

Content of Orthopedic Patient Education Provided by Nurses in Seven European Countries

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Abstract

Patients' and their significant others' education during the perioperative phase is an important and challenging aspect of care. This study explored the content of education provided by nurses to arthroplasty patients and their significant others. Data were collected with the Education of Patients–NURSE content (EPNURSE-Content), Received Knowledge of Hospital

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Patient (RKhp), and Received Knowledge of Significant Other (RKso) scales. The results showed that the content of education emphasized biophysiological and functional needs, differed between countries, and was related to how physically demanding nurses found their job to be and the amount of education provided. There is congruence between the received knowledge of patients and their significant others in relation to the content of education provided by nurses. The findings can support nurses in developing aid material for patients and significant others explaining the nature of education and advising them what to expect and how to optimize their participation in the process.

Keywords

patient education, knowledge, adult nursing, quantitative methods, orthopedics

Introduction

The education of patients and their significant others during the perioperative phase is an important and challenging aspect of care that has received increased attention in the literature (McDonald, Page, Beringer, Wasiak, & Sprowson, 2014; Valkeapää et al., 2014). Although arthroplasty is now a classic procedure, it still presents with many challenges for the patient. Abane, Anract, Boisgard, Descamps, Courpied & Hamadouche (2015) emphasized on the many physical challenges that these procedures pose before, during, and following the procedure. Tristaino, Lantieri, Tornago, Gramazio, Carriere, & Camera. (2016) acknowledged that these procedures generate anxiety and depression that are already present in the period before the operation and impact on the postoperative progress. This has stressed the need for effective and comprehensive perioperative education that does not only emphasizes on the physical and functional aspects of the care but it also incorporates cognitive, social, experiential, ethical, and financial aspects of the care (Johansson, Ingadottir, Salanterä, Sigurdardottir, Valkeapää, Bachrach-Lindström et al., 2014).

Over the years, there has been an emphasis on patient education in several countries, with the aim of better preparing the patient for the upcoming surgery and promoting rehabilitation and recovery. Preceding studies showed that preoperative education has been linked to various patients' outcomes including reduction in length of stay (Jones et al., 2011), maintaining or improving function and pain (Mak et al., 2014), maintaining independence (Loft, McWilliam, & Ward-Griffin, 2003), and minimizing future medical

interventions (Marcus, 2014), to report a few. The nursing profession has shown a genuine interest and attained a pioneer role in this through consistency in the content of education and by adopting a dynamic approach to increasing the knowledge of the patient and the family prior to the operation (DiGioia, Greenhouse, & Levison, 2007; Johansson et al., 2014). The content of patient education has presented several challenges over the years. In a systematic review, Louw, Diener, Butler, and Puentedura (2013) acknowledged the value of preoperative education for arthroplasty patients; however, they identified that appropriate attention was not attributed to the content of the education provided and which of the different educational delivery methods is more effective. In a cross-sectional survey of 86 surgical nurses, Lee and Lee (2013) showed that the nurses' professional preparation and the workload they have to manage on a daily basis can (negatively) interfere with preoperative patient teaching. In terms of the teaching content, nurses emphasized on preoperative preparation and anesthesia issues, minimizing the attention given to other topics, such as postoperative rehabilitation. In the literature (Alanazi, 2014; Ben-Morderchai, Herman, Kerzman, & Irony, 2010), the researchers have identified that the content and delivery methods of the information differed significantly among the various countries (varying even sometimes within countries), revealing the lack of a consistent and standardized preoperative educational program for patients. These studies have also revealed that there is scarcity of evidence taking a European perspective to the topic.

The theoretical framework of the study has been mainly influenced by the empowerment theory (Kuokkanen & Leino-Kilpi, 2000). Empowerment refers to solutions rather than to problems and it is associated with growth and development. As such the concept of empowerment for the purpose of this study is served by the objective of patient education. Patient education as a means to facilitate the patient's empowerment emphasizes on the patient's ability to facilitate the self-management of their health problems (Bosch-Capblanc, Abba, Pricor, & Garner, 2009). The empowerment theory also informed the development of the questionnaires used in this study (Education of Patients–NURSE content [EPNURSE-Content], Received Knowledge of Hospital Patients [RKhp], Received Knowledge of Significant Others [RKso] scales). According to this questionnaire, the process of empowering the patients through education can be divided into the following areas: biophysiological (identification of the symptoms and signs), functional (activities of daily living, illness, and care), cognitive (receiving enough information and the ability to utilize it), social (experience of belonging to and support from the social network), experiential (feeling of appreciation with regard to one's experiences, expectations and feelings), ethical (feeling of appreciation as a

unique, autonomous individual), and financial (Johansson, Salanterä, Katajisto, & Leino-Kilpi, 2002, p. 221). The delivery of education in the orthopedic setting takes place within diverse contexts and is therefore guided by different viewpoints and objectives. Small, Bower, Chew-Graham, Whalley, and Protheroe (2013) acknowledged the importance of education as the means to facilitate and promote patient's feelings of control, self-efficacy, coping abilities, and ability to achieve change over their condition.

The study aims to record the content of orthopedic patient education as provided by nurses and to explore any correlations among the content of education and received knowledge reported by patients and significant others in seven European countries.

The following research questions were proposed:

A. Content of patient education.

Research Question 1: What is the content of the education provided by nurses to patients attending elective knee or hip replacement?

Research Question 2: What is the connection with the content of education and nurses' background factors?

Research Question 3: Are there differences in the content provided by nurses in different countries?

B. Connection between the content of education and received knowledge.

Research Question 4: What is the connection between the content of education (provided by nurses) and the knowledge received by patients and significant others?

Research Question 5: Were there any differences in the connection between the content and received knowledge between countries?

Method

Design

This was a cross-sectional, descriptive and comparative survey, undertaken in the years 2009-2012. The study included the orthopedic units of 18 public hospitals in seven European countries (two hospitals in Cyprus, two in Finland, three in Greece, three in Iceland, five in Spain, two in Sweden, and one hospital in Lithuania). These European countries have been purposively selected based on the fact that they have in place diverse health care delivery systems and represent different geographical regions in Europe. This study was designed to explore if there are any differences between countries in terms of the content of

the education provided in the context of arthroplasty procedures. The rationale for emphasizing the study on the nurses working with arthroplasty patients lies on the fact that nurses already play a vital role in patient care and advocacy, and may be able to better incorporate and improve preoperative education content into their practice to improve patient outcomes.

All registered nurses and qualified nursing assistants (who have a 2-year nursing education in Greece) working with arthroplasty patients in various settings were assessed for their eligibility to take part in the study if patient education was part of their job description. Their participation was voluntary and informed consent was obtained (with the exception of Iceland where returning the questionnaire was regarded as consent to the study).

The patients were recruited based on the following criteria: (1) They had to be able to understand Finnish/Icelandic/Lithuanian/Swedish/Greek/or Spanish, (2) they must be able to complete the questionnaires independently or with support (by a significant other), (3) they had to be >18 years of age, (4) they expressed their willingness to take part in the study and gave an informed consent, and (5) they had to have scheduled to attend elective knee or hip replacement surgery for osteoarthritis. Significant others were appointed by the patients. The inclusion criteria 1 through 4 for patients also applied for the significant others, who were given the same code numbers as the patient and received the questionnaires in the same mail.

Assessments

EPNURSE-Content. The data for the content of education provided by nurses were collected with the EPNURSE-Content (Johansson et al., 2002). This instrument is parallel to the patients' and significant others' instruments and comprised the same 40 items divided into the same six subscales. The six subscales cover the provision of education on the following topics: biophysiological, functional, experiential, ethical, social, and financial. Each of the 40 items is preceded by the following statement: "I provide education on [. . .]" and the response options are "to every patient (=1), to many patients (=2), to some patients (=3), and to none of the patients (=4)." The Cronbach's alpha coefficient was found to be .95. The nurses' background factors included age, vocational and professional qualification, working time after graduation (years), working time in current unit (years), type of contract (permanent/temporary), patients' average length of stay at the unit (days/weeks), how demanding the work is physically/mentally (1 = *extremely* to 4 = *not at all*), the extent of time pressure affecting work of a nurse (1 = *to a great extent* to 4 = *not at all*), and the importance of patient education in nursing care (1 = *very* to 4 = *not at all important*). Patients' background factors included gender, age,

educational level, employment status, presence of chronic disease (yes/no), and type of joint replacement surgery. Significant others' background factors included their relation to the patient, age, gender, educational level, employment status, history of earlier employment in social or health care, and chronic illness.

RKhp and RKso scales. The data from patients and significant others were collected for correlational purposes with the RKhp and the RKso scales, respectively (Leino-Kilpi et al., 2005). These scales are comprised of six subscales that cover topics on the biophysiological, functional, experiential, ethical, social, and financial knowledge (Leino-Kilpi et al., 2005). Statements were assessed based on a 4-point scale ranging from 1 = *fully disagree* to 4 = *fully agree*. Statements for patients start with "I received knowledge about [. . .]" while statements for significant others start with "I received knowledge about how the (patient) could/should [. . .]." The number 0 refers to those items that were "not applicable in my case." The scores for each subscale are the mean of item scores in the subscale. A higher score indicates higher received knowledge by the respondent. The Cronbach's alpha coefficient for the RKhp and RKso scales was .98 and .99, respectively.

Statistical analysis. The characteristics of the sample were reported using descriptive statistics (frequencies, percentages, mean values, *SD*). Multifactor ANOVA was used to find the effects of nurses' background factors on the total scale and subscales of provided information (Main effect model: continuous variables used as covariates and categorical variables used as fixed factors). Sidak adjustments for multiple comparisons were used for pairwise comparisons. Comparisons between patients, significant others, and nurses were tested with one-way ANOVA (multiple comparisons with Tukey or Tamhane tests, depending on variance tests). In all tests, statistical significance was set at .05. The statistical analyses were performed by SPSS 22.0 (IBM Corp., Armonk, NY, USA).

Ethical considerations. Ethical approval was granted by the ethical committees in the participating countries (Iceland: 09-084-SI; Spain: 2010/5955; Sweden: Dnr. M69-09; Greece: 3029/17.08.2010; Cyprus: Y.Y.15.6.17.9(2); Finland: ETMK: 102/180/2008; Lithuania: Sv 14, 17/04/2009). As part of the study, each participant was fully informed on the details of the study and gave his or her consent in writing. The principles of voluntariness and confidentiality as these are described in the Declaration of Helsinki guided all the processes of this study (World Medical Association, 2002).

Results

Sample Characteristics

The nurses' sample in the study was comprised of 317 nurses—Greece (24.3%), Spain (18.6%), Iceland (18.0%), Finland (13.5%), Lithuania (12.0%), Sweden (10.4%), and Cyprus (4.1%). In term of the nurses' education level, the highest percentage of nurses holding a college or university degree was found in Finland (113, 44.5%) followed by Sweden (91, 33.7%) and Iceland (90, 32.3%). The least percentage of nurses educated at a college or university level was found in Greece (16, 7.7%). In total, 311 nurses (98.0%) held a permanent position with the mean working time in health care been 17 years ($SD \pm 11$) and the mean time in their current work to be 10 years ($SD \pm 8$). A percentage of 27.8% worked in orthopedic inpatient wards, in surgical ward (7.6%), and the rehabilitation unit (0.6%). The mean age of the nurses was 41.6 years and the majority (87.4%) reported caring for patients for 4 days to 2 weeks. Most of the nurses acknowledged their unit to be physically and mentally demanding (*extremely demanding* or *rather demanding*) with the percentage rising to 91.4% and 87.0%, respectively. Nurses acknowledged the importance of patient education within their clinical practice.

In total, 1,603 patients were included in the analysis with a mean age of 67 years ($SD = 10.7$), most being women (61.7%) and retired (46.9%) with a lower educational level (i.e., primary school education; 53.5%). Fifty-two percent of the sample were diagnosed with a chronic illness. Sixty-one percent of the patients were scheduled to undertake knee arthroplasty while for 67%, this was their first knee or hip arthroplasty.

The analysis included 615 significant others. The mean age of the significant others was 56.7 years ($SD 14.5$) ranging from 17 to 90 years. The majority were female (64%), and either spouses (59%) or children (31%) of the patients. Half of the respondents were employed (51%) followed by retired respondents (21%). Thirty-two percent had no vocational education while 40% reported they were living with a chronic illness.

Education Content

The total scale (EPNURSE-Content) for all countries was found to be 2.59 ($SD = 0.58$). The results demonstrated variations in relation to the content of education provided by nurses. Functional issues were mostly addressed ($M = 3.04$, $SD = 0.64$) as part of the education provided followed by the biophysiological issues ($M = 2.96$, $SD = 0.69$). The least attention was attributed by the nurses to financial issues ($M = 1.73$, $SD = 0.71$) and social issues ($M = 2.42$, $SD = 0.71$). Detail description of the findings is presented in Table 1.

Table 1. Connection of Content of Patient Education Provided by Nurses in Relation to Perceived Knowledge by Patients and Significant Others According to Countries (1 = *fully disagree* to 4 = *fully agree*).

	Content provided by nurses? M (SD)	Knowledge received by patients M (SD)	Knowledge received by significant others M (SD)	p ^a
Biophysiological	2.96 (0.69)	3.36 (0.77)	3.11 (1.02)	<.001
Functional	3.04 (0.64)	3.36 (0.69)	3.07 (1.00)	<.001
Ethical	2.54 (0.71)	2.86 (0.98)	2.71 (1.13)	<.001
Experiential	2.44 (0.80)	2.80 (1.09)	2.72 (1.19)	<.001
Social	2.42 (0.71)	2.82 (1.00)	2.71 (1.14)	<.001
Financial	1.73 (0.71)	2.56 (1.14)	2.49 (1.22)	
Total scale for all countries	2.59 (0.58)	3.07 (0.80)	2.84 (1.03)	<.001
Cyprus, total scale	3.26 (0.43)	2.79 (0.68)	3.61 (0.35)	<.001
Spain, total scale	2.62 (0.53)	2.91 (0.89)	3.04 (0.94)	<.001
Greece, total scale	2.58 (0.57)	2.95 (1.06)	3.30 (1.04)	<.001
Lithuania, total scale	2.62 (0.59)	3.41 (0.69)	3.39 (0.80)	<.001
Finland, total scale	2.77 (0.53)	3.04 (0.58)	2.50 (0.88)	<.001
Iceland, total scale	2.45 (0.55)	3.24 (0.69)	2.69 (1.02)	
Sweden, total scale	2.21 (0.89)	2.87 (0.70)	2.30 (1.03)	<.001

^aOne-way ANOVA.

The results showed that the EPNURSE-Content (total scale) was not statistically significant in terms of the nurses' educational level. On the contrary, the EPNURSE-Content was found statistically significant to country ($p = .006$), to how physically demanding is the work ($p = .05$), and to the amount of education provided ($p < .001$). In Cyprus, nurses provide more education than in Sweden ($p = .036$). Those nurses who think that their work is extremely physically demanding provided more information than those who think their work is less demanding ($p = .05$).

For the Biophysiological, Functional, And Ethical subscales, the factor whether the nurse's job involved patient education was found statistically significant ($p < .001$) in relation to the education provided by the nurses. With respect to the ethical subscale, in Cyprus, nurses provided more information than in Iceland (.009). In Greece, nurses provided more information than in Sweden ($p = .025$) and Iceland ($p = .001$). In Iceland, nurses provided less information than in Cyprus ($p = .009$), Greece ($p = .001$), and Finland ($p = .010$) in relation to ethical aspects of the education.

For the Experiential subscale, the factors of whether the nurses held a permanent position ($p = .009$), the number of years working in the ward ($p = .039$), and whether their job involved patient education ($p < .001$) were found statistically significant in relation to the education provided by the nurses. The longer nurses have been working, the less they provided education to patients ($B = -0.017$, $p = .039$). Those nurses who held a temporary position provided more information ($p = .026$).

The statistical analyses for the Social subscale revealed that the factors of whether the nurses held a permanent position ($p = .05$), whether the job was physically demanding ($p = .025$), and whether their job involved patient education ($p < .001$) were found statistically significant in relation to the education provided by the nurses. In Cyprus, nurses provided more information than in Spain ($p = .001$), Sweden ($p = .002$), and Iceland ($p = .038$). In Sweden, nurses provided less information than in Cyprus ($p = .002$), Greece ($p < .001$), and Lithuania ($p < .001$) in relation to the social aspects of the education. In Lithuania, nurses provided more information than in Spain ($p < .001$), Sweden ($p < .001$), and Iceland ($p = .014$).

With regard to the Financial subscale, whether the nurses' job involved patient education was found statistically significant ($p = .005$) in relation to the education provided by the nurses. Therefore, those nurses whose job involved patient education on all patients provided more information than those whose job involved patient education on many patients ($p = .036$) and on some patients ($p = .005$). No pairwise differences were found between countries in relation to the Biophysiological, Functional, Financial, and Experiential subscales.

Differences in terms of the content of education (total scale) were demonstrated between the participating countries with nurses in Cyprus providing the highest ($M = 3.26$, $SD = 0.42$) followed by Finland ($M = 2.77$, $SD = 0.53$). The lowest was recorded by nurses in Sweden ($M = 2.21$, $SD = 0.54$) followed by nurses in Iceland ($M = 2.45$, $SD = 0.07$; Table 2).

Connection Between Content of Education and Received Knowledge

Statistically significant differences were found between patients' and significant others' received knowledge and nurses' education content across all six subscales and across all participating countries (Table 1). Although detailed description of the received knowledge of patients and significant others is presented elsewhere (Klemetti et al., 2015; Sigurdardottir et al., 2015), in this

Table 2. Differences in Content of Education Provided by Nurses Between Countries ($n = 309$).

Country	N	M	95% CI	Mean difference between countries	95% CI	p value ^a
Cyprus	12	3.261	[2.990, 3.532]			
vs. Spain				0.644	[0.128, 1.160]	.005
vs. Greece				0.680	[0.174, 1.187]	.002
vs. Lithuania				0.643	[0.100, 1.186]	.009
vs. Sweden				1.047	[0.490, 1.603]	.000
vs. Finland				0.491	[-0.040, 1.023]	.092
vs. Iceland				0.809	[0.289, 1.329]	.000
Finland	43	2.770	[2.606, 2.934]			
vs. Cyprus				-0.491	[-1.023, 0.408]	.092
vs. Spain				0.152	[-0.173, 0.479]	.807
vs. Greece				0.189	[-0.122, 0.501]	.545
vs. Lithuania				0.152	[-0.215, 0.520]	.882
vs. Sweden				0.555	[0.168, 0.943]	.001
vs. Iceland				0.318	[-0.014, 0.651]	.072
Lithuania	36	2.617	[1.916, 2.461]			
Spain	59	2.613	[1.785, 2.223]			
Greece	75	2.580	[2.448, 2.712]			
Iceland	54	2.452	[2.301, 2.602]			
Sweden	28	2.045	[1.776, 2.314]			

Note. Scale 1-4: Higher score indicates education provided to more patients. CI = confidence interval.

^aMultifactor ANOVA.

article, part of the results are included due to the comparative reasons. The content of education provided by the nurses was reflected on the received knowledge reported by patients and significant others. The Functional subscale recorded the highest content of education ($M = 3.04$, $SD = 0.64$) and for patients it was also the subscale with the highest recorded score ($M = 3.36$, $SD = 0.69$). For significant others, the Functional subscale was the second highest score ($M = 3.07$, $SD = 1.00$). The content of education for the Financial subscale had the lowest score ($M = 1.73$, $SD = 0.71$) and this was reflected on the lowest scores for patients ($M = 2.56$, $SD = 1.14$) and significant others' ($M = 2.49$, $SD = 1.22$) received knowledge. One-way ANOVA for each country revealed that in all countries, nurses and patients had statistically different levels of content provided and knowledge received. The weakest connection was found in Finland ($p = .014$) and the strongest in Lithuania, Sweden, and Iceland ($p < .001$).

Discussion

The study emphasized on exploring the content of education provided by nurses within the orthopedic setting and demonstrated how this content was influenced by nurses' background factors. The study also showed the connection between the provided content of education and the received knowledge reported by patients and their significant others. The novelty of this study lays mainly in two distinctive elements. First, it considered the perspectives of nurses, patients, and significant others; hence, it explored the topic by assuming a multiangle perspective. Second, it pursued the exploration of the content of education through a European perspective by incorporating countries of the European South and the European North.

Statistically significant differences were found in respect to all subscales of content of education as well as between countries. This was a rather unexpected result given the fact that the patient educational content in some countries such as Finland is governed by legislation (Johansson et al., 2002) while for other countries such as Cyprus and Greece, this depends on the nurse's skills and education (Papastavrou, Charalambous, Tsangari, & Karayiannis, 2012). These results showed that the nurses attributed a varying emphasis to the different aspects of the education, with the highest emphasis been placed on Biophysiological and Functional issues. This finding coincides with the relevant literature that supports that post operatively, patients are primarily worried about biophysiological and functional issues that are related to the surgery and how they can best be prepared preoperatively to overcome any recovery-related problems. Nurses consider these topics as equally important and this justifies the emphasis they place on these during patient education (Thomas & Sethares, 2008).

The Experiential subscale received less attention compared with the Biophysiological or the Functional subscale and a possible interpretation can be attributed to the high physical demands that the nurses were experiencing in the orthopedic departments. As a result, a lower priority was attributed to these issues and with the relevant studies consistently showing that orthopedic nurses who suffer from high levels of stress and burnout (Froimson, 2013; Piko, 2006), these can negatively reflect on their performance and may even lead to nurse job dissatisfaction (Stevens et al., 2004) or patient dissatisfaction (Chimenti & Ingersoll, 2007).

The Social subscale had the second lowest score ($M = 2.42$, $SD = 0.71$) following the Financial subscale. The social aspects of the education include topics such as informing and promoting the active involvement of the family in the care, continuity of the care upon discharge, knowledge on centers that could provide care and treatment when needed, and communicating with the

priest and the related patient organizations/associations. A possible interpretation of this finding can be the inadequate active participation of family members in the care in some of the participating countries where significant others reported poorer received knowledge. Although information about the level of participation of family members in the care of the patients was not retrieved and indirect conclusions can only be drawn on the received knowledge reported by the significant others, these appear to vary between the participating countries. These variations can be attributed to the influence of the participants' cultural background. For example, in Greece, Cyprus, and Spain, three Mediterranean countries that share many cultural norms, the family bonds tend to be very strong and the tendency regardless of the nature of care is that the recipient of care is the "family (that includes the patient)" as a whole and rarely the patient alone (Mannocci, Ricciardi, & La Torre, 2009; Papastavrou et al., 2012). The problem might also be attributed to the insufficiencies of the health care systems to provide a comprehensive care to the patients within the hospital setting and in the community (Aghakhani, Nia, Ranjbar, Rahbar, & Beheshti, 2012; Mallinson et al., 2011). Therefore, the norm is that most health care problems are dealt as social problems rather than personal ones. This involves a high level of family involvement throughout the treatment and rehabilitation phases.

The results showed that nurses' specific background factors influenced the educational content provided. Factors such as the permanency of the nurses' position, whether the job was physically demanding, and the years of work in the orthopedic ward and whether their job involved patient education were found to influence the education provided by the nurses. Relevant studies have shown that nurses with a physically and emotionally demanding work can have a negative influence on their daily performance resulting in higher levels of missed care including education (Ebright, 2010). However, the results reported by this study did not coincide with these literature findings as it was reported that nurses with more demanding work provided more education to patients. Relevant studies (McHugh & Lake, 2010) provided evidence that nurses with more years of experience demonstrate higher levels of expertise (Bobay, Gentile, & Hagle, 2009) and subsequently can support a better educational preparation of patients and significant others (Kieft, de Brouwer, Francke, & Delnoij, 2014). However, a recent study by Oyetunde and Akinmeye (2015) showed that the years of experience at work were not correlated to whether nurses educated patients or not. Aghakhani et al. (2012), in a cross-sectional study of 240 nurses affiliated in educational hospitals, concluded that factors such as job dissatisfaction, and salary insufficiency that are (indirectly) related to the post held by the nurse, can have a negative influence on providing adequate education to patients.

An aspect that needs to be considered within the scope of this study is the differences of the health care systems as well as the differences in the patient educational content and delivery. These differences can result in a variation in the structure and content of patients' education as well as different educational tools used. Therefore, the educational structure and tools can vary from informal educational activities to more formal ones. Informal educational activities can include information-provision, lifestyle advice, and support, in addition to routine monitoring, provision of information, and assisting individuals to access information (Friberg, Granum, & Bergh, 2012; Mahomed, St John, & Patterson, 2012). Formal educational activities include determining care needs, systematic patient education using computers and leaflets, and individual and group counseling to seeking of information independently by patients (Aiken et al., 2012; Henriques, Costa, & Cabrita, 2012). In Cyprus, for example, education is primarily delivered by nurses who are also responsible on the content of the education. Despite the differences between the participating countries, one of the most important aims of the education provided remains the same: to use education as a tool to promote patient empowerment, to facilitate the decision-making process on topics about their care, and to facilitate the management of their own health care situation (Henriques et al., 2012; Mahomed et al., 2012).

In terms of the national comparisons and the differences found between countries regarding the content of education, the assumption that Northern European countries could form a homogeneous group versus the Southern ones who could form a different homogeneous group was not supported by the evidence. Previous research studies have shed light to a gap between the Northern, Southern, and Eastern European countries with respect to the lack of infrastructures, up-to-date health care technologies and overall resources (Mannocci et al., 2009). Although northern and southern countries share some cultural similarities, their health care systems differ significantly. Therefore, this was not an expected finding because with the differences in the various health care systems and the different educational approaches toward the preparation of the patients (and their significant others) that are admitted in hospitals for knee or hip arthroplasty, some discrepancies were expected.

The study has demonstrated the existence of statistically significant differences across the seven participating countries in relation to the content of the education provided by the nurses. These differences on the content of the education provided also reflected the perceived received knowledge of the patients and the significant others. These findings reveal that the nurses in each country take into consideration specific (different) factors that they perceive as more important and emphasize their educational focus on these

accordingly (Klemetti et al., 2015; Sigurdardottir et al., 2015). Despite the differences between the countries, the findings showed that the content of the education provided was related to the received knowledge in all countries. This is an important finding as it demonstrated that education delivered by nurses gets across patients, regardless of varying educational approaches and between nurses differences in relation to their background factors. These findings are an important source of information for patients seeking to receive cross-border treatment for orthopedic operations. This is achieved by providing evidence on the practices implemented in the seven European countries.

The literature demonstrates that there are varying tools available to educate patients within the orthopedic context. These tools include verbal education (Marcus, 2014), educational booklets and video-booklets (O'Connor et al., 2009), and adaptive conjoint analysis tool (ACA; Fraenkel, 2008) to report a few. In most cases, to maximize the educational impact, a combination of tools is used. The decision of which method to be utilized needs to take into consideration patients' preferences but also adopt a multidisciplinary approach. Furthermore, the patient should be assessed for any impairments (i.e., cognitive) that might hinder the educative process and the decision of which educative tool to be appropriately informed. Equally important, following any preoperative education, an assessment of the education impact on the patient should complement the educative process. Finally, as part of the education process, both the patient and the family (i.e., significant others) should be the recipients of any information to maximize the educative impact.

The study is not without some limitations. Perhaps the greatest threat to the findings is posed by the discrepancies of the various health care systems that were represented in this study. Furthermore, the fact that the exact content of the education delivered to the patient perioperatively is not known is also a limitation that needs to be considered when future studies are designed. However, surgical orthopedic operations demonstrate lot of similarities and the study was performed on the assumption that there are similarities also in the preoperative education delivered by nurses.

Finally, the nonrepresentative (conveniently selected) samples obtained from the various countries limit the possibility for generalizing the results to wider populations. For this group of patients, the perioperative education is delivered primarily by the nurses, so it was not possible to cross-compare any other form of education provided by other disciplines (i.e., physiotherapist). Therefore, studies in the future should explore the topic from a multidisciplinary perspective, considering the education provided by other disciplines and also the differing educational delivery systems (i.e., informal or formal). The efficacy and efficiency of these distinct delivery systems (but also when combined) should also be assessed in future studies. Nevertheless, this study

has provided an exploration of the topic by taking a nursing educational stance that can be extended to include other educational approaches in the future. Furthermore, despite its limitations, this study can be seen as the first comparative study in the field of Europe and as such, it gives perspective of different services and gives basis for future studies.

Conclusion

The findings of this study revealed that the nurses' provision of education is reflected on the patients' and significant others' received knowledge. This highlights the fact that nurses are effective in delivering orthopedic education to patients and their significant others irrespective of the methods employed to achieve this. The content of education is emphasized on specific topics where nurses attribute more importance. Therefore, education as a process is not fully optimized and topics under the financial and experiential categories are more poorly addressed compared with other topics. Based on the findings, it may be useful to develop patients' and significant others' aid material explaining the nature of education and advising them what to expect and how to optimize their participation in the process. It is important that this information is given to patients and significant others in the acute care setting prior to their arthroplasty operation. Further research is required to evaluate the content and the effectiveness of the current educational programs and to evaluate whether these affect patient's readiness to participate and the promotion of their rehabilitation through increased adherence to treatment.

Relevance to Clinical Practice

This study explored the topic of patient education as provided by nurses from a wider European perspective that allowed for the educational limitations of each country (but also as a group) to be acknowledged accordingly. The findings of the study can be read in light of the EU directive 24/2011 (European Parliament, 2011) that regulates patients' right for continuity of care across EU member states. This study also offers a unique opportunity and a working platform where a common European policy on patient education could emerge. The findings of the study stress that the clinical preparation of patients should not only emphasize on biophysiological and functional issues but it should also include information on ethical, social, experiential, and financial issues. This can be the first step of a long journey toward the better preparation of the patient (and his or her significant others) who will undergo knee or hip arthroplasty as a means to increase the quality of the provided care in orthopedic departments.

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