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CARE OF PRESSURE AND VENOUS ULCERS IN SIMULATION ENVIRONMENT

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TABLE OF CONTENTS

PRESSURE INJURIES RELATED TO MEDICAL DEVICES (PIRMD).....	4
OXYGEN AND HEALING: IMPORTANCE OF HYPOXIA	6
TUAS STUDENTS´ KNOWLEDGE ABOUT ADDRESSING CHRONIC WOUNDS	9
ATTITUDES OF SENIOR NURSING STUDENTS TO PRESSURE INJURES: A QUALITATIVE RESEARCH	11
INVESTIGATION OF KNOWLEDGE AND ATTITUDES OF NURSING STUDENTS ON PREVENTION OF PRESSURE INJURES	13
CHRONIC WOUNDS CARE AND MANAGEMENT BY NURSES IN ALBANIA – FUTURE CHALLENGES FROM A REVIEW STUDY	15
THE RESULTS OF “VENOUS ULCER KNOWLEDGE TEST” IN TALLINN HEALTH CARE COLLEGE, ANSWERED BY NURSING STUDENTS FROM SECOND COURSE	17
TALLINN HEALTH CARE COLLEGE’S SECOND COURSE NURSING STUDENTS KNOWLEDGE ABOUT PRESSURE ULCERS USING “PIEPER’S PRESSURE ULCER KNOWLEDGE TEST” RESULTS	18
SEMMELWEIS UNIVERSITY FACULTY OF HEALTH SCIENCES NURSING STUDENTS’ KNOWLEDGE ABOUT CHRONIC PRESSURE ULCER	20

PRESSURE INJURIES RELATED TO MEDICAL DEVICES (PIRMD)

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Introduction: Health care has seen an increase in more complex and invasive techniques and procedures, with the objective of optimizing the individual's health status. This greater complexity is associated with the use of different medical devices that can result in the appearance of pressure ulcers related to their use. They can occur in anyone who is subject to the application of a medical device and often depend on the condition of the person and the need for the means of support to ensure the best health conditions.

The formation of PPL in unusual regions are usually caused by the use of medical devices, and are then called Pressure Injuries Related to Medical Devices (PIRMD), which are created and applied for diagnostic and therapeutic purposes.

Goals: With the performance of this work, it was intended to identify and analyze scientific evidence regarding the occurrence of PIRMD, considering the places with the highest risk of development and knowing the prevention and treatment measures.

Methodology: Research was conducted in October 2019, from the EBSCOhost and PubMed platform, in the academic search complete databases, CINAHL, Medic-Latina, MEDLINE, Psychology and Behavioral Sciences Collection, SPORTDiscus with Full Text, Library, Information Science & Technology Abstracts, Regional Business News, using the following descriptors: "pressure ulcer*" and "Medical devices*", complemented with boolean operators "AND". Of the 211 result articles, 5 articles were selected, according to the inclusion criteria previously defined.

Results: Of the eleven risk devices for the development of identified lesions: Masks of Noninvasive Ventilation; cervical collar; orotracheal tube; Tracheostomy; nasogastric probe; gastrostomy probe; Sengstaken-Blakemore Probe fixation helmet; vesical probe of delay; radial artery catheter; immobilizer splint and antiembolism stockings, it was found that the devices most at risk for the development of PIRMD are respiratory devices, such as NIV masks and orotracheal tube. The cervical collar also takes great importance, particularly in intensive care units. As prevention and treatment measures, the analysis of the studies revealed general recommendations (periodic skin evaluation care, repositioning of devices and use of dressings to decrease shear force) applied to any type of device, and specific, according to the device.

Conclusions: PIRMD are frequent problems, particularly when we are facing critically ill patients, with the posterior cervical region and the nose being the places most often affected by them.

Speaking of prevention and treatment, general and specific measures are recommended to the type of device used, and a periodic evaluation of the skin under the devices is essential. It is also important to realize whether device maintenance is critical because the best prevention is still removal of the device when there is no longer indication of use.

Key words: Pressure injury, medical device.

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OXYGEN AND HEALING: IMPORTANCE OF HYPOXIA

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Introduction: Wound healing boils down to a cascade of events that culminate in tissue reconstitution. This involves three or four phases that, associated with microenvironmental conditions, promote the repair of the lesion. Oxygen is determinant and favorable to healing, however, its importance is decreased in the initial phase, increasing in the following phases. Thus, hypoxia is central at the immediate moment to the lesion, stimulating the beginning of the cascade, promoting the restoration of oxygen and nutrient stake that, in later phases, will be essential.

Goals: With the performance of this work, it is intended to understand the importance that hypoxia has in an early phase of healing, as well as to understand the main mechanisms that are triggered by the presence of this central factor in the physiological healing process.

Methodology: A search was conducted through the Search Engine EBSCOhost, selecting the databases "CINAHL Plus", "Medline" and "MedicLatina". Hypoxia and healing AND wound* AND oxygen, NOT rat* OR mice, covering a 7-year time frame were used. Thirty-five articles were obtained in full text, of which four were selected. The exclusion criteria that allowed this preference were based on the title

and information of the articles, which were not always included in the requirements of the research.

Results: Whenever there is a wound, there is vasoconstriction and platelet aggregation, creating a "microclimate" where there is a decrease in oxygen supply to cells – hypoxia³. This is the primary factor that initiates the inflammatory phase, which lasts, on average, 4 to 6 days. The occurrence of hypoxia is then a determining factor at the beginning of the healing cascade, since this condition leads to the production of specific proteins, HIF-1². These act as regulatory in cellular response to hypoxia, through the production of specific genes, such as VEGF and ANGPT2, which stimulate angiogenesis, GLUT1 and GLUT3, which promote glucose uptake by cells, and EPO, which is responsible for increasing the number of circulating erythrocytes⁴. In addition, these genes favor the development and relaxation of blood vessels, as well as a better adaptation of metabolism to the reduced amount of oxygen available, improving their transport and tissue infusion¹.

Conclusions: The research allowed us to realize that hypoxia is an essential factor at the beginning of the healing cascade, since it is responsible for inducing the inflammatory response in the injured tissue. Thus, the existence of local hypoxia at a stage immediately after the moment of injury is crucial, as it induces the production and activation of several agents that contribute together to the development of a series of phenomena culminating in the total repair of the tissue that suffered the injury, and which, without it, would not occur.

Key words: Hypoxia, healing, wound, oxygen.

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TUAS STUDENTS' KNOWLEDGE ABOUT ADDRESSING CHRONIC WOUNDS

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Turku University of Applied Sciences is Partner Organisation in the Erasmus+ Project called Care of Pressure and Venous Ulcers in Simulation Environment. The first mission of this project was to find out what is the nursing students' knowledge about pressure sores and venous ulcers. 120 nursing students from TUAS received a Webropol questionnaire link via email. The questionnaire included both Pieper-Zulkowski Pressure and Venous Ulcer Knowledge Test. There were 78 questions in the questionnaire, of which 40 were questions about pressure ulcer and 32 questions about venous ulcer.

Data was collected from nursing students, who had started their studies in autumn 2018. Students had approximately 3 months to answer (11/2018-1/2019).

Of the 53 students who answered the questionnaire, 50 were female and 3 male. Age was between 19-52 and 39 of them had had contact with chronic wounds whereas 14 had not had any contact. 34 respondents believed that the educational program had been helpful in practice and seven did not, 12 students had not been to practical training yet. 16 respondents had participated in other wound care program and 37 had not.

The results of the questionnaires were divided into two groups: pressure ulcers and venous ulcers. The groups were categorized in two sections: Top 10 Students who knew correct answers and Top 10 Students who did not know the correct answers. For example, position changing times were evaluated incorrectly (time between position change was too long) and the usage of heel protectors and donut cushions

were thought to prevent pressure sores. Only ¼ knew that the infection sample is taken from the wound after cleansing and what the treatment principle of the wound with granulating tissue is.

100% of the respondents knew that a black wound has necrotic tissue and the wound can be cleansed with saline or wound cleansing solutions. The importance of the documentation concerning the wound is also highly understood. All the respondents were aware how to recognize stage IV pressure ulcer and of the importance of adequate dietary intake during illness.

The aim of the project is to create an online e-learning course and five simulation tasks that are based on the latest research results. With the results of the questionnaire it is possible to add questions to the online e-learning course about chronic and venous ulcer and focus on the things the students' knowledge was lacking about. The change in the students' knowledge will be assessed using the questionnaire and be used for the part of wound care: cleaning, debridement, and the removal of necrotic tissue.

Education and teaching on wound care - not only in basic nursing and podiatry but also in continuing professional development should focus on these competence areas to standardize wound care education and ensure that the required competences exist in clinical wound care, especially chronic wound. (Kielo, E. 2019).

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Questionnaire Survey data collected from TUAS nursing students (11/2018-1/2019)

Erasmus+ Application form 03/2018

Pieper-Zulkowski Pressure and Venous Ulcer Knowledge Test

ORAL PRESENTATION
**ATTITUDES OF SENIOR NURSING STUDENTS TO
PRESSURE INJURIES: A QUALITATIVE RESEARCH**

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Background: Pressure injuries have significant morbidity and mortality, especially in the elderly individuals and patients with limited mobility. In addition, it is a preventable problem that postpones the discharge period, and also it adversely affects the quality of life of the individual and has a high cost. As professional members of the health care system, nurses have important roles and responsibilities in the protection of individuals who have risk for pressure injury. Pre-undergraduate education affects nurses' attitudes, beliefs and knowledge about their practices. However, there are limited number of studies in the literature to determine the attitudes of nursing students towards pressure injuries.

Aim: The aim of this study was to determine the attitudes of senior nursing students towards pressure injuries.

Method: The population of the research, which was conducted in the phenomenological qualitative type, was composed of the final year students of the nursing faculty of a university in Istanbul in 2019-2020 academic year. The sample consisted of 21 nursing students who agreed to participate in the study after informing. Data on the attitudes of senior nursing students towards pressure injuries was collected by using focus group interview method via interview form. The collected data was evaluated using appropriate statistical methods.

Results: It was determined that the mean age of nursing students was 21.47 ± 0.98 (21-25), 81% of them were female and all of them were single and 76.2% of students were eligible for income. It was found that the ratio of pressure injury to the

injury coverage in the clinical setting was 95.2% and they did not work anywhere. According to the results of the analysis, the main themes were “clinical practice experiences”, “learning gains”, “the effects of knowledge and skill sharing on learning” and “contribution to the development of post-graduate nursing identity” for the prevention of pressure injuries of nursing students. "Finding the opportunity to apply theoretical knowledge" and "increasing self-confidence" were included in the theme of the clinical practice experiences of nursing students. Within the scope of the learning gains, it was seen that they touched on issues such as "recognizing the severity of the pressure wound", "acquiring comprehensive theoretical knowledge", "to understand the importance of preventive interventions and care and to make a difference compared to other nursing students". In the theme of the impact of knowledge and skill sharing on learning, “positive impact of peer education on learning”, “arousing curiosity” and “making information more permanent topics” were mentioned. In the theme of contribution to the development of nurse identity after graduation, “making nurses have more experienced” and “conscious nurse identity” and “make a difference” were highlighted.

Conclusions: It is seen that according to the results of the study in which nursing students' attitudes towards the prevention of pressure injuries were examined, theoretical education and clinical experiences will lead to more informed educators and students and provide positive gains.

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ORAL PRESENTATION
**INVESTIGATION OF KNOWLEDGE AND ATTITUDES OF NURSING
STUDENTS ON PREVENTION OF PRESSURE INJURIES**

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Background: Pressure injuries are seen as an important risk factor which is threatening the health of the patients for health institutions all over the world and in our country. Although wound care is one of the main subjects of nursing education, there are not many studies examining the knowledge and attitudes of nursing students about the prevention of pressure injuries.

Aim: This study was planned to investigate the effects of theoretical and clinical experience on nursing students' knowledge and attitudes towards preventing pressure injuries during their undergraduate education.

Method: The population of this descriptive and cross-sectional study consisted of students studying in the nursing faculty of a university in Istanbul in 2019-2020 academic year. In the research, it was aimed to reach the whole population without any sampling method. Accordingly, the sample of the study consisted of 1178 nursing students who were in accordance with the inclusion criteria and willing to participate in the study. The inclusion criteria were determined (n=756) as having clinical practice experience and willingness to participate in the study. Data were collected by “Student Questionnaire Form”, “Pressure Ulcer Knowledge Assessment Tool” and “Scale of Attitudes Towards the Pressure Ulcer Prevention”. IUC Florence Nightingale Nursing Faculty’s permission and ethics committee approval was obtained. The obtained data were analysed using appropriate methods on the computer.

Results: It was found that the average age of the students was 20.23±12 years, 78.4% of them were female, 28.4% of students were third course, 93.3% of them were not

working as a nurse, 62.7% of the students had never experienced pressure injuries and the students who faced them, experienced the second stage pressure injuries as the highest stage. It was seen that 71.3% of the students received training against pressure injury and 97.2% of those students received nursing curriculum. It was found that 49.5% of the students found pressure wound training to be adequate and 70.3% thought it was beneficial in the clinic. It was determined that 72.4% of them wanted to be wound care nurse in their professional life, 97.5% of them thought that nurses should have information about pressure wounds, 63% of them thought that nursing applications were partially sufficient to prevent pressure wounds. The mean score of the Pressure Ulcer Knowledge Assessment Tool was 11.26 ± 3.36 and Scale of Attitudes Towards The Pressure Ulcer Prevention total score average was found to be 40.73 ± 4.44 ; in all sub-dimensions it was seen that; 6.83 ± 1.73 in Qualification, 10.49 ± 1.45 in Priority, 10.46 ± 1.76 in Effect, 6.21 ± 1.23 in Responsibility, and 6.73 ± 1.00 in the Effectiveness of Prevention. A positive correlation was found between the Scale of Attitudes Towards the Pressure Ulcer Prevention total score and Priority, Impact, Responsibility, Effectiveness of Prevention subscale and Pressure Ulcer Knowledge Assessment Tool ($p < 0.05$). According to the socio-demographic characteristics of the students (age, gender, class, encountering pressure sores and getting education about this issue, etc.), a statistically significant correlation was found between the Pressure Ulcer Knowledge Assessment Tool and Scale of Attitudes Towards the Pressure Ulcer Prevention.

Conclusion: In line with these results, it was found that nursing students had good knowledge in preventing pressure injuries and their attitudes were moderate.

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CHRONIC WOUNDS CARE AND MANAGEMENT BY NURSES IN ALBANIA – FUTURE CHALLENGES FROM A REVIEW STUDY

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Introduction

Chronic wounds include large types of wounds and infection wounds, surgical sites, and ulcers which are the three most common types with large costs due to Medicare readmissions which are potentially preventable.

Description of the problem

Nursing role in the management of chronic wounds is pivotal as in the basics of chronic wound care as well in the use of technologies and the implementing of the best practices throughout the care process, to provide the patient with safety and quality care.

Purpose and tasks

The purpose of this electronic literature review was to identify and to provide resources for nurses as well for nursing students regarding chronic wound care in Albania. The research included the database of Ovid PubMed, Google Scholar, and Medline of articles in English regarding chronic wound care with no time limit. The keywords used for the research were diabetic foot ulcers, venous leg ulcers, infections wounds, surgical wounds, pressure ulcers and chronic wound care. The research lasted 2 months and was performed independently by all researchers.

Results

The study results showed that research and publications about chronic wound care in Albania are very poor. Not a single article on the topic of interest was identified.

Conclusions

This research suggests the undertaking of a study, even at the local level to identify first the prevalence of chronic wounds and the demography of patients with these wounds and secondly, identify the knowledge, barriers, and gaps that nurses have in care and management of chronic wounds.

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**THE RESULTS OF “VENOUS ULCER KNOWLEDGE TEST” IN
TALLINN HEALTH CARE COLLEGE, ANSWERED
BY NURSING STUDENTS FROM SECOND COURSE**

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The aim of this study is to describe students' knowledge about venous ulcers. In the research descriptive, empirical and quantitative methods were used. Data was collected between 10 October 2018 to 06 December 2018 using the questionnaire “Venous ulcer knowledge test”, which was used before at Finland Health Care College as a test to pass the course.

From the 100 students 96 answers were received. 86,5% of them were female and 13,5% male. Data were statistically analysed using descriptive statistics. According to the results second course nursing student's knowledge about venous ulcer is above average (71,7% correct answers). 37,5% of respondents have been in contact with a patient who has a venous ulcer, but only 17,7% have had training about venous ulcers. All respondents knew about necrotic, granulation and fibrin tissue. They did not know about compression therapy stockings and how to take care of a venous ulcer. Our student's knowledge was lower than the one of Finnish students (84%) and higher than the one of Hungarian students (51,2%).

In conclusion I can say that the results gave a first impression of students' knowledge about venous ulcer. The results will be used to develop e-learning and simulation tasks during the ERASMUS + international project. From the rest of the world it can also be concluded that the knowledge is quite low. A study from Rabe, Soraia Assad Nasbine which was held in Sao Paulo nursing school, showed that students' knowledge was 50%. A virtual learning environment was created there, which improved the students' knowledge.

Key words: Venous ulcer, students, knowledge, nurse, simulation.

**TALLINN HEALTH CARE COLLEGE'S SECOND COURSE
NURSING STUDENTS KNOWLEDGE ABOUT PRESSURE ULCERS
USING "PIEPER'S PRESSURE ULCER KNOWLEDGE TEST" RESULTS**

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Background: Pressure ulcer is a serious health issue and it occurs daily. Hospital acquired pressure ulcers cause patient harm, including pain, expensive treatments, prolonged hospital stay and premature death. In the USA more than 2.5 million people develop pressure ulcers in acute care and 60 000 of them die because of the complications.

Aim: The purpose of this study is to assess nursing students' knowledge about preventing pressure ulcers, describing different stages of pressure ulcers and taking care of the already existing pressure ulcer.

Methods: Descriptive, empirical and quantitative method was used. The data was collected in the time span of two months from 10 October 2018 to 06 December 2018 using "Pieper's pressure ulcer knowledge test". Second year students were chosen to fill in the questionnaire. Of 100 students 88 filled the questionnaire. 89.8% of the respondents were female and 10.2% male. The data was analysed statistically. The questionnaire had 47 questions that were divided into three main topics: preventing, staging and wound care. Respondents had to decide whether the statement was correct, incorrect or "I don't know".

Results: Based on the results it was revealed that second year nursing student's knowledge about pressure ulcers was average (61.8% of correct answers). Students knew the least about "Persons who can be taught should shift their weight every 30 minutes while sitting in a chair" - 85.2% answered incorrectly. They also didn't know that "A person who cannot move himself or herself should be repositioned every 2 hours while sitting in a chair" and "Persons confined to bed should be repositioned every 3 hours" - 80.7% did not choose the correct answer. Students knew really

well that "All care given to prevent or treat pressure ulcers must be documented" - 97.7% answered correctly.

Conclusion: In conclusion it can be said that the students' knowledge about pressure ulcers could be much better. The same knowledge test was used to conduct a study in two nursing colleges in Iran, where the overall percentage of correct answers was 67%. The same test was also used to assess orthopaedic nurses' knowledge about pressure ulcers and 65% of them answered correctly. The number of pressure ulcer incidents is high, but with good knowledge about prevention, staging and wound care there would be less pressure ulcer incidents. Schools need a better learning program for pressure ulcers.

Key words: Pressure ulcer, students, knowledge, nurse, simulation.

SEMMELWEIS UNIVERSITY FACULTY OF HEALTH SCIENCES
NURSING STUDENTS' KNOWLEDGE ABOUT CHRONIC
PRESSURE ULCER

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Aim: The aim of this study was to assess nursing students' knowledge about chronic pressure ulcers.

Design: online questionnaire with undergraduate nursing students enrolled in Semmelweis University, Budapest.

Methods: data were collected from nursing students using Pressure Ulcer Knowledge Test to measure students' knowledge about pressure ulcers.

Results:

- Overall Pressure Ulcer Knowledge scores: 66,22%; Lowest score: 44,44%;
- Highest results: 80,00%;
- Results of separated topics (as seen below).

Conclusion: developing new, evidence-based educational methods (such as e-learning system) is indicated to improve students' knowledge about applicable devices to prevent and to treat pressure ulcers and to broaden their practical knowledge

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Photos taken during the activities of the Erasmus+ Programme project „Care of Pressure and Venous Ulcers in Simulation Environment“, code of the project 2018-1-EE01-KA203-047119.



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