



Burnout syndrome in nursing students at a private university in the state of Rio Grande do Sul



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ABSTRACT

Burnout Syndrome is a state of emotional exhaustion with symptoms of extreme exhaustion, stress, and physical exhaustion resulting from an extreme work situation or a challenge in a period of life. Studies indicate that burnout is present in undergraduate nursing students, and their results have identified high levels of burnout. The objective of this study was to verify the presence of burnout syndrome in undergraduate nursing students at a community institution in the state of Rio Grande do Sul. This is a qualitative-quantitative, exploratory, descriptive and cross-sectional study. Data collection was carried out with 19 students from the ninth and tenth semesters of the nursing course, from September to October 2023, using the instrument called MBI - SS, Maslach Burnout Inventory Student Survey (MBI-SS). The results showed that the majority of students were female, 86.2% (n=16), single 86.2% (n=16), working 78.9% (n=15) and financially responsible for their studies 52.6% (n=10). The scores analyzed revealed the presence of Burnout Syndrome in the sample studied, with high scores of exhaustion and disbelief. We conclude that Burnout Syndrome has affected students in the health area, it is necessary to recognize the situations that lead students to emotional exhaustion, considering the specificity of their training environments.

Keywords: Burnout, Professional Exhaustion, Emotional Stress, Nursing Student.

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INTRODUCTION

According to Hill (2010), stress is a physiological response of the body when exposure to some type of challenge or demand occurs. Thus, they are subject to daily events that have a high emotional load, especially people who work in intense contact with other people in situations of fragility and high emotional load, such as health professionals, such as doctors, nurses as well as teachers, or in places with excessive activity or a high workload, such as hospitals or schools, These are places that are often exposed to high levels of emotional stress.

Lemos (2015) states that exposure to factors such as these, previously reported, and working hours with high levels of stress can result in chronic musculoskeletal diseases, low self-esteem, anxiety or depression, being a cause pointed out in many cases of early retirement of health professionals.

Stressful conditions lead to the appearance of a situation that has been discussed in various scenarios, which is called Burnout Syndrome, characterized as a chronic emotional response to extreme stress in the face of situations experienced in everyday life, manifesting itself as a process of physical and mental exhaustion (PROSDÓCIMO, 2015).

According to André Ulisses Dantas Batista et.al (2018), Burnout Syndrome is a state of emotional exhaustion with symptoms of extreme exhaustion, stress, and physical exhaustion resulting from an extreme work situation or a challenge in a period of life. In 1981, Maslach and Jackson created the most accepted concept of Burnout today, in which the syndrome is defined as a multidimensional concept that involves emotional exhaustion, depersonalization and lack of professional fulfillment (VILELA, 2010).

Emotional exhaustion as an exhaustion of feelings of emotion to deal with everyday situations, affecting the person in various aspects, both psychic, physical or both, causing a decrease in their production capacity and vigor for and at work. In the context of depersonalization, it involves blocking and negative feelings for the person/worker with himself and others, and to deal with this feeling, he becomes more isolated from others and starts with cold and selfish attitudes, often placing himself in a harsh and dehumanized way. And the third situation is the lack of professional fulfillment, which occurs when the person cannot see their effort and work as a positive aspect, being reproached for not achieving their goals, which causes discomfort and low esteem in the professional (RUVIARO, 2010).

In this sense, research carried out in Brazil (SILVA, 2018), Italy (FERRI, 2015), China (WANG, 2019) and Spain (RÍOS-RISQUEZ, 2018) evaluated burnout syndrome in undergraduate nursing students, and in its results identified high levels of exhaustion among university students associated with low dispositional empathy, negative professional self-concept, students with low resilience (BATISTA, 2021).

Similarly, a study conducted by Carlotto (2006) evidenced the view of occupational stress in the academic environment, among students in the health area, who also present a high stress overload, demonstrating its emergence through the need to be successful in practices and internships, in evaluations, in direct contact with patients/clients, in contact with professors and colleagues, and at the end of the course due to the uncertainties of the professional future or the pressure of many hours of study, characterized by high levels of perfectionism.

According to Cunha (2018), Burnout syndrome is pointed out as a public health problem, mainly affecting health professionals because they are more vulnerable to stressful situations. In this sense, nursing due to physical overload for several hours of work and mental overload due to being exposed to various types of emotions. According to the author, we can say that the syndrome is neglected by professionals because many are unaware of the signs and symptoms, or because of the listening to managers, which in turn could speed up its early diagnosis.

Thus, this study aims to verify the presence of burnout syndrome in nursing undergraduates of a community institution in the state of Rio Grande do Sul and to highlight the importance of knowledge of professionals in these areas about the signs and symptoms of Burnout Syndrome, so that there is an early diagnosis speeding up treatment, mitigating the impact on the health of professionals both in the academic training process and in the labor market, among various areas and sociodemographic conditions where they are presented.

METHODS

This is a qualitative-quantitative, exploratory, descriptive and cross-sectional study. Quantitative research, according to Malhotra (2012), aims to quantify the data and generalize the results of the sample to the target population, in this type of method samples with a large number of cases are usually used, data collection is structured and for data analysis it is necessary to perform statistics. Qualitative study, according to Minayo (2014), is concerned with situations and levels of reality that cannot be measured or quantified, that is, it acts in the context of meanings, motivations, aspirations, beliefs, values and attitudes.

To carry out the study, the project was submitted to the Dean of Education of the IES and to the Ethics Committee of Univas (COEP). After favorable opinion number 6,269,432, the data were collected by sending a link to the Google Forms form, via email by the coordination of the Nursing course. The inclusion criterion was to be regularly enrolled in the ninth and tenth semester of the Nursing course at Univas, attending the supervised curricular internship activities.

The Nursing course of the researched higher education institution (HEI) has in its curricular matrix a total course load of 4,260 hours, which consists of seven practical disciplines, with a total of 80 hours each, and two final curricular internships of 430 hours each.

Data collection took place in August and September 2023, with the participation of 19 academics. The participants were duly informed about their participation, the central theme of the study and its objectives. Then, they signed the Informed Consent Form, according to Resolution 466/12 of the National Health Council (CNS, 2012). Finally, they were submitted to the application of the Maslach Burnout Inventory (MBI) and a structured questionnaire with sociodemographic questions.

The MBI-SS, Maslach Burnout Inventory Student Survey (MBI-SS), by Schaufeli, Leiter, Maslach and Jackson (1996), translated and adapted to Brazil by Carlotto, Nakamura and Câmara (2006), comprises 15 questions that are subdivided into three scales, called: emotional exhaustion, disbelief and professional effectiveness. The 15 questions are subdivided into three subscales: Emotional Exhaustion (5 items); Disbelief (4 items) and Professional Effectiveness (6 items). All items are evaluated by the frequency of the answers with scores ranging from 0 (never) to 6 (always) points. In the evaluation, it is considered that High scores in Exhaustion and Disbelief and low scores in Professional Effectiveness are indicative of Burnout.

The qualitative data will be analyzed through the content analysis of Bardin (2016), as for the MBI, we follow the guidelines of Maroco et al., (2008), regarding the use of the scale, which does not allow the calculation of a score because the distribution of the results of each subscale was divided into three equal parts. Thus, we considered high scores in the subscales of emotional exhaustion and depersonalization, associated with low values in professional achievement, as compatible with the Burnout syndrome.

The data collected were stored in the Excel spreadsheet. Statistical analysis was performed using the statistical program SPSS version, 20.0.0. To analyze the intercorrelations of the quantitative variables of the items of the questionnaire applied, the following components were categorized as follows: from A1 to A5 (Emotional exhaustion); B5 to B9 (Disbelief) and C10 to C15 (Professional effectiveness). Therefore, the multivariate technique of Principal Component Analysis (PCA) was used, and to assume that the model is adequate, the Bartlett and Kaiser-Meyer-Olkin (KMO) sphericity test was used. Varimax rotation was used and factor weights lower than 0.4 were suppressed.

An Exploratory Factor Analysis (EFA) was carried out with the objective of evaluating the factor structure of the Maslach Burnout Inventory Student Survey (MBI-SS), by Schaufeli, Leiter, Maslach and Jackson (1996), with translation and adaptation to Brazil carried out by Carlotto, Nakamura and Câmara (2006). The analysis was implemented using a Pearson matrix and *Robust Diagonally Weighted Least Squares* (RDWLS) extraction method (Asparouhov & Muthen, 2010). The decision on the number of factors to be retained was made using the Parallel Analysis technique with random permutation of the observed data (Timmerman, & Lorenzo-Seva, 2011) and the rotation

used was the Robust Promin (Lorenzo-Seva & Ferrando, 2019b,c).

The adequacy of the model was assessed using the *Root Mean Square Error of Approximation* (RMSEA), *Comparative Fit Index* (CFI) and *Tucker-Lewis Index* (TLI) fit indexes. According to the literature (Brown, 2006), RMSEA values should be less than 0.08, and CFI and TLI values should be above 0.90, or preferably, 0.95.

The stability of the factors was assessed using the H index (Ferrando & Lorenzo-Seva, 2018). The H-index assesses how well a set of items represents a common factor (Ferrando & Lorenzo-Seva, 2018). H values range from 0 to 1. High H values (> 0.80) suggest a well-defined latent variable, which is more likely to be stable in different studies. Low H values suggest an ill-defined, and probably unstable, latent variable between different studies (Ferrando & Lorenzo-Seva, 2018).

To verify the reliability of the questionnaire applied, Cronbach's alpha coefficient was used, with the objective of evaluating the correlation between answers in a questionnaire through the analysis of the answers given by the research subjects, presenting an "average" correlation between the questions.

RESULTS

Of the thirty-one undergraduate students regularly enrolled and attending the curricular internship activities of the last year of the course, nineteen agreed to participate in the study and answered the google forms questionnaire. Table 1 shows the sociodemographic characteristics of the students, observed through the collection of research data. It shows the composition of the research participants in terms of gender, age, marital status, presence or absence of children, financing of studies, income, employment, practice of physical exercise, use of medications (Table 1).

Table 1. Distribution of sociodemographic characteristics of Nursing students at Univates year 2023.

Variable	n	%
Gender		
Female	16	84,2
Male	3	15,8
Age		
22 years old	2	10,5
23 years old	1	5,3
24 years	3	15,8
25 years	4	21,1
26 years	3	15,8
	1	5,3

Variable	n	%
27 years old	1	5,3
28 years old	1	5,3
29 years	3	15,8
33 years old		
Marital status		
Married	2	10,5
Single	16	84,2
Stable union	1	5,3
Offspring		
Yes	4	21,1
No	15	78,9
Who finances the studies		
Own	10	52,6
Family	8	42,1
Other	1	5,3
Income		
Yes	15	78,9
No	4	21,1
Employment		
Yes	15	78,9
No	4	21,1
Practice of physical activity		
Yes	11	57,9
No	8	42,1
Medication use		
Yes	7	36,8
No	12	63,2

Source: Authors, 2023.

It is important to highlight that in the item use of medicines, the drugs in use are Sertraline, represented by 15.8% (three students), Escitalopram 10.5% (two students), Carbamazepine 5.3 (one student) and Fluoxetine 5.3 (one student).

Regarding the year they entered the Nursing course, most students referred to the year 2017 (42.1%, eight students), followed by 2018 (26.3%, five students), the others entered in 2015 (10.5%, 2 students), 2016 (5.3%, 1 student), 2019 (10.5%, 2 students) and 2020 (5.3%, 1 student).

In addition to these data presented above, the descriptions of the mean score for each variable measured in the questionnaire (A1 to C15) are also followed.

Variables	Media \pm DP
A1	4.16 \pm 1.068
A2	4.37 \pm 1.300
A3	3.53 \pm 1.926
A4	3.05 \pm 1.957
A5	3.47 \pm 1.577
B6	2.05 \pm 1.900
B7	2.79 \pm 2.123
B8	2.00 \pm 2.000
B9	1.47 \pm 1.264
C10	4.00 \pm 1.764
C11	4.32 \pm 1.493
C12	4.79 \pm 0.787
C13	4.89 \pm 0.994
C14	4.47 \pm 1.172
C15	4.32 \pm 0.749

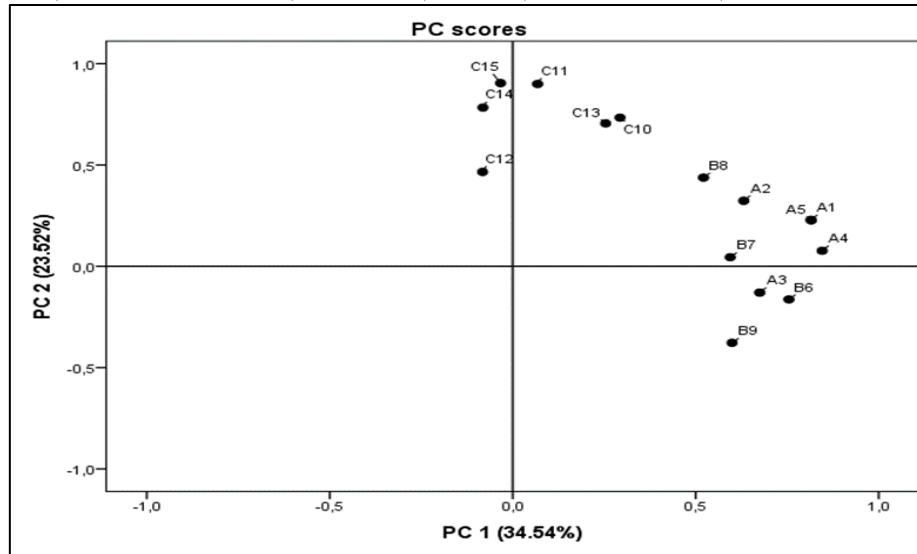
*DP; Standard deviation

Through reliability analysis, Cronbach's alpha was 0.85, which is considered an almost perfect internal consistency according to Landis & Koch (1977). It is possible to observe that if questions A4 and A5 were removed from the questionnaire, the reliability would have its worst drop from Cronbach's alpha to 0.819.

PRINCIPAL COMPONENT ANALYSIS

To verify the intercorrelations of the variables, the main assumption of the PCA was assumed, which was the Bartlett sphericity test, with a significant value ($X^2= 197.33$; $df=105$; $p<0.001$) and KMO of 0.505. Thus, through Principal Component Analysis (PCA), it was verified that there are two main components, the first component presenting the variables A1 to A5 (Emotional exhaustion), B5 to B9 (Disbelief). Through analysis, it can be assumed that there is an associated set of Emotional Exhaustion with the Disbelief criterion (Figure 1). We can also see that component 2 is composed of the variables C10 to C15 (Professional effectiveness). The first component can explain 34.54% of the variance while the second component can explain 23.52% of the variance of the model.

Figure 1: Scatter plot generated by Principal Component Analysis of the variables measured in the questionnaire, with items from A1 to A5 (Emotional exhaustion); B5 to B9 (Disbelief) and C10 to C15 (Professional effectiveness).



EXPLORATORY FACTOR ANALYSIS

Bartlett's sphericity tests (140.1; $gl = 105$; $P = 0.01$) and KMO (0.505) suggested interpretability of the correlation matrix of the items. The parallel analysis suggested two factors as being the most representative for the data (Table 3).

Table 3. Parallel Analysis Results

Factors	Percentage of Explained Variance of Actual Data	Percentage of explained variance of random data (95% CI)
1	35.0387*	23.2532
2	23.9038*	18.3373
3	11.7868	15.2276
4	9.8289	12.8223
5	4.9936	10.7231
6	4.6178	8.9289
7	3.5759	7.3090
8	2.2781	5.9837
9	1.1727	4.6651
10	0.9691	3.6835
11	0.9004	2.6009
12	0.4171	1.7669
13	0.4084	1.0960
14	0.1087	0.4598

Note: The number of factors to be retained is two, because two factors from the actual data have a higher % explained variance than the random data.

The factor loadings of the items can be seen in Table 4. Composite Reliability indices are also reported, as well as estimates of replicability of factor scores (H-index; Ferrando & Lorenzo-Seva, 2018).

Table 4. Factorial structure of the Maslach Burnout Scale.

Items	Emotional exhaustion	Disbelief	Professional effectiveness
A1	0.755*	0.142	0.190
A2	0.626	0.151	0.283

A3	0.594	0.361	-0.170
A4	0.866	-0.019	0.059
A5	0.875	-0.037	0.206
B6	0.574	0.450	-0.240
B7	0.644	-0.133	-0.023
B8	0.343	0.362	0.408
B9	0.428	0.571	-0.409
C10	0.296	-0.143	0.592
C11	0.162	-0.195	0.965
C12	-0.335	0.601	0.360
C13	0.074	0.528	0.644
C14	-0.025	-0.101	0.805
C15	-0.068	0.186	0.910
Composite Trustworthiness	0.87	0.51	0.87
H-Latent	1.164	0.939	1.039

* Bold was used in the factor loadings that had higher values in each variable measured.

The items (variables) presented adequate factor loadings, with high factor loadings in their respective factors. Seven patterns of cross-loading were found (i.e., items with factor loadings above 0.30 in more than one factor).

The composite reliability of the factors was also adequate (above 0.70) for almost all factors, except for Disbelief (HR = 0.51). On the other hand, the measure of replicability of the factorial structure (H-index, Ferrando & Lorenzo-Seva, 2018) suggested that the 'Disbelief' factor, even though it is adequate for future studies, has the lowest H value (H=0.939).

Finally, it should be noted that the factorial structure presented adequate fit indices ($c2 = 62,759$, $gl = 63$; $P = 0.48$; $RMSEA = 0.000$; $CFI = 0.999$; $TLI = 1,001$). It is important to highlight that the Unidimensionality indicators One-dimensional Congruence (UniCo), Explained Common Variance (ECV) and Mean of Item Residual Absolute Loadings (MIREAL; Ferrando & Lorenzo-Seva, 2018) did not support the one-dimensionality of the scale.

Table 5 - Quality and effectiveness of factor score estimates using *Factor Determinacy Index* (FDI) and ORION *marginal reliability*.

	Exhaustion	Disbelief	Professional Effectiveness
FDI	0.999	0.927	0.968
ORION	0.998	0.860	0.936

Note: If factor scores are used for individual assessment, *FDI* values above 0.90 and ORION *marginal reliability* above 0.80 are recommended.

DISCUSSION

From the observed results, analyzing the dimensions of Burnout in isolation, it was observed that the study participants had a higher prevalence and means of emotional exhaustion and disbelief, which are related to each other, but low rates of reduction in the effectiveness of their performance, a similar result found by Maia et al (2012), in which the MBI-SS instrument was applied and the presence of Burnout Syndrome was evaluated in a sample of 703 students from medicine, where the

author points out that it is possible for students to compensate for the stress of academic life, which could be indicated by emotional exhaustion and disbelief, through a high level of professional achievement. We also inferred that from the variation observed in the disbelief subscale, there was significant subjectivity in the answers, contributing to the low reliability observed in the item.

The analysis between the scores achieved in the MBI subscales, emotional exhaustion and disbelief indicated that the higher the score obtained for burnout, the greater the degree of depersonalization. This corroborates the procedural model of Burnout, where according to Carlotto et al (2006) the first dimension to emerge is that of emotional exhaustion. In the same sense, Souza, Silva (2002) highlight the multidimensional constitution of the Burnout syndrome, in which the occurrence of one component of the scale can accelerate the development of the other two.

In the assessment of emotional exhaustion, items A1 (My studies leave me emotionally exhausted), A2 (I feel 'kneel' at the end of a day at university) and A4 (Studying or attending a class makes me tense) presented a strong correlation with A5 (My studies leave me completely exhausted). Results very close to these were found in a study carried out with 24 undergraduate nursing students from a public university in southern Brazil, through semi-structured interviews with three categories referring to the dimensions of *burnout* in students: emotional exhaustion, disbelief and low professional efficacy, in which the manifestations of emotional exhaustion reported by nursing students were evidenced as result from the exhaustion experienced in situations daily life of the course, being verified: exhaustion, physical and mental fatigue, discouragement, stress, irritability, headaches, muscle pain and sleep changes (Barlem et al, 2013).

In the evaluation of the item disbelief, items B6 (I have been losing interest in my studies since I entered the university), B7 (I feel unenthusiastic about my studies) showed a moderate correlation with item B9 (I have doubts about the meaning of my studies), which according to Costa (2016), the very dissatisfaction related to the overload of work and evaluations, and the responsibility inherent to the professional practice in the treatment of patients, can contribute to the feeling of lack of preparation to exercise the profession and the feeling of dissatisfaction with the course, with the desire to give up.

Among the item professional effectiveness, items C10 (I can effectively solve the problems that result from my studies), C14 (I have learned many interesting subjects during my course) and C15 (During class I feel that I can follow the subjects effectively) showed a strong correlation with C11 (I believe that I participate, in a positive way, in the classes I attend), and C15 showed a strong correlation with C13 (I feel stimulated when I achieve my school goals). We can observe that this item obtained a high score, that is, low rates of reduction in the effectiveness of its performance, a study carried out in southern Brazil by Tomaschewski-Barlem JG, et al. (2014) with 168 undergraduate nursing students identified that the students were satisfied and felt effective in relation

to their studies. In a study conducted by Lima et al. (2020) with 184 undergraduate nursing students, the professional effectiveness dimension presented 76.6% of a high level. According to Dias et al. (2018), they state that in activities that do not have an involvement with customer service, the evaluation of professional effectiveness is a dimension that can be characterized by having indifference and attitudes distant from their occupation, instead of the people with whom they are associated with their work and profession. What in our results proved to be different, nursing students are satisfied and able to follow their study and work activities.

It was observed that the results of the efficacy score were isolated from the other scores, which according to Costa, Santos, Rodrigues, Melo, and Andrade (2012), the existence of a high index in one of the scores can precipitate the other scores evaluated. According to the aforementioned author, the element of great emotional exhaustion insinuates that the individual is presenting difficulties, and can thus evolve into indifference and distancing, consequently increasing disbelief, in an attempt to reduce emotional exhaustion. Thus, a progression of a feeling of incompetence, or loss of meaning and interest in daily activities, can be observed, bringing dissatisfaction, revealed in the decrease in professional fulfillment. In this study, it was observed that even though there were high scores of Emotional Exhaustion and Disbelief, Professional Effectiveness did not show significant losses, on the contrary, the writers were high for student satisfaction.

Among the scale items, when related between the subscales, we observed a moderate correlation of A4 (Studying or attending a class makes me tense) and A5 (My studies leave me completely exhausted) with B7 (I feel unenthusiastic about my studies.), in addition, we also observed a moderate correlation of B6 (I have been losing interest in my studies since I entered university) with A3 (I feel tired when I get up in the morning and think I have to face another day at the university). In the professional effectiveness component, there was a moderate correlation between C10 (I can effectively solve the problems that result from my studies) and A5 (My studies leave me completely exhausted) and a strong correlation between C13 (I feel stimulated when I achieve my school goals) and B8 (I feel increasingly cynical about the potential usefulness of my studies). According to Sanches GF, et al. (2017), undergraduate nursing students go through moments of great turbulence, especially in the last year of training, where they will have a high demand for academic activities, from classes, supervised internship, Course Completion Work (TCC), evaluations, among other activities, which will require time and dedication from the student.

Regarding gender, in this study a higher prevalence was observed in female students, represented by 16 students (86.2%). According to Sousa (2011), studies show greater wear and tear among the female gender, others have higher values for men and in others there are no differences.

Regarding marital status, most students are single, represented by 16 students (86.2%), Sousa (2011), states that in some studies, single marital status appears as a factor significantly and positively associated with the development of Burnout Syndrome, while in other studies this association was not found. Furthermore, the author states that there is some evidence in the literature in which single subjects, especially males, are more prone to stress compared to married individuals, and even higher levels than those who are separated.

Another aspect in this study is the fact that most nursing students reported that they work, totaling 15 students (78.9%) and in addition, 10 of them (52.6%) reported that they are financially responsible for their studies, which according to Maia et al. (2012), work is a problem because it further reduces the time dedicated to studies.

In this sense, observing the results of the study, we can conclude that there is the presence of Burnout Syndrome in the sample studied, because the sample presented high scores of exhaustion and disbelief and in the score of professional efficacy we had little change, that is, the participants reported being satisfied with the item evaluated, such conclusion is based on the authors Carlotto, Câmara (2004) and Maroco et al (2008) who state that high scores of exhaustion and depersonalization and low levels of professional fulfillment are indicative of Burnout Syndrome.

Therefore, in order to cope with this situation, there is a need for early identification of symptoms related to Burnout Syndrome, which should preferably occur when students are still in the training phase, that is, during their graduation. According to Martinez et al. (2008), the early identification of symptomatic levels of the Syndrome can be a method of identifying the possible difficulties presented by students, for example in pedagogical/university success as well as in professional practice, providing strategies for preventive interventions and the development of coping measures. The author also points out the importance of conducting screening studies to identify the prevalence of Burnout Syndrome and associated factors.

For this purpose, it is necessary to use reliable and valid measurement instruments. The MBI-SS showed excellent convergent validity and internal consistency. Although the sample presented is small, the professional efficacy dimension showed slightly lower consistency, which corroborates data in the literature (Willcock SM, 2004; Ried LD, 2006; Sofola O., 2006). In addition, the analysis used *Principal Component Analysis and Exploratory Factor Analysis* points to good factorial validity of the MBI-SS.

CONCLUSION

This study aimed to verify the presence of burnout syndrome in nursing undergraduates of a private institution in the state of Rio Grande do Sul and to highlight the importance of knowledge of professionals in these areas about the signs and symptoms of Burnout Syndrome. The results



revealed a high prevalence of Burnout Syndrome in nursing students at a community institution in the state of Rio Grande do Sul, in addition to high rates of emotional exhaustion and disbelief.

It is essential that the university that is the field of this study, especially in relation to the nursing course, understands the need to develop activities that promote the health of students, in its broadest definition, understanding that their illness will impact the future professional that the institution is about to graduate. Paying attention not only to the psychic health of nursing students, but also to care in the sphere of education, pedagogical aspects, identifying the difficulties of adaptation of nursing students to the course, their mental health and the didactic-pedagogical context should be an agenda in the construction of contemporary nurses.

We conclude by inferring the need for even more detailed studies with a larger sample size on this topic in other areas of training, contributing to a greater understanding of Burnout Syndrome, supported by qualitative studies that can explore the academic and university experiences of students in these environments and how much they relate to and impact their lives.



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