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Research Article

Clinical Decision Making: A Comparison Study between Greece and Slovakia

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Abstract

Background: Clinical decisions are a nurses' daily clinical practice skill that needs to be constantly evolving in order to provide quality patient care.

Purpose: To investigate and compare the clinical decisions made by nurses in Greece and Slovakia.

Materials and Methods: Q-methodology was used and eight modified scenarios were given to the nursing staff. Using power analysis, a total of 100 nurses that worked in public hospitals in Greece (nG = 50) and Slovakia (nS = 50) successfully completed the study.

Results: In the scenarios with more medical interventions, Greek nurses showed higher scores in the scenarios of tachycardia, bradycardia and cardiopulmonary resuscitation. In contrast, Slovak nurses scored higher individual scores in all four scenarios (anxiety - difficulty sleeping –dyspnea - vomiting) with more nursing interventions (p<0.05).

Conclusions: Greek nurses overall had higher individual scores in the scenarios with more medical interventions, probably due to the medically-centered philosophy of nurses, the lack of protocols and autonomy to provide patient care.

Key words: clinical decision making; nursing; Greece; Slovakia

Introduction

Nurses have a holistic approach towards a person and regard the person as a biopsychosocial entity who has the ability to set goals and make decisions as well as the right and responsibility to make informed choices, according to his own beliefs and values (Watkins 2020). Nurses are often required to address important questions that are directly related to the preservation of a patient's life (Hewitt, 2022). Therefore, understanding clinical decision-making methods, finding ways to improve procedures and developing critical thinking are key points of inquiry.

Clinical decision making is a process that involves the interaction between knowledge of pre-existing pathological conditions, patient information, nursing care and experiential learning (Kozlowski et al, 2017). Decision making is synonymous with selection, converting information into practice as well as being directly linked to the nursing process (Al-Hamdan, Bawadi, Redman and Al-Nawafleh, 2016). According to Murali (2020) clinical decision-making is defined as a

behaviour that leads to making a choice as well as implementing a specific course of action.

The nursing decision-making process is influenced by environmental factors, patient and nurse-related aspects of care and work practices (Campbell et al, 2019). According to the literature, interdisciplinary teamwork often requires decision-making and these decisions affect team performance on a daily basis (Ahn and Choi 2015). Group work decisions concern healthcare practice, working conditions and the work environment itself (Nibbelink & Brewer 2018). Other factors that influence clinical decision making are clinical experience (Thomas and Kellgren 2017), knowledge (Bakalis et al, 2003), intuition (Melin-Johansson et al 2017), critical thinking ability (Richards et al 2020), structured protocols (Vázquez-Calatayud et al, 2020), autonomy and the application of the medical-centric mode (Fallman et al 2019).

The health professionals are faced with critical situations that they have to deal with successfully as they are inextricably linked to the patient's state of health. When a team of health professionals is made up of specialized and trained nurses and doctors who work dynamically and support each other, medical errors are significantly reduced. Effective clinical decision-making skills are a key factor in preventing iatrogenic injury (Helou et al, 2020). Therefore, decision theory is necessary because health care systems require health professionals to make cost-effective and quality decisions (Jackson et al, 2019).

Clinical decision making is a key element of the nursing role in promoting the patient's health. Nurses make many decisions every day. Acute care nurses face a decision every 10 minutes, Critical care nurses every 30 seconds (Endacott et al, 2015) and Community or Public Health nurses corresponding to 10 crises for each contact they have with new births (Chater et al, 2019).

Nursing is a profession that is constantly changing in response to the needs of society as a whole. For this reason, in every country there is an institutionalized health care system whose main purpose is the development and promotion of Nursing as an independent and autonomous Science and Art. The Hellenic Regulatory Body of Nurses was constituted by the law 3252/2004 as a form of a Public Body and functions as the official professional body representing the nurses. Nursing practice in Greece is characterized by a medical-centered model of care (Bakalis, Bowman and Porock, 2003, Papathanassoglou et al 2005), lack of current (modern) duty and responsibilities guidebook (Karra et al, 2014), lack of clinical protocol implementation, lack of nursing staff resulting in basic principles of nursing (psychological support, communication) not being applied to the necessary extent. Also, the ratio of nurse to patient is high (1/8 in clinical wards) (Aiken et al, 2014). It is worth mentioning that Greece went through a prolonged economic crisis (about 10 years), which significantly affected the health sector both patients and health professionals. The monthly salary of a newly appointed nurse in Greece ranges from 1000-1200 euros and increases in relation to the years of service and the administrative position. The Slovak Chamber of Nurses and Midwives issues a professional license to practice nursing to a citizen who has obtained a University degree and has applied for this license. The Slovak Chamber of Nurses and Midwives also issues a license for independent nursing practice in the patient's apartment or home as well as in other healthcare provider's facility. In case the nurse intends to practice privately (freelancer), it is vital to submit the permit issued by the chamber to the appropriate regional authority, according to local practice. In Slovakia, nursing care is holistic, the duty and responsibilities guidebook is clear and focused on nursing knowledge and skills (Zelenikova et al, 2014).

The purpose of this study was to investigate and compare the clinical decisions made by nurses in Greece and Slovakia.

Materials and Methods

Design

A search of the literature showed that research related to the subject presented different research methods with a common focus on the important role of autonomy in decision making. In addition, the lack of studies in the literature search was the incentive to conduct the present research in order to better understand the topic and offer new knowledge. The method used to conduct the research was the Q-methodology which allows the researcher to identify the groups of participants' similar and alternative views, and in turn to identify similarities and differences between the groups (Hammami et al, 2020).

Modified script cards developed and used in previous research by Bakalis, Bowman and Porock (2003) were used. More specifically, the present research used eight scenarios of clinical decision making (four with mainly or more medical intervention: heart attack – bradycardia – tachycardia - cardiopulmonary resuscitation and four with mainly or more nursing intervention: anxiety / anxiety - difficulty sleeping –dyspnea - vomiting) in order to investigate how the incidents are resolved.

For the construction of the Cardiopulmonary Resuscitation scenario, the Cardiopulmonary Resuscitation Protocol within the Hospital of the European Resuscitation Council (Soar et al 2015) was used, while the Myocardial Infraction (MI) Management Protocol of the European Resuscitation Council (Nikolaou et al 2015) was used for the MI scenario. There were no protocols found in the literature review regarding the other scenarios, so the most current methods, found in literature, were chosen to construct these scenarios as well as other nursing procedures as suggested by Bakalis Bowman and Porock (2003) in their respective research.

A modified scoring system adopted by Williamson (1965) was used. The scoring system was as follows: helpful (+2), facilitate but not essential (+1), neither promotes, nor impedes care (0), unnecessary and/or cause discomfort (-1), inappropriate (-2). Consequently, five choices in each row were presented. In all series, there was an option "Call the doctor" card, where nurses chose it when they considered its presence necessary. The "Call the doctor" card was the "inappropriate" clinical decision with a score of -2 in all series thus, meaning that the nurses had a passive role, while at the same time the patient's condition worsened until the doctor was present or until he gave further instructions. If the nurses chose the "Call the Doctor" card in two consecutive rows then the scenario would be unsuccessful.

An expert panel was used to minimize culture bias. The cards were given to a team of experts (one Nursing professor specializing in clinical decisions and two other nurses with many years of experience in the clinical area) and decisions were made on the content, the number of available decisions choices and the translation of cards. After studying the scenarios, changes were made in order to create the final version of the Clinical Decision Making (CDM) cards.

Initially, each participant was given the script card. After reading it carefully, the researcher then displayed the five options and after reading the alternatives, he made the choice. The researcher provided information and displayed the following options until the script was completed. The answers were recorded in a form for the subsequent analysis of the results. When all the scenarios were completed, the participant filled in some demographic data (age, gender, education, postgraduate, clinical work and years of service) in order to analyze and correlate the data with the answers.

Sample

Non-probability sampling and more specifically convenience sampling was used for the study due to limited financial resources. To avoid error, the sample selected for the present study was homogeneous, i.e. the population group selected were all graduate nurses, had a degree in

nursing and worked for more than six months in public hospitals. The larger the sample is, the more reliable the survey results are, and thus, the better the statistical analysis (Sami et al, 2018). In the present study it was calculated, using power analysis, that a sample of 100 nurses (50 from Greece and 50 from Slovakia) would be needed with a probability power of 99%.

Data collection

The survey was conducted from September to December 2019. This study received ethical approval by the institutional review board of the University of Patras (Greek registration number: 7445). The sample included nurses working in public hospitals in Greece (one from Athens and two from Patras-large cities) and Slovakia (two from Presov and one from Kosice-large cities). Letters were sent to the Directors of the Nursing of each hospital in Greek and English. In Slovakia the health professionals speak English very well, so the letters and cards were sent in English.
The letter stated all the necessary information and emphasizes the confidentiality, voluntary participation and anonymity of the participants. The Hospitals Directors forwarded the letters to the wards so nurses who wished to participate gave their names and the researcher contacted them in order to determine the day and time of the meeting. For the research process, a quiet and without strong environmental stimuli area was selected and the average interview time for each nurse ranged from 30 to 40 minutes.

Statistical analysis

The results of the research were analyzed using the statistical program SPSS Statistics, setting the significance level p-value <0.05, which included three types of analysis:

a) the total result of each scenario by calculating the sum of the positive and negative answers of each participant. In all scenarios, the minimum score was -4 as two inappropriate responses ended the scenario and the maximum score was

different depending on the scenario. Analytically, for the scenarios myocardial infarction, CPR, anxiety / stress, difficulty sleeping and shortness of breath had a maximum of + 14 (7 series of questions), the scenario bradycardia had a maximum of +12 (6 series of questions), the scenario had tachycardia as a maximum +10 (5 series of questions) and the vomiting scenario had a maximum of +16 (8 series of questions).

b) Second, to measure the quality of clinical decision making, four categories were developed to rank the (overall) grade of each individual. The ratings were rated as very poor, poor, good, very good.

c) Finally, the completion rate of each scenario was also calculated to determine how the nurses proceeded with the decision-making processes. The completion rate was calculated by adding the "useful-helpful" decisions to each scenario. The completion rate is equivalent to an autonomy score. Therefore, areas were created in which nurses had autonomy to make decisions. This was particularly important because four of the scenarios were based primarily on nursing interventions and four on medical interventions.

Results

Demographic characteristics

For Greece the ages ranged from 30-53 years (x = 42.60 years) while for Slovakia the ages were from 27-54 years (x = 39.80 years). The vast majority of nurses, in both countries, were women (86% and 92% respectively) and they did not have a master's degree (66% each). Regarding the years of service, in Greece they ranged from 6-25 years (x = 15.76 years) while in Slovakia from 1-25 years (x = 11.82 years). Finally, participants in Greece and Slovakia worked in the Pathology sector (16%), Surgery sector (16%) and Intensive Care Units (18%).

Scenario results

SCENARIOS WITH MORE MEDICAL INTERVENTIONS									SCENARIOS WITH MORE NURSING INTERVENTIONS							
	Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		Scenario 6		Scenario 7		Scenario 8	
	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl
Mean	5.06	6.28	3.32	2.64	3.52	2.28	4.56	4.18	8.42 9.74		9.78	10.28	9.66	13.04	10.10	11.18
Standard Deviation	3.45	2.71	2.85	2.20	3.35	2.37	4.97	3.88	3.22 1.86		3.61	2.47	3.55	15.94	4.24	2.85
t	-1.96		1.33		2.13		0.42		-2.51		-0.80		-1.46		-1.49	
df	98		98		98		98		98		98		98		98	
p	**<0.05**		>0.05		**<0.05**		>0.05		**<0.05**		>0.05		>0.05		>0.05	

Table 1: *Independent sample t test scenarios with «more» medical and nursing interventions by nationality.*

In the scenarios of bradycardia ($x^2 = 3.32$, p> 0.05), tachycardia ($x^2 = 3.52$, p <0.05) and Cardiopulmonary resuscitation ($x^2 = 4.56$, p> 0.05) the Greek nurses score better than the Slovak nurses while in the scenario MI

($x^2 = 6.28$, p <0.05) score better by Slovak nurses. Also, in all scenarios with more nursing interventions (scenarios 5-8), the Slovak nurses score higher than the Greeks (scenario anxiety, $x^2 = 9.74$, p <0.05).

SCENARIOS WITH MORE MEDICAL INTERVENTION					SCENARIOS WITH MORE NURSING INTERVENTION			
Greece					**Slovakia**			
	Very Poor	Poor	Good	Very Good	Very Poor	Poor	Good	Very Good
Scenario 1	6	13	27	4	1	11	35	3

Scenario 2	6	27	16	1	4	38	8	0
Scenario 3	6	22	19	3	7	26	17	0
Scenario 4	11	11	17	11	10	9	31	0
Scenario 5	0	7	20	23	0	0	18	32
Scenario 6	1	3	12	34	0	3	12	35
Scenario 7	1	5	10	34	0	2	8	40
Scenario 8	1	10	12	27	0	4	16	30

Table 2: *Quality of CDM in Greece and Slovakia.*

Nurses, in both countries, made "good" clinical decisions in scenario 1 (MI) and 4 Cardiopulmonary resuscitation while made "poor" clinical decisions in scenario 2 (bradycardia) and 3 (tachycardia). In contrast, nurses in Greece and Slovakia made "very good" clinical decisions in all scenarios with more nursing interventions (anxiety, difficulty sleeping, shortness of breath, vomiting).

	SCENARIOS WITH MORE MEDICAL INTERVENTIONS								SCENARIOS WITH MORE NURSING INTERVENTIONS									
	0		2		3		4		6		8		10		12		14	
	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl	Gr	Sl
Scenario 1 (max 14)	5	0	4	0			14	8	14	21	10	17	3	4				
Scenario 2 (max 12)	4	0	14	7			14	30	14	12	2	1	2	0				
Scenario 3 (max 10)	12	13	10	15			9	18	14	4	5	0						
Scenario 4 (max 14)	10	4	4	4	0	1	9	11	11	17	7	11	6	2	3	0		
Scenario 5 (max 14)			3	0			1	0	10	5	23	19	10	25	3	1		
Scenario 6 (max 14)	1	0	2	1			3	1	7	3	6	11	20	24	11	10		
Scenario 7 (max 14)	1	0					4	1	3	4	8	6	21	20	13	16	0	3
Scenario 8 (max 16)	1	0	3	0			1	0	10	2	5	6	12	17	9	13	9	12

Table 3: *Completion rate of scenarios.*

In scenario 1, most Slovak nurses went up to the 3rd and 4th row (out of 7 in total) while the Greeks went up to the 2nd and 3rd row. In scenario 2, most nurses from both countries advanced to the 2nd row (out of 6 in total). In scenario 3, most Slovak nurses went up to the 2nd row (out of 5 in total) while the Greeks went up to the 3rd row. Also, in scenario 4, most nurses from Greece and Slovakia advanced to the 3rd row (out of 7 in total). In the scenarios with mainly or more nursing intervention (scenarios 5-8) most Slovak nurses went up to the 5th row while the Greek nurses went up to the 5th row in scenarios 6, 7 and 8 and up to the 4th row in scenario 5. The Slovak nurses appear to have a greater degree of autonomy in the scenarios with mainly or more nursing interventions while the Greeks in scenarios 2, 3 and 4 that were based on mainly or more medical interventions.

Using Pearson correlations between demographic characteristics and scenarios with more medical interventions, the results show that age was significantly correlated with the total score (r=.446, df=100, p<0.05). With increasing age, nurses scored higher in decision making. In addition, the years of experience were positively correlated with the total score (r=.422, df=100, p<0.05). The more years of working experience nurses have, the higher the score. Finally, the workplace also significantly correlated with decision making score (r=.241, df=100, p<0.05). Nurses working in Units such as Coronary Care Units, Intensive Care Units, scored higher in scenarios with more medical interventions.

Regarding associations between demographic characteristics and scenarios with more nursing interventions, the study revealed that age was significantly correlated with the total score (r=.210, df=100, p<0.05). With increasing age, nurses scored higher in decision making.

Discussion

The present study categorized the quality of clinical decisions that nurses make in two different countries. However, there is a paucity of research regarding comparative studies in the literature. Greek nurses had higher scores in the tachycardia, bradycardia and cardiopulmonary resuscitation scenarios while Slovak nurses presented higher scores in the heart attack, anxiety, sleep, dyspnea and vomiting scenarios. This was evident from the quality of the clinical decisions made by the nurses as well as from the completion rate that shows the degree of autonomy of the nurses in both countries.

Similar results were found by Bakalis et al (2003) investigating the clinical decisions of nurses in Greece and England. This is likely to happen because in Greece the medical-centric model prevails in clinical practice where doctors in many cases fully control patient care. In addition, the lack of protocols from the units has nurses dealing with emergencies and orients nursing skills in iatrogenic terms resulting in better treatment of the acute condition. On the contrary, although Slovak nurses follow specific protocols focused on the nursing profession there is a need to define Advanced Practice Nursing and specialists' competencies (Halasz et al, 2021). It is generally accepted that the absence of protocols weakens the nursing profession and leaves nurses legally vulnerable. The existence of structured protocols allows nurses to practice autonomously because they will be able to make clinical trials without having to first follow doctors (Srivali-Teal et al, 2018). Protocols and guidelines could be teaching aids or information resources for new or inexperienced staff as well as following procedures (Kim et al, 2018).

Furthermore, the lack of a modern nursing duties and responsibilities guidebook in Greece does not help nurses make clinical decisions and or increase their degree of autonomy (Bakalis and Watson, 2005). Although the involvement of nurses in emergencies is very important, the application of knowledge and skills in the clinical field assumes a clear and comprehensive framework will be used that will allow nurses to implement decisions and take responsibility in critical situations (Bijani, Abedi, Karimi and Tehranineshat, 2021). There is an urgent need for the immediate construction and implementation of nursing protocols in Greece as well as the revision of the routine so that nurses are more autonomous and improve the provision of care to patients.

The research also showed that there is a correlation between clinical decision making in more medical interventions and age, work experience as well as the clinical workplace in the hospital. More specifically, the older nurses, who will probably have more seniority, had higher scores and made better decisions. The literature has highlighted the importance of clinical experience in making clinical decisions especially in emergencies (Rosciano et al, 2016). Also, Critical Care Units are one of the forms of medical care that requires the most use of resources due to the severity of patients' disease and assumes nurses will act immediately in an emergency (Murray et al 2018). The desire for autonomy has been strengthened, as nurses have developed specialized skills and knowledge, which they have applied with satisfactory results (Asakura et al, 2016).

Limitations of the study

The main limitation of the present study was the small sample size. Although the research provided important data on how to obtain clinical results, in order to be able to generalize the conclusions in the future, it is necessary to use a larger sample from more hospitals.

Conclusion

In daily clinical practice, nurses make clinical decisions. The present study showed that Greek nurses had overall higher scores, mainly in the scenarios with more medical interventions. The Greek nurses are largely dependent on the medical staff and therefore make low quality clinical decisions, not due to lack of knowledge and clinical skills, but due to the fact that the legal framework in Greece limits nurses' autonomy and thus, hinders making clinical decisions. Greek legislation is very strict and for this reason nurses are apprehensive to take initiatives, so they entrust the responsibility to doctors. However, Slovak nurses scored better in the scenarios that had more nursing interventions. This is due to the fact that nurses in Slovakia apply holistic care to patients and have specific nurse duties and responsibilities guidebook.

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