

# Assessment of Knowledge and Associated Factors towards Palliative Care among Greek Nurses

Kalogeropoulou Maria<sup>1\*</sup>, Vikia Evanthia<sup>2</sup>, Kostagiolas A. Petros<sup>3</sup> & Niakas Dimitris<sup>4</sup>

<sup>1</sup> Contractual Academic Staff, Faculty of Social Sciences, Hellenic Open University, Athens, Greece

<sup>2</sup> Head of the Admissions Department, General Hospital of Thessaloniki “Papageorgiou”, Thessaloniki, Greece

<sup>3</sup> Department of Archives, Library Science and Museology, Faculty of Information Science and Informatics, Ionian University, Corfu, Greece

<sup>4</sup> Hellenic Open University, Faculty of Social Sciences, Patras, Greece

\* Kalogeropoulou Maria, E-mail: mariakalo@nurs.uoa.gr

## **Abstract**

**Introduction:** Nurses can have a prominent role in end-of-life care. They should however have the appropriate knowledge and practice about Palliative Care (PC) in order to provide high quality of care at the end of life of for chronically sick patients.

**Methods:** A cross sectional quantitative study and analysis was carried through a validated questionnaire tool based on the Palliative Care Quiz for Nursing (PCQN). The study included 150 nurses working in a major public hospital in Greece.

**Results:** The majority of nurses in Greece had poor knowledge about PC reaching a 8.9 PCQN overall score out of 20. The findings from this study confirmed the association of gender, age, work experience and level of education on nurses' knowledge about PC.

**Conclusions:** There is a lack of proper training and there are very few healthcare units specializing in PC provision in Greece. Special programs for PC are required in order to enhance nurses' knowledge and attitude towards good PC practices.

## **Keywords**

*Palliative Care, nursing staff, knowledge, PCQN, survey*

## **1. Introduction**

The particular needs of patients who are dying and their families are increasingly met through the establishment of palliative care services (Ross et al., 1996). “Palliative Care (PC) is an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness through the prevention and relief of suffering by means of early identification, impeccable assessment and treatment of pain and other problems like physical, psychosocial and spiritual” (Kassa et al., 2014). Palliative care services offer compassionate and competent care in order to improve patients' quality of life (Ross et al., 1996) and nurses can have a prominent role in

end-of-life or/and chronic disease care.

On the other hand the need for PC services is significantly increasing. The aforementioned argument is based on a number of grounds including demographics and the aging societies, the spread of life-threatening incurable and chronic diseases, and that informal care, as for example within families, becomes uncommon due to socioeconomic factors. Indeed, due to these changes the number of older people with incurable chronic disease and multiple morbidities has significantly increased over the last two decades (Schneider et al., 2010). This imposes a major undertaking for health systems worldwide, enhancing the need for appropriate PC healthcare units. On the other hand, the nurses directly involved in PC services need to have the adequate knowledge, the correct philosophy and proper attitudes towards PC (Ronaldson et al., 2008).

Ever since the global economic crisis of 2008 hit Greece, the fiscal restrictions made public expenses for healthcare to be significantly reduced. This fact significantly impacted on continuing education programs for healthcare providers, and especially for nurses dealing with patients requiring sensitive and complex PC services. Proper training, information and attitude is very important for healthcare professionals providing care to those who are dying (Ross et al., 1996). The value of PC training to nurses' delivering care to chronically ill patients is unquestionable. In fact there is a need to constantly support and educate nurses in order to provide high quality palliative and end-of-life care. A first step a strategy could be developed in order to assess nurses' current knowledge, attitudes and practice (Kassa et al., 2014).

As a matter of fact although a significant amount of literature has been devoted in nurses' knowledge assessment, there is only very limited research available especially for nurses providing PC services in Greece. To this end, this paper is structured as follows: In Section 2 the theoretical background is provide together with a selected literature review for the knowledge and attitude assessment of nurses toward palliative care. Section 3 concerns with the survey methodology while Section 4 includes the survey results. A discussion for the role and the importance of nurses' knowledge in shaping a positive attitude towards PC is presented in Section 5. Finally, the study limitations and the conclusions follow in Sections 6 & 7, respectively.

## **2. Theoretical Considerations and a Selected Literature Review**

Over recent years there has been a growing interest in the delivery of palliative care to chronically ill patients. A significant amount of literature has been devoted to assess the knowledge and attitudes of healthcare professionals towards palliative care and have highlighted inadequacies in nurses' skills and knowledge in palliative care (Karkada et al., 2011; Rolandson et al., 2008; Bickel-Swenson, 2007; Canning et al., 2004; Becker, 2000; Farrell, 1998; McCaffery & Ferrell, 1997; Morgan, 1997). An important tool for assessing knowledge and attitudes towards palliative care is the Palliative Care Quiz for Nursing (PCQN). The PCQN is a 20-item research tool that measures nurses' level of knowledge

and identify the most common held misconceptions about Palliative Care (Ross et al., 1996). Ross et al. (1996) report an internal consistency of 0.78 for the PCQN, using the Kuder Richardson formula 20 (KR-20). This is a high internal consistency or homogeneity for the quiz (Nunnally, 1978). The responses to the statements in the PCQN were: true, false and don't know.

Rolandson et al. (2008) investigated palliative care knowledge held by Registered Nurses (RNs) and Assistants in Nursing (AINs) in Australia using the validated Palliative Care Quiz for Nursing (PCQN). The mean score for Registered Nurses found to be 11.7 (SD = 3.1) and for Assistants in Nursing 5.8 (SD = 3.3) (while the total Palliative Care Quiz for Nursing score is 20). The mean scores were significantly different ( $t = 8.7$ ,  $df = 95$ ,  $p = 0.000$ ) reflecting differences in palliative care education, in educational preparations and in caring roles and levels of responsibilities for these two groups. For both RNs and AINs the conceptual category of the quiz that scored the highest percentage of correct answers was that of psychosocial and spiritual care (RNs 62%, AINs 39%) and the category which scored the lowest was the philosophy and principles of palliative care (RNs 50%, AINs 22%). Similarly, Canning et al. (2004) highlighted the importance of palliative care education for nurses, noting that more than half of a sample of nurses reported feeling unprepared for palliative care, with 63% disclosing a lack of opportunity for further study, and 44% reporting a lack of inservice training. Also, Karkada et al. (2011) investigated palliative care knowledge among nursing students. Only 43.4% of them were aware of the term palliative care and it was during their training period. The data showed that 79.5% of students had poor knowledge ( $6.4 \pm 1.64$ ) on palliative care and 92.8% of them had favorable attitude ( $56.7 \pm 8.5$ ) towards palliative care.

Palliative care is a relatively new field of health care in the Greek context. Malliarou et al. (2012) have documented that nurses are inadequately prepared for offering quality care at the end of life or for chronically sick patients because of inadequacies in nursing education, absence of curriculum content related to pain management and attitudes towards death, and knowledge related to pain and palliative care. Theodosopoulou et al. (2005) estimated the attitude and knowledge of nurses for the development of palliative care in Greece. The majority of the respondents believe that palliative care should be included in undergraduate and postgraduate studies, should be a specialty or specialization and that people offering such form of care should be specially trained regardless of their basic training or experience in different departments. As has been already noted above, despite the demonstrated need for palliative care services, there are limited research results on the knowledge and attitudes of RN in Greece towards PC.

### 3. Survey Methodology

A cross-sectional study was conducted at the General Public Hospital of Thessaloniki “Papageorgiou” in May-June 2013. Papageorgiou hospital in Thessaloniki is one of the major public General Hospitals in Greece. The survey is based on the validated questionnaire tool of the Palliative Care Quiz for Nursing (PCQN) combined with demographic variables of the nurses. This quiz was chosen because it was developed for a broad range of nursing personnel; and is a validated tool that has been used to measure nurses’ knowledge of palliative care in a variety of clinical settings.

The PCQN is a twenty question scale that includes knowledge questions using a scale “Yes”, “No”, or “Don’t know”. Ross et al. (1996) scored the quiz by giving each participant one point for a right answer and zero points for wrong or don’t know responses, i.e., a maximum score of 20. A high score indicates a better level of information and knowledge. The survey preparation took part within the first months of 2013 and the actual questionnaire distribution completed within May-June of 2013. 230 nurses asked to participate in the survey and 150 actually completed and returned the questionnaire (n = 150), i.e., a response rate of 65.2%. The final questionnaire includes the following sections:

- The first section includes demographic variables for the nurses (gender, age, education level, marital status, etc.).
- The second section consisted of questions related to the Dreyfus Model of Skill Acquisition (Novice to Expert Scale) (5-item scale).
- The third section includes questions targeted on nurses’ knowledge, attitude and practice for palliative care and death (12-item scale), modified according to the prevailing context of health institutions in Greece (Malliarou et al., 2012).
- The fourth section included knowledge questions that were adopted from the PCQN, developed by Ross et al. (1996) (20-item scale).

The 20-item scale of PCQN is divided into three conceptual categories (Ross et al., 1996; Arber, 2001)—these categories are: a) philosophy and principles of palliative care, reflecting nurses’ attitudes of towards PC (questions 1, 9, 12 & 17), b) psychosocial and spiritual care, reflecting nurses’ knowledge on PC (questions 5, 11 & 19), and c) pain and symptom management, reflecting nurses’ skills regarding PC (questions 2-4, 6-8, 10, 13-16, 18 & 20). These categories are significant because they divide the quiz questions into palliative care knowledge areas and help summarize participants’ knowledge strengths and/or weaknesses (Ross et al., 1996).

The data was imported to SPSS version 18 statistical software package. The analysis consisted of descriptive and inferential statistics in order to summarize the data. Chi-square and logistic regression was computed in order to further assess statistical significance for group differences and variable associations, respectively. The 42-item questionnaire scales had adequate internal consistency with overall Cronbach alpha coefficient of 0.76.

## 4. Survey Results

### 4.1 Socio-Demographic Characteristics

Table 1 report the demographics of the registered nurses took part in the survey. The total number of participants was 150 nurses. The majority of the participant nurses (89.3%) were female and the mean age of the respondents was 40.98 years  $\pm$  8.75 SD (range from 24 to 60). Also, 68.7% of the respondents are single, having a Bachelor degree (80%) with less than 10 years working experience (54.7%).

**Table 1. Socio-Demographic Characteristics of Nurses**

	n/N	%
<b>Gender</b>		
Male	16/150	10.7
Female	134/150	89.3
<b>Age</b>		
< 32	22/150	14.6
32-40	58/150	38.7
> 40	70/150	46.7
<b>Level of education</b>		
Diploma	19/150	2.7
Bachelor degree	120/150	80.0
MSc	11/150	7.3
<b>Marital status</b>		
Married	32/150	21.3
Single	103/150	68.7
Widowed/Divorced	15/150	10.0
<b>Ward</b>		
Oncology department	11/150	7.3
Intensive care units	16/150	10.7
Other departments	123/150	82.0
<b>Working experience</b>		
Less than 10 years	82/150	54.7
11-20 years	68/150	45.3

### 4.2 Knowledge Aspect of Practice of Nurses and Self-Reported Level of Expertise towards PC

Less than one third of the participants (26%) had training on PC regarding end-of-life care, which refers either to in-service education, that varied from a 2-hour lecture to a full study day, or a range of

qualifications: hospital certification, postgraduate diploma (a two-year degree course), Bachelor of Nursing degree (a four-year degree course) and Master in Science degree. More than two thirds (74%) of the respondents had poor knowledge towards PC. Nearly 70% of the respondents knew the definition of PC and 82.6% agreed that PC is being given when patient's conditions are deteriorating. Also, 70% had experience in giving care for dying people while only 32% of the respondents initiating PC discussions with patients during diagnosis. Almost one third of respondents feel always uncomfortable talking about death with a dying patient (Table 2).

**Table 2. Knowledge Aspect of Practice of Nurses**

	n/N	%
<b>Training on PC</b>		
Yes	39/150	26.0
No	111/150	74.0
<b>Training on PC regarding end-of-life care*</b>		
In service training	1/39	2.6
Hospital Certificate	6/39	15.4
Diploma	9/39	23.0
Bachelor degree	20/39	51.3
Master	3/39	7.7
<b>Knowledge of the definition of PC</b>		
Yes	104/150	69.4
No	46/150	30.6
<b>PC is being given when patient's conditions are deteriorating</b>		
Yes	124/150	82.6
No	26/150	17.4
<b>Experience in caring terminally ill patient</b>		
Yes	105/150	70.0
No	45/150	30.0
<b>How often do you care terminally ill patient</b>		
Daily	31/150	20.7
Few times per week	8/150	5.3
Once per week	14/150	9.3
Once per month	33/150	22.0
Few times per year	51/150	34.0
Never	13/150	8.7

**Discussions with patients about death**

Yes	48/150	32.0
No	102/150	68.0

**Feeling uncomfortable talking about death with a dying patient**

All the time	47/150	31.3
Often	49/150	32.7
Occasionally	34/150	22.7
Little	11/150	7.3
Not at all	9/150	6.0

\* Training on PC regarding end-of-life care refers to inservice education, that varied from a 2-hour lecture to a full study day, or a range of qualifications: hospital certificate, postgraduate diploma (a two-year degree course), Bachelor of Nursing degree (a four-year degree course) and Master in Science degree.

Nurses' self-reported level of expertise, according Novice to Expert Scale, is displayed in Table 3. The majority of nurses (37.3%) rated themselves as Proficient, followed in descending proportional order by Competent (28.0%), Expert (23.3%), Advanced Beginner (8.7%) and Novice (2.7%).

**Table 3. Nurses' Self-Reported Level of Clinical Nursing Expertise**

Self-reported level of expertise (Novice to Expert Scale)	n/N	%
Novice	4/150	2.7
Advanced beginner	13/150	8.7
Competent	42/150	28.0
Proficient	56/150	37.3
Expert	35/150	23.3

#### 4.3 Overall Nurses' Knowledge towards PC-PCQN Results

Mean score of the nursing staff in PCQN was 8.9 (SD  $\pm$  2.6) (44.5% of the total 20), which indicates poor knowledge of the participated nurses as it is lower than 75% of total score of the Palliative Care Quiz for Nursing (PCQN). Mean score was calculated by giving each participant one point for a right answer and zero points for wrong or don't know responses for a maximum score of 20.

In particular, the mean score in the conceptual category of the philosophy and principles of palliative care was 1.3, in the conceptual category of pain and symptom management was 6.8 and in the conceptual category of psychosocial and spiritual care was 0.7 (Table 4).

**Table 4. Mean Score per Category of PCQN**

Conceptual categories of PCQN	Mean score	SD	95% CI
Philosophy and principles of palliative care	1.3	0.5	1.1-1.4
Pain and symptom management	6.8	2.1	6.5-7.2
Psychosocial and spiritual care	0.7	0.3	0.6-0.9

#### 4.3.1 Philosophy and Principles of Palliative Care

Only 18.7% of the participant nurses strongly disagreed that PC is appropriate only in situations where there is evidence of a downhill trajectory or deterioration. 26.7% of the respondents strongly agreed to withdrawing their involvement with patients who are at the verge of death. On the other hand, 82.7% of the nurses responded correctly that family should be concerned about helping their dying member (Table 5).

**Table 5. Mean Score in the Conceptual Category of the Philosophy and Principles of Palliative Care**

PCQN-Philosophy and principles of palliative care	Yes % (n/N)	No % (n/N)	Don't know % (n/N)
Palliative care is appropriate only in situations where there is evidence of a downhill trajectory or deterioration	69.3 (104/150)	18.7 (28/150)*	12.0 (18/150)
It is crucial for family members to remain at the bedside until death occurs	12.0 (18/150)	82.7 (124/150)*	5.3 (8/150)
The provision of palliative care requires emotional detachment	26.7 (40/150)*	62.0 (93/150)	11.3 (17/150)
The philosophy of palliative care is compatible with that of aggressive treatment	20.0 (30/150)	34.0 (51/150)*	46.0 (69/150)

\* indicates the correct answers.

#### 4.3.2 Pain and Symptom Management

Seventy nine percent of the participant nurses responded correctly that addiction is noticed as the major health problem when morphine is used in long term. Of the total respondents 75.3% agreed that adjuvant therapies are important in pain management and 25.3% responded correctly that the pain threshold is lowered by anxiety or fatigue (Table 6).

**Table 6. Mean Score in the Conceptual Category of Pain and Symptom Management**

<b>PCQN-Pain and symptom management</b>	<b>Yes % (n/N)</b>	<b>No % (n/N)</b>	<b>Don't know % (n/N)</b>
Morphine is the standard used to compare the analgesic effect of other opioids	56.0 (84/150)*	16.7 (25/150)	27.3 (41/150)
The extent of the disease determines the method of pain treatment	24.7 (37/150)	68.6 (103/150)*	6.7 (10/150)
Adjuvant therapies are important in managing pain	75.3 (113/150)*	7.4 (11/150)	17.3 (26/150)
During the last days of life. the drowsiness associated with electrolyte imbalance may decrease the need for sedation	54.7 (82/150)*	26.6 (40/150)	18.7 (28/150)
Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain	13.3 (20/150)	79.4 (119/150)*	7.3 (11/150)
Individuals who are taking opioids should also follow a bowel regime	72.0 (108/150)*	8.0 (12/150)	20.0 (30/150)
Men generally reconcile their grief more quickly than women	47.3 (71/150)*	23.4 (35/150)	29.3 (44/150)
The use of placebos is appropriate in the treatment of some types of pain	34.0 (51/150)	48.0 (72/150)*	18.0 (27/150)
In high doses. codeine causes more nausea and vomiting than morphine	38.0 (57/150)*	18.0 (27/150)	44.0 (66/150)
Suffering and physical pain are synonymous	74.0 (111/150)	23.4 (35/150)*	2.6 (4/150)
Demerol is not an effective analgesic in the control of chronic pain	52.0 (78/150)*	27.3 (41/150)	20.7 (31/150)
Manifestations of chronic pain are different from those of acute pain	83.3 (125/150)*	8.7 (13/150)	8.0 (12/150)
The pain threshold is lowered by anxiety or fatigue	25.3 (38/150)*	54.0 (81/150)	20.7 (31/150)

\* indicates the correct answers.

#### 4.3.3 Psychosocial and Spiritual Care

Fifty four percent of the participant nurses disagreed that the accumulation of losses render burnout inevitable for those who seek work in palliative care and only 23.4% responded correctly that men generally reconcile their grief more quickly than women. 86% of the participants disagreed that the loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate (Table 7).

**Table 7. Mean Score in the Conceptual Category of Psychological and Spiritual Care**

PCQN-Psychological and spiritual care	Yes	No	Don't know
	% (n/N)	% (n/N)	% (n/N)
Men generally reconcile their grief more quickly than women	47.3 (71/150)	23.4 (35/150)*	29.3 (44/150)
The accumulation of losses renders burnout inevitable for those who seek work in palliative care	16.0 (24/150)	54.0 (81/150)*	30.0 (45/150)
The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate	11.3 (17/150)	86.0 (129/150)*	2.7(4/150)

\* indicates the correct answers.

#### 4.4 Association between Socio-Demographic Variables and Nurses' Knowledge towards PC

Gender, age, work experience and level of education had significant association with level of knowledge of nurses (Table 8).

Specifically, the male nurses had higher mean score in PCQN than their female counterparts ( $p = 0.022$ ). Also, age has statistically significant relationship with nurses' knowledge towards PC. Nurses aged between 32-40 years and over 40 had greater knowledge (PCQN score 8.9 and 9.4, respectively) than those under 32 years old (7.2). Work experience and years at work are associated with nurses' knowledge towards PC ( $p = 0.018$ ). Specifically, for each year of work, knowledge is increased by 0.084.

Finally, nurses with a masters' degree had greater knowledge and mean score (11.5) than those with a bachelor's degree (8.6) ( $p = 0.001$ ).

**Table 8. The Association of Socio-Demographic Characteristics and Knowledge towards Palliative Care**

PCQN score	Mean score $\pm$ SD	p value
	<b>Gender</b>	
Male	10.3 $\pm$ 2	0.022
Female	8.7 $\pm$ 2.6	
<b>Age</b>		
< 32	7.2 $\pm$ 1.8	0.001
32-40	8.9 $\pm$ 2.6	
> 40	9.4 $\pm$ 2.5	

<b>Master's degree</b>		
Yes	11.5 ± 2.4	0.001
No	8.6 ± 2.5	
<b>Ward</b>		
Oncology department	10.2 ± 2.6	0.206
Intensive care units	8.9 ± 1.9	
Other departments	8.7 ± 2.6	
<b>Working experience</b>		
Less than 10 years	8.2 ± 2.8	0.018
11-20 years	9.2 ± 2.4	
<b>Training on PC</b>		
Yes	9.4 ± 2.9	0.318
No	8.7 ± 2.4	

More specifically, nurses with a master's degree had greater mean score in the conceptual category of the philosophy and principles of palliative care ( $p = 0.033$ ) and in the conceptual category of pain and symptom management ( $p = 0.001$ ) than those with a bachelor's degree. Also, nurses with work experience more than 10 years had greater mean score in the conceptual category of pain and symptom management ( $p = 0.014$ ) (Table 9).

**Table 9. The Association of Socio-Demographic Characteristics and Score per Category of PCQN**

	Score per category of PCQN		
	Philosophy and principles of palliative care	Pain and symptom management	Psychosocial and spiritual care
<b>Gender</b>	<b>p = 0.104</b>	<b>p = 0.056</b>	<b>p = 0.884</b>
Male	1.7 ± 1.1	7.8 ± 1.3	0.8 ± 0.5
Female	1.2 ± 0.9	6.7 ± 2.1	0.7 ± 0.4
<b>Age</b>	<b>p = 0.649</b>	<b>p = 0.61</b>	<b>p = 0.819</b>
< 32	1.0 ± 0.8	5.5 ± 1.5	0.6 ± 0.3
32-40	1.4 ± 0.9	6.7 ± 2.1	0.8 ± 0.4
> 40	1.3 ± 0.9	7.4 ± 2.1	1.1 ± 0.5
<b>Master's degree</b>	<b>p = 0.033</b>	<b>p = 0.001</b>	<b>p = 0.645</b>
Yes	1.8 ± 0.8	8.9 ± 1.8	0.8 ± 0.5
No	1.3 ± 0.9	6.7 ± 2.0	0.7 ± 0.4
<b>Ward</b>	<b>p = 0.254</b>	<b>p = 0.36</b>	<b>p = 0.154</b>
Oncology department	1.5 ± 1.2	7.5 ± 1.8	1.2 ± 0.8
Intensive care units	1.3 ± 0.9	6.7 ± 2.1	0.7 ± 0.4
Other departments	0.9 ± 0.6	7.2 ± 2.0	0.8 ± 0.6

<b>Working experience</b>	<b>p = 0.261</b>	<b>p = 0.014</b>	<b>p = 0.436</b>
Less than 10 years	1.2 ± 0.9	6.2 ± 2.3	0.8 ± 0.6
11-20 years	1.3 ± 0.9	7.1 ± 1.9	0.7 ± 0.5
<b>Training on PC</b>	<b>p = 0.083</b>	<b>p = 0.822</b>	<b>p = 0.101</b>
Yes	1.5 ± 0.9	6.9 ± 2.1	0.9 ± 0.4
No	1.2 ± 0.9	6.8 ± 2.1	0.7 ± 0.4

There was no statistically significant relationship between ward, training and nurses' knowledge about PC.

## 5. Discussion

Nurses' lack of knowledge on caring for chronic and terminally ill patients and the incorporation of PC practices is an area of concern for educators and health policy makers (Ferrell et al., 2010). A novel approach towards PC is desired, as these groups of patients require professional help for the relief of suffering by assessment and treatment of pain and other physical, psychosocial and spiritual conditions. Nurses are in the front line and need proper training and attitude toward PC.

In line with the international literature this study showed that the majority of nurses had poor knowledge about PC (8.9 PCQN overall score out of 20). In particular, the mean score in the conceptual category of the philosophy and principles of palliative care was 1.3, in the conceptual category of pain and symptom management was 6.8 and in the conceptual category of psychosocial and spiritual care was 0.7. The possible reason for this might be that only a few nurses have been trained on PC. This is also evident in other studies including those by Rolandson et al. (2008), Proctor et al. (2000), Arber (2001), Raudonis et al. (2002), Knapp (2009), Brazil et al. (2012), and Carroll et al. (2005). For example, Rolandson et al. (2008) found that the mean score for Registered Nurses was 11.7 (SD = 3.1) and for Assistants in Nursing 5.8 (SD = 3.3). The mean scores were significantly different ( $t = 8.7$ ,  $df = 95$ ,  $p = 0.000$ ) reflecting differences in palliative care education, in educational preparations and in caring roles and levels of responsibilities for these two groups. Knapp et al. (2009) found that the mean score for pediatric nurses in Florida was 10.9 (54.9%) on the PCQN. Similarly, Canning et al. (2004) highlighted the importance of palliative care education for nurses, noting that more than half of a sample of nurses reported feeling unprepared for palliative care, with 63% disclosing a lack of opportunity for further study, and 44% reporting a lack of inservice training.

Past researchers have reported an inadequate PC knowledge level among nurses, similar to the findings in this study. Training on PC is the most frequently nominated professional need among nurses (Lorenz et al., 2006; Redman et al., 1995; Shea et al., 2010). The findings from this study also confirmed the strong association of the gender, age, work experience and level of education on nurses' knowledge about PC. Specifically, male nurses had higher mean score in PCQN than their female counterparts. Also, nurses aged between 32-40 years and over 40 had greater knowledge than those under 32 years

old. Work experience is associated with nurses' knowledge towards PC. Finally, nurses with a masters' degree had greater knowledge and mean score than those with a bachelor's degree.

These findings are also confirmed in other studies (Karkada et al., 2011; Redman et al., 1995; Mutto et al., 2010; Abu-Saad & Dimassi, 2007; Wafaa et al., 2010; Vejlgard, 2005; Zargham-Boroujeni et al., 2011). For example, Karkada et al. (2011) investigated palliative care knowledge among nursing students and found that only 43.4% of them were aware of the term palliative care and it was during their training period. The data showed that 79.5% of students had poor knowledge on palliative care and 92.8% of them had favorable attitude towards palliative care. Poor knowledge was found to be associated of work experience and level of education on nurses' knowledge about PC. Several researchers have reported that new graduate nurses are not adequately prepared for caring for a dying or terminally ill patient (Karkada et al., 2011). It is important to integrate PC education within the Nursing degree undergraduate and/or postgraduate courses syllabus in order to better prepare new graduates for the inevitable care of these specific groups of patients.

## **6. Limitations of the Study**

Limitations of this study include the small sample size and the type of hospital involved. The study was conducted in one general hospital and the majority of nurses were working in other departments than oncology or intensive care units, so assessment of nurses' clinical practice were challenges of this study and findings may not be generalized. Also, shortage of similar studies carried out in Greece makes the comparison and discussion difficult.

## **7. Conclusion**

It seems that PC services are increasingly required by societies and the nurses' role is increasingly important. This "sensitive" role(s) require additional skills and the proper attitudes for the support of patients and the family. This study identified that the majority of nurses included in the survey had poor knowledge about PC. Similarly, education and training on PC was significantly associated with knowledge. As it is recognized that nurses can have a prominent role in end-of-life care, it is important to assess their knowledge by identifying their knowledge gaps in order to develop education programs that address their learning needs.

Nurses need to constantly communicate with medical doctors of different specialties for PC services provision. This implies a new role when asked to verify or refute information found at the internet. Therefore, the nurses need to be knowledgeable in order to assume this novel role of information educator and verifier; and energetically be engaged in the process of decision making for patient-centred PC services provision together with other medical professionals. The nurses need to be information literate in order to utilize in their daily practices scholar information and communication systems and services. The development of the nurses' competencies for using and accessing health

information found on the Internet through information literacy programmes are important. Indeed information literacy skills encompass not only the ability to search for information (e.g., database searching) but also the ability to critically appraise information for making high quality PC services. Overall, much could and should be done to assist nurses better perform their duties based on high quality information and knowledge regarding palliative care. The nursing schools in higher education institutions should also incorporate conventional and lifelong learning courses related to PC issues so as to strengthen their students' and graduates' level of understanding and knowledge.

## References

- Abu-Saad, H., & Dimassi, H. (2007). Palliative care in Lebanon: Knowledge, attitude and practice of physician and nurses. *J Med Liban*, 55(3), 121-128.
- Arber, A. (2001). Student nurses' knowledge of palliative care: Evaluating an education module. *International J. Palliat Nurs*, 7(12), 597-603.
- Becker, R. (2000). Competency assessment in palliative nursing. *European Journal of Palliative Care*, 7, 88-91.
- Bickel-Swenson, D. (2007). End-of-life training in U.S. medical schools: A systematic literature review. *J Palliat Med.*, 10(1), 229-235.
- Caroll, G., Brisson, D. P., Ross, M. M., & Labbe, R. (2005). The French version of the Palliative Care Quiz for Nursing (PCQN-F): Development and evaluation. *Journal Palliative Care*, 21(1), 27-34.
- Farrell, M. (1998). National palliative care education and training needs analysis. *Contemporary Nurse*, 7, 60-67.
- Ferrell, B. R., Virani, R., Paice, J. A., Malloy, P., & Dahlin, C. (2010). Statewide efforts to improve palliative care in critical care settings. *Critical Care Nurse*, 30(6), 40-45.
- Karkada, S., & Nayak, B. S. (2011). Malathi: Awareness of palliative care among diploma nursing students. *Indian J Palliat Care*, 17, 20-23.
- Kassa, H., Murugan, R., Zewdu, F., Hailu, M., & Woldeyohannes, D. (2014). Assessment of knowledge, attitude and practice and associated factors towards palliative care among nurses working in selected hospitals, Addis Ababa, Ethiopia. *BMC Palliative Care*, 13, 6-17.
- Knapp, C. A., Madden, V., Wang, H., Kassing, K., Curtis, C., Sloyer, P., & Shenkman, E. A. (2009). Paediatric nurses' knowledge of palliative care in Florida: A quantitative study. *International Journal of Palliative Nursing*, 15(9), 432-439.
- Lorenz, K. A., Shugarman, L. R., & Lynn, J. (2006). Health care policy issues in end-of-life care. *J Palliat Med*, 9(3), 731-748.
- Malliarou, M., Sarafis, P., Karathanasi, K., Serafim, T., Sotiriadou, K., & Theodosopoulou, E. (2012). Death attitude profile-revised (DAP-R)-validation of Greek version. *Hellenic Journal of Nursing Science*, 4(1), 14-26.

- McCaffery, M., & Ferrell, B. (1997). Nurses' knowledge of pain assessment and management: How much progress have we made? *Journal of Pain & Symptom Management*, *10*, 356-367.
- Morgan, A. (1997). Palliative Home Care in a Rural Setting: Reflections on selective interactions. *Australian Journal of Rural Health*, *5*, 22-25.
- Mutto, E. M., Errázquin, A., Rabhansl, M. M., & Villar, M. J. (2010). Nursing education: The experience, attitudes, and impact of caring for dying patients by undergraduate Argentinian nursing students. *J Palliat Med*, *13*(12), 1445-1450.
- Proctor, M., Grealish, L., Coates, M., & Sears, P. (2000). Nurses' knowledge of palliative care in the Australian Capital Territory. *International J. Palliat Nurs.*, *6*(9), 421-428.
- Raudonis, B. M., Kyba, F. C., & Kinsey, T. A. (2002). Long-term care nurses' knowledge of end-of-life care. *Geriatric Nursing*, *23*(6), 296-301.
- Redman, S., White, K., Ryan, E., & Hennrikus, D. (1995). Professional needs of palliative care nurses in New South Wales. *Palliat Med*, *9*(1), 36-44.
- Ronaldson, S., Hayes, L., Carey, M., & Aggar, C. (2008). A study of nurses' knowledge of a palliative approach in residential aged care facilities. *International Journal of Older People Nursing*, *3*, 1-9.
- Ross, M., McDonald, B., & McGuinness, J. (1996). The Palliative Quiz for Nursing (PCQN): development of an instrument to measure nurses knowledge of palliative care. *Journal of Advanced Nursing*, *23*, 126-137.
- Schneider, N., Lueckmann, S. L., Kuehne, F., Klindtworth, K., & Behmann, M. (2010). Developing targets for public health initiatives to improve palliative care. *BMC Public Health*, *10*, 222-233.
- Shea, J., Grossman, S., Kazer, M. W., & Lange, J. (2010). Assessment of advanced practice palliative care nursing competencies in nurse practitioner students: Implications for the integration of ELNEC curricular modules. *J Nurs Educ*, *49*(4), 183-189.
- Theodosopoulou, E., Konstantinou, E., Toulia, G., Koutsopoulou, V., Chadzopulu, A., Krajewska-Kułak, E., ... Wrońska, I. (2005). The attitude of nurses for the enhancement of palliative care in Greece. *Roczniki Akademii Medycznej w Białymstoku*, *50*(1), 57-60.
- Vejlgaard, T. (2005). Attitude of Danish doctors and nurses to palliative and terminal care. *Palliat Med*, *19*(2), 119-127.
- Wafaa, G., Ali, M., & Ayoub, N. S. (2010). Nurses' attitude towards caring for dying patient in Mansoura University Hospitals. *J Med Biomed Sci*, *1*(1), 16-23.
- Zargham-Boroujeni, A., Bagheri, S. H. S., Kalantari, M., Talakoob, S., & Samooai, F. (2011). Effect of end-of-life care education on the attitudes of nurses in infants' and children's wards. *Iran J Nurs Midwifery Res*, *16*(1), 93-99.