

Knowledge of nursing students on the subject of pressure ulcers prevention and treatment. What we know about pressure ulcers?

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Śławomir Szymański^{1CDEF}, Emanuela Porębska^{2ABF}, Olimpia Sipak-Szmigiel^{1D}

¹Department of Obstetrics and Pathology of Pregnancy, Pomeranian Medical University, Szczecin, Poland;

Head: prof. Olimpia Sipak-Szmigiel MD PhD

²Nursing studies, full time, second cycle, Faculty of Health Sciences, Pomeranian Medical University, Szczecin, Poland

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ABSTRACT:

Introduction: Pressure ulcers and their consequences can occur in any patient regardless of the underlying disease, so the knowledge of their prevention and treatment is extremely important.

Aim: The aim of the study was to analyze the state of students' knowledge on pressure ulcers.

Material and methods: The research was carried out in the Pomeranian Medical University in Szczecin among students of nursing. The study involved 203 full-time students. Data was collected using a questionnaire consisting of 27 questions. The questions addressed the issues of the formation, prevention and treatment of pressure ulcers. The Kolmogorow-Smirnow, Fisher-Snedecor test, (ANOVA) with Spearman's correlation and Student's t-test were applied for statistical analysis. The statistical significance was assumed to be $p \leq 0.05$.

Results: Over half of the respondents (57.64%) had a sufficient level of knowledge on pressure ulcers prevention and treatment. The level increased with the duration of the study, the highest was in the last few years, both I and II cycle of studies. The better (the higher) subjects assessed their knowledge about prevention and treatment of pressure ulcers, they were characterized by a higher level of knowledge.

Conclusions: The knowledge of nursing students on pressure ulcers increases with subsequent years of study. The self-assessment of students' knowledge about pressure ulcers, their prevention and treatment is accurate. Students of the consecutive years are better prepared to carry out anti-bedsore prevention. Students are aware of the need to have knowledge, as well as practice in the field of prevention and treatment of pressure ulcers.

KEYWORDS:

knowledge, nursing students, pressure ulcers

ABBREVIATIONS

ANOVA – one-way analysis of variance

PTLR – Polish Society for the Treatment of Wounds

INTRODUCTION

Decubitus ulcer is damage limited to skin and deeper tissues, which leads to their dying, loss and consequent necrosis [1]. Pressure ulcer is caused by local blood flow disorders and hypoxia resulting from prolonged or repeated pressure on a given area of the body. Patients of all ages are exposed to pressure sores. Predisposing factors are paresis, sensory disturbances, dry and thin skin, poor nutritional status. Pressure sores can be prevented by appropriate prophylaxis, hence knowledge about effective prevention and possible treatment is extremely necessary [1–3]. The aim of the study was to analyze the state of knowledge of nursing students of the Pomeranian Medical University in Szczecin on the subject of pressure ulcers prevention and treatment.

MATERIAL AND METHODS

The research was conducted among 203 nursing students of the Pomeranian Medical University (PUM). Participation in the study was voluntary and anonymous. Data was collected using the method of a diagnostic survey and the technique of a questionnaire.

The majority of respondents were women (90%). The average age of the respondents was 22.05 ± 2.2 years. The largest group of respondents were students of the third year and the first year of undergraduate studies constituting 24.63% and 23.65% respectively (Tab. I.). Among second-cycle students, 54% of them worked in a profession of a nurse. The average self-esteem of the respondents in the field of knowledge about pressure ulcers prevention and treatment was 5.33 ± 1.60 points.

For statistical analysis of the data obtained Statistica v. 10.0 StatSoft Poland was applied. Parameters measured are shown providing arithmetic means, standard deviations for continuous variables, while for discrete variables: number of cases and percentage value. Conformity of distributions of quantitative traits with normal distribution was assessed using the Kolmogorov-Smirnov test and based on the analysis of skewness and kurtosis indices and the Fisher-Snedecor test. Due to the conformity of the distribution of the variable explained with the normal distribution, the statistical analysis applied parametric methods: one-way analysis of variance (ANOVA) with Spearman's rank correlation and Student's t-test for independent samples. The statistical significance was assumed to be $p \leq 0.05$.

RESULTS

The average result of the level of knowledge among respondents was 21.16 ± 3.96 points, (with a maximum of 33 points). Over half of

Tab. I. Respondents' cycle and year of study.

STUDY CYCLE	N	% OF TOTAL	YEAR OF STUDY	N	% OF A GROUP	% OF TOTAL
I bachelor's study	135	66.5	I	48	35.56	23.65
			II	37	27.41	18.23
			III	50	37.04	24.63
II master's study	68	33.5	I	37	54.41	18.23
			II	31	45.59	15.27

Tab. II. Level of knowledge on the prevention and treatment of pressure ulcers.

LEVEL OF KNOWLEDGE ON PRESSURE ULCERS	M	SD	MIN	MAX	SKEW	K	K-S	P*
	21.16	3.96	11	31	0.04	-0.22	0.08	0.002
			N			% OF TOTAL		
Insufficient (0–15 pkt.)			14			6.9		
Sufficient (16–22 pkt.)			117			57.64		
Good (23–27 pkt.)			58			28.57		
High (28–33 pkt.)			14			6.9		

M – the arithmetical mean; SD – standard deviation; Min – lowest value; Max – highest value;

Skew – skewness; K – kurtosis; K-S – test result

* the Kolmogorov-Smirnov test

the respondents (57.64%) had a sufficient level of knowledge on the prevention and treatment of pressure ulcers, 28.57% good, and for 6.90% high or low. Differences were statistically significant (Tab. II.).

The one-way analysis of variance showed statistically significant differences between individual student groups regarding the level of knowledge ($p < 0.001$). Post-hoc multiple comparisons have shown that the level of knowledge increases with the duration of studies, the highest being in recent years, and the lowest in the first, both in the case of first and second cycle studies (Tab. III.).

Correlation analysis showed that the better (higher) the subjects assessed their knowledge about prevention and treatment of pressure ulcers, they were characterized by a higher level of knowledge ($p < 0.001$) (Tab. IV.).

Correlation analysis showed that the older the subjects were, the higher the level of knowledge about prevention and treatment of pressure ulcers ($p < 0.001$) (Tab. V.).

Correlation analysis between gender and the level of knowledge did not show statistically significant differences (Tab. VI.).

DISCUSSION

Decubitus ulcers are a common medical problem affecting patients of every age group. Their presence may be associated with discomfort, pain and reduced quality of life. In the course of vocational education (bachelor and master) nursing students gain knowledge and competence necessary to conduct anti-bedsores prevention and treatment of pressure ulcers.

Study of the level of knowledge of nursing staff on wound healing and treatment conducted by Walewska et al., which included nurses working in departments of various specialties, showed that 96.6% of respondents possessed knowledge at a sufficient level, including

28.8% at the high level [4]. On the other hand, Bazaliński et al., studying the knowledge of neurological wards nursing staff in relation to the guidelines of the Polish Society for the Treatment of Wounds (PTLR) showed that almost half of the respondents did not have optimal knowledge in the discussed topic. In the study group only 11% of the respondents represented the average, and 5% high level of knowledge about prevention and treatment of pressure ulcers [5]. Another study by Bazaliński et al., on the topic of preparing nurses for care of a patient with a chronic pressure ulcer, confirmed an unsatisfactory level of knowledge [6]. Similar results were obtained by Targari et al., studying the knowledge of Iranian nurses working in the intensive care unit. Analysis of the material indicated that the knowledge of the surveyed group was also insufficient. The nurses received the best results in the category of the role of nutrition in prophylaxis, the weakest in turn in the field of etiology and classification of pressure ulcers [7].

Uba et al. conducted research in Nigeria in a university hospital on a group of 99 nurses. Half of the respondents gave correct responses to skin care methods preventing pressure sores and to early symptoms of pressure ulcer formation. 44% of respondents recognized risk factors correctly and the worst result they obtained in terms of knowledge of the pressure ulcer formation risk scales. A comprehensive analysis showed that the knowledge of Nigerian nurses about bedsores was low. It is worth noting that in the observed group, 71.7% of respondents, after obtaining the diploma, did not participate in the training dedicated to the prevention and treatment of pressure ulcers [8]. Esan et al. also carried out the research in Nigeria. 90 nurses employed in the hospital joined the study. According to the authors, 64.4% of them had good knowledge about the prevention and etiology of pressure ulcers. The respondents also showed appropriate knowledge in the field of staff influence and the latest standards related to the prevention of pressure sores. 76% of nurses from the study group completed a special training on pressure ulcer prevention [9]. Bazaliński et al. also pointed to the relationship between post-graduate education in the field of wound healing and obtaining a higher test result [6].

Gul et al. conducted research on a group of 308 Turkish nurses. The subjects were of different ages and worked in both surgical and non-surgical wards. The research results showed gaps in nurses' knowledge about prevention and risk factors for pressure ulcer formation as well as wound assessment and classification. Material analysis did not show a correlation between greater professional experience and a higher test result. Achieving a better result was associated with participation in postgraduate education addressing the problem of pressure ulcers within four years before joining the study [10].

Gunningberg et al. conducted research in Sweden. Nurses, nursing students and assistants of nurses participated in the research. The study group consisted of 415 people, including 196 nurses and 97 nursing students. The average number of correct answers in the whole group was 58.9%. The best results were obtained by nurses and students, the lowest – by assistants of nurses [11]. A comprehensive assessment of the knowledge of people participating in the studies of Gunningberg et al. was described as insufficient or on the borderline with an acceptable result. 59.3% of nurses and 61% of students had adequate knowledge of pressure ulcers [11].

Parcorbo-Hidalgo et al. evaluated the knowledge of Spanish nurses. The study covered a group of 740 people working in various forms

Tab. III. Level of knowledge on the prevention and treatment of pressure ulcers depending on the respondents' cycle and year of study.

	CYCLE AND YEAR OF STUDY	N	M	SD	MIN	MAX	F	P*
Level of knowledge on pressure ulcers	1 yr I cycle	48	18.58	3.44	11	27	8.94	<0.001
	2 yr I cycle	37	21.84	2.72	15	27		
	3 yr I cycle	50	22.5	3.97	15	30		
	1 yr II cycle	37	20.86	3.46	14	31		
	2 yr II cycle	31	22.52	4.7	12	30		

* the Fisher-Snedecor test

of health care. The obtained results determined the possessed knowledge as sufficient. According to the research, 79.1% of nurses granted correct responses on the prevention of pressure sores, 75.9% had knowledge of therapeutic intervention [12].

A meta-analysis of data on nurses' knowledge on the prevention of pressure ulcers by Dalvand et al. included eight studies conducted in various countries around the world. The results confirmed a higher level of knowledge in nurses than in students. In both groups, the most points were awarded for the role of feeding in the prevention of pressure ulcers. The lowest results were obtained in the case of prophylactic activities aimed at reducing the pressure and shear forces. Research has shown that the nurses' knowledge is more extensive than the students' knowledge, but still low. The analysis of data obtained from different continents shows that the low level of knowledge was not related to geographical location [13].

In the studies of Usher et al. conducted in Australia, at seven universities covering almost 3 thousand nursing students, observed that more than half of the respondents gave correct answers on the aetiology, classification, risk factors and pressure ulcer prophylaxis. This knowledge increased with the advancement of studies. In addition, Usher et al. also proved that along with the knowledge, the sense of own competence and independence increases [14]. In turn, Simonetti et al. conducted research among Italian nursing students. The results showed that the majority of Italian students have little knowledge about pressure ulcers, but it increases with the duration of studies [15]. Cullen et al. also showed low level of knowledge about pressure ulcer prevention among students by examining 60 Irish students of the fourth year [16]. Our research indicates that nursing students mostly have a sufficient (57%) or higher (36%) level of knowledge about the care, treatment and prevention of pressure ulcers. In addition, the level increases with the duration of the studies. Of course, one would expect the results to be even higher. However, it should be taken into account that a large group in these studies were students of the first and second year of the first cycle, who will have many subjects to address this issue in future, hence it can be concluded that their knowledge will be even deeper. The obtained results indicate the readiness of nursing students to take care of patients with pressure ulcers.

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Tab. IV. Correlation between self-assessment of the subjects and level of knowledge on the prevention and treatment of pressure ulcers.

	SUBJECTS' SELF-ASSESSMENT	
	RHO-SPEARMANA	P*
Level of knowledge on pressure ulcers	0.37	<0.001

* ANOVA with Spearman's rank correlation

Tab. V. Correlation between age and level of knowledge on the prevention and treatment of pressure ulcers.

	AGE	
	SPEARMAN'S RHO	P*
Level of knowledge on pressure ulcers	0.26	<0.001

* ANOVA with Spearman's rank correlation

Tab. VI. Relationship between gender and level of knowledge on the prevention and treatment of pressure ulcers.

LEVEL OF KNOWLEDGE ON PRESSURE ULCERS	N	M	SD	MIN	MAX	T	P*
Female	182	21.12	3.97	11	31	0.45	0.656
Male	21	21.52	3.96	14	29		

* Student's t-test

At the beginning of the career path, despite the sufficient knowledge, the support of colleagues and practice is invaluable.

CONCLUSIONS

1. Knowledge of nursing students about pressure ulcers increases with subsequent years of study;
2. Self-assessment of students' knowledge about pressure ulcers, their prevention and treatment is accurate;
3. Students of subsequent years are getting better prepared for carrying out anti-bedsore prophylaxis;
4. Students are aware of the need to have knowledge as well as practice in the field of prevention and treatment of pressure ulcers.

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