



Knowledge and attitudes of nurses in a major public hospital in Cyprus towards pressure ulcer prevention



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ABSTRACT

Study aim: The main aim of the study was to identify the knowledge and attitudes of nurses towards pressure ulcer prevention in a major public hospital in Cyprus.

Material and methods: A descriptive and cross-sectional study design was used to collect the data between December 2014 and February 2015, the sample consisted of $n = 102$ nurses employed in a major public hospital in Cyprus. Customised and standardised Pressure Ulcer Knowledge Test and an attitudes Likert questionnaire was used to investigate both parameters. Descriptive and inferential statistics, parametric (t -test), non-parametric tests (Mann-Whitney U) and Pearson test was applied. Statistical significance was set at $p = 0.05$.

Results: The majority of the participants (44.1%) $n = 45$ were employed in the intensive care unit, were female (61.8%) $n = 63$, registered nurses (93.1%) $n = 95$, had more than 5 years of experience (59.4%) $n = 32$ and 10.8% ($n = 11$) had a postgraduate title. The mean value regarding the knowledge questionnaire was 16.16, IQR: 17(15–18) correct answers 77%. In the attitudes questionnaire the median value was 41.82, IQR: 43 (40–46). Knowledge and attitudes correlated positively and statistically significantly (Pearson's $R = 0.223$, $p = 0.019$).

Conclusion: The result suggests that nurses had relatively inadequate knowledge levels and positive attitudes, attitudes and knowledges correlated statistically significantly and positively. It is proposed that through the development of educational programs and the frequent measurement of the two parameters further improvement can be achieved.

1. Introduction

A Pressure Ulcer (PU) is defined as a localized injury to the skin and/or underlying tissue usually over a bony prominence as a result of pressure, or pressure in combination with shear. A number of contributing factors are also associated with PU, the significance of these factors is yet to be elucidated [14]. PU are thought to be one of the most common and frequent issues in the elderly, immobile or individuals with serious comorbidities [5].

It is estimated that 2.5 million PU are treated every year in the United States with a prevalence of 9.3% [7,31]. In Europe [29] reported an overall prevalence of 18.1%. The high prevalence of PU apply excess

financial stress in the health care organisations, in the United Kingdom the National Health Service reported that 531 million pounds are spent on the treatment of PU [11]. Additionally PU have a significant impact on the quality of life and on the psychophysiological environment of the individual suffering from them. A study contacted by Ref. [9] found that the individuals suffering from PU had poorer quality of life compared to healthy individuals, suggesting that the presence of an PU is linked to poorer quality of life [6]. proposed that this is due to factors such as pain, social exclusion, malodour, reduced mobility and alterations in body image.

Prevention of PU is of high importance as it is been stated that 95% of all PU are preventable [20]. Nurses that are working in clinical

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settings come in contact on a daily basis with individuals that are at high risk of developing PU [19], this group of health care professionals due to their daily and direct contact have a key role in the multi-disciplinary team regarding the prevention of PU, thus it is important to hold adequate knowledge levels and positive attitudes [12].

A number of studies have investigated the attitudes of nurses towards PU prevention [1,2,13,19,27,28] [2]. suggested that low priority and lack of interest towards P.U prevention are negatively affecting the attitudes level of nurses. On the contrary positive attitudes have been reported to the rest of the studies [1,13,19,27,28]. According to [19] attitudes are affected by the lack of time and the low numbers of nursing staff [27]. suggested that the positive levels of attitudes might be affected by paroxysm in the process of answering the questionnaire.

In the case of knowledge the literature is limited and the attempt of comparison is difficult as different tools, methods and samples were used. The results are contradictory as a number of studies suggest that the level of knowledge is adequate [1,8,10,16,17,23,26,27] and on the contrary that nurses level of knowledge is low [3,15].

Through the study of the scientific literature no other study has been identified to investigate the level of knowledge and attitudes of nurses in Cyprus regarding the prevention of PU, this study is the first of its kind and it will provide an insight into the subject. In this context the main aim of this study was to investigate the level of knowledge and to identify the attitudes of Nicosia's general hospital nurses regarding the prevention of PU.

2. Material and method

2.1. Study design and sample

The study design was descriptive in the form of a cross sectional study, a convenience sample was used. The study was carried out at Nicosia general hospital the largest secondary and tertiary healthcare setting of the country with a capacity of approximately 500 beds. Nurses that were actively employed in orthopaedic, paraplegic, Intensive Care Unit (ICU), medical and neurosurgical wards (n = 165) were chosen to participate due to their daily interaction with individuals that are at high risk or require treatment for P.U [19]. The excluded wards were, nephrology, urology, transplantation, ear nose throat (ENT), hematology, respiratory, accident and emergency, mental health and cardiology. One hundred and two questionnaires were returned which consists the final sample of the study (n = 102), the percentage that participated in the study (60%) is adequate, in the effort to minimise the information bias [18].

2.2. Data collection

The data was collected between December 2014 and February 2015. Every nurse received an envelope containing an anonymous self-completion questionnaire and a participant information sheet explaining the objective of the study and informing them regarding the voluntary participation and consent. Any questions or queries were answered by the researchers on the spot. The participants completed the questionnaires on site and they had the opportunity to consult the existing guidelines or other resources for assistance. The completed questionnaires were collected in specific boxes located in the wards.

2.2.1. Knowledge and attitudes questionnaire

Firstly an information and demographic form was developed as a result of the items included in the original studies consisting of 16 items, 6 questions focusing on the pre-existing knowledge and experience regarding pressure ulcers and 10 general demographic questions [19,24].

The main instrument of the study consisted of two separate questionnaires, for the measurement of knowledge, the Pieper Pressure Ulcer Knowledge Test (PUKT) was used, which is based on the

guidelines for the treatment and prevention of PU [24]. PUKT consists of 44 questions with three options available yes, no and I don't know. The cut off point for knowledge adequacy was set at 90% [24].

The attitudes questionnaire was developed by Ref. [19]; it consists of 11 Likert scale questions 1–5, ranging from strongly agree to strongly disagree, highest achievable score 55 and lowest 11, the use of Likert type question allows for increased flexibility in the answers of the participants compared to yes or no type questions [21].

The questionnaires were initially translated with forward-back translation from English to Greek and then back to English to ensure the linguistic validity of the tool. The translated questionnaire was assessed by a certified translator and two bilingual nurses that have experience and proficiency with PU [25].

The validity and reliability of the tool was tested. The knowledge test after the adjustments and modifications in its final form had 21 questions (Kaiser-Meyer-Olkin = 0,680) compared to the 44 of the original (Kaiser-Meyer-Olkin 0,463), producing good quality data (Bartlett 767,041, p < 0,001) and having satisfactory internal validity (Kuder-Richardson = 0, 82). The alternations performed on the questionnaire does not allow a direct comparison with the results of the original study, nevertheless the fact that the new questionnaire has been proven to measure the variable under study it serves the main purpose of the present research [25].

On the contrary no changes were made on the attitudes tool and the 11 questions were kept as translated, Cronbach α = 0,91 demonstrated satisfactory internal validity and the Kaiser-Meyer-Olkin = 0,781 (0, 50-0,060) that it produces good quality data.

2.3. Ethical considerations

Permission to use and translate the instrument were obtained via email from Prof. Z.Moore and Dr. Karen Zulkowski. The study was approved by the ethics committee of Cyprus (EEBK.EII 2014.01.08). The data regarding the nurses employed in the Nicosia General Hospital and permission to conduct the study, were obtained from the department of nursing of the ministry of health of Cyprus (YY 5.4.05) and the directorate of nursing Nicosia general hospital (YY 5.34.01.7.5 E).

2.4. Statistics

Descriptive and inferential statistics were performed. Parametric (*t*-test) and non-parametric tests (Mann-Whitney U) were used where appropriate, while the Pearson test was applied for data correlation between knowledge and attitudes subscales. Statistical significance was set at p = 0.05. SPSS 17.0 was used for statistical purposes.

3. Results

The majority of the participants (44.1%) n = 45 were employed in the I.C.U, were female (61.8%) n = 63, were registered nurses (93.1%) n = 95, and had more than 5 years of experience (59.4%) n = 32. 10.8% (n = 11) had a postgraduate title (Table 1). Most of the nurses reported that it had been more than 4 years since they updated their knowledge regarding P.U (43.1%) n = 44, even though 67.6% (n = 69) of the participants had read the national guidelines regarding the prevention and treatment of P.U.

The mean value regarding the knowledge questionnaire was 16.16, IQR: 17(15–18), percentage of correct answers 77% (Fig. 1). In the attitudes questionnaire the median value was 41.82, IQR: 43 (40–46) (Fig. 2). Knowledge and attitudes correlated positively and statistically significantly (Pearson's R = 0,223, p = 0,019), better attitudes levels meant better knowledge levels (Fig. 3). Rubbing the skin over bony prominence (57.8%) the opinion that eschar is a viable tissue (48%), and its presence is good for the healing process (43.1%), and that ring cushions are beneficiary for the prevention of P.U (65.7%) had the lower percentages of correct answers.

Table 1
Demographics.

Demographic	N	%
Nursing department		
Orthopaedic	18	17,6
Paraplegic	9	8,8
Intensive Care Unit (ITU)	45	44,1
Medical	20	19,6
Neurosurgery	10	9,8
Total	102	100,0
Gender		
Male	39	38,2
Female	63	61,8
Total	102	100,0
Nursing Grade		
Staff nurse	95	93,1
Deputy Ward Manager	7	6,9
Ward Manager	0	0,0
Deputy Matron	0	0,0
Matron	0	0,0
Total	102	100,0
Year of experience		
< 1 year	14	13,7
1–5 years	32	31,4
5–10 years	29	28,4
10–15 years	10	9,8
15–20 years	8	7,8
20 > years	9	8,8
Total	102	100,0
Academic certificate		
Diploma	1	1,0
Degree	87	85,3
Postgraduate	11	10,8
Doctorate	3	2,9
Total	102	100,0
Do you have any speciality?		
Yes	6	5,9
No	96	94,1
Total	102	100,0

In the attitude questionnaire it was observed that nurses aged 29 years and above had statistically higher score compared to the rest of their colleagues Median (IQR):44(41,75–46) versus 42(39–44), $Z = -2,645, p = 0,008$ (Fig. 4). Additionally the nurses employed in I.C.U had statistically significant higher attitude score in comparison to the rest of the population Median (IQR): 44(42–46), versus 42(39–45),

$$Z = -2,473, p = 0,013.$$

4. Discussion

The mean percentage of correct answers in the knowledge questionnaire was 77% demonstrating inadequate knowledge levels concerning the 90% cut off point set in our study. In a study contacted by Ref. [24] in two hospitals in the United States, the mean percentage of correct answers was found to be 71.7% in a sample of $n = 228$. In comparison with the results of our study the mean percentage of correct answer was 6.3% lower [24].

In a different study that was contacted in Brazil, using a modified 33 items version of the PUKT test a percentage of knowledge at 70% was observed [4]. The employment in a university hospital and the years of continuous nursing service where negatively correlated with the PUKT, this is in contrast with the results of the present study, it is not clear if the differences noted are a product of the variations in the work environment ethics, care and education circumstances between the two countries, even though due to the differences in the tools the comparison of the results should be made with caution [4].

[16] in a study that took place in Iran using a sample of $n = 126$ I.C.U nurses using a 41 questions PUKT reported low percentage of knowledge 67, 52%. In a similar study contacted in Spain with the participation of nurses and assistant nurses with the use of a 37 items PUKT a mean percentage of 78% was reported which was the highest percentage reported in the bibliography [23]. The lower percentages of all the studies were reported in a study by Ref. [1] the mean percentage score was found to be 49.7%.

The differences noted in the items included in the PUKT, in addition with the variation in the culture of care is applying a degree of caution in the effort to compare the result of the studies. The most likely cause of the use of a modified questionnaire may have been that further adjustment are required to cover the local nursing circumstances of each population.

The answers on the knowledge test, massaging the bony prominences or the affected areas (57.8%) the opinion that eschar is a healthy tissue (48%) and is good for the healing process (43, 1%), and that ring pillow are a good measure of PU prevention gathered the lower percentage of correct answers. This outdated techniques were reported in addition to other studies [22,23].

There seems to be a link between the inadequate score in the knowledge test the practise of outdated techniques, and the update of the knowledge of the nurses through scientific resources, as the nurses in the present study responded that they prefer the internet against

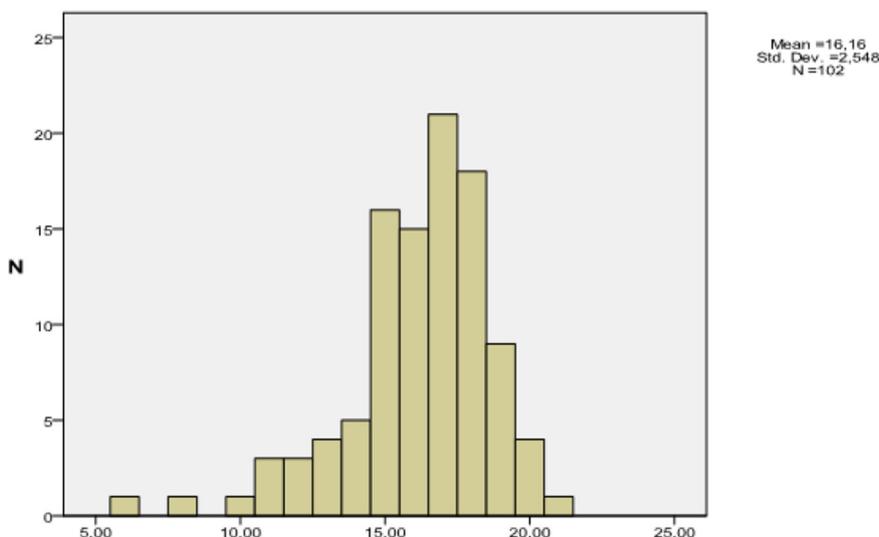


Fig. 1. Knowledge score.

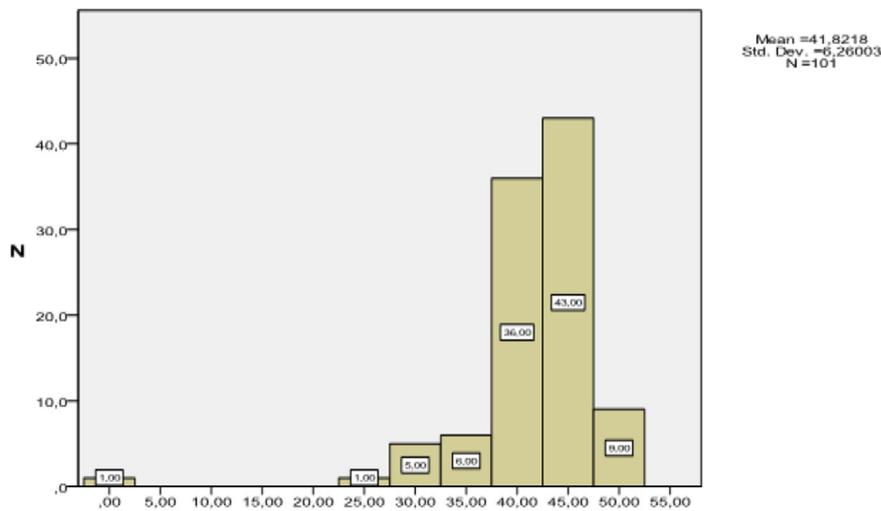


Fig. 2. Attitudes score.

more academic resources of information [23]. suggested that new and alternative pedagogical methods such as role play and simulation can have a positive impact in the fulfilment of the goals set regarding the improvement of nurse's knowledge.

The positive and statistically significant correlation that was observed between knowledge and attitudes suggests that the nurses that had higher attitude levels had additionally higher knowledge towards PU prevention [30]. state that the positive correlation between attitudes and knowledges should initiate further action towards the improvement of the attitudes levels resulting in an improvement on the knowledge levels. On the contrary it is a frequent phenomenon that the positive attitudes are not translated into good practise mostly due to the conditions in the workplace, inadequate information and nursing culture [17].

Cypriot nurses were found to have positive attitudes towards PU prevention. Similar results were found in two studies that took place in Sweden and Ireland that used the same tool to measure attitudes levels [17,19]. Negative attitudes levels were noted in studies that used a different attitudes tool with different cut off points [1,27].

Moreover the result that nurses that were older than 29 years old

had better attitudes than their younger colleagues, can be linked with the finding that nurses with more than 5 years of experience had better attitudes score. Usually nurses that have 5 or more years of experience are older than 29 years in Cyprus. Tubaishat, Aljezawi and Al Qadire. (2013) demonstrated similar correlation as the nurses in their study that had more than years of experience had better attitudes. The daily practise of the nurses for a number of years probably has multi-dimensional benefits and can be the causative factor that leads to this correlation.

4.1. Study limitations

The study limitations were the relatively small sample of the study (n = 102).The inclusion in the study of only one healthcare setting applies a degree of caution upon the generalising of the results in the general population. The representativeness of all the spectrum of the population in the final sample might have been affected by the high percentage of the I.C.U nurses (44.1%), and as this group had statistically significant higher attitudes there might had an impact on the positive attitudes score.

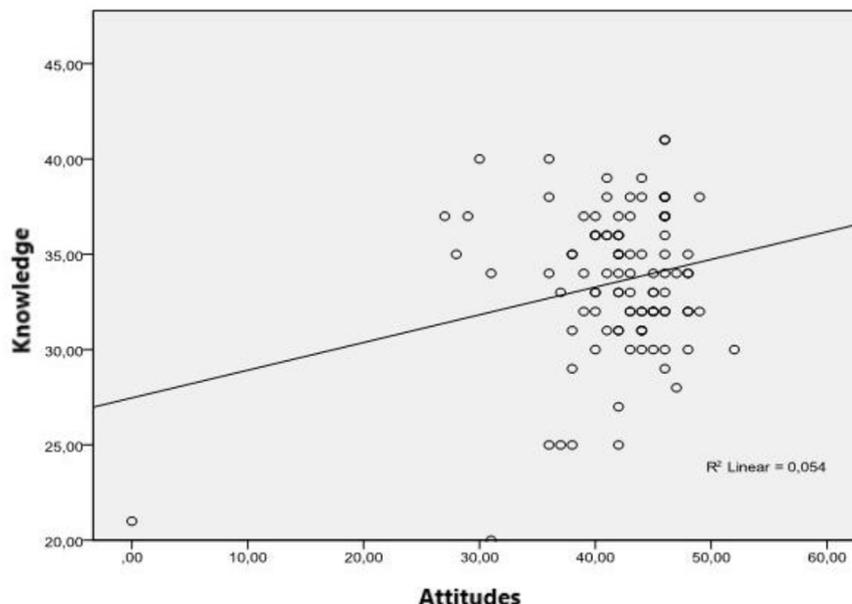


Fig. 3. Correlation of knowledge and attitudes in the study sample.

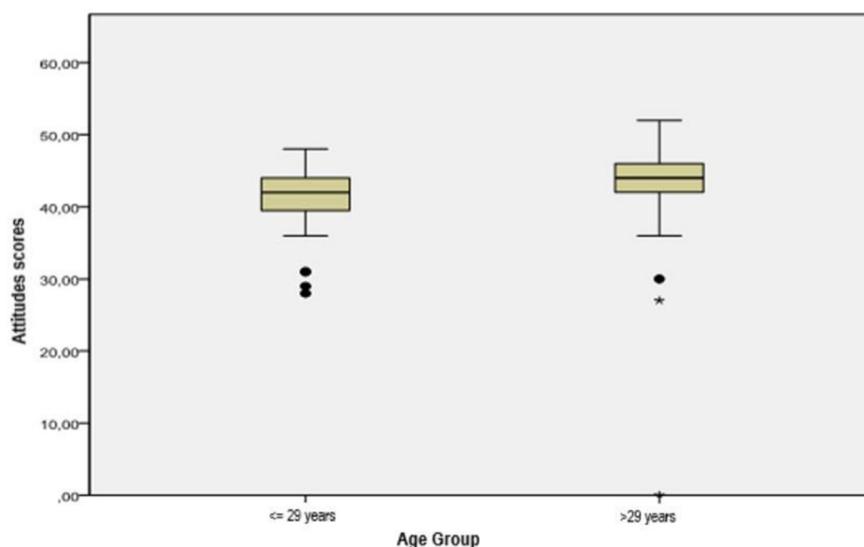


Fig. 4. Differences in the age group regarding attitudes scores.

Contamination of data is likely to have affected the results of the study, as the participants were not observed while completing the tool and could have consulted information resources to respond to the questions. Lastly the data was obtained through self-reports and therefore some errors might have occurred in the process of collection.

5. Conclusion

The findings are promising and demonstrate that the possibilities and capabilities for improvement regarding the knowledge of the Cypriot nurses are present. The percentage of correct answers in the PUKT might have been characterised as inadequate for the study purposes, this finding does not alter the fact that it was one of the highest among other studies. Besides the participants in their notes have stated that they would like to have the opportunity to be trained on the latest trends and equipment in their working environment. The correlation between knowledge and attitudes indicates that there is the possibility if we enhance the knowledge levels through educational programs, it is possible to succeed an even further improvement in the attitudes levels. A future consideration would be to investigate the degree of influence that the two variables under study have on the actual practise of PU prevention.

Concluding as this was the first attempt to document and identify the knowledge and attitudes of Cypriot nurses, the study can be repeated in a national level with a larger sample and with a different sample collection methodology providing a more reliable picture of the general population.

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Conflicts of interest

Nothing to declare.

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