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# Effective Patient Education Methods in the Care of Breast Cancer Patients

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<p>In Finland alone, over 4000 women each year get diagnosed with breast cancer. The purpose of this thesis was to describe effective patient education methods in the care of breast cancer in women. The aim was to collect relevant current knowledge on effective patient education methods to be used in the development of care of breast cancer patients. This descriptive literature review consists of 10 articles. The material was gathered from reliable sources, such as Cinahl and PubMed. Deductive thematic analysis was used to analyse the material.</p> <p>Through analysis, two (2) individual, two (2) group, and multiple audio-visual patient education methods were identified. Different parameters were used to assess effectiveness: quality of life, depression and anxiety levels, satisfaction with the information provided, adjustment to cancer, and the effect on decision-making. The results showed that individual patient education methods, support groups, and audio-visual methods all proved somewhat effective, to varying degrees. Patients' informational needs were highest prior to commencing treatment.</p> <p>Patient education has an impact on the patient's quality of life, compliance with the treatment, and decision-making process. More studies are needed on the effectiveness of patient education. A combination of different methods seems to produce good results. Individually tailored patient education that suits the patients' needs and abilities seems an option that would also produce good results in terms of effectiveness and patient satisfaction. Tailoring patient education even more carefully might improve the effectiveness of patient education, if it directly meets the patients' needs.</p>	
Keywords	breast cancer, patient education, effectiveness

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<p>Pelkästään Suomessa yli 4000 naista saa vuosittain rintasyöpädiagnoosin. Tässä opinnäytetyössä esitellään tutkittua tietoa vaikuttavista potilasohjausmenetelmistä rintasyöpäpotilaiden hoidossa. Tämä opinnäytetyö toteutettiin kuvailevana kirjallisuuskatsauksena ja se pohjautuu kymmeneen artikkeliin. Materiaali kerättiin luotettavista lähteistä, kuten käyttämällä Cinahl- ja PubMed-hakukoneita. Vain tieteelliset artikkelit valittiin mukaan katsaukseen. Analyysi toteutettiin deduktiivisena teema-analyysinä.</p> <p>Analyysissä tunnistettiin kaksi yksilöohjausmenetelmää, kaksi ryhmäohjausmenetelmää, ja useita audiovisuaalisia potilasohjausmenetelmiä. Menetelmien vaikuttavuutta mitattiin tutkimuksissa erilaisilla parametreilla. Näitä olivat elämänlaatu, masennus ja ahdistus, tyytyväisyys saatuun tietoon, sopeutuminen syöpään sekä vaikutus päätöksentekoon. Tuloksien mukaan yksilöohjaus-, ryhmäohjaus-, ja audiovisuaalinen menetelmä osoittautuivat kaikki tehokkaiksi vaihtelevissa määrin. Potilaiden tiedontarve oli suurin juuri ennen hoidon aloittamista.</p> <p>Potilasohjauksella on vaikutusta mm. potilaan elämänlaatuun, hoitoon mukautumiseen sekä päätöksentekoprosessiin. Lisää tutkimustietoa tarvitaan potilasohjauksen tehokkuudesta. Eri metodien yhdisteleminen vaikuttaisi tuottavan hyviä tuloksia potilasohjauksessa. Yksilöllisesti räätälöity potilasohjaus joka vastaa potilaan tarpeita ja kykyjä, vaikuttaisi myös tuottavan hyviä tuloksia tehokkuuden ja potilastyytyväisyyden näkökulmasta. Räätälöimällä potilasohjausta entistä tarkemmin vastaamaan potilaan tarpeita, saatetaan pystyä parantamaan potilasohjauksen tehokkuutta.</p>	
Avainsanat	rintasyöpä, potilasohjaus, vaikuttavuus

## Contents

1	Introduction	1
2	Background	2
2.1	Nursing care of breast cancer	2
2.2	Patient education	4
2.2.1	Challenges to patient education	5
2.2.2	Patient education methods	6
3	The purpose of the study, aim and study questions	8
4	Methods	8
4.1	Descriptive literature review	8
4.2	Data Collection	8
4.3	Data analysis	9
5	Results	10
5.1	Individual patient education	11
5.2	Group patient education	13
5.3	Audio-visual patient education	14
6	Discussion	15
6.1	Validity and ethical considerations	19
7	Conclusions	20

## Appendices

Appendix 1. Data Collection Table

Appendix 2. Data Extraction Table

## 1 Introduction

Breast cancer is a disease, which affects women all over the world. According to National Institute for Health and Welfare (THL 2017) every year over 4000 women in Finland get diagnosed with breast cancer. According to the National Breast Cancer Association Inc. (2016), in the United States every 8<sup>th</sup> woman gets diagnosed with breast cancer in her lifetime.

Every patient has a right to information regarding their own health and treatment. They also have a right to choose the course of treatment or to refuse it completely. According to the Act on the Status and Rights 17.8.1992/785 article 5§ (Finlex, 2017), a patient is entitled to a report of their own health situation, treatment and its meaning, different options for treatment, and other issues possibly affecting the treatment. This is the starting point for patient education. It is the patient's right and the responsibility of the health care professional.

Patient education is a tool that can be used to increase the patients' own ability to enhance their quality of life and activity. The aim is to provide information that is valid concerning the patients' situation, to make the patient feel appreciated, and to help the patient to understand better their own position. In a counselling session, the nurse is there to provide accurate information and to support and encourage the decision-making. Patient education can be provided in individual sessions, group sessions or through audio-visual material. (Kyngäs et al. 2007: 23-47.)

Treatments used to treat breast cancer can be very rough physically and emotionally, and the experience of cancer life-altering for the patient (Cancer Society of Finland 2018). Getting a cancer diagnosis can cause a lot of anxiety and also depression, so providing the right kind of patient education in the right time is important for the well-being of the patient, and also for them to make the best choices for themselves (American Cancer Society, 2018).

In the digital era a lot of information is available for the patients, but not all of it is reliable or accurate (Bastable 2017). According to Statistics Finland (2017), in Finland, 88% of the population used the internet. In 2017, 64% of the Finnish population used the internet

to look for information on diseases, health or nutrition-related issues (Statistics Finland 2017).

There is a need for accurate and on-time information for professionals as well as patients. The responsibility of giving out the right kind of information lies upon the medical field professionals (Act on the Patient Status and Rights 17.8.1992/785). Through different kinds of patient education methods, a healthcare professional can be a supporter of the patient throughout the process from diagnosis to recovery.

Professionals need the knowledge on which are the most effective patient education methods in order to provide quality treatment. The purpose of this thesis is to describe effective patient education methods used in the treatment of women with breast cancer according to existing studies and material.

## **2 Background**

### **2.1 Nursing care of breast cancer**

Breast cancer develops when healthy and benign cells transform into malignant (Cancer Society of Finland 2017). Metastatic breast cancer means a type of cancer that is no longer active just in the original area, but affects other organs as well, such as bones, lungs, liver and the brain (Breast Cancer Network Australia, 2018).

There are two different kinds of breast cancers, divided by the origin of the cancer cells, called lobular and ductal. There are other forms as well (for example, tubular, papillary, inflammatory), but these are rare. It is unclear as to what exactly causes breast cancer, though it is known that hormonal factors affect the development. A small percentage of breast cancers (5-10%) is thought to be hereditary. (Cancer Society of Finland 2017: Terveyskirjasto 2017.)

Breast cancer can be detected by the patient (finding a lump in the breast tissue or in the armpit for example), or by the doctor through various examinations. These include

mammography, samples of the tissue, blood samples or an MRI. Treatment of breast cancer can include surgery, radiation therapy, medication (cytostatic drugs), hormonal treatments, and in special cases antibody-treatments. The recommended course of treatment depends on the particularities and the spreading of the cancer. (Cancer Society of Finland 2017.)

Breast cancer patients' pathway in Finland can be multimodal and complex, as seen on figure 1. After receiving the diagnosis, the patient meets with the surgeon and the oncological nurse to plan the surgery. The surgery is implemented, and the success and need for further treatment assessed. The patient will meet with an oncologist to determine if chemotherapy, radiation therapy and/or hormonal therapy will be necessary. After treatment, the follow-up appointments are carried out with the treating doctor and/or an oncological nurse. (Helsinki University Hospital 2018.)

Oncological nurse's role in the course of treatment is diverse. The nurse is seen as a mental support as much as an assessor of the physical status of the patient. It's expected that the nurse is aware of the implementation of the treatment and its effects on the patient, provides knowledge of the disease to the patient and their families, coordinates care, assesses physical and mental status, and provides symptom management and support. (Rieger and Yarbrow 2003.)

Successful treatment of breast cancer involves activating the patient in their own recovery (Bastable 2017: 9-10). Since the patient has to make a lot of decisions regarding their own health throughout this process, the timing of patient education during the course of diagnosis and treatment is very important, so the patient does not lose valuable and needed information. After the diagnosis and prior to surgery the patient may feel anxiety and be overwhelmed, which can affect their ability to take in the information given to them. (Helsinki University Hospital 2018.)

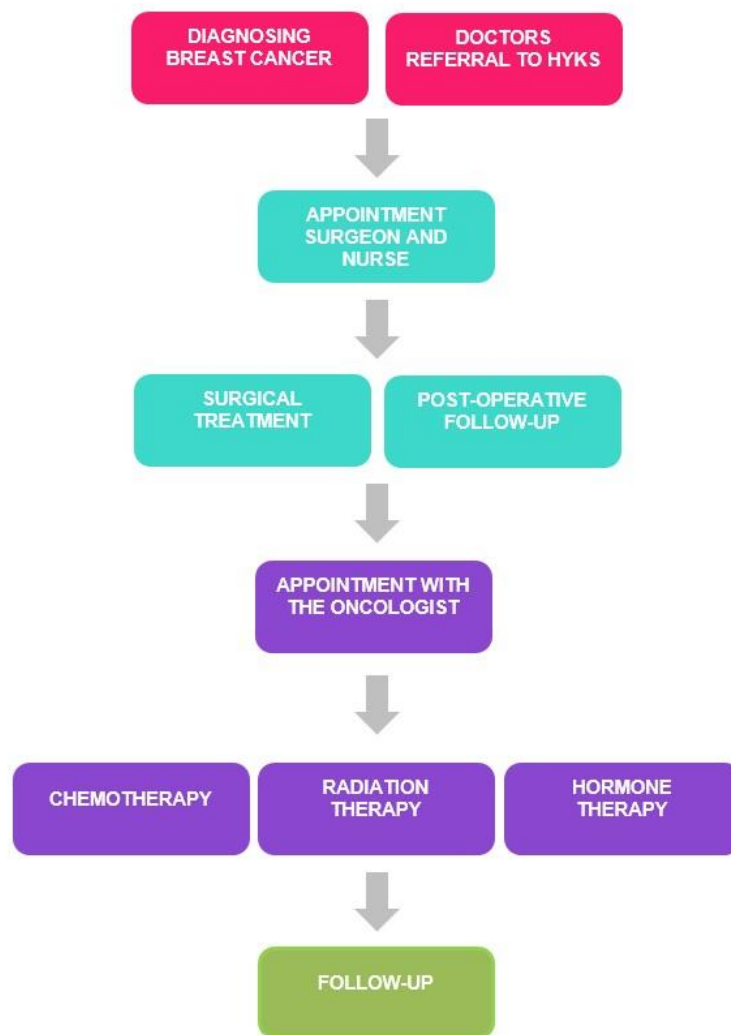


Figure 1. The breast cancer patients' pathway in Finland, The Hospital District of Helsinki and Uusimaa (2018).

## 2.2 Patient education

The purpose of patient education is to increase the patient's ability to manage better with their illness, affect positively in their quality of life, decrease anxiety, improve patient adherence to their treatment, energise and empower the patient, and to be effective in reducing complications caused by the illness. (Bastable 2017: 9-10.)



Effective patient education reduces the number of unnecessary hospital and doctor's visits, and also promotes rehabilitation (Tesso 2014). This means effective patient education can also bring economic benefits.

The field of health care is gradually moving from "disease-centered model" to a "patient-centered model". In the disease-centered model decisions have been made by the health care professionals with little or none consultation with the patient. Also, the disease-centered model has been focusing on a particular illness' instead of the patient as a whole. The newer patient-centered model gives the patient more power over their own treatment, includes them in the decision-making, and also delegates part of the responsibility of the treatment to the patient themselves. (Falvo 2011: 1-2.)

### 2.2.1 Challenges to patient education

The better the patients are informed regarding their own situation, the better their health outcomes will be. One of the biggest challenges in patient education is to support the patients to become more knowledgeable. (Papadakos et al. 2014.)

It is estimated that people remember only around 10% of the things that they hear, and 75% of the things that they see, but if the information is provided by using both sense of sight and sense of hearing, people remember 90% of the information given to them (Kyngäs et al. 2007: 23-47).

As patients' information needs for health information rise, their ability to understand and take in new information declines. In a Canadian study, the participants reported that tiredness, stress, the effects of chemotherapy and preoccupation with surgery affected their ability to comprehend and retain health information they had obtained while in the hospital or outpatient clinic. (Atack et al. 2008).

Bastable (2017), has defined the key elements of obstacles to teaching and learning regarding patient education. Obstacles to teaching include lack of competence and confidence, lack of time, lack of motivation and skill, negative environment-related issues (noise, lack of privacy and space), low priority of patient education and questionable effectiveness of patient education. Obstacles to patient learning are defined: stressing about their illness, problems with literacy, negative environment-related issues, lack of

time (specifically rapid discharge), denial of learning needs, lack of support from health care professionals and/or relatives, readiness to learn (adherence and motivation), extent of needed changes in behaviour and issues related to the healthcare system (complexity, inconvenience and fragmentation). (Bastable 2017:13-18.)

There are many challenges to patient education. The healthcare professional must take into account all these points when planning and implementing successful patient education (Catton et.al 2014, Atack et.al. 2008, Bastable 2017).

Good and successful patient education depends a lot on the healthcare professional's ability to recognize and discover patients' existing knowledge, their needs and wishes for information, and what would be the best way for them to absorb information. When a patient has enough information, they will be able to choose the best option for themselves. Setting goals together with the patient will act as a motivation for the patient and possibly make them commit to the treatment better. The health care professional should always keep in mind their own background as well as the patients', as only with enough background information can successful patient education be given. Trust, safety, comfort, empathy, acknowledgement and respect of one's views are something patients expect from the nurses. (Kynge et al. 2007: 47-49.)

### 2.2.2 Patient education methods

There are different patient education teaching methods and forms of patient education, of which the health care professional can choose from depending on the situation, the desired outcomes, and the patients' needs (Bastable 2017: 380-381). Patient education can be provided individually (one-to-one conversations or instructions), in groups (lectures, group discussions, professional lead support groups), or via audio-visual material (Kynge et al. 2007: 23-47). Demonstrating, role playing, self-instructions (Bastable 2017), and the use of computers and technology (Cancer Care Ontario 2009) can also be used as effective tools to provide desired information.

Individual patient education means a one-on-one session between the health care professional and the patient. The main tools used in this form of patient education are inter-

action and discussion, but written material can be used to support the conversation. Individual patient education is an effective form of patient education, because it allows the information to be passed on according to individual needs. (Kynge et al. 2007: 23-47.)

Working in groups is effective when working towards a common goal. In a group led by a medical professional, the patients and/or their family members get information and guidance, can exchange information, feelings and experiences, and also can experience the support of the peers alike (Bastable 2017: 384-386). Having other people involved, who are facing the same problems and same challenges, can be an empowering and motivating experience for the patient. Also, group sessions are economically more efficient than individual patient education, since the information can be provided to a larger number of people instead of just one. (Kynge et al. 2007: 23-47.)

Audio-visual patient education means using auditory and visual tools to provide information to the patient. Methods of audio-visual patient education include written instructions and other handouts, videos, networks and websites, mass media, and patient education given via phone calls. (Kynge et al. 2007: 116-127.)

Websites and internet-based sources are a fast developing source of information today. Some of the information found there can be inaccurate, false or biased (Bastable 2017:461-463), but carefully and properly conducted websites (such as provided by university hospitals or governments) can actually effective sources of information for people seeking guidance or information on health-related issues.

For instance, in Finland, all of the university hospital districts have a joint website project (governed by HUS, The hospital district of Helsinki and Uusimaa), called Terveyskylä. Terveyskylä offers services and information on quality of life, symptoms, lifestyle, and coping with different chronic illnesses. The website compliments traditional hospital-treatment. Use of the website is free for everyone, but to gain access to the digital treatment pathways, the user needs a referral from a doctor. The project is funded by the Ministry of Health and Social Affairs. The website has been developed and is maintained by professionals, which ensures accuracy and usability of the information. (Terveyskylä 2018.)

### **3 The purpose of the study, aim and study questions**

The purpose of this thesis was to describe effective patient education methods in the care of breast cancer in women.

The aim of the thesis was to collect relevant current knowledge on effective patient education methods to be used in the development of care of breast cancer patients.

The study question was "What kind of methods of patient education are effective when treating women with breast cancer?".

### **4 Methods**

#### **4.1 Descriptive literature review**

This thesis was conducted as a descriptive literature review. The principles of a literature review were applied. Descriptive literature review is a method used to gather, describe and examine already existing information in a structured manner (Kangasniemi et al. 2013). The aim of a descriptive literature review is to understand a certain phenomenon through a thorough examination of carefully selected materials, and to consider them from an ethical point of view (Kangasniemi et al. 2013). This literature review comprises of structured contents of an introduction, determining the research question(s), data collection, data analysis, results, ethical considerations, discussion, and conclusions.

#### **4.2 Data Collection**

Data collection was done by using scientific database searches and relevant literature. Cinahl Ebsco, Pubmed and Medic were used to obtain relevant scientific information, mainly articles and studies. Searches were done both in English and Finnish. Search

terms were “patient education” AND “breast cancer”, “patient education theories”, “patient education methods”, “breast cancer” AND “information” AND “patient education”. Synonyms to education were used, such as “counselling” and “teaching”. Articles’ exclusion criteria: the date of publication more than 10 years ago, theses’, chargeable material, and articles written in any other language than English or Finnish. PICO table was used to help form the study aim and question. Inclusion and exclusion criteria are found in Table 1. The database searches were carried out during February 2018. The articles were first assessed by the title. The ones seeming relevant were assessed by the abstract, and either included or excluded. Suitable articles were assessed then by the full text. Out of those assessed by full text, ten were selected for this literature review. (Appendix 1.) A table was made to describe the key aspects of each article (Appendix 2).

Inclusion criteria	exclusion criteria
P:women with breast cancer	Ages under 18 and over 89.
I: patient education intervention	
C: any other intervention, “placebo” or no comparison	
O: any outcome	
peer reviewed original research report	

Table 1. Inclusion and exclusion criteria.

#### 4.3 Data analysis

The method used to analyse the material was deductive thematic analysis. Thematic analysis is a tool used to identify patterns (themes) in the material being examined, that are relevant to the study question(s), and to analyse and report them (Braun and Clarke 2006). With this method, themes were based on a framework established in the background, and compared to recurring subjects in the material. This meant grouping the recurring patient education methods by the existing framework. The themes were individual patient education, group patient education, and audio-visual patient education.

The efficacy of each method was measured through their outcomes. The study question guided the analysis along with the aim for creating synthesis from the results.

## 5 Results

10 articles were chosen for this literature review based on the set criteria. The studies originated from Norway, USA, Canada, Pakistan, Australia and China. The patient education methods identified in the material were classified in groups according to the framework: individual patient education, group patient education, and audio-visual patient education as seen in Table 2.

Classification of the methods		
Individual patient education	Group patient education	Audio-visual patient education
<ul style="list-style-type: none"> <li>- Telephone delivered</li> <li>- Face-to-face</li> </ul>	<ul style="list-style-type: none"> <li>- Psychoeducational support group</li> <li>- Support group</li> </ul>	<ul style="list-style-type: none"> <li>- Leaflets</li> <li>- Brochures</li> <li>- Videos</li> <li>- Instructions</li> <li>- Digital</li> <li>- Virtual dialogue</li> <li>- Web-based</li> </ul>

Table 2. Classification of the methods (Kynge et al. 2007)

According to the analysis, two (2) individual, two (2) group, and multiple audio-visual patient education methods were identified. There were a few of methods, which could be characterised and included in more than one of the identified groups. A figure was made to demonstrate the many classification possibilities (Figure 2). For example telephone-delivered patient education can be classified both as an audio-visual and an individual patient education method. Also, many combinations of methods were found to be used in the interventions, overlapping each other.

In the material, different parameters were used to assess effectiveness of each patient education method. These were quality of life, depression and anxiety levels, satisfaction with the information provided, adjustment to cancer, and the effect on decision-making.

Patient preferences and satisfaction give indication on which could be effective patient education methods.

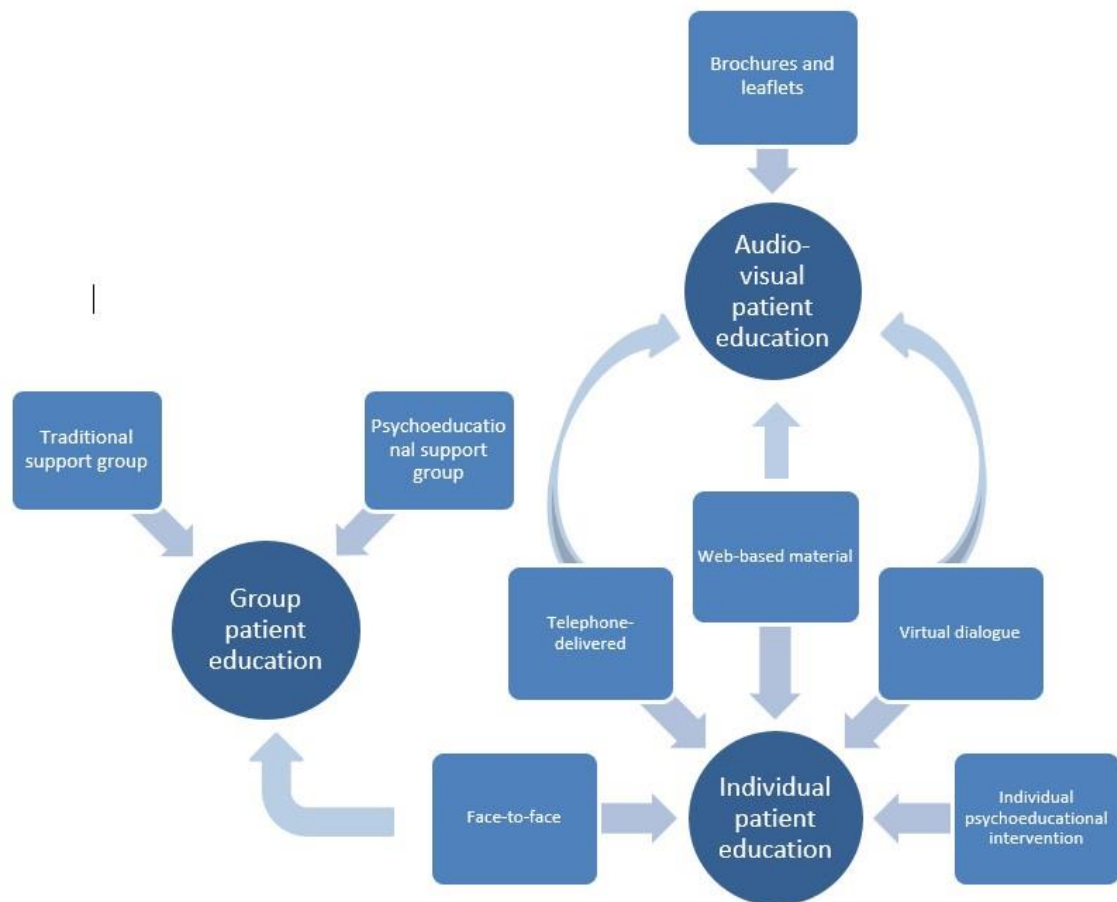


Figure 2. A demonstration of the manifold patient education methods.

### 5.1 Individual patient education

Individual patient education includes any method in which the patient receives information from a health care professional, such as nurses, physicians, oncologists, or radiotherapists. In the analysis, face-to-face and telephone delivered patient education were identified as two forms of individual patient education methods.

Telephone-delivered patient education is a method in which the patient receives information via a telephone. Two different telephone delivered interventions were studied in

order to determine their efficacy in improving quality of life of the patients. Both interventions were delivered by a nurse and modified to be culturally appropriate and fit cultural values of the participants. One intervention was a telephone-interpersonal counselling and the other telephone-delivered health education. Neither intervention proved superior to the other, but both were shown to improve the participants' quality of life. (Badger et al. 2012.)

Face-to-face method is an intervention in which the patient and the health care professional meet personally, for example in the doctor's/nurse's office. Tailored individual patient education was studied in Pakistan, where the intervention consisted of four different features and was delivered by an oncological nurse. These four features were face-to-face verbal and written patient education, a personal visit from a nurse during a chemotherapy session, a telephone follow-up with the patient conducted by the nurse, and also the patients and their family members having telephone access to the nurse. The study results indicated that this type of individualised intervention as a patient education method is effective in improving the quality of life of the patients. Adopting this intervention as a part of health care practice will reduce the health care costs of the patients', but requires more human resources. (Sajjad, Ali, Gul, Mateen and Rozi, 2016.)

Another individual patient education intervention was studied in Australia where a radiation-therapist-led psychoeducational intervention was used. The intervention consisted of two face-to-face meetings with a radiation therapist. First was before radiation planning and the other before treatment. Here the results indicated that individualised and tailored patient education could be effective in improving the quality of life of the patient by reducing anxiety. (Halkett et al. 2012.)

An Australian study showed that patients' information needs changed over time, and the need for information remains high until treatment is commenced (Halkett et al. 2011). After the treatment is commenced, the information needs decline significantly. There are big variations on what kind of information the patient needs at each point (Halkett et al. 2011). Because the patients' anxiety and stress levels are high prior to treatment, the focus of providing adequate information that meets the patients' information needs should also be prior to treatment (Halkett et al. 2011). This would significantly reduce the patients' psychological distress. The same finding was made in the USA (Sutherland and McLaughlan, 2013) in a study about whether the timing of patient education given to



patients with breast cancer by a radiation therapist has an effect on the patients' satisfaction. It was established that no clear effect was found on patient satisfaction regarding the timing of given patient education, but when the participants were asked, most of them preferred to have their patient education session earlier rather than later, in the course of their treatment (Sutherland and McLaughlan, 2013). The study also showed the importance of providing the right type of information to the patient, and how attention should be focused particularly on the assessment of the patient's individual educational needs and meeting them to improve patient satisfaction.

## 5.2 Group patient education

Group patient education means an intervention where the patient education is given in a group instead of individually one-to-one. The group is usually lead by a health care professional and offers information and peer support. Peer support helps to reduce patient's feeling of stigma and to beat social isolation (Schou et al. 2014).

In China, support groups were considered only as the third most satisfying source of information. This was thought to be due to cultural differences, as in China, disease is seen as a taboo, and should not be discussed with people outside the family. (Li et al. 2011.)

The effectiveness of a traditional support group (SG) intervention and a modified, psychoeducational group intervention (PEG) were evaluated in Norway (Schou et al. 2014) in order to determine which intervention was more useful for the patient in affecting the levels of anxiety and depression, and mental adjustment to cancer. The PEG intervention proved somewhat more beneficial short-term than the SG intervention, but no long-term differences between the interventions could be identified (Schou et al 2014.). However, it should be noted that the study assessed the parameters (anxiety, depression and mental adjustment to cancer) at 4 different time points during the course of the study. The participants were at different stages of treatment each time point, and this might have an effect on their informational needs. From the results of the study it can be seen that both interventions did prove effective, as they affected the patients' anxiety level, depression level, and mental adjustment to cancer positively, thus improving quality of life.

### 5.3 Audio-visual patient education

Audio-visual patient education means any patient education material provided in visual or auditory form, such as brochures, leaflets, posters, videos, and audiotapes. Technology allows patient education to take place in virtual or digital form as well, such as the internet or computerised-programs. From the material, several different audio-visual patient education methods were identified: a combination of written and verbal information, written material from the treating surgeon, leaflets and brochures, web-based patient education material, and the virtual dialogue model. In few of the studies chosen for this literature review, the aspect of patients' preferences on how and from where they wish to receive information were also included. Most preferred source of information for patients was a combination of written and verbal information (Halkett et al. 2011). Most common source of information for the patients was written material received from the treating surgeon, and the second most common source was the internet (Schmidt et al. 2016). In China, the most used source of information by the patients was the physician, followed by the nurse, and as third, leaflets and brochures (Li et al. 2011). These seem to support the fact that audiovisual patient education is seen as an effective method of educating patients.

Satisfaction with the information sources were taken into focus in some of the material. Nurses were seen as the most satisfying and reliable source of information. This was thought to be partially due to the fact that nurses spend most time with the patients and form a trusting care relationship. Second most satisfying source for information proved to be private physicians, and third most satisfying the support groups. Leaflets and brochures were found to be only fourth most satisfying source of information for patients. (Li et al. 2011.)

Digital patient education methods cover any method that utilises digital technology. The web-based patient education materials and virtual learning environments covered in the material used for this literature review included the internet (webpages providing information on breast cancer and its treatments), and a virtual dialogue model.

Virtual dialogue model is a voice-activated computer program, which uses a real person's voice and recorded answers in order to create an interactive conversation. The model was used to educate women about breast cancer and to determine its effectiveness.

Participants' knowledge gain on breast cancer was significant when comparing pre- and post-test scores, which showed the model to be effective in providing information. (Harless et al. 2008.)

The internet is nowadays seen and used as a patient education tool. Most patients look for health information online by themselves, thus making it an important source for information. However, assessing the quality of information available online is not that unambiguous, as some sites do not have proper credentials or markings of the sources of information. In a North American study (Anh Nguyen and Ingledew 2013) 97% of the participants in the study found the internet to be a useful source of information, and 53% of them indicated that the information they had found online had been helpful in the decision-making regarding their treatment. The study results indicate that internet-based sources are somewhat effective when viewed as patient education tools. As 47% did not deem the internet as having been helpful in their decision-making, it cannot be proclaimed to be effective for all. However, it should be noted that as 97% of participants saw the internet as a useful source of information, it can be considered as a moderately effective method to provide patient education. It was indicated through the study that patients need the healthcare professionals to guide them to appropriate sources to avoid false or inappropriate information affecting their decisions. (Anh Nguyen and Ingledew 2013).

The internet was cited as the second most used source for information in an American study (Schmidt et al. 2016). The most used sources for health- and disease-related information in this study were websites of national and institutional organizations, such as university hospital websites or cancer association websites. However, 60% of participants did not view their own research as helpful in their decision-making regarding breast surgery-options, but relied more on the information gained from their treating physician (Schmidt et al. 2016).

## 6 Discussion

It became clear from the material and the results that effectiveness of patient education is complex and involves many aspects. Effectiveness is difficult to measure, and there is not enough research on the subject. Material was relatively scarce on effectiveness,

even though patient education itself is a very well-studied subject. Many studies included in this thesis were pilot studies and suggested that more research on the topics is needed. The studies used different parameters to measure effectiveness. This makes it challenging to determine whether one method is more effective than the other. Three themes stood out when assessing the material: how received patient education affects the quality of life of the patient, how received patient education affects the decision-making of the patient regarding their treatment, and how the timing of patient education affects these two aspects just mentioned.

The study question for this thesis was “What are effective patient education methods in the care of breast cancer patients?”. As results show, in order to provide effective patient education, a combination of different patient education methods should be used. Using just one method is often not satisfactory, so a combination of methods, such as individual and audio-visual, will yield the best results. For example with web-based/internet sources, patients expressed their wish to go through/have guidance on the material they had found. This would mean combining both individual and audio-visual patient education.

The internet has increased its meaning in everyday life, and most people have access to it and use it regularly. It is also used as a way to gain information on health issues (Statistics Finland, 2017). The internet was found to be one of the most popular sources of information (Schmidt et al. 2016). Since patients often look for health related-related information online, it is vital to make sure they can find accurate and relevant information regarding their disease and treatments. The nurse should take into consideration the effects of online information when planning and implementing patient education. As patients might visit sites online that might not have the best evidence-based information, the information they find should be discussed with them. Patients themselves also expressed they would not want to base their decisions simply on the information gained online, but to rather discuss it through with the healthcare professionals (Anh Nguyen and Ingledew 2013).

Two studies indicated that while patients do use the internet as a source of information, approximately half do not see it as helpful or influential in their decision-making process (Anh Nguyen and Ingledew 2013, Schmidt et al. 2016). As it is uncertain which web-pages patients visit, it could be that by guiding them towards reliable internet sources, it might be experienced as a more helpful and satisfying source of information.

Timing of patient education was highlighted in our results. Breast cancer patients need for information was highest prior to commencing treatment. After starting treatment the need for information seemed to somewhat decrease (Halkett et al. 2011). Prioritising patient education more in the beginning of the treatment process could improve patient satisfaction, as their needs would be met when they are the highest – thus having a positive impact on the effectiveness and outcomes of the provided patient education. Breast cancer patients' - and cancer patients' in general - treatment can take time, and their information needs differ at different times of treatment. Meeting these needs at a correct time could have a positive effect on their quality of life, and relieve anxiety and distress they might be experiencing over the disease.

The studies included in this thesis are culturally diverse. This supports the usefulness and adaptation of the results into nursing care. The patient's cultural background is as important aspect to consider, when providing patient education, as the individual characteristics. The cultural features, habits, beliefs, and possible limitations need to be thoroughly understood and assessed by the nurse when planning the patient education sessions. Different cultures value different things, and also have different taboos. In Pakistan, women are expected to not move outside the house unaccompanied by a male family member, so when a woman needs to visit the hospital, someone in the family has to take a day-off from work to accompany them (Sajjad, Ali, Gul, Mateen and Rozi, 2016). This particular issue was addressed in a Pakistani study by giving the female patient straight telephone access to the nurse in case they have questions or concerns (Sajjad, Ali, Gul, Mateen and Rozi 2016). This way the patients' concerns were addressed faster and the family did not experience unnecessary financial loss. In China it is not considered proper to talk about personal health issues with people outside the family (Li et al. 2011), which makes support groups a lot less effective tools in that particular culture than it would in a Western country, where disease is not seen as a taboo. These examples reflect the importance of tailoring patient education to fit the patient's needs as well as the cultural environment. Not all of the results of the studies included in this literature review can be duplicated in different cultural settings, because the studies had been fitted to just one particular cultural environment.

Patient education has an economic side to it as well. As treatment times shorten, cuts in the staff are continuously made and access to treatment has become more limited, the

quality of patient education is emphasised. Based on the results, tailored individual patient education seemed to be effective, but it also requires a lot of resources. Providing patient education individually is time consuming, and always ties up the nurse to only one patient at a time. Virtual methods could be cost-effective, since they do not require the presence of a nurse and thus free the staff to other tasks. Support group is a cost-effective solution as well compared to individual patient education, since in groups information can be given to many people at the same time. Audio-visual patient education methods differ in this. Brochures and leaflets need to be printed, oppose to web-based information, which can be very easily modified and updated if needed. Giving straight telephone-access to a nurse (telephone-delivered patient education) can save the patient's time, as well as the nurse's, as the number of in-clinic appointments may reduce.

Patients would prefer information through both written and verbal sources (Halkett et al. 2011), and they see nurses as the most satisfying source of information (Li et al. 2011). Leaflets and brochures were seen only as the fourth most satisfying source of information (Li et al. 2011). This indicates that patient education given solely in written form is not satisfactory and effective from the patient's point of view. Written information needs to be provided in a way that it is understandable and accessible, but even if this is accomplished, the patients prefer to discuss it over with a professional. Nurses especially can meet that need, since they are usually in more close contact with the patient than for example the treating surgeon or physician. Also, the nurses tend to use language more suitable and understandable for the patient than the medical doctors.

Patient education is an important part of the health care process. Patient education methods have been studied, but the exact effectiveness of them not so much. Patient education has an effect on hospitalisation times, recovery times, and the quality of life and coping skills of the patient. The patient-centred model is replacing the disease-centred model (Falvo 2011: 1-2), which means instead of the health care professional making all the decisions, the responsibility and possibility of making decisions regarding treatment is slowly moving to the patients' themselves. In order for the patients to make the best possible decisions, and equipping them with skills to cope with and manage the disease, more effective ways to provide information and support should be provided.

It became clear that patients' will need different kind of information on different stages of treatment, as the treatment pathway can take a long time. Some information cannot be delivered in group settings, just as peer support can rarely be delivered on a one-to-one

patient education session. Individual session and support groups are also designed for slightly different purposes. This supports the result that a combination of methods is effective when treating breast cancer patients.

## 6.1 Validity and ethical considerations

The basic principles of research ethics were followed during this final project work. These principles have been indicated in the guidelines given by the Finnish Advisory Board on Research Integrity (Finnish Advisory Board on Research Integrity, 2017).

The literature review was written in a way that gives credit to the original authors of the sources. No credit was claimed for anything that was not our work to begin with. The methodology of writing thesis was followed carefully and the records of searches, data extraction tables and description of the analysis were included. Beneficence, non-maleficence, justice and autonomy were the guiding principles during the whole process of this thesis.

To insure validity and reliability of the literature review, only scientific articles were chosen. This was done by using scientifically relevant and reliable databases offering evidence-based current information on the subject matter.

The material was recognised to have limitations. Some of the studies were pilot studies and some of the sample sizes relatively small. Further research and studies are needed to determine the reliability of the results. The studies used for this literature review were conducted in different cultural environments, which makes the material diverse, but none of the studies themselves were multicultural. This means the results were culturally bounded.

## 7 Conclusions

Patient education is an important part of nursing care. As seen, there are several different methods and interventions available to use, and sometimes those overlap. Most efficient patient education methods seem to be the ones that utilise several methods, tailoring the patient education to the patients' individual needs. Patient education has an increasingly important role in nursing as treatment times shorten and gaining access to treatment can be challenging, not to mention the effect breast cancer diagnosis has on a patient's life.

As a few studies showed, patients' information needs are highest prior to treatment, and it should be taken into account when planning treatment and patient education. This could have a positive effect on the patient's quality of life as addressing their concerns efficiently can decrease their levels of anxiety, distress, and depression.

Effectiveness and the quality of patient education affect the patient's life and treatment outcomes in various ways. For this reason, we suggest that more research should be conducted on the effectiveness of patient education in general. More comparative studies are needed in order to determine how each patient education method could be improved. Patient preferences and satisfaction with patient education methods should be also studied further, as those are good indicators for effectiveness. Patient preferences and satisfaction provide information on especially what is done right so far and what is still missing or needs to be developed further. Large scale studies researching this subject could be extremely useful in the development of patient education tailored towards breast cancer patients.

The growing role of the Internet should be taken into consideration with patient education, as more and more people use the Internet daily. It offers possibilities for patient education development, and investments into this area could prove beneficial.

Tailoring and individualising patient education even more carefully might improve the effectiveness of it, so that it would directly meet the patients' needs. Tailoring can be done with all methods discussed in this thesis, whether they are individual, group or audio-visual based. In nursing care and nursing education, the importance and significance of answering patients' needs and expectations with patient education should be emphasized, as these have an effect on the breast cancer patients' overall quality of life.



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## Appendix 1, Data Collection table

Date	Database	Search terms	Inclusion criteria	Search results	Studies included
23.2.2018	Cinahl	Breast cancer AND patient education	2008-2018, full-text available, English and Finnish language, ages between 18-89	202	1
23.2.2018	Cinahl	Breast cancer AND patient counselling	2008-2018, full-text available, English and Finnish language, ages between 18-89	0	0
23.2.2018	Cinahl	Breast cancer AND patient teaching	2008-2018, full-text available, English and Finnish language, ages between 18-89	12	0
23.2.2018	Cinahl	Patient education AND breast cancer AND information needs OR patient information	2008-2018, full-text available, English and Finnish language, ages between 18-89	47	1
23.2.2018	Cinahl	Patient education methods AND effective AND cancer	2008-2018, full-text available, English and Finnish language, ages between 18-89	20	0
23.2.2018	Cinahl	Patient education methods AND effective	2008-2018, full-text available, English and Finnish language, ages between 18-89	93	1
23.2.2018	Pubmed	Patient education methods AND breast cancer AND effective	2008-2018, full-text available, English and Finnish language, ages between 18-89	60	4
23.2.2018	Pubmed	Breast cancer AND patient education	2008-2018, full-text available, English and Finnish language, ages between 18-89	24	0

		AND evidence-based			
23.2.2018	Pubmed	Breast cancer AND patient education methods AND adherence	2008-2018, full-text available, English and Finnish language, ages between 18-89	34	0
23.2.2018	Pubmed	Breast cancer AND patient education methods AND anxiety	2008-2018, full-text available, English and Finnish language, ages between 18-89	69	2
23.2.2018	Pubmed	Effective patient education AND breast cancer	2008-2018, full-text available, English and Finnish language, ages between 18-89	72	1
23.2.2018	MEDIC	Potilasohjaus AND rintasyöpä	2008-2018, full-text available, English and Finnish language, ages between 18-89	28	0

## Appendix 2, Data Extraction Table

First author, year, country where the study was conducted	Purpose	Participants (sample size)	Design	Main results	Remarks
<b>Anh Nguyen S. and Ingledew P-A. 2013, USA/Canada</b>	This study describes internet use by breast cancer patients highlighting search patterns and examining the impact of web-based information on the clinical encounter.	56	Survey, closed- and open-ended answers.	31 users (97%) found the internet useful as a source of information on breast cancer. Twenty-one (67%) considered information read on the internet somewhat or very influential on their ultimate treatment decision. Most users (81%) thought the information they had received from the internet increased their understanding of breast cancer.	Decision-making.  Most patients seek information from the internet concerning their diagnosis, treatment and prognosis. The quality and accuracy of the information varies. When giving patient education, this needs to be taken into consideration.
<b>Badger et al. 2012, USA</b>	To test two telephone-delivered interventions for their efficacy in improving quality of life among Latinas with breast cancer and their family members.	80	Ethnographic study that included telephone-delivered psychosocial interventions.  Participants completed all measures over the telephone by a trained bilin-		QoL

			gual data collector who was different from the interventionist.		
<b>Halkett et al., 2012, Australia</b>	To prioritise breast cancer patients' radiotherapy related information needs and concerns; determine unmet information needs; ascertain which information sources patients prefer to receive; and explore whether information provision reduces anxiety and depression.	123	A longitudinal survey, conducted at four time points.  Participants completed a self-reported questionnaire at four time points during their radiotherapy.	Women were most concerned about the impact treatment would have on their health in the future. Women identified high information needs prior to treatment planning and commencing treatment. Women's anxiety did not significantly drop until after treatment commencement.	QoL and decision-making.  As suggested by the study results, the anxiety levels and information needs are high until treatment commencement. More information should be provided to patients before treatment planning and prior to treatment (copied from the text).  This supports the idea that quality patient education has a significant role in supporting women during their initial diagnosis as they proceed to treatment
<b>Halkett et al., 2013, Australia</b>	To determine whether a radiation therapist led psychoeducational intervention for breast cancer patients prior to radiotherapy is likely to be effective in reducing radiother-	122	A pilot randomised controlled trial.	After the first consultation, patient anxiety was significantly lower in the intervention group, as were concerns about radiotherapy. No differences between groups for depression.  The intervention is likely to be effective in reducing patient anxiety and concerns and increasing knowledge.	QoL and decision-making.  The right timing of the right patient education can reduce anxiety and depression and increase knowledge.  Small difference, in a small testing group.  Study+ us; further research needed.

	apy-related concerns, patient anxiety and depression.				
<b>Harless et al., 2009, USA</b>	To evaluate virtual dialogue (a voice-activated, interactive computer model that enables a user to have an individual virtual conversation with a real person) as a method to educate women about breast cancer.	70	Clinical setting study. Subjects engaged in one-on-one virtual dialogues with an oncologist and a breast surgeon, and completed automated pre-post instruments developed to measure the feasibility of the method and subject's knowledge gain and acceptance of the method.	Every participant experienced improvements in knowledge scores, regardless of experience with breast cancer, profession, or level of education.  There was a uniform acceptance of this method by the participants.	All participants not diagnosed with breast cancer.  Need for a randomised controlled trial.  Decision-making.
<b>Li et al., 2011, China</b>	To examine the priority of information needs perceived by participants and the demographic and clinical factors that affect the priority of information needs such as prioritisation, the utilisation of and satisfaction with different	374	Study survey completed by a questionnaire.	Participants ranked the likelihood of cure, spread of the disease, and treatment options as the 3 most important information needs. Participants had mostly been using information sources available in the hospital. Health care professionals were ranked relatively highly as a satisfactory source of information, variations in the satisfaction levels were reported for the different types of information they provided.	Information needs and decision-making.  Cultural aspects may affect the information needs and how it is understood.  Different countries/cultures have different structured health care systems.



	sources of information, and satisfaction with the information provided by health care professionals.				
<b>Schou Bredal et al., 2013, Norway</b>	To investigate which of these approaches provided the greatest benefits to participants, particularly to women with low optimism. The primary outcomes investigated were anxiety, depression, and mental adjustment to cancer.	367	Randomised Controlled Trial.  367 women with early-stage breast cancer were randomised to the PEG or SG intervention starting 1-8 weeks after surgery.	The PEG participants showed more positive attitude at 2 and 6 months and less helplessness/hopelessness at 2 months compared to SG participants.  Both groups showed improvement over time.  No significant changes were found at 12 months.	QoL  The anxiety level reduced after short period of time in PEG --> the same value in longer period of time between groups.
<b>Schmidt et al., 2013, USA</b>	The purpose of the study was to determine the role of different information sources have in patients decision-making process regarding breast cancer surgery.	268	A survey, questionnaire and clinical data were collected.  The participants were surveyed in the immediate preoperative period.	Most common source of information for the patients was written information from their treating surgeon. The internet was named as the second most common source of information (69% of participants reported using the internet). Some reported to seeking out a second opinion.  Participants reported to most likely visit institutional and national cancer organization websites for information. Family and friends were	Decision-Making  Good size of a sample group.  Most common source of information is the written material given to the patient by the health care professional (in this case, the surgeon).  Almost all patients use the internet as a source of information and 40% reported their research to be influential in their

				<p>among individuals patients discussed their surgical options with.</p> <p>107 participants (40%) reported that their own research into the subject was influential in their decision</p>	<p>decision. In fact, most deemed their own research not helpful in their decision.</p>
<b>Sajjad et al., 2016, Pakistan</b>	To determine the effect of individualised patient education along with emotional support on the quality of life of breast cancer patients undergoing chemotherapy.	50	A quasi-experimental design with pre-and post-test in two groups, via time block, was used.	Tests indicated a significant improvement in the overall QoL, breast cancer subscale scores and the physical and emotional well-being of the intervention group, as compared to the control group. The intervention was found to be effective in improving the patients QoL.	<p>QoL</p> <p>Very small sample size.</p> <p>Cultural aspects may affect the information needs and how it is understood.</p> <p>Illiteracy among the population?</p>
<b>Sutherland and McLaughlan, 2013, USA</b>	To explore whether the timing of patient education sessions influences levels of satisfaction in women treated for breast cancer.	350	Quantitative research, postal questionnaire.	In this study, timing did not significantly affect satisfaction rates of participants with respect to the quality and amount of information provided during their education sessions.	Timing of PE.