (30 items), 0.643 (Control), 0.644 (Challenge), and 0.643 (Commitment). These findings evidence a satisfactory internal reliability for the instruments.[24] Table 1 shows the descriptive statistics (Mean and standard-deviation) for the MBI-SS and HS in nursing students.

Table 1. Mean and standard-deviation for the MBI-SS and HS scores in nursing students (Rio Grande do Sul, Brazil, 2014)

Instrument	Mean	Standard-Deviation
MBI-HSS		
MBI-SS(15 items)	2.51	0.79
Emotional Exhaustion	3.57	1.31
Cynicism	1.78	1.29
Professional Efficacy	2.12	0.82
HS		
HS(30 items)	2.05	0.33
Commitment	2.15	0.42
Control	2.06	0.38
Challenge	1.94	0.41

The assessment of the instruments' domains and subscales indicated 141 (24.74%) students with Burnout Syndrome and 125 (21.93%) with Hardiness Personality. The impact of nursing students profile on Burnout Syndrome and on its dimensions is shown in Table 2.

Table 2. The impact of nursing students profile on Burnout Syndrome and on its dimensions (Rio Grande do Sul, Brazil, 2014)

Parameter	**EMOTIONAL EXHAUSTION**			
	β	***p* value**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Intercept	3.906	.000	3.674	4.139
Dropping the Course- No	0.302	.005**	-0.513	-0.090
Sports- No*	0.236	.040**	0.011	0.462
Parameter	**CYNICISM**			
	β	**Sig.**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Intercept	1.856	.000	0.941	2.771
Academic load	0.002	.008**	0.001	0.004
Parameter	**PROFESSIONAL EFFICACY**			
	β	***p* value**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Intercept	2.138	.000	1.739	2.537
Semester				
1st Semester	0			
2nd Semester	0.326	.019**	0.053	0.599
3rd Semester	0.305	.010**	0.073	0.536
4th Semester	0.442	.005**	0.133	0.752
5th Semester	0.286	.030**	0.027	0.544
6th Semester	0.163	.306	-0.150	0.476
7th Semester	0.205	.190	-0.102	0.512
8th Semester	0.104	.585	-0.269	0.476
Number of disciplines	-0.033	.089	-0.070	0.005
Parameter	**BURNOUT SYNDROME**			
	Odds Ratio	***p* value**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Semester				
1st Semester		.010		
2nd Semester	0.339	.012**	0.146	0.787
3rd Semester	1.071	.823	0.589	1.947
4th Semester	0.688	.336	0.322	1.472
5th Semester	0.589	.125	0.299	1.158
6th Semester	0.580	.167	0.267	1.256
7th Semester	0.300	.002**	0.139	0.646
8th Semester	0.446	.065	0.189	1.051
Constant	0.513	.001		

*One individual did not ask to the item. **Statistically significant difference ($p < .05$).

We observe that the interest of keeping enrolled in nursing course (β = 0.302; p = .005) and the sedentary lifestyle (β = 0.236; p = .040) increase the levels of Emotional Exhaustion. The time spent in theoretical and clinical classes (β = 0.002; p = .008) results in higher levels of Cynicism in nursing students. Also, the 2nd, 3rd, 4th and 5th semesters positively affect the Professional Efficacy of nursing students (p < .005). However, when we assess the Beta-values, the 4th semester has the highest effect on the levels of Professional Efficacy (β = 0.442; p = .005). On other hand, the number of disciplines taken for students negatively affects the levels of Professional Efficacy (β = 0.033; p = .089): the higher number of disciplines, the lower levels in professional efficacy. The 2nd (OR = 0.339; p = .012) and 7th (OR = 0.300; p = .002) semesters contribute to the Burnout occurrence, being that students enrolled in 2nd semester are more likely to suffer of Burnout - although a discreet difference in terms of t-value. Table 3 demonstrates the impact of nursing students profile on the Hardiness Personality and its dimensions.

Table 3. Impact of nursing students profile on the Hardiness Personality and its dimensions (Rio Grande do Sul, Brazil. 2014)

Parameter	**COMMITMENT**			
	β	***p* value**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Intercept	1.698	.000	1.445	1.950
People with whom student lives				
Family	0.180	.010*	0.044	0.317
Friends/Partner	0.010	.904	-0.146	0.165
Alone	0			
Academic load	0.00049	.028*	0.00005	0.00093
Presence of children = No	0.096	.039*	0.005	0.187
Parameter	**Control**			
	β	**Sig.**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Intercept	1.884	.000	1.704	2.065
Age	0.006	.025*	0.001	0.011
Parameter	**CHALLENGE**			
	β	***p* value**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Intercept	1.295	.000	0.972	1.617
Age	0.012	.002*	0.004	0.019
Academic load	0.001	.002*	0.000	0.001
Satisfaction with the course-No	0,164	.008*	0.286	0.043
Work = No	0.089	.033*	-0.171	-0.007
Presence of Children = No	0.119	.040*	0.006	0.232
Parameter	**HARDINESS PERSONALITY**			
	Odds Ratio	***p* value**	**95% Confidence Interval**	
			Lower Bound	**Upper Bound**
Age	1.040	.011*	1.009	1.072
Academic Load	1.004	.014*	1.001	1.006
Constant	0.011	.000		

*Statistically significant difference (p < .05).

We verify that students who have not children (β = 0.096; p = .039), live with family (β = 0.180; p = .010) and spent more time in college during the semester (β = 0.00049; p = .028) have higher levels of Commitment. Age significantly contributes to increase the scores of Control in nursing students (β = 0.006; p = .025), what means the ability to control stressful situations increases over years. Also, absence of children (β = 0.119; p = .040), dissatisfaction with the course (β = 0.164; p = .008), unemployment (β = 0.089; p = .033), age (β = 0.012; p = .002) and academic load (β = 0.001; p =

.002) increase the scores of Challenge. Age (OR = 1.040; p = .011) and academic load (OR = 1.004; p = .014) showed significant effect on Hardiness Personality occurrence. It means that older and academic overload students are more likely to become hardy.

Hardiness is related to biosocial features while Burnout is more likely to occur due to academic ones: the interest to keeping enrolled in course, semester and number of disciplines taken impact on the Burnout construct. On other hand, age, absence of children, living with family, the dissatisfaction to the course and the unemployment present a significant effect on Hardiness construct. The exception is "academic load" that impacts on both outcomes and the sedentary lifestyle that is a biosocial feature, but increased Emotional Exhaustion scores.

4. Discussion

During the training, few biosocial and academic features may impact on stress levels.[2,3] When individuals do not effectively face the academic stressors, stress becomes chronic and leads to Burnout, a Syndrome verified in 24.74% (n = 141) of the sample. This result is close to those previously observed in Brazilian investigations involving dental students (17% of 235 individuals)[14] and nursing students (20.07% of 130 individuals).[7] However, international researches reveal lower frequencies in medical students from Minnesota-USA (45% of 545 students)[25] and from Washington-USA (48.6% of 4,287 students).[13] Once these students were from different countries, few characteristics of the Brazilian nursing training and daily life may produce higher incidence of Burnout. It includes the differences in curriculum, academic loads, teaching/evaluation methods, violence rates and traffic conditions, added to the inexistence of university health centers to prevent and control students' academic-related diseases.

After analyzing the nursing students' profile on Burnout Syndrome, we verified that: the interest of keeping enrolled in nursing course and the sedentary lifestyle increased the Emotional Exhaustion; and the academic load increased the levels of Cynicism. The starting at college requires more responsibility; higher amount of activities (homework, individual studies, preparation for clinical exams, etc.) to perform; and less time available for social interaction.[4] Face these situations, we assume that students who keep enrolled in the course use ineffective coping strategies to relieve stress, what explains the increased levels of emotional exhaustion. Researchers theorize that few people spend all their efforts to achieve their aims but, when they fail, the Emotional Exhaustion is more likely to happen. In addition, the overload in disciplines, added to the efforts made to get the academic requirements, may lead students to move away from the others colleagues through attitudes of indifference and coldness (Cynicism).[26]

Our findings confirm that students who do not practice sports are more likely to show high Emotional Exhaustion - a component of the Burnout Syndrome. Social and personal activities strength the self-esteem, self-confidence and well-being.[2,10] Sport is associated to lower risk of changes in students' mental health, including stress.[2,7] However, when overwhelmed, students often have no time for these activities, what increase the risk of psychological issues, such as stress and Burnout. Brazilian researchers demonstrated that the practice of sports implied lower means of stress in nursing students.[2] Also, by relieving stress, the practice of sports prevents psychological disorders, such as depression, Burnout and anxiety.[27,28]

The 2nd, 3rd, 4th and 5th semesters significantly increase the Professional Efficacy of nursing students. However, when we assessed the t-values, the 4th semester showed the highest impact on the Professional Efficacy. In the fourth semester, nursing students start to attend clinical classes, period when they need to provide nursing care to patients and deal with diseases and deaths. It becomes students closer to the nursing work process and, so, increases their Professional Efficacy - the felling of competence in dealing with persons.[20]

Results indicate that the 2nd and 7th semesters significantly contribute to Burnout occurrence. In second semester, students take a high number of disciplines and are more required in tests, assignments and homework, what demands more daily hours of study. So, the time available for personal and social activities becomes limited. In seventh semester, students attend the internship in clinical setting, where they provide nursing care to several patients under nurses and faculties supervision. In this period, students need to apply the theoretical knowledge on clinical setting - what is perceived as a challenge for most students- and to deal with complex situations, such as patients' death.[2,4] This context increases the Emotional Exhaustion (like we described above) because students spend more time and cognitive efforts to attend the academic activities. When they do not succeed, the emotional distancing (Cynicism) may work as strategy to cope with emotional stress once the relationships with others might increase the emotional arousal, what decrease their performance at university. These two dimensions of Burnout may affect the feeling of effectiveness, reducing the Professional Efficacy. Maslach, Schaufeli & Leiter[26] explain that people use cognitive distancing trough indifference or cynical attitudes when they are exhausted and discouraged. The same way, chronic and overwhelming demands that con-

tribute to exhaustion or cynicism are likely to erode in lower sense of effectiveness.

We verified that not having children and living with family are factors that significantly increase the nursing students' Commitment. Living with the family implies less domestic demands and more social support from family to cope the academic difficulties. This, added to the absence of children, may imply on more time available for academic tasks and social events, strengthening the interpersonal relationships and the ability of keeping involved with people, increasing the levels of Commitment.[29] The same explanation is applicable to the relationship between academic load during semester and Commitment. Academic load may represent a way of improve students' social interactions and their believe that is better to keep involved no matter how bad things get, what makes them more committed.[30]

Age significantly increases the scores of Control in nursing students. We believe that students improve their ability to control life events trough their previous experience with stressful situations, what happens across years and may explain the direct relationship between age and Control levels. The theoretical framework confirm that Hardiness is a Personality trait whose features- Control, Commitment and Challenge- may be strengthened across time due to several stressors experienced for individuals.[29] In addition, strategies to promote Hardiness strength these features, reducing the risk of many diseases, such as Burnout Syndrome.

Also, not having children, not having a work activity, age and academic load increase the Challenge scores. These last two variables also contributed to increase the Hardiness Personality occurrence. Students who have no labor demands and responsibilities with children care have a higher range of coping strategies available. So, they possibly handle with stressors easier, what increases their ability of perceives stressors as a challenge. Also, the longer lectures and the more complex evaluations at college, when compared to high school, mean a change in students' life, what could be possibly perceived as stressful. However, our findings confirm that nursing students assess these changes as a challenge, i.e., as a way to get professional growing in nursing field.

In the same way, age implies more experience with stressors strengthening the ability to recognize and cope with stressful situations. Authors refer that challenge involves the ability of assessing changes as inherent to life and harmless; and as a chance of personal and professional growth.[17,21,29,30]

5. Conclusion

The biosocial and academic characteristics that contribute for Hardiness Personality are different from those that contribute to Burnout. It confirms the hypothesis that student's profile related to Burnout is different from that linked to Hardiness Personality. Thus, biosocial features (Age, absence of children, living with family, dissatisfaction with nursing course and the unemployment) strength the hardy components in nursing students, protecting them from negative stress outcomes. Otherwise, nursing training characteristics (semester, number of disciplines and the interest of keeping enrolled in course) negatively impact on student's health. It is the main advance of this research and satisfies a gap in knowledge production about individual differences on Burnout Syndrome and Personality traits development.

As limitation of this study, we highlight the different analysis techniques applied for researchers, what has limited the comparison of our findings with those from other investigations. Also, literature has limited number of studies that assessed the impact of biosocial and academic features on Burnout Syndrome and Hardiness Personality occurrence. So, it was an evolution provided for this investigation to student's stress literature. However, our results should be carefully applied once the nursing training and social issues in Brazil are different of those existent in other countries.

Recommendations

Once the academic context may be harmful to nursing student's health, new academic policies need to be designed and widely implemented to reduce the academic overload and relieve stress in nursing training, making the learning process more effective. Once personal characteristics contribute to Hardiness Personality, interventions focused on few characteristics, like number of disciplines and the students' perception on the course, should be developed to promote hardiness in nursing students, what will reduce the risk of Burnout.

Conflicts of Interest Disclosure

The authors declare that there is no conflict of interest.

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