This study provides knowledge regarding nurses, physicians and patients’ family members’ perspectives on a widely recommended practice called family-witnessed resuscitation. The results revealed that despite having a number of benefits, this practice is not commonly implemented and favoured by health care professionals. At the same time, critical care patients’ relatives wish to have this option offered to them in case of an emergency to feel more involved in their loved-ones’ care, and generally feel better treated by the staff during hospitalisation. In order to successfully apply family-centred care principles and therefore respond to patients and families’ needs, family-witnessed resuscitation should be considered for implementation in places where it still reminds controversial. Prior to implementation there is a number of barriers which need to be addressed. These findings can be utilized to direct organisational changes aiming on implanting family-centred interventions in health care.
In-hospital family-witnessed cardiopulmonary resuscitation: Perspectives of health care professionals and patients’ family members
NATALIA SAK-DANKOSKY

In-hospital family-witnessed cardiopulmonary resuscitation: Perspectives of health care professionals and patients’ family members

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ABSTRACT:
Family-witnessed resuscitation, a practice that allows the patients’ family members to stay by the bedside in case of a cardiopulmonary resuscitation, has been found to be helpful for patients’ relatives in dealing with their often traumatic critical care experience. Despite existing evidence of benefits of this practice and its general recommendation by many national and international organisations, its implementation is believed to remain marginal. The purpose of this study was to explore the family-witnessed resuscitation phenomenon from the point of view of nurses, physicians and patients’ family members, in order to contribute to its general understanding and address potential barriers to its implementation.

This mixed-method study consisted of three phases. During Phase 1, an integrative literature review was conducted. Scientific articles (n=15) reflecting on nurses and physicians’ experiences in and attitudes towards family-witnessed resuscitation were identified through a systematic screening process, and analysed using the thematic synthesis method. Phase 2 consisted of a descriptive, correlational, cross-sectional study focusing on a sample of 390 Finnish and Polish nurses and physicians and their experiences and attitudes regarding family-witnessed resuscitation (measured with the use of a previously developed questionnaire and analysed using statistical methods, and thematic analysis). During Phase 3, a total of 12 Finnish and Polish critical care patients’ family members were interviewed, and their responses were analysed qualitatively using a thematic analysis method.

The results revealed that despite being strongly recommended, family-witnessed resuscitation is not commonly implemented and practised in many countries. The general attitude of health care professionals towards this practice is rather negative, and depends, among other things, on how it was previously experienced by the staff. Nurses and physicians’ reasoning is based on a variety of beliefs about the negative impact of family-witnessed resuscitation on the family members, team members and the resuscitation process, and reveals a number of barriers towards its implementation. In contrast to staff’s opinions, patients’ relatives seem to be more in favour of this practice and believe it should be offered to them as an option, which would help to improve the care offered to them and make them more involved in the treatment of their loved ones.

The results of this study provide new knowledge regarding nurses, physicians and patients’ family members’ experiences, attitudes and desires regarding family-witnessed resuscitation, and point out important issues related to its implementation. More country-specific information is needed to address the local desires and barriers to family-witnessed resuscitation. Education and policy changes are needed prior to successful implementation of this practice.

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Medical Subject Headings: Attitude; Cardiopulmonary Resuscitation; Cooperative Behaviour; Critical Care; Emergencies; Emergency Departments; Family; Family Nursing; Family Relations; Intensive Care Units; Nurses; Professional-Family Relations; Physicians
Perheen todistama elvytystilante sairaalassa: Terveydenhuollon ammattilaisten ja potilaidan perheenjäsenten näkökulmia

Itä-Suomen yliopisto, terveydenliikenne- ja sairausliikennetutkimus

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TIIVISTELMÄ:
Perheen todistaman elvytystilanteen eli käytännön, jossa potilaan perheenjäsenet voivat olla lähän painelu-puhalluselvytystilanteessa, on todettu auttavan potilaiden läheisiä usein traumaattiseksi koetun tehohoitokokemuksen käsitelyssä. Vaikka omaisten länneolon hyödyistä elvytystilanteessa on sekä näyttöä että useiden kansallisten ja kansainvälisten organisaatioiden suosituksi, sen uskotaan toteutuvan harvoin käytännössä. Tämän tutkimuksen tarkoituksena oli tutkia perheen todistamaa elvytystä ilmiönä sairaanhoitajien, lääkäreiden ja potilaiden perheenjäsenten näkökulmasta. Tavoitteena oli edistää käytännön ymmärtämistä yleisellä tasolla sekä käsittää mahdollisia esteitä sen toteuttamiselle.


Tutkimuksen tulokset tuottavat uutta tietoa sairaanhoitajien, lääkäreiden ja potilaiden perheenjäsenten kokemuksista, asenteista ja toiveista perheen todistaman elvytykseen liittyen ja niistä nousee esiin tärkeitä, käytännön toteuttamiseen liittyviä näkökantoja. Maakohtaisista tietoa ilmoistaa tarvitaan lisää, jotta paikallisen tason toiveita sekä esteitä perheen todistamalle elvytykselle voidaan käsittellä. Perheen todistaman elvytyksen käytännön onnistunut toteutus edellyttää myös muutoksia koulutukseen ja toimintalinjauksiin.
"Our patients don’t get in the way of our work. They ARE our work."

-Joanna Foksinski
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Warsaw, December 2017

Natalia Sak-Dankosky
List of the original publications

This dissertation is based on the following original publications:


IV Sak-Dankosky N, Andruszkiewicz P, Sherwood P, Kvist T. Patients’ relatives’ desires regarding family-witnessed cardiopulmonary resuscitation: A qualitative perspective of Finnish and Polish intensive care patients’ family members. Submitted

The publications were adapted with the permission of the copyright owners.

This summary contains of an unpublished material.
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## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ALS</td>
<td>Advanced Live Support</td>
</tr>
<tr>
<td>AAST</td>
<td>American Association for the Surgery and Trauma</td>
</tr>
<tr>
<td>B</td>
<td>B-value (Unstandardised Coefficient)</td>
</tr>
<tr>
<td>BLS</td>
<td>Basic Life Support</td>
</tr>
<tr>
<td>CACCN</td>
<td>Canadian Association of Critical Care Nurses</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence Interval</td>
</tr>
<tr>
<td>CPR</td>
<td>Cardiopulmonary Resuscitation</td>
</tr>
<tr>
<td>EfCCNa</td>
<td>European federation of Critical Care Nurses associations</td>
</tr>
<tr>
<td>ENA</td>
<td>Emergency Nurses Association</td>
</tr>
<tr>
<td>ER</td>
<td>Emergency Room</td>
</tr>
<tr>
<td>ERC</td>
<td>Emergency Resuscitation Council</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FCC</td>
<td>Family-Centred Care</td>
</tr>
<tr>
<td>FPDR</td>
<td>Family Presence During Resuscitation</td>
</tr>
<tr>
<td>FWR</td>
<td>Family-Witnessed Resuscitation</td>
</tr>
<tr>
<td>HCP</td>
<td>Health Care Professional</td>
</tr>
<tr>
<td>ICU</td>
<td>Intensive Care Unit</td>
</tr>
<tr>
<td>IHCA</td>
<td>In-Hospital Cardiac Arrest</td>
</tr>
<tr>
<td>NENA</td>
<td>National Emergency Nurses Association</td>
</tr>
<tr>
<td>OR</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>p</td>
<td>P-Value (Probability Value)</td>
</tr>
<tr>
<td>PRISMA</td>
<td>Preferred Reporting Items for Systematic Reviews and Meta-Analyses</td>
</tr>
<tr>
<td>PTSD</td>
<td>Post-Traumatic Stress Disorder</td>
</tr>
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<td>USA</td>
<td>United States of America</td>
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XVIII
1 Introduction

Family plays an important role in everybody’s life. It forms the basic social unit of the society and for majority of people it constitutes one of the most important values. Due to the more and more growing recognition of the importance of a family in one’s life, and having a great impact on persons’ well-being, an ongoing paradigm change has been observed in the health care in the past century (Friedman et al. 2003, Rowe Kaakinen et al. 2014). From a paternalistic model, which ignored the voice of the patient and his or her family putting the health care professional in the centre of it, it began moving towards more patient- and family-centred approach which is respectful and responsive to individuals’ values, needs and preferences (OneView HealthCare 2017).

A critical care setting in which patients are in a life-threatening condition is exceptionally challenging from the point of view of the patient’s family (Davidson 2009, Long et al. 2016). Persons who suffer from fear of losing a loved-one face a variety of different negative emotions, and very often experience short- and long-term health consequences (McAdam et al. 2012). Many reasons for increased burden of the family members have been recognised, such as lack of information or inability to be close to the patient (Khalalia 2012, Kodali et al. 2014, Mukhopadhyay et al. 2016). Failing to enable to meet the needs of critical care families has been found to have an impact on their overall experience of the disease of their family member (Khalalia 2012, Mukhopadhyay et al. 2016, Hansen et al. 2016), and therefore was recognised as one of the aspects of critical care which needs improvement.

One of the critical care patients’ families’ needs, already documented in the literature over two decades ago, concerns the ability of patients’ relatives to be in a physical proximity to the patient during life-saving procedures (Khalalia 2012). Allowing the family to witness resuscitation of their loved-one, which is against the traditional practice of asking third parties to leave the room when the resuscitation starts, was found to be desired by many critical care patients’ families (Twibell et al. 2008, Leske et al. 2017). Moreover, it has been found to have a positive impact on them as well as on the patients (Eichhorn et al. 2001, Holzhauser et al. 2006, Leske et al. 2017), which resulted in questioning the appropriateness of the traditional practice of general exclusion of the family members from witnessing the resuscitation of a patient admitted to the hospital.

Over the years, based on the strong scientific rationale, nursing and medical organisations have started supporting the above idea, stating that if the family desires to stay in the resuscitation room, they should be given such an option (Emergency Nurses Association 2012, Bossaert et al. 2015). Despite the general recommendation of this practice, it is believed that health care professionals in many countries are against it. This may influence the implementation of family-centred practices in hospitals, and therefore negatively affect the execution of evidence-based guidelines which have been found to improve the patients’ family members outcomes.

The scope of an implementation of family-witnessed resuscitation is not well known. What is more, there is a recognised need of extending the body of knowledge concerning the health care professionals and patients’ family members’ perspectives regarding it, in order to determine possible barriers to its implementation (Davidson et al. 2014). This study focuses on synthesising the existing knowledge of how family-witnessed resuscitation is seen and experienced by the nursing and medical staff. Moreover, by investigating a population of Finnish and Polish health care professionals, it explores more in depth nurses’ and physicians’ attitudes and experiences towards this practice. Finally, it explores Finnish and Polish critical care patients’ families’ desires regarding family-witnessed resuscitation, and generally aims to
contribute the overall understanding of this phenomenon, and points out possible barriers towards this recommended practice.

This study complies with the research strategy of the Department of Nursing Science, University of Eastern Finland, which inter alia, focuses on the development of health services, clinical nursing and effectiveness of nursing and health and wellbeing of families, and addresses one of the global challenges identified by the University of Eastern Finland – aging, lifestyles and health (UEF Department of Nursing Science 2017).
2 Conceptual and theoretical aspects of family-witnessed resuscitation

2.1 DEFINITIONS OF THE MAIN CONCEPTS

2.1.1 Family
The concept of family has been widely described in the literature, however, there has not been a universally agreed definition (Rowe Kaakinen et al. 2014). In the 50s, Burgess & Locke (1953) presented the following description of a family: “it is a group of persons united by ties of marriage, blood or adoption, constituting a single household; interacting and communicating with each other in their respective social roles of husband and wife, mother and father, son and daughter, brother and sister, and creating and maintaining a common culture”. This rather traditional definition does not correspond well to today’s reality, in which some groups of people, without legally recognised relationships, also consider themselves as families. Another, broader definition states that the family “refers to two or more individuals who depend on one another for emotional, physical and economical support” (Rowe Kaakinen et al. 2014). Despite better reflecting current social norms, this definition also emphasises an important aspect of a family from the point of view of health care, namely the fact that its members can be self-defined. It means that what makes two or more people a family should not be necessarily based on legal or natural bonds, but the judgement of its members.

Because of the growing involvement of families in patients’ care, the need for health care professionals (HCPs) to ask their patients who they consider to be their family, and therefore who should be involved in the care process, has been emphasised (Rowe Kaakinen et al. 2014). In health care nowadays, it is mostly the patient who points out the person who can be informed about the treatment process. Problems might occur when the patient is in a critical condition and remains unconscious. In such cases, involving third parties in the patient’s care, even in the case of blood-relatives or spouses, can sometimes be seen as acting against the patient’s will. National law regulations differ in that matter, however, in many cases they allow the HCPs to use their common sense and to reveal information to people who are believed to be close to the patient and are acting in the patient’s interest (Supreme Medical Chamber 2003, Polish Parliament 2008). Moreover, in such critical cases, it is suggested taking into account that possible risks of breaking the patients’ confidentiality, despite being right, are outweighed by benefits to the patient’s family (Royal College of Nursing 2002). From the ethical point of view, informing the critical care patient’s family about the treatment might be similar to informing the family that the patient has been admitted to hospital in a critical condition, which in fact might already be seen as breaching the confidentiality as well, but can be socially justified (Royal College of Nursing 2002).

In light of growing emphasis on the importance of one’s family in patient’s care, a number of nursing organisations have proposed their interpretation of the family concept. For example, the European federation of Critical Care Nursing associations, European Society of Paediatric and Neonatal Intensive Care, and European Society of Cardiology on Cardiovascular Nursing and Allied Professions have claimed in their joined position statement that patients’ family members should include all “who are the most important to the patient” (Fulbrook et al. 2007). They specified that the above definition should include not only patients’ blood relatives and loved-ones, but close friends as well. In the health care literature the term family is often used interchangeably with terms, such as a family member, relative, loved-one, or a significant other, even though their direct meaning might be somewhat different. Considering the broad scope of
who the family term applies to in this study, for the purpose of this work all the above variations assume to describe the same concept.

2.1.2 Cardiopulmonary resuscitation

To resuscitate means to restore consciousness, and to revive (Oxford University Press 2017, 2017). Cardiopulmonary resuscitation (CPR) is used in health care as a life-saving technique and has been defined as “a medical procedure involving repeated cycles of compression of the chest and artificial respiration, performed to maintain blood circulation and oxygenation in a person who has suffered cardiac arrest” (Oxford University Press 2017, 2017). The European federation of Critical Care Nursing associations, European Society of Paediatric and Neonatal Intensive Care, and European Society of Cardiology on Cardiovascular Nursing and Allied Professions in their position statements regarding CPR, have proposed the following definition of CPR: “life-saving interventions when either cardiopulmonary or respiratory arrest occurs” (Fulbrook et al. 2007).

The first examples of CPR can be found in the Bible and Ebers Papyrus which contain the descriptions of ancient medical practices (Hallmann-Mikołajczak 2004). More recent examples are dated for the 17th century, when the Paris Academy of Science recommended mouth-to-mouth resuscitation for drowning victims. In the beginning of the 20th century, the first case of successful use of external chest compressions was reported (American Heart Association 2017). Since then it has been successfully used to restore lives of people suffering from cardiac arrest around the world.

CPR can be provided by a layperson or a professional. In both cases, the principle is the same, however the scope of the procedure differs, depending on the skills and equipment available to restore patient’s spontaneous blood circulation and breathing. CPR performed by a layperson is considered to be part of basic life support (BLS) procedure defined as “an act of supporting an unconscious patient's breathing and circulation in order to preserve their life and buy time for professional emergency medical attention” (HeartStart 2017). An advanced life support (ALS), performed by a professional and defined as “advanced protocols and algorithms that extend past BLS to further assist the patient” (Nurse Frontier 2016), can be performed both outside the hospital and in a hospital setting.

In-hospital CPR usually concerns patients who have already been admitted to the unit, and is performed by highly trained hospital nursing and medical teams (Heng et al. 2011). Due to a relatively high incidence rate of an adult in-hospital cardiac arrest (IHCA) in some European countries and the USA (3-6 arrests per 1000 admissions), it is assumed that in-hospital CPR is performed quite often (Nolan et al. 2014). CPR survival rates differ among patients’ populations. Based on the results of an analysis of 70 studies published in 2011, an overall mean survival to discharge was 18% (Dwyer & Dennett 2011), and generally is considered to be associated with poor clinical outcomes (Chan et al. 2013). Current epidemiological data on IHCA incidences and survival rates in European hospitals, however, are not well documented in the available literature.

Depending on the patients’ state and condition, the in-hospital CPR procedure involves different activities, such as chest compressions, endotracheal intubation or cricothyrotomy, or central line insertion, and aims to restore and maintain patient’s bodily functions. Detailed algorithms for any type of CPR are based on the most current scientific evidence and are being continuously re-evaluated and updated by official bodies. In Europe it is the European Resuscitation Council, which publishes the most up-to-date CPR guidelines every five years (European Resuscitation Council 2015).

Due to the recent shift from HCP-centred approach to more patient-centred that emphasises patients’ autonomy, current CPR guidelines have begun to include not only the algorithms on the technical aspects of life-saving activities, but also reflect on ethical aspects of life saving procedures. Emergency Resuscitation Council (2015) in their most current CPR guidelines described the importance of principles of ethics in resuscitation and end-of-life decisions. In
Section 11 of the guidelines, they reflected on the following principles of ethics: (1) the principle of autonomy, which refers to HCPs’ obligation to respect patients’ decisions, values and beliefs (at the same time noticing that application of this principle might be challenging in the case of an unconscious patient); (2) the principle of beneficence, which implies that all activities and interventions should benefit the patient, and that the patients’ views and preference should be captured in the guidelines; (3) the principle of non-maleficence emphasising that CPR should not be performed in futile cases (which in reality, due to the nature of CPR, is hard to enforce); and (4) the principle of justice and equitable access, which states that all resources should be distributed in a fair manner, in the absence of destination (Bossaert et al. 2015). In terms of CPR, it implies that the best outcomes for individual patients, their relatives, and the society should be achieved by proper allocation of available resources. In practice, it means that, for example, withholding proper care due to financial reasons should not be acceptable. In general, all the decisions about CPR should be made with respect to human rights, such as the right to life, the right of protection from inhuman or degrading treatment, the right to freedom of expression, the right to be free from discriminatory practice, and the right to respect for privacy and family life (Bossaert et al. 2015).

2.1.3 Family-witnessed resuscitation

Thirty years ago, Doyle at al. (1987) published a research article regarding family involvement in CPR, which resulted in questioning fairness and validity of a universal policy of asking patients’ family members to leave the area in case of a need for CPR of their loved-one who had been admitted to hospital. The authors’ concerns were raised after the majority of family members of patients who had undergone CPR stated that they wished they had stayed in the room during that event. As a result, the authors started a trial programme during which they allowed the family members who showed a desire to witness CPR to stay in the resuscitation room. Despite overall concerns and expected poor outcomes, it turned out that none of the patients’ relatives interfered with the CPR actions. Moreover, the majority of family members claimed that they would make the same decision again, and believed that witnessing CPR of their loved-one helped them with the grieving process. These results started an ongoing debate on the witnessed resuscitation phenomenon.

Even though the concept of a witnessed resuscitation was first described in the literature already in the 1980s, it was not clearly defined until a decade later. In the late 1990s Dolan (1997) offered the following definition: “witnessed resuscitation means allowing the presence of relatives during resuscitation”. A few years later, Boyd (2000) referred to it as “the process of active medical resuscitation in the presence of family members”. Despite a rather general overtone of the term witnessed resuscitation, in the majority of the literature it always refers to the presence of a relative, rather than any random bystander (Walker 2006). It is suggested that this might be due to the previously described first research article published in the literature, which for the first time discussed the issue of witnessed resuscitation by describing it as a family participation during CPR, and therefore in some way paved the way for using it in cases of patients’ loved ones only (Doyle et al. 1987). What is more, Walker (2006) points out that the way the concept is used nowadays, it mostly refers to the events occurring in hospital rather than out-of-hospital CPRs. After arguing the actual place where witnessed resuscitation usually occurs, and the role of the observer who witnesses CPR, in his concept analysis he proposes a broader and more general definition of a witnessed resuscitation: “witnessed resuscitation is the experience of having been witness to a resuscitation attempt in which the witness (or bystander) performed an active or passive role (or) the experience of being witnessed by others whilst applying the skills of the resuscitation.” The world literature focusing on this phenomenon, however, still mostly uses it to describe specifically the in-hospital CPR attempts witnessed by patients’ family. It might be explained by the fact that the out-of-hospital CPR witnessed by random bystanders occurs rather naturally and does not demand anyone’s permission, and therefore is not of interest to a scientific discussion as much as in-hospital CPR witnessed by a
patient’s family. This is why official national and international bodies reflecting on the witnessed resuscitation phenomenon more often use more specific terms such as family-witnessed resuscitation (FWR) or family-presence during resuscitation (FPDR). The Emergency Nurses Association (2007), describes FWR as “the presence of family in the patient care area in a location that affords visual or physical contact with the patient during resuscitation events”. The European federation of Critical Care Nursing associations, European Society of Paediatric and Neonatal Intensive Care, and European Society of Cardiology on Cardiovascular Nursing and Allied Professions in their joint position statement describes FWR as “a family member presence during CPR, including the witnessing of all life-savings interventions” (Fulbrook et al. 2007).

FWR may refer to resuscitation of both paediatric and adult patients. According to the literature, the former is generally more acceptable to the public, who state that letting the parent of a child stay in the resuscitation room is more justified than allowing than the wife or friend of an adult, as the adult is able to fully decide by him or herself (Tomlison et al. 2010).

2.2 ORIGINS AND THEORETICAL BASIS OF FAMILY-WITNESSED RESUSCITATION

FWR originates in a variety of paradigms, which emphasise the significance of seeing patients in a bigger context including their environment and relationships they develop throughout the lifespan. Getting familiar with different concepts and models might help to understand how different health care situations might affect patients’ family members (Rowe Kaakinen et al. 2014).

Below are presented the chosen theories, which provide a rationale for FWR development and offer choices for actions targeted on improving the quality of care of families: (1) family systems theory reflecting on the idea of looking at an individual more holistically, as a member of a bigger system – the family, and giving the rationale for the second described theory - (2) family-centred care (FCC) theory, the core theory for the current study, which explains the importance of providing care to the patient and his or her family as well; and (3) family stress theory explaining the phenomenon of dealing with stressful/critical event by the family, and providing rationale for the importance of implementing (4) FCC in a critical setting, represented by FWR practice – the core concept being explored in this study.

2.2.1 Family systems theory
Family systems theory, which describes a family as an emotionally connected unit full of interactions within it, was created by Bowen (1978). His theory emerged from the general systems theory, which, unlike the stiff linear, casual models explaining the world, offered a broader understanding of reality, stating that organisms are more complex, interactive and organised (von Bertalanffy 1968).

Family systems theory is based on observations that human problems go beyond issues in a single persons’ psyche, and are rather related to an individual’s family system (Bowen 1978). It states that family members affect each other’s thoughts, feelings, and actions, and that any threat to the harmony of the family can strongly affect each person within the group. A change in one component of the system influences other components, as they are strongly interrelated. In other words, the general focus of the theory is on challenges of being a human in relationships, which greatly affect each individual. It emphasises the need to look at humans as components of a bigger interactive system rather than just focusing on them, as they are independent individuals. This philosophy is represented by the belief that the “spill over” effects of one’s illness affect the whole family, causing different levels of burden and strain on
patient’s relatives, and that the health care outcomes should be measured across the family unit, not only the patient (Wittenberg et al. 2014).

2.2.2 Family-centred care theory

Over 50 years ago, first suggestions for the need of a paradigm shift from strictly paternalistic and patriarchal health care, where the HCPs have a leading position over the patient, to a more partnership-oriented approach, were voiced (Wells 2011). This has resulted in development of a philosophy known as FCC, which emphasises an important role of the family in patients’ life, and calls for viewing families as integral members of the health care team, as well as a unit of care (Shields 2010).

The origins of FCC theory are related to the beginning of client-centred therapy in psychiatry, described in “Newer Concepts in Psychotherapy by Rogers (Wexler & Rice 1974). The author for the first time publicly talked about the implications of therapeutic relation on family life and society, and the mutual influence of treatment process and family life. This idea was later further explored and embraced by paediatric care associations, stressing the importance of a parent in kids’ wellbeing (Bamm & Rosenbaum 2008, Bishop et al. 1993). The adaptation of FCC in adult populations was initiated by more and more recognised role of a family as a supporter and shaper of each individual (despite their age), and a growing importance of respecting universal human rights (Pryzby 2005, Wells 2011). Since then, many FCC organisations, such as the Institute for Patient- and Family-Centred Care (2017), have been established. Their core role has been to promote FCC approach and advocate for patients’ families through developing different FCC projects, policies, and practices.

Briar-Lawson et al. (2001) developed a conceptual framework for FCC practices that consists of five important features: “(1) families are considered experts in what helps and hurts them; (2) families are indispensable, invaluable partners for policy makers, helping professionals and advocates; (3) families are not called, or treated as, dependent clients - helping professionals and policy makers view families as equals, as citizens, with whom they collaborate, and whom they empower; (4) family-centred policies and practices promote family-to-family and community-based systems of care and mutual support; (5) family-centred policies and practices promote democratization and gender quality”. Table 1 presents the main concepts on which FCC should be based on.

Table 1. Core concepts of family-centred care (Institute for Patient- and Family-Centred Care 2015)

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dignity and Respect</td>
<td>&quot;HCPs listen to and honour family perspectives and choices. Patient and family knowledge, values, beliefs. And cultural backgrounds are incorporated into the planning and delivery of care&quot;</td>
</tr>
<tr>
<td>Information Sharing</td>
<td>&quot;HCPs communicate and share complete and unbiased information with families in way that are affirming and useful. Families receive timely, complete and accurate information to effectively participate in care and decision-making&quot;</td>
</tr>
<tr>
<td>Participation</td>
<td>&quot;Families are encouraged and supported in participating in care and decision-making at the level they chose&quot;</td>
</tr>
<tr>
<td>Collaboration</td>
<td>&quot;Patients, families, HCPs and leaders collaborate in policy and program development. Implementation, and evaluation; in facility design, and in professional education; as well as in delivery of care&quot;</td>
</tr>
</tbody>
</table>

It is important to acknowledge that FCC does not correspond to the same exact meaning as family nursing. While FCC as a philosophy does represent values central to family nursing, family nursing can be defined rather as a nursing specialty “that focuses on provision of care to
families and family members in family health and illness situations” (Nettina 2014), than a philosophy on its own.

In conclusion, FCC provides an alternative to a biomedical model of care focusing strictly on the physical aspects of a human being, without taking into account the individual and social aspects of patients. In contrast, FCC emphasises the need of overcoming a belief that HCPs professional knowledge and expertise puts them in a superior role in the patient/family – HCP relationship, and that it justifies omitting their clients’ needs and desires. Its principles have been tested in a variety of settings and have been found to improve the client – health care provider relationship, and positively correspond to patients and family needs improving care outcomes. Moreover, the Institute of Medicine recognised FCC as one of the six most important aims for the high quality care (American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, American Osteopathic Association 2007).

2.2.3 Family stress theory
Family stress theory developed by Hill (1949), describes how family members respond to crisis. The theory recognises three factors that affect families’ reactions to stressful events: (1) family’s resources, (2) family’s perceptions, and (3) family’s stressors. The family’s response to crisis depends on the proportions between these factors. The model describing these proportions is called ABC-X model, where (A) is the stressor event, (B) is the resources available to a family, (C) is the family’s perceptions of the stressor, and (X) represents the likelihood of a crisis (Shehan 2016).

The original ABC-X model focused on the culmination of the crisis only. With time, the need for a time component that includes post-crisis adaptation has been recognised, therefore, the basic ABC-X has been further developed by adding more components to it (McCubbin & Patterson 2007), resulting in establishing Double ABC-X Model of Family Stress and Adaptation (Figure 1).

![McCubbin’s & Patterson’s (2007) Double ABC-X Model of Family Stress and Adaptation](image)

Figure 1. McCubbin’s & Patterson’s (2007) Double ABC-X Model of Family Stress and Adaptation

Depending on the family’s coping ability, which is determined by the ability to keep the balance between the crisis pile up, resources, and the family’s perception of the two of them, the response to the crisis (adaptation) can be either positive (bonadaptation), or negative and dysfunctional (maladaptation).
Because of the theory relevance and applicability for FCC, the Double ABC-X Model of Family Stress and Adaptation has been used in nursing (Joseph et al. 2014). Critical health situations such as CPR, are considered profoundly stressful for the patients’ family. By positively influencing patients’ families’ resources (such as care given to them) and therefore their perceptions of the crisis, HCPs can decrease the chances of negative post-crisis adaptation outcomes, such as prolonged grief, or other health-related issues.

2.2.4 Family-centred care in critical care

Life-threatening illness has a significant impact on the family of the critically ill patient (Davidson 2009, Long et al. 2016). It has been found to bring an inevitable distortion of the family dynamics, and cause health problems, such as an acute stress, post-traumatic stress, generalised anxiety, and depression (Davidson 2009, McAdam et al. 2012). It is therefore evident that critical care and emergency settings, where patients in life-threatening conditions are often admitted to, might be an extremely frightening environment for the patients’ families (Paul & Rattray 2008). Together with the fear for loved-one’s life, families can experience overwhelming uncertainty, hopelessness, and neglect which in the long run can contribute to developing long-lasting negative health effects, including a complicated grief (Paul & Rattray 2008, McAdam et al. 2012). Despite sharing most of the above negative elements of critical care experience with the patients, it is important to understand the uniqueness of families’ perspective in critical care settings (Long et al. 2016).

Because of the growing body of evidence on health-related issues critical patients’ families may face, a need for more FCC-oriented care has been emphasised (Kynoch et al. 2016, Long et al. 2016). FCC is based on the assumption that HCPs should respect and respond to families’ needs and values (Davidson et al. 2017). In the case of families of critically ill patients, these needs include being close to the patient, knowing exactly what is being done to the patient, or being able to interact with a nurse or a physician every day (Khalalia 2012, Kodali et al. 2014, Mukhopadhyay et al. 2016). It has been found that families better cope with the condition of their loved one when their needs are met (Wagner 2004). Research, however, show that many of these needs remain unmet (Khalalia 2012, Mukhopadhyay et al. 2016, Hansen et al. 2016), and that families report an overall dissatisfaction with support they receive from the staff (Khalalia 2012, Kynoch et al. 2016, Hansen et al. 2016). Strategies such as including family in care process activities have been found to be one of the most supportive actions that can help to increase the delivery of FCC (Davidson 2009). Such approach, unlike the assumption that the patients’ family is more of a disturbance to the staff than a recipient of care itself (Khalalia 2012), does not cause any adverse psychological effects on family members (Jakab et al. 2017), and is believed to improve the short- and long-term health outcomes for family members of critically ill patients (Islekdemir & Kaya 2015).

2.3 ACCEPTANCE OF FAMILY-WITNESSED RESUSCITATION

2.3.1 Official recommendations regarding family-witnessed resuscitation

FWR is believed to represent FCC philosophy by giving an opportunity to critical care patients’ families to meet their psychological needs at time of crisis (Ganz & Yoffe 2012). As a result of growing evidence indicating benefits of FWR, many nursing and medical organisations have officially supported this practice (Table 2). Together with the position statements, a large number of practice guidelines have been developed. Below is presented the summary of key nursing and medical organisations’ guidelines and position statements regarding FWR.
<table>
<thead>
<tr>
<th>Name of the organisation (year of most current publication), region</th>
<th>Title</th>
<th>Main statement points</th>
</tr>
</thead>
</table>
| 1. Royal College of Nursing (2002), United Kingdom | Witnessing resuscitation: Guidance for nursing staff | - The advantages of FWR seem to outweigh the disadvantages  
- Wherever possible, FWR should be supported if that is the wish of the patient’s relatives  
- Feelings of both family members and staff, however, should be taken into account during the decision-making process (Royal College of Nursing 2002) |
| 2. Canadian Association of Critical Care Nurses (CACCN) (2005), Canada | Position statement: Family presence during resuscitation | - CAACN supports providing families with the FWR option  
- CAACN respects knowledge, skills, and resources of families, and believes in their capabilities  
- CAACN believes that it is important to families to decide what is the best for them and their loved one  
- CAACN supports provision of FWR educational programmes for HCPs, development of interdiscplinary approach to FWR, development of local FWR policies (Canadian Association of Critical Care Nurses 2005) |
| 3. European federation of Critical Care Nursing associations, European Society of Paediatric and Neonatal Intensive Care, and European Society of Cardiology Council on Cardiovascular nursing and Allied Professions (2007), Europe | The presence of family members during cardiopulmonary resuscitation: Joint position statement | - All patients have the right to have relatives present during CPR  
- The patients’ families should be offered the FWR option  
- Staff should provide an appropriate support during and after FWR  
- FWR should be incorporated into CPR training programmes  
- Local guidelines regarding FWR should be developed (Fulbrook at al. 2007) |
| 4. Emergency Nurses Association (2012), USA | Position statement: Family presence during invasive procedures and resuscitation in the emergency department | - Excluding the family from being present during CPR is inconsistent with a FCC model of health  
- FWR should be offered during CPR as an option to an appropriate family member  
- The decision should be based on a written policy  
- Health care organisations should develop FWR educational programmes for the public (Emergency Nurses Association 2012) |
| 5. National Emergency Nurses Association (NENA) (2014), Canada | Position statement: Family/primary support unit presence during bedside invasive procedures and resuscitation | - FWR allows the patient and family support each other and bring a sense of reality to the health care efforts and the patient’s condition  
- NENA supports the FWR option, however, it must be based on the choice of the family  
- There should be a supportive person available to the family during and after FWR  
- Organisations need to develop written FWR protocols (National Emergency Nurses Association 2014) |
| 6. American Heart Association (2015), USA | 2015 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency | - Offering selected family members the opportunity to be present during CPR is reasonable and desirable (assuming that the patient has not raised any objections prior to CPR)  
- CPR team members should assign a designated
<table>
<thead>
<tr>
<th>Name of the organisation (year of most current publication), region</th>
<th>Title</th>
<th>Main statement points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular Care Part 3: Ethical Issues</td>
<td></td>
<td>person to take care of the witnessing family member (American Heart Association 2015)</td>
</tr>
<tr>
<td>7. Canadian Critical Care Society (2015) Canada</td>
<td>Family presence during resuscitation: A Canadian Critical Care Society position paper</td>
<td>- FWR is consistent with the principle of autonomy and helps to enhance patients’ equity - Based on weighing risks and benefits, costs, and ethical principles, clinicians should offer patients’ families the option to be present during CPR in ER and ICU departments - FWR may be used safely and effectively to provide FCC in critical and emergency settings (Oczkowski et al. 2015a)</td>
</tr>
<tr>
<td>8. European Resuscitation Council (ERC) (2015), Europe</td>
<td>European Resuscitation Council guidelines for resuscitation 2015 Section 11: The ethics of resuscitation and end-of-life decisions</td>
<td>- FWR contributes to an increasingly open attitude and appreciation of the autonomy of both patients and their families - ERC supports relatives being offered the FWR option - Cultural and social aspects need to be taken into account when making the FWR decision - When possible, an experienced team member should support the family member during FWR - HCPS should partner with CPR survivors and their patients in creating future guidelines (Bossaert et al. 2015)</td>
</tr>
<tr>
<td>9. American Association of Critical-Care Nurses (2016), USA</td>
<td>AACN Practice Alert: Family presence during resuscitation and invasive procedures</td>
<td>- Meeting psychological needs of families in a time of crisis supports FCC principles - Family members should be given FWR option - All units should have a written FWR practice document (American Association of Critical-Care Nurses 2016)</td>
</tr>
<tr>
<td>10. Australian Resuscitating Council and New Zealand Resuscitation Council (2016), Australia and New Zealand</td>
<td>Guideline 10.6: Family presence during resuscitation</td>
<td>- Families of adults undergoing CPR should be given the FWR option - If possible, a supportive person should be assigned to accompany the family member during FWR - Health care institutions should develop FWR policies and education strategies (Australian Resuscitating Council and New Zealand Resuscitation Council 2016)</td>
</tr>
<tr>
<td>11. Society of Critical Care Medicine (2017), USA</td>
<td>Guidelines for family-centred care in the Neonatal, Paediatric, and Adult ICU</td>
<td>- The family should be offered the option of being present during CPR efforts - A designated staff member should support the family during FWR (Davidson et al. 2017)</td>
</tr>
</tbody>
</table>

All of the above recommendations are based on comprehensive literature reviews, and most of them are periodically updated. Generally, all the key national and international nursing and medical organisations are of the opinion that FWR should be offered to the patients undergoing CPR in a hospital setting. Available guidelines specify different, more detailed directions regarding FWR. Figure 2 presents the summary of the main ground rules for FWR from all of the above guidelines, which should be included in local policies regarding FWR.
**Development of FWR educational programs for the staff** 1, 2, 3, 4, 7, 9, 10
- Staff should be equipped with knowledge on why and how to provide support to families during CPR
- Staff’s preferences regarding FWR should be established and reevaluated periodically
- FWR should be included into the organizational CPR guidelines

**Proper preparation of the family (when possible)** 1, 3, 5, 7, 8
- Informing the family about the patient condition
- Informing the family about what they can expect to see and feel
- Answering family’s questions
- Discussing possible FWR option in the future (decision about FWR should be made freely by the family member, without the influence of the staff)
- Selecting appropriate family members for FWR
- Respecting cultural values and beliefs of the family

**Proper preparation of the patient (when possible)** 1, 3, 5
- If the patient is conscious prior to CPR, it is advised to talk about possible FWR preferences
- Patient’s wish (when known) should be fundamental in the FWR decision-making process

**Development of the rules for potential discouragement of FWR** 1, 3, 7, 9
- Highly disruptive, or illegal behaviour of a family member
- Not enough staff to take care of a family-member
- Strong assumption that FWR brings more harm than benefits

**Estimation of the number of relatives to be allowed during CPR** 1
- Number of family members should be based on the supportive staff availability, and the room around the patient

**Designation of a staff member to support the family** 1, 3, 6, 7, 8, 9, 10, 11
- The supporting person should remain close to the family to provide physical and mental support in need
- The supporting person should explain what is being done to the patient
- The supporting person should maintain a safe environment
- The family member should be warned about a possible need to leave the room at any time (escorted by a supportive person)
- In case of lack of one designated person, a non-leader CPR team member should be responsible for continued care of the family member
- Roles and responsibilities of a support person should be clearly stated in a FWR policy
- The family should be left alone during FWR

**Provision of a clear justification for discontinuation of an unsuccessful CPR attempt** 1
- The decision should be made quietly and be voiced to the family member with respect
- Staff should gradually leave the CPR room, with the team leader and supportive person in the end, after it is clear that the family can say goodbye to the patient

**Development a post-resuscitation plan for the families** 1, 2, 3, 6
- In case of unsuccessful CPR families should be given time to say goodbye
  - The family should be asked about their FWR experience
  - Staff should answer all of the questions the family might have after CPR
  - The family should be given information about available bereavement support
  - Families’ cultural beliefs and values should be taken into account when talking to them after CPR

**Assurance of adequate supportive counselling for the staff** 1, 2, 3, 7
- Support network for a critical incident analysis and/or informal debriefings available for the staff who took part in FWR

**Determination of unit’s compliance with FWR guidelines** 9
- If the compliance is below 90%, a plan to improve it should be developed
- Re-education of staff, competency verification, communication strategies development should be used to increase FWR approval

**Maintaining safety of other patients** 1
- Staff should make sure that the other patients in the CPR area are not negatively affected by the FWR events

*Figure 2. Summary of main elements from the key nursing and medical organisations’ statements regarding in-hospital FWR*
2.3.2 Family-witnessed resuscitation seen by the family members and patients

The idea of FWR arose when the family members’ of resuscitated patients started asking for the option to stay by the patient during CPR. In other words, the need for the implementation of this practice was dictated by the patients’ families’ desires. Since the first relatives’ opinions regarding this idea published thirty years ago (Doyle et al. 1987), there have been many different studies conducted, checking and verifying the position of the general public, including patients and their family members.

Evidence regarding families and patients’ attitudes and experiences concerning in-hospital FWR differ methodologically. The majority of studies were conducted in the USA, on the sample of emergency room (ER) patients and their family members, who underwent CPR either with or without the FWR option available (Table 3). There are a few studies that concern patients from intensive care units (ICUs), who were in a critical condition but did not undergo CPR, or studies that asked opinions the general public about FWR. The majority of the available studies are based on a descriptive, cross-sectional design, and aim to describe a general opinion regarding FWR. Some studies applied an experimental design that compared family outcomes after FWR CPR versus non-FWR CPR. Out of the available evidence, there are only eight studies conducted in European countries: six conducted in the UK, one in Turkey, and one in Belgium.

Generally, family members who had a chance to take part in FWR CPR agree that they do not regret this decision, and that they would do it again in a similar situation (Doyle et al. 1987, Belanger & Reed 1997, Robinson et al. 1998, Meyers et al. 2000, Holzhauser et al. 2006, Pasquale et al. 2010, Leske et al. 2017). Moreover, they claim that FWR helped them to deal with the grieving process. The studies which explored the impact of FWR on relatives’ outcomes, either did not report any adverse effects, or differences compared to non-FWR relatives, but in fact reported those family members, who did not have a chance to attend CPR of their loved-one, voiced their desire to do so and regretted they were asked to leave the CPR room (Robinson et al. 1998, Holzhauser et al. 2006, Pasquale et al. 2010, Compton et al. 2011, Leske et al. 2017). Family members of patients who did not undergo CPR also on the whole were of the opinion that FWR is their right and should be available to them in case of CPR (Barrat & Wallis 1998, Meyers et al. 1998, Meyers et al. 2000, Eichhorn et al. 2001, Benjamin et al. 2004, Ong et al. 2004, Ersoy et al. 2008, Albarran et al. 2009, Mortelmans et al. 2009, Hung & Pang 2010, Leske et al. 2013, Masa’Deh 2013, Chew & Ghani 2014, Dwyer 2015, Twibell et al. 2015, Giles et al. 2016, Bradley et al. 2017, Zali et al. 2017). There were only two studies, in which the options towards FWR were rather negative (van der Woning 1999, Itzhaki et al. 2011), and two studies in which less than a half of the respondents wanted this option to be available to them (Grice et al. 2003, Mazer et al. 2006). These studies mostly concerned opinions of random persons from the general public, who probably had not previously experienced CPR of their loved one. There was one study that explored experiences of families who could attend CPR of their loved-one, indicating that the majority of family members (three out of five persons) regretted witnessing CPR (van der Woning 1999).

Studies that explored patients’ options regarding FWR showed that this population is also more in favour of FWR than against it (Eichhorn et al. 2001, Benjamin et al. 2004, Mcmahon-Parkes 2008, Mortelmans et al. 2009, Bradley et al. 2017). In one study exploring experiences of ER patients who had a family member present during their CPR, the participants believed that FWR was a good decision and it helped the staff to remember about patient’s personhood (Eichhorn et al. 2001). Generally, patients were of the opinion that both them and their family members would benefit from FWR.

The available evidence regarding public opinion about FWR lacks a more in-depth, qualitative exploration of family perspective, which could provide valid and important information about the successful implementation of recommended FWR in places where this option is still not available (Helmer et al. 2010, Hung & Pang 2010, Masa’Deh et al. 2013, Leske et al. 2013, Oczkowski et al. 2015b, Johnson 2017). Moreover, more current insights from the patients’ family members are important to determine the need of updating national FCC
policies (Itzhaki et al. 2012, Helmer et al. 2010), to better meet the clients’ needs and improve their health-related outcomes. Table 3 presents the summary of the published evidence regarding families and patients’ perspectives on FWR.

**Table 3. Studies on adult families and patients’ perspectives regarding FWR**

<table>
<thead>
<tr>
<th>Author(s) (date)</th>
<th>Population (sample number)</th>
<th>Design</th>
<th>Main results</th>
</tr>
</thead>
</table>
| Doyle et al. (1987) USA | Family members of in-hospital cardiac arrest victims (n=51) | Descriptive quantitative survey | - None of the participants interfered with the CPR efforts  
- 94% relatives believed they would participate in CPR again  
- 76% thought that it helped them with the grieving process |
| Belanger & Reed (1997) USA | Family members (n=24) after in-hospital FWR | Descriptive quantitative survey | - 100% respondents stated that they would participate in FWR again  
- 100% believed that FWR helped them with their grief |
| Barrat & Wallis (1998) UK | Family members of ER patients who underwent unsuccessful CPR (n=35) | Descriptive quantitative survey | - 69% of patients’ relatives would like to have the FWR option offered (even though not all would accept it) |
| Meyers et al. (1998) USA | Family members of ER patients who died after unsuccessful CPR (n=25) | Descriptive quantitative survey | - 80% of the respondents would like to be present during CPR  
- 64% believed that FWR would help their sorrow following death |
| Robinson et al. (1998) UK | Relatives of ER patients who required CPR (n=13-FWR group, n=12 non-FWR group) | RCT | - There were no reported adverse effects among the relatives who witnessed CPR  
- 100% of the respondents were satisfied with their decision about attending CPR |
| van der Wonig (1999) UK | Family members ER patients who witnessed in-hospital CPR of their loved-one (n=5) | Qualitative study | - The overall nature of experience for the participant was rather negative (three persons regretted it) |
| Meyers et al. (2000) USA | Family members (n=39) involved in FWR in ER | Descriptive quantitative survey | - 97% of the relatives believed they had the right to be present and would do it again  
- 95% of the relatives claimed FWR helped them to comprehend the seriousness of the situation |
| Eichhorn et al. (2001) USA | ER patients (n=9) who had family present during invasive procedures and CPR | Qualitative study | - The participants believed that FWR would comfort them, provide help, help to remind about their personhood, that it was the families’ and patients’ right |
| Grice et al. (2003) UK | ICU dyads (patients + next of kin) | Qualitative study | - 29% of the patients and 47% of families wanted to be together during CPR |
| Benjamin et al. (2004) USA | ER patients and family members (n=200) | Descriptive quantitative survey | - 72% of the participants wanted FWR |
| Wagner et al. (2004) USA | Family members of in-hospital CPR survivors (n=6) | Qualitative study | - Families feel the need to be close to the patient and the need to receive sufficient information from the staff about CPR |
| Holzhauser et al. (2006) Australia | Relatives of critical patients (n=30-noFWR group; n=58-FWR group) | RCT | - 100% of the participants who witnessed CPR were satisfied with their decision  
- 96% of the respondents in the intervention |
<table>
<thead>
<tr>
<th>Author(s) (date) country</th>
<th>Population (sample number)</th>
<th>Design</th>
<th>Main results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mazer et al. (2006) USA</td>
<td>Adult general public (n=408)</td>
<td>Descriptive quantitative survey</td>
<td>- 49% would wish FWR to be an option - 47% thought FWR is their right (12% were neutral) - 36% believed FWR would benefit them (23% were neutral)</td>
</tr>
<tr>
<td>Ong et al. (2004) Singapore</td>
<td>Relatives of ER patients (n=145)</td>
<td>Comparative quantitative survey</td>
<td>- 73% of the relatives claimed that FWR should be an option - 69% of the respondents claimed that FWR could help with their grieving process</td>
</tr>
<tr>
<td>Ersoy et al. (2008) Turkey</td>
<td>Relatives of ER patients (n=420)</td>
<td>Descriptive quantitative survey</td>
<td>- 66% of the participants stated that they would like to be present during CPR</td>
</tr>
<tr>
<td>McMahon-Parkes (2008) UK</td>
<td>ER patients (n=61)</td>
<td>Qualitative study</td>
<td>- The majority of the participants supported the premise of having their loved one during their CPR - The patients claimed that both them and their family members would benefit from FWR</td>
</tr>
<tr>
<td>Albarran et al. (2009) UK</td>
<td>ER CPR survivors (n=21) and ER patients who did not undergo CPR (n=40)</td>
<td>Qualitative study (case control)</td>
<td>- All the participants were supportive towards FWR, however the CPR survivors were more in favour than the patients who did not undergo CPR (72% vs. 58%)</td>
</tr>
<tr>
<td>Mortelmans et al. (2009) Belgium</td>
<td>ER patients + relatives dyads (n=300)</td>
<td>Descriptive quantitative survey</td>
<td>- 72% of the patients’ and 75% of family members preferred FWR</td>
</tr>
<tr>
<td>Hung &amp; Pang (2010) China</td>
<td>Family members of ER survivors (n=18)</td>
<td>Qualitative study</td>
<td>- The majority of the family members indicated a strong preference to be present if given the FWR option - Anxiety, satisfaction, and well-being were not statistically different between the groups - There were no untoward events during FWR - All the FWR family members would repeat their experience - The non-present relatives would preferred to be present during CPR</td>
</tr>
<tr>
<td>Pasquale et al. (2010) USA</td>
<td>Family members of trauma centre patients who experienced FWR (n=25) and who did not (n=25)</td>
<td>Prospective comparative study</td>
<td></td>
</tr>
<tr>
<td>Compton et al. (2011) USA</td>
<td>Relatives of patients who underwent in-hospital CPR, who experienced FWR (n=24), and who did not (n=41)</td>
<td>Prospective comparison study</td>
<td>- There was no difference between FWR and non-FWR relatives in PTSD and depression scores</td>
</tr>
<tr>
<td>Itzhaki et al. (2011) Israel</td>
<td>Lay (non-medical) people from the general public (n=220)</td>
<td>Factorial within-between subjects</td>
<td>- The lay people perceived FWR rather negative</td>
</tr>
<tr>
<td>Leske et al. (2013) USA</td>
<td>Family members of ICU patients (n=28)</td>
<td>Qualitative study</td>
<td>- The families voiced their desire to be present during a trauma CPR and recommended their choice to other relatives - The families felt they were main supporters and protectors of the patient</td>
</tr>
<tr>
<td>Author(s) (date)</td>
<td>Population (sample number)</td>
<td>Design</td>
<td>Main results</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------</td>
<td>--------</td>
<td>--------------</td>
</tr>
<tr>
<td>Masa'Deh (2013)</td>
<td>Family members of patients who underwent in-hospital CPR</td>
<td>Qualitative study</td>
<td>All the participants wanted to have the FWR available</td>
</tr>
<tr>
<td>Chew &amp; Ghani (2014)</td>
<td>General public persons (n=184)</td>
<td>Descriptive quantitative survey</td>
<td>76% of the respondents favoured the FWR option</td>
</tr>
<tr>
<td>Dwyer (2015)</td>
<td>General public persons (n=1208)</td>
<td>Cross-sectional population-based study</td>
<td>52% of the respondents agreed they would like to be present during CPR</td>
</tr>
<tr>
<td>Twibell et al. (2015)</td>
<td>Patients who underwent in-hospital FWR and non-FWR CPR (n=48)</td>
<td>Qualitative study</td>
<td>Most participants preferred FWR</td>
</tr>
<tr>
<td>Giles et al. (2016)</td>
<td>Family members of ER patients who underwent CPR (with and without FWR)</td>
<td>Qualitative study</td>
<td>The participants sought to claim ownership of patients during CPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Excluding the family from CPR separates them from their loved ones in the most important period of their lives</td>
</tr>
<tr>
<td>Bradley et al. (2017)</td>
<td>Patients with full code status (n=418)</td>
<td>Descriptive survey design</td>
<td>52% agreed that FWR was important</td>
</tr>
<tr>
<td>Leske et al. (2017)</td>
<td>Family members of ICU patients who underwent CPR (FWR n=70, non-FWR n=70)</td>
<td>Prospective comparison design</td>
<td>Participating in FWR reduced anxiety, stress, and fostered well-being compared to control group</td>
</tr>
<tr>
<td>Zali et al. (2017)</td>
<td>Families of ICU, ER and surgical units patients who experienced CPR (n=136)</td>
<td>Descriptive quantitative study</td>
<td>57% felt that FWR was their right and that it had many advantages for the family</td>
</tr>
</tbody>
</table>

2.3.3 Family-witnessed resuscitation seen by the health care professionals

Despite the weight of current evidence regarding the positive impact of FWR implementation, and the general recommendation of this practice, this practice is believed to remain controversial for many HCPs. As nurses and physicians’ opinions are known to influence the extent to which they are willing to implement certain practices (Meyers 2000, Vanderbeek 2000), exploring them is important in determining potential barriers to FWR implementation.

Most of the literature regarding staff’s opinions towards FWR of an adult patient focuses on ER and ICU settings, as these are the places where in-hospital CPR most often takes place. The first research paper regarding this topic was published 30 years ago in the USA (Doyle et al. 1987). In that study, 71% out of 21 nurses and physicians who took part in the trial FWR programme endorsed this option. Authors concluded that based on their results there exists no reason, why family members should be kept out of the CPR room. This result was supported by other studies conducted a few years later, in which the majority of staff members were of the opinion that FWR should be an option given to the families (Back & Rooke 1994, Chalk 1995). Despite a clear indication that HCPs might be in favour of FWR, research with larger samples conducted afterwards suggested that nursing and medical staff rather oppose this practice. In an Australian study, ER and ICU staff expressed serious concerns related to FWR (Redley & Hood 1996), what was later supported by other studies in which the majority of surveyed nurses and physicians were not in favour of FWR (Halgrimsdottir 2000, Pafford 2002,

Some of the studies exploring staff’s attitudes towards FWR used an experimental design to check whether a previous FWR experience or FWR education can contribute to improvement of their opinions regarding this practice. The findings from the majority of these studies supported the statement that a previous FWR experience and educational interventions may positively affect the way staff views FWR (Bassler 1999, Holzhauser et al. 2006, Mian et al. 2007, Norton et al. 2007, Carter & Lester 2008, Pye et al. 2010, Feagan & Fisher 2011, Nykiel et al. 2011, Curley et al. 2012, Kntrowsitz-Gordon et al. 2012, Powers & Candela 2016). Studies that did not show a positive effect of education or and experience on the attitude to FWR, were found to be limited by their methodology (Dougal et al. 2011, Dwyer & Friel 2016, O’Connell et al. 2007, Powers 2017).

Helmer et al. (2010), conducted a descriptive survey in which he explored views of HCPs who belong to different professional organisations: the American Association for the Surgery and Trauma (AAST) and the Emergency Nurses Association (ENA). While the staff from both groups thought that FWR was inappropriate during all phases of the CPR, the members of ENA were slightly more in favour of this practice than the physicians from the AAST. The authors concluded that those differences in attitudes might increase the risk of conflict between these two professional groups indicating another potential problem that FWR can cause.

In a McLean (2003) study conducted on a large sample of American nurses (n=984), nearly three-fourth of the respondents preferred the FWR to be allowed. These respondents mostly worked in units allowing the FWR, which could explain a positive attitude towards this practice, and therefore the importance of the local policy implementation has been suggested. In several other studies, the majority of nurses and physicians also supported the idea of FWR, claiming that this option should be given to families (Halm 2005, Grice et al. 2003, Mangurten et al. 2006). However, the number of these studies is lower than the studies in which the staff opposes FWR.

The newer studies published in the last 5 years (2012-2017) show a trend of staff’s growing support towards FWR (Chapman et al. 2014, Jennings 2014, Lederman et al. 2014, Zavotsky et al. 2014, Porter et al. 2015), however, there is evidence that in some places staff is still strongly against this practice (Ganz & Yoffe 2012, Soleinpanour et al. 2015, Zali et al. 2017).

With the majority of available studies presenting an American perspective regarding staff’s opinions about FWR, the European perspective is not well known. The need for ongoing research on FWR among various populations, including staff without any FWR experience, has been recognised in order to assure it is better defined and understood (Halm 2005, Lederman et al. 2014, Monks & Flynn 2014), and to improve the global picture of an extent of that phenomenon (Helmer et al. 2010, Porter 2015, Soleinpanour et al. 2015). Moreover, despite the existing body of research regarding FWR, the need for more studies which would strengthen the exiting evidence and increase the chances of FWR implementation has been emphasised (Davidson et al. 2014). In addition, more staff-focused studies exploring the impact of personal characteristics and previous FWR experience on the decision regarding FWR have been found to be critical in expanding knowledge about FWR (Helmer et al. 2010, Porter 2015). What is more, besides using quantitative designs, qualitative research should be conducted, which would help to gain more in-depth understanding of FWR. Evidence based on such research would help to determine whether the staff is familiar with the health care trends and prepare more effective HCPs ready to implement FWR policies and improve family-related outcomes (Walker 2008).
2.4 OVERVIEW OF THE HEALTH CARE SYSTEMS IN FINLAND AND POLAND

2.4.1 In-hospital emergencies
Finland and Poland both belong to the European Union (EU), and fall under the European Health Policy which aims to improve and protect human health, and supports the modernisation of health systems in European countries (European Commission 2017). The EU policy emphasises the need of meeting patients’ and their families’ expectations of the highest quality of health care, ensuring that the EU countries work closer together (European Commission 2017). By developing unified norms and legislations, and providing financial help, the EU is supposed to support the EU countries in meeting mutual health care goals. In order to improve the critical care organisation in European countries, the need for harmonised legislation and better education- and evidence-based implementation of ethical principles in critical care across Europe has been recently recognised (Mentzelopoulos et al. 2016).

Due to their nature, ERs and ICUs are the most common places where patients in critical condition undergo CPR. The basic organisation of the ER and ICU units in Finland and Poland is similar. ER units in both countries operate 24/7 and are designated to the patients who need emergency care because of acute illness, injury, or deterioration of a long-term disease (Kuopio University Hospital 2017a, Ministry of Health 2017). Patients can arrive to the ER either by themselves, accompanied by the family or other persons, or with help of emergency medical services (most often by ambulance).

ICUs in Finland and Poland are responsible for treating and caring for seriously ill patients who are suffering, or are at risk of suffering from failure of one or more vital functions (Kusza & Piechota 2012, Kuopio University Hospital 2017b). Both in Finland and Poland there are usually hospital medical emergency teams available responsible for reacting to in-hospital critical situations and provide CPR if needed (Kuopio University Hospital 2017b, Wojewódzki Szpital Specjalistyczny 2017). Members of such teams include physicians and registered nurses educated in both countries according to the EU Professional Qualification Directive 2005/36/EC (European Parliament 2005). Physicians and registered nurses working in the unit where the emergency occurs are supposed to support activities of the medical emergency teams.

In-hospital emergencies in Finland and Poland are guided by the local emergency councils – Suomen Elvytysneuvosto in Finland and Polska Rada Resuscycjacji in Poland. National CPR guidelines are developed with respect to the European Resuscitation Council (ERC) guidelines, which are updated and published every five years (European Resuscitation Council 2015). The ERC shares the common goal of high-quality CPR with the national boards in Europe, therefore a strong emphasis is put on respecting and implementing the ERC guidelines locally.

2.4.2 Family-centred care in critical care
The right of the patient to be visited by loved-ones in the hospital is based on respecting basic human rights and ethical principles stating that every person has the right to have his or her autonomy respected in a just way, has the right to be part of the most natural and fundamental group – the family, and has the right to maintain the privacy of one’s family (United Nations 1948). Polish Patients’ Rights Act specifically states that every patient has the right to have a physical contact with third parties in the hospital but in special circumstances this contact can be limited by the physician in charge (Polish Parliament 2008). In Finland, there is no specific law act regarding hospitals’ visiting policies. The patient’s right to have visitors in the hospital is based on common sense and respect of the ethical principles. In practice, visiting hours for family members of critical care patients are usually not restricted and are rather flexible. Specific rules regarding this issue differ among hospitals and units, and are often decided on the case-by-case basis.

In regards to the patient confidentiality and information sharing laws, both Finland and Poland have similar regulations. In general, the information about patient’s treatment should
not be given to anyone, unless the patient agrees to do so. Moreover, it is the patient’s decision who, among relatives and other persons, can obtain the information and who should not. This does not apply to situations when the patients are unconscious. In such situations, the patients’ family, close relatives, or other persons are entitled to the information about the patients’ state of health unless the person revealing the information believes it is not in the patient’s best interest (Polish Parliament 2008, HUS 2017).

The organisation which establishes practice standards for critical care nurses in Europe is called the European federation of Critical Care Nursing associations (EfCCNa) and both Finnish and Polish national critical care nursing organisations are its members. In Finland it is Suomen Tehoitojdyhdistys and in Poland – Polskie Towarzystwo Pielęgniarek Anestezjologicznych i Intensywnie Terapii. One of the main mission statements of EfCCNa is to “to promote patient and relatives perspectives of the ICU experience” (European federation of Critical Care Nursing associations 2017). EfCCNa member organisations are expected to adapt and respect the federation’s guidelines, which strongly emphasise the importance of FCC including FWR.

The current research regarding FCC in a critical setting in Finland mostly focuses on paediatric and emergency care. In Poland, the available evidence mostly concerns end-of-life care, and families’ expectations towards care. However, there are no published studies regarding specifically FWR in either of these countries. A recent study by Mentzelopoulos et al. 2016 has aimed to determine whether there is a variation in ethical CPR practices among 47 European countries. Both Finland and Poland have scored a similar number of points regarding the ethical practices in end-of-life care including FWR (Finland 21/41, and Poland 20/41) and the organisation of in-hospital CPR services (Finland 25/40, and Poland 24/40), which suggests that the scope of implementation of ethical CPR practices, and the organisation of emergencies in both countries are similar (Mentzelopoulos et al. 2016). It has to be noted, however, that scores for each country were based on the response of one key opinion leader per country, instead of actual representation of the current national practices. Generally, it is assumed that neither in Finland nor in Poland a high quality adult FCC in a critical care setting is widely implemented (Nikki et al. 2012, Dobrzewińska et al. 2015, Palonen et al. 2016).

2.5 SUMMARY OF THE KNOWLEDGE BASIS FOR THE STUDY

FWR is one of the care strategies used for FCC implementation, a philosophy that emphasises the importance of family in a patient’s life (Shields 2010). The FCC theory has its origins in the family systems theory, which states that every individual is interrelated with his or her family members, creating together a mutually dependant, synergetic family unit (Bowen 1978). In the case of a stressful event such as critical illness of one of the family members, the family unit tends to react in different ways. According to the family stress theory, the ability of the family members to cope with a stressful situation is related to different components depending both on family predispositions, as well as external conditions (Shehan 2016), which, when improved, can positively affect family health-related outcomes.

The increasing emphasis of FCC, and the evidence on family members’ desire to be present during CPR of their loved one, have inspired international nursing and medical organisations to develop official statements and practice guidelines in which they recommended FWR implementation in hospital settings. Despite that, it is believed that FWR is not recognised and implemented in many places, presumably due to controversies it causes among the HCPs. The need for further research regarding FWR, focusing on staffs and families’ perspectives has been recognised in order to improve general understanding of FWR and help to investigate possible barriers to its implementation (Davidson et al. 2014). Figure 3 presents the summary of the body knowledge which guided this study.
2.5.1 Study operational definitions

A number of main concepts crucial for this study have been identified. Below are presented operational definitions of these key concepts, which help to identify their specific features important for interpreting the results of this study (Table 4).

Table 4. Theoretical and conceptual framework of the study

<table>
<thead>
<tr>
<th>Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiopulmonary Resuscitation (CPR)</td>
<td>Life-saving interventions conducted when either cardiac or respiratory arrest occurs inside of a hospital</td>
</tr>
<tr>
<td>Emergency room (ER)</td>
<td>Emergency setting (department/unit/room) which provides care to the patients arriving to the hospital and requiring immediate care</td>
</tr>
<tr>
<td>Family</td>
<td>Adult persons who are most important to the patient (including patients’ family, loved-ones and close friends)</td>
</tr>
<tr>
<td>Family-witnessed resuscitation (FWR)</td>
<td>The presence of the family in the patient care area in location that affords visual contact with the patient during CPR attempt</td>
</tr>
<tr>
<td>Health care professional (HCP)</td>
<td>A physician or a registered nurse working in an inpatient emergency or intensive or critical care setting</td>
</tr>
<tr>
<td>Intensive care unit (ICU)</td>
<td>Intensive or critical care setting (department/unit) of general or specific nature (surgical, cardiac, etc.) which provides care to the patients in state of direct danger of death and who fulfilled the criteria of admission to such unit</td>
</tr>
<tr>
<td>Patient</td>
<td>A patient at least 18 years of age admitted to an adult hospital facility</td>
</tr>
</tbody>
</table>
3 Purpose, aims, and objectives of the study

The purpose of this study was to explore the FWR phenomenon from perspectives of nurses, physicians, and family members; and to generate new knowledge contributing to its understanding. The aims were to explore current HCPs’ experiences and attitudes towards FWR, as well as patients’ family members’ desires regarding this practice, and to highlight possible barriers to its implementation.

The specific objectives of the study were:

(1) To investigate the current state of science regarding nurses and physicians’ experiences and attitudes towards FWR (Study Phase I)

(2) To examine nurses’ and physicians’ experiences, attitudes, and views towards FWR, as well as different factors associated with them (Study Phase II)

(3) To describe patients’ family members’ desires regarding the idea of FWR (Study Phase III)
4 Methods

4.1 STUDY DESIGN AND STUDY PHASES

This mixed-method study with descriptive, correlational design consisted of three phases with different aims, designs, samples, settings, and data analysis methods (Table 5). The study has been guided by a concurrent triangulation approach to mixed-method studies, which simultaneously uses both quantitative and qualitative strategies to assimilate the results and capture the essence, and more accurately describe the studied phenomenon (González Castro et al. 2010).

<table>
<thead>
<tr>
<th>Phase</th>
<th>Objective</th>
<th>Time frame and design</th>
<th>Sample and setting</th>
<th>Data collection</th>
<th>Data analysis</th>
<th>Original publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To investigate the state of science regarding HCPs experiences and attitudes towards FWR</td>
<td>2012-2013 Integrative review</td>
<td>15 study articles selected among world peer-reviewed literature</td>
<td>Systematic literature search using CINAHL, PsycINFO, and PubMed/MEDLINE databases</td>
<td>Thematic synthesis</td>
<td>I</td>
</tr>
<tr>
<td>2</td>
<td>To describe HCPs views and perspectives regarding FWR, and examine factors associated with different experiences and attitudes</td>
<td>2013-2015 Cross-sectional study</td>
<td>390 ICU and ER HCPs working in 3 Finnish and 3 Polish hospitals (out of which 168 responded to the open-ended question part of the study)</td>
<td>Manually or electronically distributed self-administered, structured questionnaire</td>
<td>Descriptive statistics, Cronbach’s α, logistic and linear regression analyses, and inductive thematic analysis</td>
<td>II, III</td>
</tr>
<tr>
<td>3</td>
<td>To describe patients’ family members desires regarding the idea of FWR</td>
<td>2015-2016 Descriptive qualitative study</td>
<td>12 ICU patients’ family members from Finland and Poland</td>
<td>Semi-structured, face-to-face, one-on-one interviews</td>
<td>Inductive thematic analysis</td>
<td>IV</td>
</tr>
</tbody>
</table>

4.1.1 Phase 1: Integrative review of the literature

Method

An integrative review method was selected to conduct the first phase of the study in order to generate new knowledge regarding HCPs’ experiences and attitudes towards FWR of an adult patient, based on synthesis of current world evidence regarding this topic. None of the already existing published or in-progress, current and up-to-date reviews on this topic was found. Due to the methodological diversity of the existing evidence, an integrative review method has been found the most suitable for this sub-study, as it is the approach which allows combling diverse
methodologies, and therefore provides a holistic understanding of the phenomena of interest (Whittemore & Kanfl 2005, Hopia et al. 2016).

Data
A relevant, recent literature (published between years 2007 and 2012) was obtained via a systematic search in the Cumulative Index for Nursing and Allied Professions – CINAHL/EBSCO, American Psychological Association database – PsychINFO, and United States National Library of Medicine – PubMed/MEDLINE databases, conducted between November and December 2012. Based on previous literature regarding the topic of interest, different combinations of the following search terms, identified with help of the Medical Subject Headings (MeSH) database, were used: ‘resuscitation OR CPR’, ‘family presence’, ‘witnessed resuscitation’, and ‘relative*’. A total of 223 articles were found in all three databases.

In order to meet the purpose of this sub-study, only articles concerning HCPs’ experiences and attitudes towards adult in-hospital FWR were included in the review. Moreover, the articles had to be written in English to enable consistency of data synthesis among English-speaking research team members. After excluding duplicates, 114 abstracts were screened, leaving 21 articles for a full-text eligibility assessment (Figure 4).

Articles were evaluated based on their ability to meet the purpose of the review, methodological quality, and informative value. A Literature Review Protocol (Polit & Beck 2014) was used to report the results of the evaluation. The quality appraisal included 11 aspects focusing on methodological details, such as well-described data analysis method, or clearly stated aim of the study, and its summary is available as supplementary information to the Original Publication I. Six articles were excluded because they did not meet the inclusion criteria. None of the articles was excluded based on their poor methodological quality. Finally, 15 articles (eight quantitative, two qualitative, and five mixed-method studies) were selected for the final analysis.

Figure 4. PRISMA flow diagram of integrative review references (Sak-Dankosky et al. 2014)
Data analysis
A thematic synthesis approach was used in this review (Thomas & Harden 2008). First, data in the primary articles were coded line-by-line across the entire data sets, collating data representing each code. Next, the codes were organised into descriptive themes that clustered interrelated codes. Finally, the descriptive themes were developed into analytical themes that directly addressed the purpose of the review (Braun & Clarke 2006, Thomas & Harden 2008). Qualitative and quantitative data were analysed separately.

4.1.2 Phase 2: Cross-sectional study

Method
For the second phase of the study, a descriptive, correlational, cross-sectional study design was used. Collecting data at one point of time to describe and examine the relationship between naturally occurring variables allowed meeting the sub-study objectives, which were to describe HCPs’ views and perspectives regarding FWR and to examine factors associated with different HCPs’ experiences and attitudes towards FWR.

Data were collected in three Finnish and three Polish university hospitals between July and December 2013. The following study sites: Kuopio, Oulu, and Tampere (Finland), and Warsaw (Poland) were chosen as they were considered an accessible sub-set representation of a larger population of Finnish and Polish ER and ICU nurses and physicians (Endactott & Botti 2007, Ailasmaa 2014, Warsaw Chamber of Nurses and Midwives 2017). A convenience sample of all ER and ICU registered nurses and physicians working in adult settings of the chosen hospitals (n=1181) was approached and asked to complete a self-administered questionnaire. This data collection method has been found to be the most cost effective and efficient way to collect data from a large sample, at the same time assuring confidentiality and anonymity of the participants (Bowling 2002). A non-random sampling method was chosen due to the limited time-cost resources (Endactott & Botti 2007). Because of different sample accessibility, the data were collected electronically in Finland (by sending a link to the web-based questionnaire to HCPs work e-mail address), and manually in Poland (by distributing in person a paper-pencil questionnaire in the units where HCPs worked). To increase chances of returning completed questionnaires, potential participants were reminded once about the study, either via e-mail (in Finland) or in person (in Poland). Returning a completed questionnaire indicated an informed consent to take part in the study.

Instrument
A structured questionnaire “Family presence during CPR in an intensive/critical care setting: a European perspective”, developed by Albarran, Fulbrook & Latour, was used to collect the data. The questionnaire was preceded by a comprehensive literature review, in order to create proper attitudinal items and increase the content validity of the instrument (Fulbrook et al. 2005). Moreover, it was previously tested and successfully used in a variety of different cultural settings (Fulbrook et al. 2005, Badir & Sepit 2007, Günes & Zaybak 2009, Axelsson et al. 2010, Köberich et al. 2010, Ganz & Yoffe 2012, Hayajneh 2013).

The original questionnaire consisted of three sections: (1) ‘Demographic details’, which collected biographical information about the participants; (2) ‘Family-presence: experiences’, which consisted of six dichotomous answer questions (yes/no) regarding HCPs’ experience in FWR; and (3) ‘Family presence: attitudes’, in which there were 30 five-point Likert Scale items concerning HCPs’ attitudes towards FWR (From strongly disagree to strongly agree answer options). In order to explore nurses’ and physicians’ views and perspectives regarding FWR more in-depth, after obtaining permission from the authors, one open ended question (“Which personal experiences, attitudes, observations, and/or ideas about family presence during CPR would you like to share with us?”) was added at the end of the original questionnaire as Section 4.
With the authors’ permission, the questionnaire, which was originally written in English, was translated into Finnish and Polish. A back-translation and monolingual test method was used (Maneesriwongul & Dixon 2004). First, the questionnaire was translated from the original language to the target language, and then back to the original language by other translators. Next, both versions were verified and checked for their accuracy. Moreover, in order to check if the translated versions are understandable and suitable for ICU and ER settings in Poland and Finland, the questionnaires were pilot-tested on a sample of 53 HCPs. The results revealed that the instrument was appropriate, feasible, and understandable in both countries, and only minor wording changes were applied to both versions of the questionnaire.

**Data analysis**

Quantitative data from Sections 1-3 were analysed using IBM SPSS Statistics 19 software for Windows (IBM Corporation 2010). Prior to the analysis, existing outliers, which could bias estimates of parameters, were examined and further winsorised (Abachnik & Fidel 2007, Field 2017). First, descriptive statistics, such as frequencies, means, and standard deviations, were computed to reveal characteristics of the sample data set (Grey, Grove & Sutherland 2016). The data set was found to meet the assumptions of normality, linearity, independency, and homoscedasticity (Field 2017).

Next, in order to examine HCPs’ experiences in FWR, descriptive statistics and relationships between socio-demographic characteristics and six questions from Section 2, measuring HCPs experiences in FWR, were checked. Based on theoretical rationale, seven predictor variables were chosen for the analysis: ‘country’, ‘gender’, ‘profession’, ‘specialty area’, ‘years of practice in current specialty’, ‘main practice role’, and ‘number of CPRs performed per week’. Five individual logistic regression models, based on forced entry method, were constructed – one for each outcome variable describing different aspects of experience chosen for this analysis (Field 2017). One of the experience variables regarding existence of the local FWR protocol or policy was excluded from this analysis, because using socio-demographic characteristics as factors associated with this variable was not found theoretically reasonable. Finally, in order to examine HCPs’ attitudes towards FWR, descriptive statistics and relationships between sociodemographic characteristics, experiences, and attitudes were checked. Twelve predictor variables were used: ‘country’, ‘gender’, ‘profession’, ‘specialty area’, ‘years of practice in current specialty’, ‘main practice role’, ‘number of CPRs performed per week’, and five different aspects of experiences from Section 2. Outcome variables were represented by three factors, extracted via exploratory factor analysis of all 30 items from Section 3 of the questionnaire: (1) ‘Viewpoint on benefits of FWR’, (2) ‘Fear of FWR process-related negative consequences’, and (3) ‘Personal and organisational barriers to FWR’. Three individual linear regression models, based on the forced entry method, were constructed (one for each outcome sum variable describing different aspects of HCPs’ attitudes) (Field 2017). A number of variables from Section 1 were excluded from the regression analyses due to their high intercorrelation (‘age’ and ‘years of general working experience’), or inability to harmonise the responses between professionally and culturally diverse sample (‘number of patients per shift’) (Field 2017). P-value ≤ 0.05 (two-tailed) was considered statistically significant in all statistical analyses.

Qualitative data from Section 4 were analysed using inductive thematic analysis (Vaismoradi et al. 2013). The open-ended question responses from Finland and Poland were translated into English in order to harmonise the data analysis process and enable the English-speaking researchers to take part in the process. Both the Finnish and Polish translators were experienced in translating texts for qualitative research analyses; therefore, they were aware of a high importance of not losing the meanings of individual responses. The translation process was closely monitored by the researchers and all potential disagreements or uncertainties were discussed. After the responses were translated, two researchers analysed them independently. First, a naive reading was performed during which all responses were read through carefully. Then, the researchers identified initial themes emerging from the data, and met to discuss them
until a consensus was met and final themes were confirmed. Because of a large number of participants who responded to the open-ended question, data saturation was achieved.

4.1.3 Phase 3: Descriptive qualitative study

Method
A qualitative design was used in the third substudy to describe patients’ family members’ desires regarding the idea of FWR. A hermeneutic approach was used as a guidance to this study (Debesay et al. 2007, Patton 2015). This approach focuses on the interpretation of lived experience and thoughts of the participants, and offers a deep, interpretative understanding of studied phenomenon (Charlambous et al. 2008). In-depth interviews with ICU patients’ family members were found to be the best and most appropriate way to obtain data for this phase of the study (Gray et al. 2016).

Participants and data
In order to describe family members’ desires regarding FWR, a purposive sample of adult patients’ family members was approached (Gray et al. 2016). Because of the difficulties in finding persons who had previously experienced FWR in Finland and Poland, it was decided that the sample should consist of family members whose adult relative was in some point of last two years a patient of an ICU. It was believed that including participants who experienced having a loved-one who suffered a life threatening condition (which was a reason for an ICU admission), would enable the researchers to meet the study aim.

Potential participants were approached between July 2015 and June 2016, using a variety of methods, such as study flyers distributed in the major university hospital in Kuopio (Finland) and Warsaw (Poland), and e-mails with the study information sent to members of a cardiac patients’ families’ support group. Persons who were interested in taking part in the study and contacted the investigators received detailed information regarding the study. Interviews were scheduled with those who agreed to participate (n=12), in locations chosen by the participants, such as a café, park, or a university room (n=9); or were conducted via the phone (n=3). Persons conducting the interview were the members of the research team. In Poland, the responsible person spoke both Polish and English, and in Finland – Finnish and English. Both investigators met in person prior to conducting the interviews in order to discuss the interview plan in detail and assure the homogeneity of the study protocol.

The interviews were semi-structured, guided by a thematic guide based on a comprehensive literature review. Each interview started with a conversation between the interviewee and interviewer to assure that the participants understand all aspects of the interview, and agree to take part in the study. If so, the informed consent was signed, and the interview could begin. First, the interviewer asked broad questions regarding the experience of having a loved-one admitted to ICU. Later, more specific questions regarding participants’ desires on FWR were asked. If applicable, additional questions were asked to clarify, deepen, and validate the answers. All interviews were audio recorded with the participants’ permission. The interviews lasted from 16 to 86 minutes (with a mean of 40 minutes).

Data Analysis
The interview data were transcripted word by word into a text file and covered a total of 105 A4 pages with 1.5-line spacing. Both Finnish and Polish transcripts were translated using the forward-only translation with testing method, by translators familiar with the qualitative research methodology and the importance of keeping the meaning of the translated text (Maneesriwongul & Dixon 2004). The interviewers then reviewed the translations, discussed any meaning incompatibilities, and if needed, used fluid explanation instead of fixed, one-word translations (van Nes et al. 2010).
In order to interpret and achieve an understanding of the family members’ desires regarding FWR, an inductive thematic analysis based on the hermeneutic approach was conducted (Debesay et al. 2007). With respect to the hermeneutic circle, the text was interpreted by moving from a whole to individual parts and back, to gain more in-depth interpretation of family’s responses (Debesay et al. 2007). First, the meaning units and later, the codes were identified. Then, the data were organised into categories. Finally, themes were generated based on the underlying meaning present across the codes (Elo & Kyngäs 2008). All the investigators reviewed the data analysis results and discussed them until a consensus was reached. A three-step process to evaluate data saturation was employed (Kerr et al. 2010). Step one included development of a codebook, step two – a theme identification, and step three the evaluation of data saturation. Because, in the end the data analysis produced no change to the codebook, the sample size was determined to be adequate and data saturation was assumed to be reached (Kerr et al. 2010).

### 4.2 VALIDITY AND RELIABILITY OF THE STUDY

**Phase 1: Integrative review of the literature**
To assure validity and reliability of the integrative review of the literature, a variety of rigorous strategies were used in all stages of the research process (Whittemore & Kanfil 2005). During the problem identification stage, the main concepts, target population, and a research problem were clearly identified by all the investigators, and the available types of literature to be included in the review were determined to address the study aim. During the literature search stage, with help of a university librarian, well-defined literature search strategies were applied. Three different, major databases were used to find appropriate literature that fulfilled inclusion and exclusion criteria. Strategies such as reference tracking helped to make sure none of the important evidence is missing. In the data evaluation stage only articles published in peer-reviewed international impact factor journals were included in the review to assure the quality of the searched material. Moreover, each article meeting the criteria was evaluated according to its methodological quality and informative value, with usage of a Literature Review Protocol coding sheet (Polit & Beck 2014), with the intent to exclude methodologically the weakest studies. In the data analysis stage, the data from all articles included in the review were systematically ordered, coded, categorised, and summarised, which was recorded in a coding sheet. The final analysis results were discussed and accepted by all the investigators. In order to improve the quality of the review and provide transparency of the review process, the Preferred Reporting Items for Systematic Reviews (PRISMA) checklist and flow diagram were used (presentation stage) (Moher et al. 2009).

**Phase 2: Cross-sectional study**
In the cross-sectional study phase, validity and reliability were enhanced by using a validated questionnaire based on a comprehensive literature review, previously tested in various international settings, and which has been found suitable to evaluate experiences and attitudes of international HCPs regarding FWR. Systematic back-translation and monolingual test translation method and conducted pilot test assured the appropriateness of using the questionnaire on Finnish- and Polish-speaking populations.

Prior to a data analysis, an exploratory factor analysis was conducted in order to assess construct validity of the scale used in the questionnaire and reduce the data set to group of items representing the same constructs (Gray, Grove & Sutherland 2016, Field 2017). After accessing the correlation between variables (which resulted in exclusion of six variables with correlation below 0.3), three factors were extracted: (1) ‘Viewpoint on benefits of FWR’, (2) ‘Fear of process-related negative consequences’, and (3) ‘Personal and organisational barriers to FWR’.
A reliability analysis revealed that the Cronbach’s alpha of each factor was consecutively 0.90, 0.79, and 0.62, indicating high to moderate internal consistency of the instrument (Field 2017).

In the analysis of the written responses from the participants, an investigator triangulation method was used to enhance trustworthiness and credibility of the collected data. Moreover, an ongoing audit trail consisting of detailed data collection documentation and field notes was maintained through the data collection and analysis processes.

Phase 3: Descriptive qualitative study
Validity and reliability in the descriptive qualitative phase of the study was enhanced by applying the following strategies. A purposive sampling method and collecting data from both Finnish and Polish family members was used to enhance the representativeness of the participants and transferability of the results (Gray, Grove & Sutherland 2016). A one-on-one interview method for data collection was found to be the most appropriate given the objective of this phase of the study, which helped to establish credibility of the results. What is more, both investigators collecting data in each country invested a sufficient amount of time in data collection activities and had a previous clinical experience in the cultural setting they collected data in, which increased likelihood of building trust with informants and collecting credible data (Polit & Beck 2014). Dependability was enhanced by maintaining an ongoing audit trail, performing trial interviews, using an interview guide, constant discussions among investigators about data analysis, providing direct links to empirical data (quotes from participants), and using an experienced translator to translate the transcribed texts (Gray, Grove & Sutherland 2016). Finally, data analysis was not completed until all the investigators agreed with the final outcome.

4.3 ETHICAL CONSIDERATIONS

The study was reviewed and approved by the University of Eastern Finland Committee on Research Ethics (statements no. 16/2013 and 7/2015). What is more, each hospital in Finland and Poland issued a formal research permit. The study was performed in compliance with the rules of Good Scientific Practice and the Ethical Principles for Medical Research Involving Human Subjects Outlined in the Declaration of Helsinki (World Medical Associations 2009, Bosch 2010).
There was no physical risk determined for the study participants, however, a potential psychological risk related to discussing sensitive topics was identified. To decrease that risk, the investigators used a variety of strategies to enhance trust and comfort between them and the participants, and made sure they were aware that they could withdraw from taking part in the study at any point without giving a reason. These strategies included, for example, providing contact information in the questionnaire forms and study fact sheets, initiating loosely structured conversation at the beginning of each interview, or observing and reacting to the interviewee’s negative emotions.
All potential participants were given detailed, written information about the study purpose and data collection procedure. Moreover, they were informed that their participation would be voluntary, anonymous and confidential, and that all the data and study documents, including participants’ identifiers, will be handled with care and seen only by the study team members. In the second phase of the study (Cross-sectional study), returning a completed questionnaire was considered as evidence of informed consent for participation. In order to take part in the third phase of the study (Descriptive qualitative study), potential participants were asked to sign an informed consent form.
5 Results

5.1 CHARACTERISTICS OF THE STUDY PARTICIPANTS

To address the study purpose and its specific objectives, a variety of samples of participants was used. Evidence reflecting on the current state of world HCPs’ experiences’ and attitudes towards FWR (Study Phase 1) included 15 different qualitative and quantitative empirical studies conducted all over the world between years 2007 and 2012, out of which five were from Europe (one from Germany, one from Ireland, two from Turkey, and one international study including sample from UK, Norway, Sweden and Ireland), four were from North America (three from the USA and one from Canada), three from Asia (Iran, Malaysia and China) and three from Africa (one from South Africa and two from Israel). The majority of these studies included in the integrative review reflected specifically on nurses’ perspectives (n=7). Four considered both nurses and physicians’ samples, and one explored only physicians’ responses. The data from both quantitative and qualitative studies were analysed separately, but due to the same themes extracted, they are presented together. More detailed information regarding the studies included in the review is presented in Table 2, Table 3, and Table 4 in the Original Publication I.

Evidence exploring more detailed experiences of HCPs’ in FWR was based on a sample of 1181 Finnish and Polish HCPs (Study Phase 2). A total of 390 participants (185 in Finland and 205 in Poland) returned completed questionnaires, which gave the response rate of 33% (22% and 59% in each country respectively). One-hundred sixty eight respondents provided written answers for the open-ended question in Section 4 of the questionnaire. More detailed characteristics of the participants are presented in Table 2 in the Original Publication II, and Table 1 in the Original Publication III. Assuming the statistical power of 80% and significance level of 0.05, the amount of the data collected allowed detecting a correlation of 0.14 between continuous variables, an effect size of 0.3 in mean values, and 15 % difference in percentages between the groups.

Evidence regarding patients’ family members’ desires about FWR (Study Phase 3) was collected from a purposive sample of 12 Finnish and Polish adult persons, who in last two years experienced having a loved-one admitted to ICU. The majority of the participants were from Poland (n=8) and female (n=10), with the mean age of 41 (range of 28-65 years). While all of the patients were in critical condition when in ICU, none of the family members who took part in the study witnessed CPR of their loved one. More detailed characteristics of the participants are presented in Table 1 in the Original Publication IV.

5.2 HEALTH CARE PROFESSIONALS’ EXPERIENCES IN FAMILY-WITNESSED RESUSCITATION

The results of the integrative literature review (Study Phase 1) revealed that in only four studies the majority of HCPs (from Ireland, USA, Iran, and South Africa) admitted having some previous experience with FWR, and the majority of the respondents from only two studies (American and Irish) claimed that FWR was a common practice in their units. In general, the most of the staff from the studies included in the review has never experienced FWR.

In eight studies, the participants had a chance to reflect on whether their unit have a written policy regarding FWR, however, the majority of the respondents in most of them stated that
their unit did not have such a policy, despite claiming that staff would like to have it available for them.

The result of the cross-sectional study (Study Phase 2) revealed that the majority of HCPs in Poland and Finland have never experienced FWR (n=253). Out of all the participants, only 11% (n=43) were previously asked by patient’s family member about the option of being present during CPR, and only 3% (n=11) have ever offered this option to the patient’s relative by themselves. For the question asking about the existence of a protocol or policy regarding FWR, the majority (n=390) said that their unit did not have such a document mapped out. Regarding the nature of the FWR experience, only 12% (n=45) nurses and physicians claimed that they had had one or more positive experiences related to FWR, while 23% of them admitted having one or more negative experience with FWR. The majority of HCPs reported having neither positive nor negative experience with FWR.

To explore potential factors associated with different aspects of FWR experience, five models were constructed, based on the experience-related questions from Section 2 of the questionnaire: (1) experience in general, (2) ever being asked by family member about FWR option, (3) ever inviting family a member to witness CPR, (4) having one or more positive experiences in FWR, and (5) having one or more negative experiences in FWR.

The results of the logistic regression analysis revealed that:

- (Model 1) The factors associated with having more experiences in FWR were: country (Poland > Finland OR=1.77, CI=1.03-3.06), gender (male > female OR=2.65, CI=1.54-4.58), and area of specialty (ER < ICU OR=0.50, CI=0.28-0.87)

- (Model 2) The only factor associated with being previously asked by family members if they could be present during CPR was gender (male > female OR=2.23, CI=1.05-4.76)

- (Model 3) The factors associated with previously inviting a family member to be present during CPR were: profession (nurses < physicians OR=0.15, CI=0.03-0.73), and main practice role (clinical practitioners < educators, researchers, and managers OR=0.10, CI=0.01-0.65)

- (Model 4) The only factor associated with having positive FWR experiences in the past was gender (male > female OR=2.58, CI=1.23-5.39)

- (Model 5) The factors associated with having negative FWR experiences in the past was: country (Poland > Finland OR=2.35, CI=1.23-4.47), gender (male > female OR=1.88, CI=1.10-3.47), and main practice role (clinical practitioners’ < educators, researchers and managers OR=0.31, CI=0.10-0.91)

The above models explained respectively 14%, 11%, 25%, 11%, and 10% of variance of the given data set (Table 3 – Original Publication II).

5.3 HEALTH CARE PROFESSIONALS’ ATTITUDES ABOUT FAMILY-WITNESSED RESUSCITATION

The findings of the integrative literature review (Study Phase 1) based on a thematic synthesis resulted in extracting three themes regarding HCPs’ attitudes towards FWR: (1) ‘General attitude towards FWR’, (2) ‘Benefits and risks for the family’, and (3) ‘Benefits and risks for the rescue team’. The ‘General attitude towards FWR’ was described as HCPs’ approval or disapproval of the idea that FWR should be offered to adult patients’ families. In the majority of
studies (n=8) most of the participants were of the opinion that FWR should not be a standard option in hospitals. These studies were from Turkey, Israel, Germany, Malaysia, Iran, and China. Results of three studies (two European and one from the USA) did not show a clear general staff’s attitude towards FWR. The number of staff who approved and opposed FWR was relatively equal. Only in two studies – American and South African, HCPs voiced their support of FWR. In the four studies that explored both nurses and physicians’ perspectives, two studies reported that nurses had a more positive general attitude towards FWR than physicians, which was not supported in the remaining two studies. In addition, in some studies, those HCPs who had a longer working experience were more likely to accept FWR. ‘Benefits and risks for the family’, and ‘Benefits and risks for the rescue team’ included HCPs’ attitudes regarding both positive and negative impact that FWR could have on the witnessing relatives and the staff. Generally, HCPs perceived more risks than benefits of FWR for both the family members and the staff (Table 6). The common perception was that despite a few possible benefits of FWR for the patients’ relatives and the staff, it was not an adequate practice to be implemented in a clinical setting. Moreover, HCPs claimed that it would be better if there was a person from the team whose only job would be to take care of the family during CPR, but at the same time they voiced their concerns that there was not enough staff to provide adequate support to the witnessing family members.

Table 6. Benefits and risks for the family and staff perceived by the health care professionals based on the integrative literature review results

<table>
<thead>
<tr>
<th>FWR Benefits</th>
<th>FWR Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(number of studies reporting the benefit/total number of studies in the review)</strong></td>
<td><strong>(number of studies reporting the risk/total number of studies in the review)</strong></td>
</tr>
<tr>
<td><strong>For the family members</strong></td>
<td><strong>For the staff</strong></td>
</tr>
<tr>
<td>- FWR helps the family to see that everything possible has been done for the patient (6/15)</td>
<td>- FWR is too traumatic for the family (10/15)</td>
</tr>
<tr>
<td>- FWR helps the family to know the situation better because they can see it with their own eyes</td>
<td>- FWR can cause long-term stress for the family (10/15)</td>
</tr>
<tr>
<td>- FWR enables the family to say goodbye right after the patient dies (4/15)</td>
<td>- FWR makes the family see and hear the things they should not be exposed to (10/15)</td>
</tr>
<tr>
<td>- FWR can help the family to get a closure they need (4/15)</td>
<td>- FWR can be a cause of a physical harm of the family members (1/15)</td>
</tr>
<tr>
<td>- FWR helps the family to accept the treatment decisions (4/15)</td>
<td>- FWR will be too disturbing for the staff (13/15)</td>
</tr>
<tr>
<td>- FWR aids family’s grieving in case of patient’s death (4/15)</td>
<td>- FWR will interfere with staff’s workflow (13/15)</td>
</tr>
</tbody>
</table>

| - FWR can support the staff in explaining the treatment to the family (3/15) | - FWR will increase staff’s stress (13/15) |
| - FWR can help to improve the family’s perception of the quality of care (2/15) | - FWR will make the staff feel they work under pressure (13/15) |
| - FWR can help to strengthen the bond between the staff and patients’ families (2/15) | - FWR will increase staff’s fear of legal consequences of their decisions (13/15) |
| - FWR could help the staff to remember about the patient’s personhood (2/15) | - FWR can contribute to unnecessarily prolonging CPR (5/15) |
| - FWR can encourage the staff to be more professional (2/15) | - FWR can cause conflicts between the staff and families (5/15) |
| **For the staff** | - FWR can destroy the team’s cohesiveness (5/15) |
| - FWR can cause overcrowding in the resuscitation room (1/15) | - FWR can cause overcrowding in the resuscitation room (1/15) |
The results of the cross-sectional survey study (Study Phase 2) revealed that the majority of nursing and medical staff from Finland and Poland (74%) were of the opinion that FWR should not be a standard option in the case of in-hospital CPR, and their attitude towards this practice was rather negative (Figure 5). What is more, in their opinion family members should not be involved in the decision making process regarding the patient (91%). The Finnish and Polish HCPs were quite certain about the negative effects of FWR. They claimed that FWR could cause a problem of broken confidentiality (68%), increase chances of family members interfering with their work (70%), make it harder for them to concentrate (66%), negatively affect their performance (72%), increase legal claims against the staff (60%), and unnecessarily prolong CPR (63%). Regarding the FWR effect on the family, the majority of Finnish and Polish staff thought that in general FWR would be too distressing for the family (73%) and would most likely cause long-term negative effects on them (67%). Regarding the impact on the patient, the majority of HCPs thought that FWR would not be beneficial to the patient (69%). Finally, the nurses and physicians in both countries admitted that if FWR was possible, there should be a special person designated to take care of the family (Finland 85%, Poland 68%), but at the same time they pointed out that there is not enough staff to implement that (Finland 93%, Poland 71%).

Figure 5. Frequencies of the variables exploring HCPs attitudes towards FWR (Sak-Dankosky et al. 2015)
The results of the inductive thematic analysis of the open-ended question from Section 4 of the questionnaire used in the cross-sectional study (Study Phase 2) allowed more in-depth exploration of what the HCPs from Finland and Poland think about FWR and its implementation. The analysis resulted in extraction of five themes describing HCPs’ main concerns regarding FWR: (1) ‘Family’s horror’, (2) ‘Disturbed workflow’, (3) ‘No support for the family’, (4) ‘Staff preparation’, and (5) ‘Situation-based decision’. ‘Family’s horror’ was described as HCPs’ “perception that, given the brutal nature of CPR, FWR would have a highly traumatizing and negative impact on family members”. ‘Disturbed workflow’ the HCPs defined as “a concern that the physical presence of family members would disturb the workflow of CPR as well as pull attention away from the patient, which could have a negative impact on the patient, staff, CPR procedure, and treatment outcomes”. Most of HCPs not only thought that FWR is inappropriate for the patients’ family to see, but they also were of the opinion that generally family members probably do not wish to witness CPR. ‘No support for the family’ meant that there is “an inadequate number of staff and professional expertise to attend to family members’ needs during the event, as well as a belief that the HCPs’ role during CPR should be wholly focused on the patient, not on family members”. The HCPs gave a variety of reasons why this practice should not be implemented, such as problems of prolonging CPR, or possible legal claims. ‘Staff preparation’ indicated HCPs’ concern that there is “a need for additional education and training prior to possibly implementing FWR protocols”. Despite having generally negative opinion regarding FWR, some HCPs believed that after a proper training and preparation, FWR could actually be beneficial to some people witnessing CPR. Finally, ‘situation-based decision’ was described as “perception that the decision of allowing FWR encompasses multiple components and should be considered on a case-by-case basis” (Figure 1 – Original Publication III).

To examine potential factors associated with different aspects of FWR attitudes, three models were constructed, based on the three factors extracted as a result of factor analysis of the items from Section 3 of the questionnaire (1) General viewpoint and benefits of FWR, (2) Fear of FWR process-related negative consequences, and (3) Personal and organisational barriers to FWR (Table 1 – Original Publication I).

The results of the linear regression analysis revealed that:

- (Model 1) The factors associated with having a more positive general viewpoint of FWR and its benefits were: having one or more positive FWR experiences in the past (B=0.46, p<0.01), and not having any negative FWR experience in the past (B=-0.38, p<0.01)

- (Model 2) The factors associated with having less fear of process-related negative consequences of FWR were: being from Finland (B=0.22, p=0.01), being a physician (B=0.20, p=0.02), taking part in CPR more than once per week (B=0.19, p=0.04), having some positive FWR experience in the past (B=0.48, p<0.01), and not having any negative FWR experience in the past (B=0.32, p=0.01)

- (Model 3) The factors associated with lower perception of personal and organisational barriers to FWR were: being from Poland (B=-0.45, p<0.01), having a positive FWR experience in the past (B=0.29, p=0.02), and not having any negative FWR experience in the past (B=0.22, p=0.03)

The above models explained respectively 15%, 13%, and 27% of variance of the given data set (Table 4 – Original Publication II).
5.4 PATIENTS’ FAMILIES’ DESIRES ABOUT FAMILY-WITNESSED RESUSCITATION

The thematic analysis of the interview data regarding family members’ desires about FWR resulted in extracting two general themes: (1) ‘Being more involved and engaged in patients’ care in the case of CPR’, and (2) ‘Being cared for and treated respectfully during possible CPR’ (Table 3 in the Original Publication IV).

The first theme was described as “the importance of getting true and comprehensive information about the patient condition from the staff”, and consisted of four subthemes: (1) ‘Having an option to decide’, (2) ‘Being in a physical proximity to the patient’, (3) ‘Feeling like having more control and impact’, and (4) ‘Having a better idea about the situation’, which described family members desires to be involved and engaged in patients’ care. The second theme was described as “the need of being understood and seen as someone important to the patient, and generally receiving more support from highly qualified staff who treats families and patients in a more humane way”. This theme consisted of the following subthemes: (1) ‘Need for more support and understanding from the staff’, (2) ‘Uniqueness of the family – patient relationship’, (3) ‘Need for the staff to be more humane and less mechanical’, and (4) ‘Professional and highly qualified staff’ (Table 3 in the Original Publication IV).

5.5 SUMMARY OF THE RESULTS

FWR is not a common practice in many countries around the world, and the extent of its implementation differs depending on geographical location, and other factors, such as gender, profession and main practice role.

Even though the analysis of the world literature revealed different barriers and supporters of this practice seen by the HCPs, nurses and physicians were generally rather against this practice. A more detailed analysis of FWR experiences based on a sample of Finnish and Polish nurses and physicians suggested that most of the HCPs in these countries did not think it should be a standard practice. They provided a different explanation for their reasoning, such as a negative impact of FWR on the family or the staff, and suggested a variety of barriers towards implementation of this practice. Despite sharing the general attitude towards FWR, the attitudes regarding process-related negative consequences to FWR, and personal and organisational barriers towards FWR slightly differed between Finnish and Polish HCPs. The data analysis also revealed that having a certain attitude towards FWR might be related to the nature of previous FWR experience. Namely, a previous positive FWR was associated with more positive attitudes towards FWR, and consequently a previous negative experience with more negative attitudes towards this practice.

In contrast to staff’s critical perspective regarding FWR and their belief that this practice could be harmful to the family, critical care patients’ relatives, when asked about their desires regarding FWR, believed that FWR should be offered to them. Together with the reasoning that it is their right to be close to the patient during difficult moments including CPR, they emphasised their need to be more involved in patients’ care, treated with respect and receive better support from the staff.
6 Discussion

6.1 DISCUSSION OF THE MAIN FINDINGS

This is the first study that combines the perspectives of ICU and ER nurses, physicians and critical patients’ family members’ perspectives regarding adult, in-hospital FWR. Moreover, it is the first reported study that focuses on Finnish and Polish populations’, adding new knowledge to the global picture of the FWR phenomenon, of which findings indicate professional and social significance both locally and internationally.

The results of the integrative review (Study Phase 1) revealed that FWR is not a commonly experienced practice in many countries. The part of the study conducted in Finland and Poland (Study Phase 2) confirmed this result, suggesting that even though Polish HCPs had significantly more experience in FWR than Finnish HCPs, most of the staff in both countries have not offered FWR to their patients’ relatives. What is more, the results of this study showed a geographical location pattern in experiencing FWR, indicating that nurses and physicians in some parts of the world such as North America were more often experienced FWR than nurses from European and Asian countries. These results are consistent with the other studies exploring FWR experiences of the nursing and medical staff. The study conducted by Powers (2017) on an American sample of critical care nurses showed that the vast majority of them (95%) have previously experienced a CPR witnessed by a family in their daily practice. These results are in contrast with the study conducted in Asia, in which only few staff members claimed that they had experienced FWR in their daily practice (Meng-Kuan et al. 2017). The study exploring ethical CPR practices in European countries revealed that in-hospital FWR is not routinely allowed in this part of the world (Mentzelopoulos et al. 2016), which is consistent with the results of the current study.

The variances in FWR experiences in different countries are believed to be partly related to different cultural backgrounds that affect health care systems in different parts of the world. In some countries, FCC with its components for critical care are easily adapted to the health care (Goldberger et al. 2015), while in other countries, the paternalistic model of care still takes the lead (Ganz & Yoffe 2012). The exact reasons why certain cultures more quickly adapt innovative health care changes remains unclear, however, some cultural features are believed to have a strong impact on that (Gilbar & Miola 2015). For example, an expressive way people in Middle Eastern culture react to death of their loved-one might be related to resistance towards FWR and explain less FWR experience in these parts of the world. Wacht et al. (2010) also suggest that the paternalistic model of care, popular among the staff from post-communist countries, might also explain the reason why FWR is not a common practice in some European countries. However, that does not explain why in some developed countries, in which promotion of the human rights and a modern approach to the health care are emphasised, HCPs still do not implement and therefore experience FWR in their daily practice. The reason for that may lay in other barriers for implementation of this practice, which the current study revealed, and which are discussed further in this chapter.

One of the aspects of FWR experiences examined in this study was the existence of official policies regarding inviting the family to be present during CPR. The results of the integrative review (Study Phase 1) suggested that such official document is not common in many hospitals, but there are places that have mapped out written policies regarding FWR. Even though in the cross-sectional study (Study Phase 2) the majority of HCPs claimed the lack of FWR policy in their facilities, some of the nurses and physicians admitted that their units offer such a document. The differences in the answers from the staff working in the same facilities suggest
that HCPs might not be fully aware whether their units have mapped out FWR policies or not. This result is consistent with the results of more recent studies showing that in many cases the staff is not aware of the existing local regulations regarding FWR (Köberich et al. 2010, Meng-Kuan et al. 2017, Powers 2017). At the same time, there is evidence that HCPs are in need for such a document, even if they are against this practice (Madden & Condon 2007). An official FWR policy would help them in a proper decision making process regarding FWR, ensure possible implementation of FCC components in critical settings, make it easier to justify their final decision regarding FWR (Powers 2017), and decrease potential harm caused by the delivery of care (Pankop et al. 2013). According to Madden & Condon (2007), health care teams that work without well-developed FWR guidelines, might experience many challenges in the way they respond to families’ requests regarding FWR. Moreover, most of the current FWR position statements, written by different nursing and medical organisations strongly emphasise the need for local FWR policies development (Emergency Nurses Association 2012, Bossaert et al. 2015). However, it is alarming that most of the places, including Poland and Finland lacks such documents, especially in light of the currently recognised need for improvement and unification of ethical CPR practices across Europe (Mentzelopoulos et al. 2016), and the risk that working without such policies, HCPs may contribute to depriving both patients and their families of emotional support they need (Emergency Nurses Association 2012). While the parts of resuscitation guidelines focusing on the medical treatment, such as BLS or ALS, are strongly respected in European countries and implemented in clinical practices (Mäkinen et al. 2009, Mentzelopoulos et al. 2016), the results of this study suggest that neither in Poland nor in Finland the parts of the guidelines reflecting on ethical aspects of CPR are well acknowledged and implemented. It is important that nursing and medical staff pays attention to all of the aspects of recommended CPR practices, in order to provide up-to-date, evidence-based, high quality, holistic care to the patients and their families. Introducing a well-developed FWR protocol should be based on a solid implementation process. This means allowing enough time for adaptation of the protocol, inclusion of multidisciplinary staff in its development, and allowing place for mistakes and changes (Doolin et al. 2011). It could help the staff to accept a potential change and see it more as an opportunity than a threat. What is more, because the participants of the current study emphasised the importance of the case-by-case nature of possible FWR (Study Phase 2), it is important that the local protocols would respect that and leave room for the staff to make a good FWR decision based on individual factors that could determine a success or failure of allowing the family to stay in the room.

The results of the cross-sectional study (Study Phase 2) revealed that some of the differences in how FWR is experienced might be related to the nature of work environments. In the current study, ICU nurses and physicians more often experienced FWR than the ER HCPs. This result can be explained by differences in the nature of family involvement in care in both types of units. Because of the duration of hospital stay of the patient, there is a higher chance that the family might accompany the patients more often in ICU than in ER where the patient is often admitted without family’s awareness at first. The time the family spends in the ICU might contribute to a better relationship they develop with the staff, and therefore, increase chances of FWR incidence in that unit in comparison to ER. Another difference in HCPs’ experiences in this study showed that out of the small number of staff who offered FWR to the patients’ relatives, physicians more often invite family members to witness CPR than nurses. The reason for this might be related to the fact that both in Poland and Finland physicians have more decision-making authority than the nursing staff, and often they are the ones leading CPR teams.

The results of this study (Study Phases 1 and 2) and current literature have shown that experiencing FWR most likely has not change over time and that despite more and more emphasis on its importance and implementation in health care, it still remains marginal in many places. This result is alarming especially considering the fact that FWR has been strongly recommended by official organisations for over 20 years. It is believed that the reasons for the
limited implementation of FWR and the lack of development of local policies regarding this issue might be partially explained by the results of this study describing different attitudes of nurses and physicians, revealing a number of risks and possible barriers towards this practice. Based on the results from the literature review (Study Phase 1), the main risks of FWR seen by HCPs are related to the patients’ families’ well-being. The nurses and physicians voiced their concerns that allowing the family to witness CPR would be too traumatic for them, and will most likely contribute to long-term adverse psychological effects, such as complicated grief or depression. The results of the cross-sectional study (Study Phase 2) suggested that one of the reasons for the staff’s concern is their belief that patients’ relatives are not ready to see and hear rather harsh CPR actions. Moreover, the staff in this study was of the opinion that the family would not like to take part in CPR anyway. Given the often unpleasant and harsh nature of CPR, these concerns seem justified. However, existing literature exploring attitudes of family members towards FWR revealed that many of the critical care and ER patients’ want to have this option offered to them (Table 6). What is more, the findings of the qualitative study on critical care family members’ desires regarding FWR (Study Phase 3), also suggested that families are not strongly against this option. The family participants, even though they did not experience FWR, were of the opinion that offering this option in the hospital should be a standard practice and is their right. This opinion was also shared by those relatives who thought that in the end they would probably not want to witness CPR of their loved-one. Based on the findings of this study (Study Phase 3) offering FWR might help the patients’ relatives to feel more involved in patients’ care, be respected by the staff, and treated more like partners than enemies. Moreover, the family members in the current study believed that they have the right to decide themselves what is right for them. This is why, despite the staff’s concern about the family well-being, it is important to give the family members autonomy to decide what is best for them and act upon their own desires, unless they may harm the patient or a team member. Dwyer (2015) claims that staff have a strong moral obligation to inform the family members about FWR. Because nurses and physicians express their worry about patients’ relatives’ well-being in case of FWR, it seems natural that listening to their voice and knowing their decision should be a priority. Moreover, HCPs should acknowledge that family members of patients in critical condition would most likely experience bereavement-related symptoms whether they are present during CPR or not, and that the magnitude of these symptoms is not increased by FWR (Robinson et al. 1998, Holzhauser et al. 2006, Pasquale et al. 2010, Compton et al. 2011, Leske et al. 2017). In fact, Leske et al. (2017) found that ICU patients’ relatives who had a chance to witness CPR reported reduced anxiety, stress, and fostered well-being compared to the control group which was not present during CPR. In the Compton’s et al. (2011) study, there was no difference between FWR and non-FWR relatives in their post-traumatic stress disorder (PTSD) and depression scores after CPR. A similar result was obtained in another American study, where anxiety and well-being scores were not different between family members who witnessed CPR and those who did not (Pasquale et al. 2010). Moreover, there is evidence that these relatives who already had a chance to be present during their family member’s CPR do not regret that decision and would decide to do it again if they had to (Doyle et al. 1987, Belanger & Reed 1997, Robinson et al. 1998, Meyers et al. 2000, Holzhauser et al. 2006, Pasquale et al. 2010, Leske et al. 2017). Because the current study showed an inconsistency in what the staff feels patients’ family members want, and what family members actually desire, in order to address the patients’ families wishes regarding FWR, it is crucial to improve the communication and relationship with them. One of the strategies helpful in improving communication with the families (which would addressed the problem of a lack of time for a face-to-face interaction also voiced by the participant in Study Phase 3), would be mapping out special leaflets with information about possible FWR and strategies helping the families to go through the hard time in critical care. That would also help in estimating whether a particular family would be willing to be included in CPR or not.
Improving communication between the staff and the family members would also help to address another issue shared by the participants in the qualitative study (Study Phase 3), which was the desire to get more comprehensive information about the patient’s condition during potential CPR, even if the news is bad. This result is supported by other studies in which the family members reported not being informed enough about the condition of their loved one in critical condition (Masa’Deh et al., 2013, Gaenei et al. 2014, Coombs 2015). According to Masa’Deh et al. (2013) limited information relatives get from the staff could make them underestimate the severity of the situation and have unrealistic expectations about the treatment. It is important to acknowledge that FWR practice could help in assuring the transparency of the CPR process and allow the family to see the process with their own eyes, especially when excluded from CPR, relatives often think that there is something being hidden from them (Masa’Deh et al. 2013). Introducing existing successful communication interventions (Kynoch et al. 2016, Oczkowski et al. 2015b) should be helpful in addressing the families’ desires regarding receiving more information about the patient, and further reduce risks of negative effects of having a loved one in critical setting. Côté et al. (2011) in their study identifying nurses’ intentions to adapt evidence-based practices into clinical work revealed, however, that nurses’ moral norms are the most important factor in adapting new practices. They, therefore, suggested that the interventions aiming at increased implementation of certain practices should emphasise good values and avoid blaming HCPs for being resistant, and offer supportive conditions to facilitate an utilisation of research.

The other risks revealed in the integrative review (Study Phase 1) and reflected on more in detail in the cross-sectional study (Study Phase 2), which can partially explain resistance to FWR implementation, were related to the negative effects of FWR on the CPR team and the whole CPR process. Some of the issues the staff emphasised were: disturbed CPR workflow, increased stress of the staff, and lack of staff to safely implement FWR. These concerns are consistent with other, more recent studies regarding HCP’s attitudes towards FWR (Knott & Kee 2005, Ong et al. 2004, Compton et al. 2011, Leung & Chow 2012). The results of an American study that included an analysis of over 250 hospitals revealed that places in which FWR is commonly practised have no statistically different adult CPR outcomes than the places where FWR is not a standard option (Goldberger et al. 2015). One of the older studies, conducted in 1992, revealed that the witnessing relatives did not interfere with the CPR process (Hanson & Strawsen 1992). A study conducted over fifteen years later also failed to show that the witnessing family disturbed the staff during CPR (O’Connell et al. 2007). However, there is some evidence that might have a negative effect on the staff’s and students’ CPR performance (Fernandez et al. 2009, Kenny et al. 2017) and the outcome of CPR (Krochmal et al. 2017), even though there is no indication which component of FWR can cause that. It is crucial to further investigate this issue and check which aspect of FWR might be problematic so that the FWR practice is fully safe to the patient, and the team members.

Despite some evidence that FWR might negatively contribute to the staff’s performance, there is also evidence that FWR can in fact lead to increased professionalism in staff’s behaviour (Knott & Kee 2005, Lederman et al. 2014). Family members taking part in the qualitative study (Study Phase 3) also voiced the opinion that by offering FWR the staff would show their more humane face, which in turn would contribute to being more professional in their eyes. Some of the nursing and medical staff in the cross-sectional study (Study Phase 2), however, thought that taking care of the patients’ families is not one of their responsibilities, and that they should take care of the patients not their relatives, indicating that such behaviour is not professional. This could explain the findings reported in the qualitative study (Study Phase 3), which showed that the family members often feel misunderstood and ignored by the staff. The above findings regarding staff’s behaviour disagree with the FCC theory and recent recommendations, which claim that the staff should also take care of the family members, including critical care situations such as CPR (Islekdemir & Kaya 2015). These incompatibilities reported by the patients’ families, nursing and medical staff, and included in recommendations are alarming
and suggest a strong need for action in order to improve the quality of care offered to care recipients.

The reasons for staff’s resistance regarding FCC might be explained by their lack of knowledge regarding this issue (Bassler 1999, Twibell et al. 2008, Axelsson et al. 2010, Pasquale et al. 2010, Gordon et al. 2011). There is evidence indicating that HCPs who had previous FWR education are more likely to be willing to practise FWR (Kantrowitz-Gordon et al. 2012, Edwards et al. 2013, Powers & Candela 2016), and their relationship with patients and their families is better (Redley & Hood 1996, Yanturali et al. 2005). In their study, Edwards et al. (2013) found that education-related empowerment could increase confidence in FWR skills, which can contribute to more incidences of FWR and making fewer mistakes during it. This is in accordance with the Theory of Diffusion of Innovation that states that persons are more likely to accept an innovative practice if they are more confident about it (Hardin & Kaplow 2005).

Assuring that the staff is well prepared and educated regarding family issues is also important as the family members in the qualitative study (Study Phase 3) suggested that the staff should be better prepared to respond to their desires. This is consistent with other studies exploring critical care patients’ family members’ needs (Khalalia 2012, Kodali et al. 2014, Mukhopadhyay et al. 2016). Staff who are better educated on the FCC and FWR issues are believed to have more humane approach to care, of which the importance was strongly emphasised in the qualitative study by the family members (Study Phase 3). CPR is an emergency procedure that is mostly mechanical and due to its nature and purpose nurses and physicians might tend to depersonalise the patient. The fact that nurses and physicians in this study reported disbelief that FWR would matter to an unconscious patient anyway (Study Phase 2) can suggest they disregard the patient’s voice. In light of recent findings suggesting that patients undergoing CPR maintain a certain level of awareness (Mentzelopoulos et al. 2016), evidence that they may feel the presence of their loved one during CPR (Belanger & Reed 1997), and claims of our family participants (Study Phase 3) that being present during CPR would benefit their loved one, it is important that the staff looks at patients more holistically, also during CPR. Moreover, there is evidence that patients often prefer to have family members present during their CPR (Albarran et al. 2009), and that the family presence does not increase their pain and anxiety (Islekdemir & Kaya 2015). These results contradict the staff’s concern voiced in this study (Study Phase 2) that FWR should not be allowed in the patient’s best interest.

While the priority of staff’s actions during CPR is to restore the blood flow, the importance of remembering about a humanistic nature of saving patients’ life has been emphasised in the literature (Cohen 2009). According to Walker (2008) it would help to ascertain that possible death of the patient would not be reduced to a clinical event deprived of human aspect. What is more, it would help to address another desire voiced by the family members in the qualitative study (Study Phase 3), related to the importance of maintaining the humanity of the situation, namely the desire of being close to the patient. The family members in the current study believed that by allowing them to be present during different phases of the treatment, including CPR, nurses and physicians would help to maintain the unique relationship between them and the patients, which in their opinion the staff sometimes seems to disregard. This is consistent with other studies in which families valued their proximity to the patient (Khalalia 2012), and reported a great fear of being separated from them (Hung & Pang 2010). Moreover, research has shown that patients whose relatives were more physically involved in their treatment had better outcomes (Prakash et al. 2016). Clark (2013) even suggests that having a loved one close during CPR could help with the negative results of the post-ICU syndrome. Because of this, and the fact that FWR was found to be a practice that helps to balance the professional and humane dimensions’ of care (Monks & Flynn 2014), it is important to assure FWR implementation in critical settings to maintain the personhood of the care recipients. Ideally, staff should ask patients about their preferences regarding FWR in advance, but because of the nature of the CPR incidence, and the condition of patients in critical condition, it might not always be
possible. In that case, it is suggested that the decision regarding FWR should be made by the family members and CPR team together, respecting an individual nature of the situation (Lederman et al. 2014).

Another issue voiced by the staff, related to risks of FWR, was that FWR could contribute to prolonging CPR attempt unnecessarily, as the staff would be afraid to make a decision about withdrawing from it in the presence of the family. These concerns have been commonly voiced in the literature by the nursing and medical staff (Günes & Zaybak 2009, Kianmehr et al. 2010, Gordon et al. 2011). Research, however, failed to confirm this concern (Fernandez et al. 2009, Nykiel et al. 2011, Goldberger et al. 2015). Moreover, there is evidence that FWR does not contribute to increased legal claims, which might result from the above issue. Fear from the above factors may explain why the nurses and physicians in this study voiced their concerns that FWR would be too stressful to the staff (Study Phases 1 and 2). Despite the exiting research showing no association between FWR and HCPs’ stress levels (Fulbrook et al. 2005, Fernandez et al. 2009, Nykiel et al. 2011, Goldberger et al. 2015), Dwyer & Friel (2016) in their study found that staff’s stress related to FWR can contribute to their insecurities regarding their own performance. That could explain reports indicating that nurses and physicians who are more confident about their professional skills, are more likely to see more benefits of FWR (Mäkinen et al. 2009, Tudor et al. 2014, Powers & Candela 2016). What is more, the study examining work efficiency of a team working with a well-developed FWR policy did show that staff can work efficiently despite FWR (Nykiel et al. 2011). Pasquale et al. (2010) in their study found that using a good FWR protocol was not associated with interference of the team during CPR and any risk to the family. The above results together with the results of the current study in which the staff claimed that in case of FWR CPR should be conducted practically by the book (Study Phase 2), argue in favour of the need for more training and education for the staff. It would increase their professional skills and confidence, and preferably contribute their ability to better response to their patients’ wishes (Edwards et al. 2013). In fact, a study by Lickiewicz et al. (2014), conducted on a sample of Polish ICU physicians, reported a significant improvement in confidence while talking to the families after introducing a successful algorithm for family-staff communication. This might partly explain the results of this study suggesting that the previous positive experience of FWR is associated with a more positive attitude towards this practice, and the previous negative experience is associated with a negative attitude towards this practice (Study Phase 2). The persons who have already experienced successful encounters with families during CPR might be more confident about their communication and collaboration skills and, therefore, view the whole FWR practice as less negative, than the persons whose experience with families was negative, presumably partly because of the lack of knowledge on how to properly approach patients’ relatives.

In order to improve staff’s knowledge and skills regarding FWR, different strategies can be used both during their pre-licensure education, as well as later in their professional careers. Research has shown that nursing students who had undergone FWR during their studies represented better understanding of ethical dilemmas of care, and had better perceptions of FWR in general (Nibert 2005, Kantrowitz-Gordon et al. 2012). Moreover, critical care staff who completed FCC and FWR trainings reported better outcomes in dealing with patients’ families (Twibell et al. 2008, Gordon et al. 2011, Schram et al. 2016). There are different active-learning strategies to improve staff’s knowledge and skills. One of them is a role-playing training during which nurses and physicians can practise how to deal with difficult family members (Twibell et al. 2008). Also simulations and mentoring programmes might be helpful in teaching staff to work with patients’ families during CPR. Another useful strategy would be an online learning tool that has been found to be successful in improving perceptions and self-confidence related to FWR (Powers & Candela 2016). What is more, such learning should include teamwork and end-of-life communication skills training to increase its efficiency.

The results of this study (Study Phases 1 and 2) suggested another important barrier to FWR implementation. The nurses and physicians advised that there should be more staff to better
take care of the patients' family members during CPR. They emphasised the need for designating a specific person whose only role would be to take care of the family members during CPR. This is consistent with the results of the qualitative part of this study (Study Phase 3), in which family members suggested the desire for more care they would like to receive from the staff, as well as with other studies in which the family members voiced the need for having more support from nurses and physicians (Masa'Deh et al. 2013). Despite the fact that this problem has been addressed in official FWR guidelines for years, it seems like there is still not enough staff to safely implement FWR. Even though Fulbrook et al. (2005) and Lederman et al. (2014) suggest that despite the rapidity of CPR actions one of the persons from the CPR team should always be designated to take care of the family member, due to a limited number of medical and nursing staff, executing this might be problematic. This might be related to the general problem of shortage of nursing staff in many countries, including Finland and Poland (Axelsson et al. 2010, Köberich et al. 2010, Ganz & Yoffe 2012, Eurostat 2016, Warsaw Chamber of Nurses and Midwives 2017). Without addressing this issue, FWR might be difficult (if not impossible) to be implemented.

The results of both the literature review (Study Phase 1) and the cross-sectional study (Study Phase 2) revealed that, despite voicing many risks and barriers towards FWR, HCPs see some opportunities for FWR. According to them FWR can help the family to see that what is being done to the patient, it enables the family to say goodbye to the patient, and get the closure they need. Nevertheless, their general attitude towards this practice is rather negative, and they voice more barriers than opportunities for FWR. Based on the integrative review results (Study Phase 1), there are more studies published in which the data revealed that the staff is against FWR than in which the majority of nurses and physicians supported this option. However, with a proper education and addressing the revealed barriers, this practice, recommended and desired by patients’ families, could possibly be successfully implemented, also in Finland and in Poland.

6.2 LIMITATIONS OF THE STUDY

The results of the study must be interpreted with respect to its limitations. First of all, lack of representative, randomised samples in studies used in the literature review (Study Phase 1) made the generalisability of the findings challenging, and could lead to over-interpretation of the data. However, a descriptive nature of the results allowed mapping out a general picture of how FWR practice might be viewed in different countries.

Another limitation was related to the differences in data collection in the cross-sectional study (Study Phase 2). Electronic versus manual data collection could result in different response rates in both countries and, therefore, affect the sample representativeness. Moreover, the convenience sampling technique believed to allow to increase chances of obtaining more respondents, at the same time could contribute to under- or over- representation of data, as the participants were chosen from particular health centres rather than randomly recruited from the whole population of ICU and ER nurses and physicians in Finland and Poland.

What is more, the explained variance in the regression models in Study Phase 2 ranged from only 9% to 26%. Such a low range of variance suggests that there are more factors contributing to different FWR experiences and attitudes which were not included in this study. However, given a high complexity of constructs such as experiences and attitudes, it is understandable that all the possible predictors might be hard to capture. In this study, they were included based on a sound theoretical rationale and the pervious data.

The qualitative part of Study Phase 2 was based on one, general, open-ended question, which could contribute to not catching full complexity of the participants’ responses. What is more, there is a risk that only the respondents with extreme opinions felt the need to share their
thoughts. Nevertheless, given the qualitative nature of this part of the study, the generalizability of its results was not its purpose.

Another limitation was related to under-representation of the sample in Phase 3 of the study. Due to certain challenges in obtaining participants in Finland, there were only four persons representing this country. Moreover, most of the sample was female, which could result in omission of important perspectives from the participants. However, it is believed that the saturation of the data allowed capturing a general and initial insight of the phenomenon seen by the patients’ relatives.

Finally, to enable all the investigators to participate in data analysis, the qualitative responses in this study were translated from Finnish and Polish into the English language. This could result in loss of some meaning in the participants’ responses during the translation process. A variety of strategies discussed in the Methods chapter were used to avoid this problem.
7 Conclusions

Based on the findings of this study the following conclusions can be drawn:

1. Despite strong evidence on benefits of FWR and its official recommendation, FWR is still not implemented in the majority of countries including Finland and Poland

2. The FWR implementation and policy development do not seem to change over time, and still remain low

3. The FWR experience might be related to factors, such as different cultural backgrounds, profession, and specialty area

4. The HCPs in Poland and Finland indicate more negative than positive attitudes towards FWR, which can indicate a low incidence of this practice in both countries

5. The HCPs in Finland and Poland represent a more negative mind-set regarding FWR than is seen by the critical patients’ family members

6. The nature of the previous experience may impact the way the HCPs feel about FWR, as well as the way the HCPs feel about FWR may impact the way they experience it

7. There are concerns regarding participation of patients’ relatives in CPR pointed out by the HCPs, which are not consistent with what the patients’ family members think about this practice

8. There is an inconsistency in what the patients’ family members desire regarding FWR and what the HCPs think patients’ relatives expect and want regarding FWR

9. Both the Finnish and Polish HCPs and the patients’ relatives’ responses suggest barriers to FWR that need to be addressed prior to its implementation
8 Recommendations

Recommendations for future research:

1. Current care applied to patients' families in Finland and Poland should be evaluated in order to determine whether it brings positive outcomes.

2. Studies exploring the local health care situation and its' cultural component more in depth should be conducted to evaluate the country-specific barriers to FWR implementation.

3. Intervention studies should be conducted in countries, such as Finland and Poland in order to examine feasibility of FWR practice in these countries.

4. Research including general public opinion should be conducted in order to evaluate the need for FWR in countries, such as Finland and Poland, and increase FWR awareness among the society.

5. More in-depth qualitative research based on HCPs focus groups should be carried out in countries such as Finland and Poland to more closely investigate and understand the reasons for staff's resistance towards FWR practice.

6. Research aiming at exploring Finnish and Polish critical care patients' perspectives is needed in order to investigate their voice regarding FWR.

Recommendations for clinical practice:

1. In order to address patients' family members' desires and improve delivery of FCC in Finland and Poland, consideration of FWR implementation should be taken into account in both countries.

2. Barriers to FWR, such as shortage of staff, staff's strong resistance to FWR, and lack of training and education should be addressed prior to FWR implementation in countries such as Finland and Poland.

3. Different strategies aiming at integration of the clinical staff and patients' family members should be developed and implemented in order to better meet the families' needs during CPR.

4. Strategies to increase the scope of execution of the current evidence-based guidelines in a clinical setting should improve in Finland and Poland.
Recommendations for nursing education:

1. FCC with its components for critical care should be included in pre-licensure education for both nurses and physicians so they could better respond to patients’ relieved needs in the future both in Finland and Poland

2. CPR training including all aspects of the current CPR guidelines should be carried out for the staff in order to help them to integrate both the mechanical and humane aspects of CPR process

3. FCC and FWR education should be offered for nurses and physicians working with critically ill patients in order to help them to understand the importance of FCC and FWR practices, build up their confidence, and enable them to collaborate with their patients’ families more efficiently

Recommendations for leadership and policy level:

1. Development of official FWR position statements of Finnish and Polish nursing and medical organisations should be considered in order to clarify the current national recommendation of this practice

2. Development of local FCC policies should be considered in order to guide the staff in FWR decision-making process and inform the family members about their rights while having a loved-one admitted to hospital

3. Family members and patients’ voices should be taken into account in developing policies regarding FWR

4. Because of the nature of the nursing profession, nurses should be considered to act as developers and executors of FWR guidelines
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This study provides knowledge regarding nurses, physicians and patients’ family members’ perspectives on a widely recommended practice called family-witnessed resuscitation. The results revealed that despite having a number of benefits, this practice is not commonly implemented and favoured by health care professionals.

At the same time, critical care patients’ relatives wish to have this option offered to them in case of an emergency to feel more involved in their loved-ones’ care, and generally feel better treated by the staff during hospitalisation. In order to successfully apply family-centred care principles and therefore respond to patients and families’ needs, family-witnessed resuscitation should be considered for implementation in places where it still remains controversial. Prior to implementation there is a number of barriers which need to be addressed. These findings can be utilized to direct organisational changes aiming on implanting family-centred interventions in health care.