

Development of the nursing process according to psychobiological needs self-referred by students

Desenvolvimento do processo de enfermagem conforme necessidades psicobiológicas autorreferidas por estudantes

Desarrollo del Proceso de Enfermería de acuerdo con las necesidades psicobiológicas autoinformadas por los estudiantes

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ABSTRACT

Objective: to identify the nursing diagnoses prevalent in nursing students, from self-reported psychobiological needs, to describe the results expected, and propose nursing interventions. **Method:** this quantitative, exploratory, descriptive study of 156 undergraduate nursing students was conducted in 2018, after approval by the research ethics committee. A self-administered questionnaire was used and data analysis was based on the statistical software SPSS, by means of descriptive statistics. **Results:** the most prevalent nursing diagnoses were: fatigue (93.6%), insomnia (67.5%), sedentary lifestyle (54.5%) and constipation (53.8%). Objectives to be achieved from these diagnoses were listed, and then possible interventions were determined. **Conclusion:** of the four most prevalent diagnoses, two involved stress and anxiety as contributing factors. Higher education institutions should thus adopt measures to address these conditions and promote students' health accordingly. **Descriptors:** Nursing; Student, Nursing; Nursing Process; Nursing Diagnosis.

RESUMO

Objetivo: identificar os diagnósticos de enfermagem prevalentes em estudantes de enfermagem, na perspectiva das necessidades psicobiológicas autorreferidas, descrever os resultados esperados e propor intervenções de enfermagem. **Método:** estudo quantitativo, exploratório e descritivo, realizado em 2018 com 156 estudantes do curso de graduação em enfermagem, após aprovação do Comitê de Ética em Pesquisa. Utilizou-se um questionário autoaplicável e a análise foi a partir do *software* estatístico SPSS, por meio de estatística descritiva. **Resultados:** os diagnósticos de enfermagem mais prevalentes foram: fadiga (93,6%), insônia (67,5%), estilo de vida sedentário (54,5%) e constipação (53,8%). Foram elencados objetivos a serem alcançados a partir desses diagnósticos, e então determinadas possíveis intervenções. **Conclusão:** observou-se que, dos quatro diagnósticos mais prevalentes, dois apresentavam o estresse e a ansiedade como fatores contribuintes para o surgimento. Assim, faz-se necessário que as instituições de ensino superior adotem medidas de enfrentamento e promoção da saúde dos estudantes frente a esses aspectos.

Descritores: Enfermagem; Estudantes de Enfermagem; Processo de Enfermagem; Diagnóstico de Enfermagem.

RESUMEN

Objetivo: identificar los diagnósticos de enfermería prevalentes en estudiantes de enfermería, a partir de las necesidades psicobiológicas autoinformadas, describir los resultados esperados y proponer intervenciones de enfermería. **Método:** este estudio cuantitativo, exploratorio y descriptivo de 156 estudiantes de pregrado en enfermería se realizó en 2018, luego de la aprobación del comité de ética en investigación. Se utilizó un cuestionario autoadministrado y el análisis de los datos se basó en el *software* estadístico SPSS, mediante estadística descriptiva. **Resultados:** los diagnósticos de enfermería más prevalentes fueron: fatiga (93,6%), insomnio (67,5%), sedentarismo (54,5%) y estreñimiento (53,8%). Se enumeraron los objetivos a alcanzar a partir de estos diagnósticos y luego se determinaron las posibles intervenciones. **Conclusión:** de los cuatro diagnósticos más prevalentes, dos involucraron estrés y ansiedad como factores contribuyentes. Por tanto, las instituciones de educación superior deberían adoptar medidas para abordar estas condiciones y promover la salud de los estudiantes en consecuencia.

Descritores: Enfermería; Estudiantes de Enfermería; Proceso de Enfermería; Diagnóstico de Enfermería.

INTRODUCTION

Upon entering university, undergraduate nursing students gradually assume greater responsibilities and acquire more autonomy. The academic routine brings several changes in daily habits, given the many so far unknown academic demands to most of these students. Maintaining a satisfactory academic performance often triggers anxiety or other mental health-related problems and many students end up choosing less healthy lifestyle habits that in the medium or long term can deteriorate their own health, generate malaise and even sickness^{1,2}.

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Research shows worrying data regarding the Basic Human Needs (BHNs) of university students, especially psychobiological needs. These range from a diet based on excessive intake of carbohydrates, fats and sweets, a high rate of sedentary lifestyle and consumption of alcoholic beverages³; use of analgesics, tranquilizers or sedatives in order to reduce anxiety and enhance sleep quality⁴; self-medication due to headache, abdominal pain, fever, cold and gastrointestinal disorders⁵; they are also considered physically inactive or insufficiently active⁶ and have poor sleep quality⁷. The sedentary lifestyle also contributes to overweight and is among the main causes of the development of diabetes, high blood pressure, dyslipidemia and other chronic diseases¹.

Changes in sleep, along with physical and mental exhaustion, discouragement, stress, headache and muscle pain, are manifestations commonly found in undergraduate nursing students and may be related to symptoms of emotional exhaustion⁸.

In this sense, developing the Nursing Process from the perspective of self-reported psychobiological needs by nursing students becomes essential for the development of effective strategies for health promotion and prevention and recovery from diseases in an environment where care for the future caregiver should be paramount, mainly stimulating self-care. The improvement in the quality of life of undergraduate nursing students directly influences the humanization process of the care provided by them⁹.

Therefore, the aim of this study was to identify the nursing diagnoses prevalent in nursing students from the perspective of self-reported psychobiological needs, describe the expected outcomes and propose nursing interventions.

REVIEW OF THE LITERATURE

The following theoretical frameworks were adopted: BHNs¹⁰, the Diagnostic Taxonomy of the North American Nursing Diagnosis Association (NANDA International)¹¹, the Nursing Interventions Classification (NIC)¹² and the Nursing Outcomes Classification (NOC)¹³ for the development of the five stages of the Nursing Process.

The Nursing Process is regulated through Resolution number 358/09. This resolution defines five interrelated and interdependent steps for the application of the Process, namely: performance of the nursing history; definition of nursing diagnosis; intervention planning; implementation of interventions; and evaluation of the interventions performed¹⁴.

By executing all these steps, nurses are able to perform their activities systematically without disregarding the particularities of each individual, and organize the necessary conditions to offer quality care and make records of their practice throughout the process¹⁵. It requires scientific knowledge and technical skills from the professional, as well as attitudes based on ethics and responsibility towards the assisted patient, allowing organizational control over the physical and material resources included in the process¹⁶. In addition, a standardized language using the theory of BHNs and NANDA-I, NIC and NOC facilitates teaching and decision-making, favors research and consequently, strengthens the nursing science¹⁷.

In addition, given the shortage in the scientific literature on the investigation of psychobiological BHNs of undergraduate nursing students through the scientific tool of the Nursing Process linked to NANDA-I, NIC and NOC, this study constitutes an important source of information for the care of these future professionals.

METHOD

Quantitative, exploratory and descriptive study conducted in a higher education institution in southern Brazil between March and April 2018. The didactic-pedagogical matrix of the course has ten semesters in morning and afternoon shifts and 30 students are admitted at each semester through the Unified Selection System (Portuguese acronym: SISU). The total workload is of 4,140 hours distributed between theoretical and theoretical-practical compulsory courses, including the Project and Course Completion Work, supervised internships and complementary activities aimed at the training of a generalist nurse inserted in the socio-environmental context¹⁸.

The study sample consisted of 156 undergraduate nursing students from the ten semesters who agreed to participate. They were selected by non-probabilistic convenience sampling according to their presence in the study locations and availability to participate in the study¹⁹.

A specific formula was used to determine the minimum number of participants required for the study and ensure data reliability. The selection of the sample size followed the criteria proposed by Hill and Hill²⁰. Through this rule, the minimum sample size can be estimated and certain statistical procedures can be performed, since different procedures

require specific numbers of participants. By previously knowing the total population, composed of 260 students, and applying the formula, was reached the minimum number of 127 participants.

The inclusion criteria for the selection of participants included being an undergraduate nursing student at the institution and present in the classroom during the data collection period. The exclusion criteria were being on leave or taking time off college.

The collection was conducted collectively by making available a structured, self-administered, unidentified questionnaire in kraft paper in the classroom, where the invitation to participate was made by briefly presenting and describing the study objectives. After acceptance, questionnaires were given to students. After completion, they were collected by the responsible researcher. Of the students present at the time of collection, only seven refused to participate.

The data collection instrument was a structured and self-administered questionnaire with open- and closed-ended questions. It was developed based on the scientific literature on the main BHNs identified in undergraduate students and subsequently related to possible Nursing Diagnoses from NANDA International 2015-2017¹¹. The questionnaire contained variables for the characterization of participants, such as sex, age, current semester, among others. In addition, questions related to NANDA diagnoses, in which students were asked through multiple choice questions about the characteristics (signs and symptoms) they presented and if they identified that their occurrence resulted from some of the related factors presented.

Note that before the beginning of data collection, a test of the instrument was applied to ten undergraduate nursing students of the institution selected according to their willingness to answer the instrument. To this end, was considered the completion by at least one representative of each semester of the course (composed of ten) who was not part of the minimum sample, and the aim was to readjust and improve the instrument.

Data analysis was performed using the statistical software Statistical Package for Social Sciences (SPSS) version 20.0, using descriptive statistics. The development of the nursing diagnosis reasoning process took place in two steps, according to Risner²¹. In the first step, through a process of analysis and synthesis of the collected data, a clinical judgment is made of the individual's responses to vital processes. In the second step, the nursing diagnosis itself is determined according to the taxonomy of the North American Nursing Diagnosis Association¹¹. After this analysis, nursing interventions and the expected outcomes were proposed by the researchers themselves, according to the Nursing Interventions Classification (NIC)¹¹ and the Nursing Outcomes Classification (NOC)¹³ taxonomies, respectively.

The study respected the ethical precepts of Resolution number 466 of December 12, 2012, of the National Health Council, and was approved by the Research Ethics Committee of the institution (CAAE number 81442517.8.0000.5324).

RESULTS

Among the 156 participants, most undergraduate nursing students were female (90.4%, n=141), average age of 23.9 years and attending the first year of college (33.4%, n=52). When asked if they practiced physical activity, 42.7% (n=67) said they did not, and among those who practiced, the most cited activities were weight training gym, hiking and cycling, practiced three times a week, on average. The Body Mass Index (BMI) of each participant was calculated and is described in Table 1, based on the parameters provided by the World Health Organization (WHO) of the degrees/classes of obesity²².

TABLE 1: Classification of obesity according to BMI. Rio Grande, RS, Brazil, 2018.

BMI (kg/m ²)	Classification	Obesity degree/class	Frequency (%)
< 18.5	Thin or underweight	0	3.9% (n=6)
18.5 – 24.9	Normal or eutrophic	0	59.6% (n=90)
25 – 29.9	Overweight or pre-obese	0	23.2% (n=35)
30 – 34.9	Obesity	I	7.2% (n=11)
35 – 39.9	Obesity	II	4.6% (n=7)
≥ 40	Severe obesity	III	1.4% (n=2)

Source: prepared by the author (2018).

Regarding the use of legal drugs, 47.1% (n=73) of students reported consuming them and mentioned the following: cigarettes (5.2%, n=8), with an average of 10.6 cigarettes/day; alcoholic beverages (32.9%, n=51), mainly beer and wine, intake of between one and two liters, three to four times a month; prescription drugs (12.3%, n=19), with antidepressants and anxiolytics as the main cited. With regard to illicit drugs, 94.8% (n=145) of students mentioned not using them, while 2.6% (n=4) did not want to answer and the others left the question blank.

When asked if they had any previous medical diagnosis, 21.3% (n=33) answered yes, and the main cited were depression; anxiety; Panic Syndrome; asthma; hypo/hyperthyroidism; migraine; and irritable bowel syndrome. Participants who used continuous medication accounted for 54.5% (n=85), and, in addition to the drugs already described in the previous paragraph, these were drugs for the treatment of chronic asthma, non-steroidal anti-inflammatory drugs, vitamin supplements and oral contraceptives.

Figure 1 shows the most prevalent nursing diagnoses in undergraduate nursing students, based on the self-reference, with identification of the defining characteristics presented and related factors.

Nursing diagnosis	Defining characteristics	Related factors
Fatigue 93.6% (n=146) <i>Oppressive and prolonged feeling of exhaustion and decreased ability to perform physical and mental work at the usual level.</i>	Change in concentration: 50.6% (n=79) Change in libido: 13.5% (n=21) Higher need for rest: 64.7% (n=101) Increased physical symptoms: 19.2% (n=30) Tiredness: 76.3% (n=119) Impaired ability to maintain the usual routines: 19.9% (n=31) Guilt due to difficulty in fulfilling my responsibilities: 39.1% (n=61) Ineffective role performance: 9.6% (n=15) Lack of interest in the surrounding environment: 14.1% (n=22) Insufficient energy: 39.7% (n=62) Introspection: 14.1% (n=22) Non-restorative sleep pattern: 19.9% (n=31) Drowsiness: 50% (n=78)	Anxiety: 52.6% (n=82) Depression: 9% (n=14) Non-stimulating lifestyle: 12.2% (n=19) Stressors: 52.6% (n=82) Negative life event: 9.6% (n=15) Work requirements: 36.5% (n=57) Sleep deprivation: 31.4% (n=49) OTHER REASONS: Academic activities, lack of time, night work and studies, organization of time: 10.9% (n=17)
Insomnia 67.5% (n=104) <i>Disturbance in the quantity and quality of sleep that impairs functioning</i>	Change in concentration: 50.6% (n=79) Insufficient energy: 39.7% (n=62) Non-restorative sleep pattern: 19.9% (n=31)	Pharmacological agent: 1.3% (n=2) Hormonal changes: 4.5% (n=7) Anxiety: 42.2% (n=65) Frequent naps during the day: 6.5% (n=10) Depression: 7.1% (n=11) Physical discomfort: 6.5% (n=10) Stressors: 39.6% (n=61) Fear: 7.1% (n=11) OTHER REASONS: Lack of time, academic routine, night work hours: 24.7% (n=38)
Sedentary lifestyle 54.5% (n=86) <i>It refers to a lifestyle characterized by a low level of physical activity.</i>	Lack of physical conditioning: 39.4% (n=61) Preference for activities with little physical exercise: 20.6% (n=32)	Insufficient interest in physical activity: 18.7% (n=29) Insufficient motivation for physical activity: 29% (n=45) OTHER REASONS: Lack of time, lack of money: 21.3% (n=33)
Constipation 53.8% (n=83) <i>Lower frequency of normal evacuation accompanied by difficult or incomplete stool elimination and/or elimination of excessively hard and dry stools</i>	Pain during evacuation: 3.8% (n=6) Abdominal pain: 14.1% (n=22) Effort to evacuate: 16.7% (n=26) Hard and formed stools: 21.2% (n=33) Liquid stools: 4.5% (n=7) Severe flatulence (gas release): 7.1% (n=11) Indigestion: 14.1% (n=22) Change in intestinal pattern: 19.9% (n=31) Reduction in stool frequency: 19.9% (n=31) Stool volume reduction: 6.4% (n=10)	Irregular evacuation habits: 17.3% (n=27) I usually ignore the urgency to evacuate: 9% (n=14) Laxative abuse: 1.3% (n=2) Inadequate eating habits: 31.4% (n=49) Insufficient fiber intake: 25% (n=39) Insufficient fluid intake: 21.2% (n=33) Change in eating habits (e.g. food, mealtime): 17.9% (n=28) OTHER REASONS: Food intolerance, academic routine: 3.2% (n=5)

FIGURE 1: The most prevalent Nursing diagnoses in undergraduate nursing students. Rio Grande, RS, Brazil, 2018

Based on the most prevalent nursing diagnoses, the expected outcomes according to the NOC and the interventions proposed to achieve such results according to the NIC were outlined, as shown in Figure 2.

Nursing Diagnosis	Expected outcomes (NOC)	Proposed interventions (NIC)
Fatigue	Concentration Energy conservation Personal wellbeing Self-care status Personal health status Quality of life Rest Sleep	Nutrition management Energy management Environmental management Mood management Setting goals Sleep enhancement Exercise promotion Coping enhancement Support system enhancement Anxiety reduction
Insomnia	Personal wellbeing Concentration Mood equilibrium Personal health status Quality of life Rest Sleep Leisure participation Comfort status	Nutrition management Meditation facilitation Coping enhancement Music therapy Exercise promotion Anxiety reduction Calming technique Self-suggestion training
Sedentary lifestyle	Physical fitness Adherence behavior Health promoting behavior Knowledge: health behavior Knowledge: health promotion Motivation Leisure participation	Self-responsibility facilitation Exercise promotion Self-modification assistance
Constipation	Symptom control Bowel elimination Gastrointestinal function Hydration Adherence behavior: healthy diet	Explain the etiology of the problem and the rationale for the actions Identify factors (e.g. medication, rest and diet) that may cause or contribute to constipation Establish a schedule for toilet use, as appropriate Encourage increased fluid intake, unless contraindicated Assess the drug profile for gastrointestinal side effects Guide the student/family on the relationship between diet, exercise and fluid intake for constipation Teach the student/family about the normal digestive processes

FIGURE 2: Expected outcomes and proposed interventions for undergraduate nursing students. Rio Grande, RS, Brazil, 2018.

DISCUSSION

When investigating imbalances in psychobiological BHNs in students, “sleep and rest” were identified among the main ones, since the two most prevalent nursing diagnoses among nursing students were “Fatigue” and “Insomnia”. Both are related to stress and anxiety, which, according to scientific studies^{1,2,7}, are characteristics commonly found in university students, particularly in students of the health area. Still, stress and anxiety are identified as the main responsible for insomnia, which consequently generates fatigue and discourages students from performing academic activities^{1,2,7}.

As health students have a high workload of theoretical and practical activities, they have less time for leisure activities²³. The indecision regarding their choice of the course as a profession was also identified as a stress and anxiety generating factor, thus arousing feelings of anguish, frustration, fear of not being happy and even of not having the desired financial return²⁴.

Participants identified that the main signs presented by them in relation to the “fatigue” nursing diagnosis were: tiredness; higher need for rest; and change in concentration. Regarding “insomnia”, students identified other reasons besides stress and anxiety, such as academic routine and night working hours. These aspects negatively affect the academic performance of these students and generate demotivation towards the Nursing course. According to a study²⁵, academic performance is drastically impaired by the lack of quality sleep, as it has a negative impact on the skills of concentration, memory and problem solving.

Another consequence of poor sleep quality is the increase in appetite and, thus, consumption of more caloric foods, causing weight gain and possibly, obesity²⁶. Obesity is directly related to a more sedentary lifestyle and the onset of gastrointestinal disorders, such as constipation²⁷. This is an important relationship to be observed, since the total number of students classified as overweight and class I, II and III obesity was 55, which is worrying.

Therefore, entering university clearly generates several changes in students’ lives, both in those who only study, because of more autonomy and responsibility demands, and in those who have jobs, because a better organization of time is necessary¹.

In order to help students to face positively situations related to imbalances in the psychobiological BHN of “sleep and rest”, the NIC has some possible interventions to be performed, such as: meditation facilitation, music therapy and calming technique¹¹. Note that the NIC presents a variety of nursing practices, some of which require specialized training or appropriate certification¹¹, but are important care possibilities.

In a study at the Universidade Pública da Bahia conducted with 353 undergraduate nursing students, 85.0% were considered inactive (sedentary lifestyle)²⁸. In a study in the city of Porto, Portugal, when investigating the practice of physical activity by 535 nursing students, 27.6% of participants did not practice any sport²⁹. Similarly, in our study, students presented imbalances in “exercise and physical activity”, since 42.7% affirmed they do not practice physical activity. Therefore, the third most prevalent nursing diagnosis identified was “Sedentary lifestyle”.

These are concerning data, since a sedentary lifestyle is the precursor to several health problems; the main one is the development of chronic non-communicable diseases, such as dyslipidemia, diabetes and high blood pressure. It becomes even more dangerous when associated with other risk factors, such as overweight/obesity³⁰.

Another nursing diagnosis prevalent in students refers to the psychobiological BHN “elimination”. The main factors related to this diagnosis were: insufficient intake of fiber and fluids and inadequate eating habits. Similar results can be found in the literature, as in a study conducted in Curitiba, in which the incidence of constipation in university students was investigated, and 40 participants, i.e. 47.5%, had constipation and related it mainly to lack of time to maintain adequate eating habits, with a significant correlation between constipation and anxiety resulting from the university routine³¹.

Thus, the need to alert higher education institutions, especially in undergraduate nursing courses, so the factors causing illness in students can be identified, because several are related to the academic routine, and the performance of interventions based on the main characteristics presented by the students can be suggested³¹. The importance of NIC in this study is highlighted, because it allows the delimitation of essential topics to be addressed with these students in the future, as shown in Figure 2.

Limitations of the study

A limitation of the study was using a convenience sample. This makes the generalization of findings difficult, because only nursing students from the institution where the study was conducted are represented.

CONCLUSION

The development of this study allowed to identify that fatigue, insomnia, sedentary lifestyle and constipation were the most prevalent nursing diagnoses in participants, considering the perspective of psychobiological BHNs. In addition, the expected outcomes and proposed nursing interventions could be described reaching the proposed objectives.

Out of the four most prevalent diagnoses, two presented stress and anxiety as contributing factors for their onset, deserving attention for future interventions. According to the NIC, some interventions for these factors may be nutrition management, sleep enhancement, exercise promotion and meditation facilitation.

The development of further studies in the area is important to broaden the scientific basis about the health status of nursing students. To this end, the application of the Nursing Process and the use of the NANDA, NIC AND NOC taxonomies has proven satisfactory to identify imbalances in BHNs and propose possible interventions to be performed in Higher Education Institutions. The aim is to sensitize such institutions towards the adoption of health promoting measures for university students and the training of professionals capable of prioritizing self-care.

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