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## PAIN: KNOWLEDGE AND ATTITUDES OF NURSING STUDENTS, 1 YEAR FOLLOW-UP

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**ABSTRACT:** The attitudes, prejudices and/or myths, combined with insufficient knowledge and skills of healthcare professionals, can influence pain treatment. This study aimed to identify and analyze the evolution of the knowledge and attitudes of nursing students in relation to pain. It is a longitudinal study (descriptive/correlational) using a questionnaire based on the “*Guia orientador de boas práticas na dor*”. In the academic year of 2011/12, the students presented an increase of 11% in their level of knowledge and attitudes in relation to pain, which reached the 40% by the end of the fourth year of the nursing course; those who showed higher rates were approximately 0.8 times more likely to reflect on and analyze their beliefs and knowledge about pain. The initial training in nursing is important in relation to the level of knowledge and attitudes of the students regarding pain, particularly in the early years of the course.

**DESCRIPTORS:** Knowledge. Attitude. Nursing. Pain.

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## DOR: CONHECIMENTOS E ATITUDES DOS ESTUDANTES EM UM ANO DE SEGUIMENTO

**RESUMO:** As atitudes, os preconceitos e/ou mitos aliados à insuficiência de conhecimentos e competências dos profissionais de saúde podem condicionar o tratamento da dor. Com este estudo procurou-se identificar e analisar a evolução dos conhecimentos e atitudes dos estudantes de enfermagem em relação à dor. Estudo longitudinal, descritivo/correlacional, com a utilização de um questionário com base no “*Guia orientador de boas práticas na dor*”. No ano letivo de 2011/12, os estudantes apresentaram uma evolução de 11% no seu nível de conhecimentos e atitudes em relação à dor, sendo que a mesma atinge os 40% no final dos quatro anos do curso de licenciatura em enfermagem. Os que manifestam melhores índices têm cerca de 0,8 vezes mais probabilidade de reflectir e analisar as suas crenças e conhecimentos sobre a dor. A formação inicial em enfermagem é preponderante para o nível de conhecimentos e atitudes dos estudantes em relação à dor, em particular nos primeiros anos do curso.

**DESCRIPTORIOS:** Conhecimento. Atitude. Enfermagem. Dor.

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## DOLOR: CONOCIMIENTOS Y ACTITUDES DE LOS ESTUDIANTES DE ENFERMERÍA, UN AÑO DE SEGUIMIENTO

**RESUMEN:** Las actitudes, los prejuicios y/o los mitos, junto con el insuficiente conocimiento y habilidades de los profesionales de la salud pueden condicionar lo tratamiento del dolor. Este estudio trata de identificar y analizar la evolución de los conocimientos y actitudes de los estudiantes de la enfermería en lo que respecta del dolor. Estudio longitudinal, descriptivo/correlacional, utilizando un cuestionario basado en el “*Guia orientador de boas práticas na dor*”. En el año lectivo 2011/12, los estudiantes presentaron una evolución del 11% en su nivel de conocimientos y actitudes sobre el dolor, donde la misma atinge los 40%, en lo final de los 4 años del curso de licenciatura en enfermería; los que tienen tasas más altas, tienen cerca de 0,8 veces más probabilidad de reflexionar y las suyas creencias y conocimientos sobre el dolor. La formación inicial en enfermería es preponderante para el nivele de conocimientos e actitudes de los estudiantes en relación del dolor, principalmente en los primeros años del curso.

**DESCRIPTORIOS:** Conocimiento. Actitude. Enfermería. Dolor.

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## INTRODUCTION

In recent years, pain has been contextualized as an individual, subjective and multidimensional experience. Physiological, sensory, affective, cognitive, behavioral and sociocultural factors intervene and contribute to its subjectivity. Pain, "an uncomfortable bodily sensation, subjective reference of suffering, characteristic facial expression, altered muscle tone, self protection behavior, limitation of the focus of attention, altered perception of time, withdrawal from social contact, impairment of the thought process, distraction behavior, restlessness and loss of appetite",<sup>1:60-61</sup> disrupts and interferes in the quality of life of the person, so that its control is a priority aim.

In the provision of care, healthcare professionals, in addition to having skills and technical-scientific knowledge, need to have sensitivity to care for the individual with pain.<sup>2-3</sup> This is particularly relevant concerning nurses, who interdependently and/or autonomously must take into account the effectiveness of the therapies implemented, aiming to identify factors that better contribute to pain control, seeking to consider the painful experience in all its domains and its repercussions at the biological, emotional, spiritual and behavioral levels of the individual.<sup>4</sup> Given their proximity to the patients, nurses should be aware and prepared to identify, plan and administer the required therapy, through an accurate evaluation, critical judgment and prescription of interventions that best meet the needs of the patients who report pain.<sup>5</sup>

For the adequate control of pain, nurses need to have a comprehensive understanding of each of the dimensions that underlie it and should support their practice through theoretical and practical knowledge.<sup>4</sup> Inadequate pain management has serious consequences, often resulting in unnecessary suffering for patients, leading to complications that can cause further harm or death, increasing the costs for the healthcare system.<sup>6</sup> According to the literature, it appears that a large proportion of nurses demonstrate a lack of technical and scientific knowledge, inadequate attitudes and beliefs, and failures in record keeping in relation to pain and analgesia,<sup>7</sup> where the insufficient/inadequate formation and/or training of the healthcare professionals, as well as their prejudices and/or myths combine with insufficient knowledge and skills are hampering the treatment of pain.<sup>8</sup> Thus, the present study aimed to: i) identify and

analyze the level of knowledge and the types of beliefs nursing students have regarding pain; ii) analyze and compare the evolution of the level of knowledge of students throughout the 2011/12 academic year and for the four years of the Nursing Licenciature Degree Course (NLDC); and iii) determine possible associations between the levels of knowledge and attitudes of nursing students. After an extensive literature search, it was realized that there were no studies that address this issue with NLDC students, therefore, we propose that this methodology serves as a reference for future studies constituting a significant contribution to evaluate and identify possible gaps in the initial nursing formation.

## MATERIAL AND METHODS

This is a longitudinal, descriptive/correlational study, based on a quantitative research strategy. In the first data collection moment (September 2011) a sample of 97% of the NLDC students was used (59 from the 1<sup>st</sup> year, 37 from the 2<sup>nd</sup>, 35 from the 3<sup>rd</sup> and 39 from the 4<sup>th</sup> year), of the *Dr. José Timóteo Montalvão Machado* School of Nursing (ESEDJTMM) of Chaves (northern Portugal). Subsequently, in order to investigate the progress over the 2011/12 academic year, a second evaluation was performed (June 2012), in which there was a loss of 34% of the students (15 from the 1<sup>st</sup> year, 7 from the 2<sup>nd</sup>, 5 from the 3<sup>rd</sup> and 7 from the 4<sup>th</sup> year), due to them being absent.

As the data collection instrument, a questionnaire was constructed with 32 items, based on the *Guia orientador de boas práticas na dor*, prepared by the Nursing Council of the Order of Portuguese Nurses,<sup>2</sup> allowing the collection of factual information about the individuals, their attitudes, beliefs and intentions in the care for patients with pain. The questionnaire was developed according to internationally accepted methodology. The pre-test was conducted with 17 students. To evaluate its reproducibility, the questionnaire was administered twice within a 48 hour period. The intraobserver and interobserver reproducibility was statistically significant ( $0.54 < r < 0.83$  and  $0.62 < r < 0.81$ ), respectively. The questionnaire was also found to comply with the three important elements: fidelity - no matter who it is applied with the same results will always be obtained; validity - the collected data measure exactly what is supposed to be measure and are the data required for the study; and operability - accessible vocabulary and clear meaning.<sup>9</sup>

The data were collected in the classroom (at the place of study of the subjects), after clarification of the aims of the study for the students who volunteered to participate in the study and gave their respective informed consent. The study was approved by the Ethics Committee of the Governing Board of the School.

The data were coded and analyzed using the statistical program Statistical Package for the Social Sciences (SPSS) version 19 for Windows, with the significance level of 5% having been established. Descriptive and inferential statistics were used, i.e., the Kolmogorov-Smirnov independence test and the Odds Ratio (OR) to identify a possible association, taking the total score of the questionnaire as the independent variable. To obtain an indicator of the overall level of knowledge and of the beliefs about pain, the computation of all the issues relating to each of these dimensions was performed. Each of these issues having been standardized through the Z score=(value-mean)/SD.

## RESULTS

In the initial evaluation a sample of 170 NLDC students was considered, 129 being female and 41 male with an mean age of 24.4 years. The minimum age was 18 and maximum 48 years. Of the total respondents, 34% were in the 1<sup>st</sup> year, 22% in the 2<sup>nd</sup>, 21% in the 3<sup>rd</sup> and 23% in the 4<sup>th</sup> academic year of the course. Only six (3.5%) students reported having acquired specific training in the evaluation and treatment of pain, in addition to the NLDC program content. Furthermore, a significant proportion of the students (88% from the 1<sup>st</sup> year, 83% from the 2<sup>nd</sup>, 89% from the 3<sup>rd</sup> and 93% from the 4<sup>th</sup> year) stated that they felt the need for more specific training in this subject.

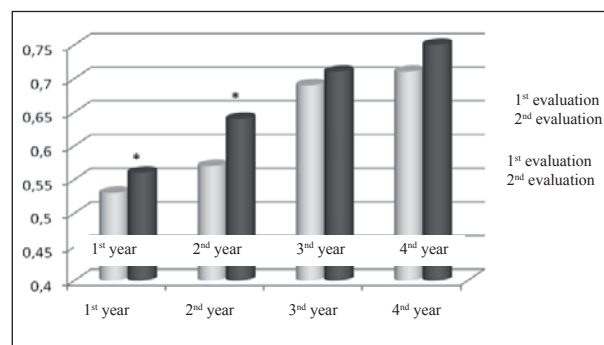
**Table 1 - Level of knowledge by academic year. Chaves-Portugal, 2012 (n=170)**

	Age	Total score	Beliefs score	Pharmacology score
<b>1<sup>st</sup> year</b>	26±8	0.53±0.12*	0.57±0.15*	0.44±0.18*
<b>2<sup>nd</sup> year</b>	23±4	0.57±0.10	0.60±0.16	0.46±0.12†
<b>3<sup>rd</sup> year</b>	24±7	0.69±0.16	0.73±0.16	0.59±0.18
<b>4<sup>th</sup> year</b>	25±4	0.71±0.17*	0.74±0.21*	0.64±0.15†*

† Significance level: p≤0.05.

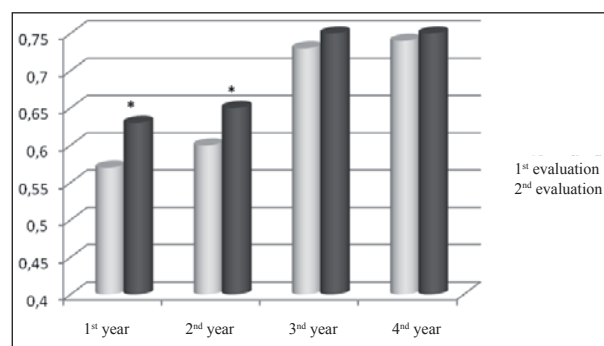
From the analysis of table 1 it is revealed that the majority of the students of 1<sup>st</sup> year (53%)

believed that their knowledge on this subject was insufficient. Most students in the 2<sup>nd</sup> and 3<sup>rd</sup> years believed that they had a reasonable amount of knowledge, 63% and 56% respectively. In the final year of the Licenciade Degree, it appears that the students considered themselves to have more knowledge on this subject: 25% rating this as adequate, 36% as sufficient and 38% as reasonable. By analyzing the total score of the questionnaire concerning knowledge and beliefs about pain (Table 1), it can be observed that it increased significantly, by 40%, at the same rate that the training time of the students increased. Given that the means obtained by students were: 0.53 ± 0.12 in the 1<sup>st</sup> year, 0.57 ± 0.16 in the 2<sup>nd</sup> year, and 0.69 ± 0.16 in the 3<sup>rd</sup> year, which rose to 0.71 ± 0.22 for the final year students. Through the parameterization of the representative scores, both for the issues concerning beliefs as well as those relating to pharmacology, it was verified that the students obtained better results with regard to beliefs.



\* Statistically significant differences (p≤0.05).

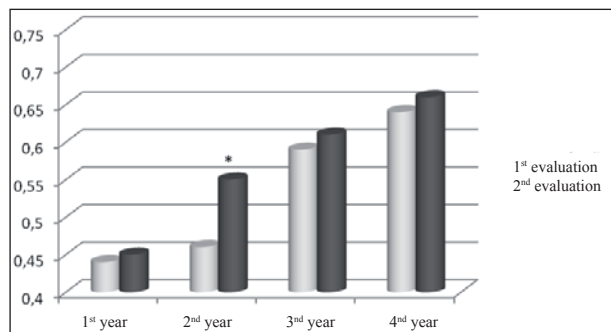
**Figure 1 - Evolution of the total score in the 2011/12 academic year. Chaves-Portugal, 2012 (n=112)**



\* Statistically significant differences (p ≤ 0.05).

**Figure 2 - Evolution of the beliefs score in the 2011/12 academic year. Chaves-Portugal, 2012 (n=112)**

From the comparative analysis of the two evaluations (of the 2011/12 academic year), the relative weight of each academic year on the evolution of the level of knowledge and attitudes of the students regarding pain can be deduced, verifying that the 1<sup>st</sup> and 2<sup>nd</sup> years significantly increased the total score and the beliefs score (Figures 1 and 2).



\* Statistically significant differences ( $p \leq 0.05$ ).

**Figure 3 - Evolution of the pharmacology score in the 2011/12 academic year. Chaves-Portugal, 2012 (n=112)**

Finally, in figure 3, regarding the pharmacology score, statistical differences were only observed in the 2<sup>nd</sup> year.

When the evolution of these scores are observed, throughout the NLDC (difference between the students of the 1<sup>st</sup> and 4<sup>th</sup> year), considering the 170 respondents of the first evaluation, it appears that the pharmacology score is significantly superior (45%), compared to the beliefs score (30%).

Table 2 allows the relationship to be analyzed between the total score of the knowledge and beliefs of the students and the issues of analysis and reflection on their practice, highlighting that for  $p \leq 0.05$ , the logistic regression is significant for the following issues: "Reflect and realize that their knowledge and beliefs about pain can affect the quality of the care provided" (OR=0.8) and "Always carry out the pain evaluation requested and seek to consider the patient's own evaluation" (OR=0.8).

**Table 2 - Logistic regression in relation to the questionnaire score. Chaves-Portugal, 2012**

Variable	OR	CI (95%)	
		Minimum	Maximum
Reflect and realize that their knowledge and beliefs about pain can affect the quality of the care provided.	0.8*	0.22	1.25
Believe that their knowledge about the pain process is adequate.	1.02	0.68	1.52
Sensitive in their approach to the patient with pain and always strive to comprehend what the person is feeling.	0.8	0.49	1.26
Always carry out the pain evaluation requested and seek to consider the patient's own evaluation.	0.8*	0.12	1.89

\* Significance level:  $p \leq 0.05$ .

## DISCUSSION

According to the results, it was verified that the majority of the students felt the need for more training in the "pain" subject, which seems to be related to the complexity of this issue and above all with the level of training of the students. Especially considering that the self-perceived level of knowledge tends to increase over the years of the curriculum, with the students of 1<sup>st</sup> year revealing a greater need for training. Only 3.5% of the students reported having additional training specifically in relation to pain, although this is part of the syllabus of the NLDC program, which, in a certain way, allows us to ensure that the results obtained are due to the basic training of these students. This is added to the fact that the both

the knowledge and the belief were analyzed in all the students of all the academic years, which allows us to make a diagnosis of the situation and to develop a plan of action regarding the needs and gaps identified. In addition, there are some limitations or less successful aspects, such as: the lack of validated instruments for the evaluation of this issue and the limited size of the sample.

Most of the participants were female, which corresponds to the tendency for this profession to be performed mostly by women, from its origins with the legacy of Florence Nightingale. Furthermore, there was a wide age dispersion (minimum 18 and maximum 48 years) and a significant percentage (21%) of working students which, due to the implications, should be considered in the analysis of the results. In general, there was an

increase of 40% in the level of knowledge and beliefs between the 1<sup>st</sup> and last year of the course. There were also lower results in issues related to pharmacological therapy, as evidenced by the scores for these issues, which is believed to be related to the need for clinical practice in order to consolidate theoretical knowledge.

Basic training should be seen as a starting point to equip professionals with knowledge and instruments for the performance of a profession.<sup>10</sup> Specifically in this area, it is recommended that nursing students have the opportunity to apply and develop their theoretical and practical knowledge, through periods of clinical training, essential for their formation. These are performed in healthcare institutions, which may occur either together with the user or simply from the contact with the institutional organization.<sup>11</sup> Effectively, it is the theoretical bases that support the clinical practice, which in turn questions the theory, in a relationship in which both develop. In this sense, nursing education is structured to be gradual and inclusive, providing sequentiality from one phase to another.<sup>12</sup> It is assumed therefore that the training and sensitization of students in this knowledge, as the results of this study show, tend to develop in a continuous, sequential and progressive way.

Given that the development of nursing as a profession and science has evolved in recent decades, moving from "doing" to the triad of "knowing", "knowing to be" and "knowing to do",<sup>13</sup> it was perceived that in this context, for adequate pain management, it will be necessary to invest in deepening the knowledge based on scientific evidence, as a way for professionals to be recognized and legitimized in the social and professional context. In our view, these dimensions of knowledge have been highlighted in education by successive reforms, however, there are still some difficulties and shortcomings in the training that need to be corrected, principally through research.<sup>14</sup>

The analysis of the correlations obtained shows that the total score is more related to the increased level of training than with the increase in age, furthermore, it is less common to obtain good progress with respect to such knowledge and beliefs, in the older students. This may be due, in part, to their living conditions, in that they tend to accumulate other activities and responsibilities, such as family life and/or being employees/students. With regard specifically to the analysis of the attitudes and/or beliefs of the students, which was one of the aims of this study, it should be noted

that the attitude corresponds to an organization of beliefs. All attitudes incorporate beliefs, but not all beliefs necessarily form part of the attitudes, being not only cognitive but also affective. In turn, the values as standards and/or criteria to guide the action aim to develop and maintain the attitudes toward situations, morally judging them.<sup>15</sup>

The studies performed to date indicate that beliefs are difficult to deconstruct and demystify. Beliefs are strongly affected by the training and personal experience of each person, largely determining by how the other is perceived and comprehended.<sup>5,17</sup> For holistic care it is essential that the professional possesses not only technical and scientific competence, but also the ability to comprehend the human being as a relational being, who has a life story that should be respected and valued.<sup>16</sup>

This study shows that "the vital signs and behavior are always indicative of the degree of pain of the patient" was the belief most positively associated with the level of training. However, it was observed that for the older subjects this belief was more difficult to deconstruct. It should be noted that, although there may be changes in the physiological parameters (tachycardia, tachypnea, pallor, sweating, muscle tension alterations and increased arterial and intracranial pressure) during painful stimuli, it is also important to pay attention to the behavioral manifestations. The literature has shown that subjects can express pain through facial expression, body posture and other physiological and behavioral patterns (prostration, irritability, etc.), this is very important in children and patients with alterations and difficulties in communication.<sup>17-18</sup> Therefore, it is essential to use appropriate and precise methods for a correct evaluation of the pain.<sup>10</sup>

For adequate control and management of pain it is necessary that professionals consider that it is a multidimensional phenomenon with a physiological or neuronal component, which also has a psychosocial, spiritual and cultural dimension.<sup>19</sup> False beliefs and preconceived ideas, can decisively influence what is recommended as being good professional practice.<sup>5</sup> Although most of the students considered pain to be a common experience in the healthcare institutions, this should not mean that when a person is hospitalized they should feel pain. The excellence of care calls for the establishment of measures and strategies to prevent and avoid pain, for example, the prior administration of analgesics that have an effect

upon certain procedures, as well as the use of non-pharmacological techniques.<sup>20</sup>

Pain management is not an exclusive skill and responsibility of physicians, as is often believed due to it being them who prescribe the analgesic medication. Whenever the occurrence of pain is expected or if, from its evaluation, there is any evidence of its presence, the nurse must act in promoting care to minimize the pain to levels considered acceptable by the person. In this context, nurses should be efficient in the promotion of pain control, particularly in their autonomous interventions (exclusive initiative and the responsibility of the nurse), as well as in their interdependent interventions (which are complementary, initiated by prescription from another member of the healthcare team).<sup>10,20</sup>

Based on these results, it can be concluded that the students who have a higher level of knowledge and attitudes in relation to pain are approximately 0.8 times more likely to reflect and analyze their beliefs and knowledge about how pain can affect the quality of the care they provide, and 9.8 times more likely to request and consider the assessment of the patient when evaluating pain. The majority of professionals do not always believe the reports of pain of the patients, nor do they recognize that pain is whatever the individual says it is and exists whenever the person says it does.<sup>12</sup> From this perspective, the best way to evaluate pain is to rely on the words and behavior of the patients, respecting their singularity and their own way of being.<sup>21</sup> Furthermore, the actions of the nurses are much more effective and better suited for the appreciation and interpretation of pain and its manifestations in and by the patient.<sup>22</sup> In view of the above we believe that to improve pain control it is essential for both students and nursing professionals to update and deepen their knowledge in that, as members of the healthcare team, they have responsibilities in the diagnostic evaluation, in the intervention and in the monitoring of the results of the pain treatment.

## FINAL CONSIDERATIONS

Based on the aims proposed in this study it can be concluded that the nursing students presented positive progress in relation to the pain theme throughout their NLDC formation, which was most evident in the early years of the NLDC. When comparing the different scores, it was found that the score related to pharmacology knowledge presented worse results. These results represent a

significant contribution to recognizing the role of students as future nurses, making them multipliers of knowledge and providing them with the ability to develop integral care to patients, given the need for effective pain control, striving for excellence in the care. It should also be mentioned that these results are relevant in that the higher education institutions have a duty to ensure a quality formation, presenting performance indicators for the teaching administered. This therefore permits us to reflect on and gauge the teaching/formation in nursing.

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