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**Counseling of the Percutaneous Coronary Intervention  
Patient Before and After the Percutaneous Coronary  
Intervention**

A Literature Review

Thesis

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**Seinäjoen ammattikorkeakoulu**  
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## **Thesis Abstract**

Faculty: School of Health care and Social Work

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Title of thesis: Counseling of the Percutaneous Coronary Intervention Patient Before and After the Percutaneous Coronary Intervention

Supervisors: Mari Salminen-Tuomaala MNSc, lecturer and Tanja Hautala MNSc, lecturer

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The objective of our bachelor thesis is to describe the counseling of patients undergoing percutaneous coronary intervention (PCI) before and after the procedure. The aim of the thesis is to find information about PCI patients' feelings and experiences and also counseling situations related to them.

The research method was literature review and it was already predefined. Our research questions were: What kind of counseling do patients receive before and after the percutaneous coronary intervention?, What kind of feelings and experiences do patients have concerning coronary artery disease and percutaneous coronary intervention?, What kind of counseling do patients need concerning percutaneous coronary intervention?

The literature contents were collected by using Aleksi, Pubmed, Cinahl, Medic and Nelli databases and also scientific articles. The articles were chosen by the title or/and abstract. We analyzed the content by using inductive content analysis.

According to the results, patients have a lot of fears related to coronary artery disease and percutaneous coronary intervention. The fears were related mainly to quality of life, pain, recovery, myocardial infarction and death. The counseling form patients received depended much on whether the patient was coming to the elective percutaneous coronary intervention or to emergency. The background of the patient has to be taken into consideration in the counseling situation, for example the sex, age and race.

The results can be utilized in PCI patients counseling situations considering the background and the needs of the patient.

Keywords: percutaneous coronary intervention, percutaneous coronary intervention patient, counseling

SEINÄJOEN AMMATTIKORKEAKOULU

## Opinnäytetyön tiivistelmä

Koulutusyksikkö: Seinäjoen Ammattikorkeakoulu

Koulutusohjelma: Hoitotyön Koulutusohjelma

Suuntautumisvaihtoehto: Sairaanhoidaja AMK

Tekijät: Hannamari Perälä ja Iida Kontulahti

Työn nimi: Counseling of the Percutaneous Coronary Intervention Patient Before and After the Percutaneous Coronary Intervention

Ohjaajat: Mari Salminen-Tuomaala TtM, lehtori ja Tanja Hautala TtM, lehtori

Vuosi: 2012 Sivumäärä: 30 Liitteiden lukumäärä: 2

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Opinnäytetyön tarkoituksena oli kuvailla pallolaajennuspotilaiden ohjausta ennen ja jälkeen toimenpiteen. Tavoitteena oli etsiä tietoa pallolaajennuspotilaiden tunteista ja kokemuksista, sekä niihin liittyvistä ohjaustilanteista.

Tutkimusmenetelmäksi oli ennalta määrätty kirjallisuuskatsaus. Tutkimuskysymyksiämme olivat: Millaista ohjausta potilaat saavat ennen ja jälkeen pallolaajennuksen?, Millaisia tunteita ja kokemuksia potilailla on sepelvaltimotaudista ja pallolaajennuksesta?, Millaista ohjausta potilaat tarvitsevat pallolaajennukseen liittyen?

Kirjallisuusaineisto kerättiin käyttämällä Aleksi-, Pubmed-, Cinahl-, Medic- ja Nelli tietokantoja, sekä hoitotieteen erikoisalojen lehtiä. Artikkelit valittiin otsikon ja/tai tiivistelmän mukaan. Analysoimme aineiston sisältöanalyysia käyttäen.

Tulosten mukaan potilailla on paljon pelkoja sepelvaltimotautiin ja pallolaajennukseen liittyen. Pelot liittyivät lähinnä elämänlaatuun, kipuun, toipumiseen, sydäninfarktiin ja kuolemaan. Potilaiden saama ohjaus riippuu paljolti siitä, onko potilas tulossa elekttiiviseen pallolaajennukseen vai onko kyseessä hätätoimenpide. Ohjauksessa on otettava huomioon myös potilaan tausta, esim. sukupuoli, ikä ja rotu.

Tuloksia voidaan hyödyntää pallolaajennuspotilaan ohjauksessa ottaen huomioon potilaiden erilaiset tarpeet ja taustat.

Avainsanat: pallolaajennus, pallolaajennuspotilas, ohjaus

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## Abbreviations

**PCI** Percutaneous coronary intervention

**CAD** Coronary artery disease

**ACS** Acute coronary syndrome

**CABG** Coronary artery bypass graft

**MI** Myocardial infarction

**PTCA** Percutaneous transluminal coronary angioplasty

## 1 Introduction

Coronary artery disease (CAD) is an illness of coronary arteries which take care of blood and oxygen supply of the heart. CAD is the most common cause of death worldwide. Over half of the CAD patients are women. During recent years CAD has decreased vigorously among people of working age in industrial countries. However, this advantageous development has stopped. The increases of diabetes and obesity, as well as decrease of exercise, are considered to be reasons for stagnant development. (Puska, 2008.)

The most common symptoms of CAD are angina pectoris, myocardial infarction and ischemic arrhythmia which can lead to sudden death. First symptoms of CAD often occur when the disease is in an advanced stage, which makes the situation problematic. For some people, sudden death is the first sign of CAD. (Puska, 2008.)

Revascularization of coronary artery means opening of the constricted artery by angioplasty or coronary artery bypass graft (GABG). Percutaneous coronary intervention (PCI) does not accommodate for every treatment of coronary constrictions. Sometimes GABG is a better alternative when there are a lot of constrictions in coronary arteries. (Puska, 2008)

Patients undergoing PCI for the first time may not get enough education and information for their needs. For example, emergency PCI-patients may not have the opportunity to get pre-procedural education, which makes the information given after the procedure even more important. Patients may prefer written or visual information to verbal discussion, and ideally materials should consider different learning styles. (Corones, et al. 2009)

## 2 Information seeking

Our inclusion criteria are articles in English and Finnish, articles about persons who are going to the PCI operation and who have been operated. Peer evaluated scientific articles which include information about patients' feelings and experiences about the counseling before and/or after the operation. We included quite new articles from the years 2001 to 2012.

Our exclusion criteria are articles in languages other than English or Finnish, non-scientific articles and books and articles that are published before 2001. We also excluded articles which did not deal with our topic based on their title and abstract.

When searching for articles, we used the following keywords: PCI, PCI counseling, PCI experiences, percutaneous coronary intervention, PCI patient, percutaneous coronary intervention patient experience, PCI medical treatment, angioplasty, pallolaajennus and pallolaajennus ohjaus. We have searched for information from Aleksi, Medic, Nelli, Ebsco, Cinahl data bases and scientific journals from Internet.

### 3 Central concepts

#### 3.1 Percutaneous Coronary Intervention

Indications for PCI are: myocardial infarction (MI) with ST-segment elevation, non-ST elevation acute coronary syndrome, unstable angina, non-ST elevation myocardial infarction and stable angina. (Hartree, 2011.) PCI can be elective, emergent or rescue procedure. The type of the procedure affects the treatment decision. (Rolley et al. 2009.) PCI is being used when medical care is insufficient in removing symptoms, chest pain disturbs everyday life and if coronary stenosis is suitable for PCI. If necessary, PCI can be repeated. Sometimes PCI can have better results than thrombolytic treatment for myocardial infarction. (Yli-Mäyry, 2002.)

PCI is done under local anesthesia usually from either right femoral artery or right radial artery. First, one long guiding catheter will be inserted into opening of the femoral or radial artery. After inserting the guiding catheter, a suitable guiding wire will be passed and placed into the target coronary artery's ostium by using two-dimensional or intraluminal three-dimensional navigation. After passing the stenosis in the artery and placing the wire tip in the periphery of the artery safely, the balloon dilation will be performed in order to crush the plaque into the artery wall. Balloon dilation dilates the artery so that the blood is able to flow further to the artery and heart will be supplied with blood. Metallic stent can be used in big coronary arteries to ensure good treatment results. When the balloon is dilated in the stenotic part of the artery, the metallic stent dilates and stays in the artery.

(Schneider, et al. 2008.) There can be two types of stents: bare-metal stents, which are usually stainless steel, and drug-eluting stents, which are coated smooth muscle cell proliferation inhibiting agent. This decreases the incidence of restenosis. (British Heart Foundation, ref. 2012.)

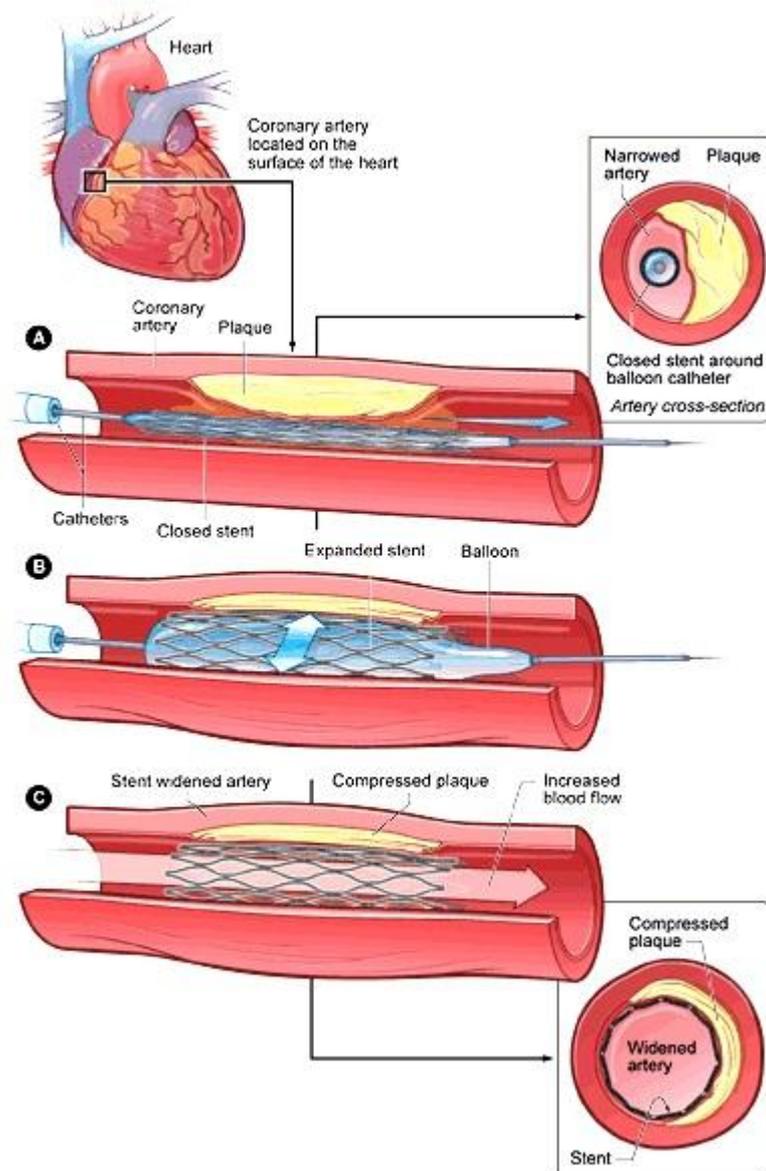


Figure 1. Location of coronary artery in the heart and percutaneous coronary intervention with a stent placement. (Health Picture 2012).

### 3.2 Patient counseling

According to Kyngäs (2005) counseling is defined by providing guidance to somebody, such as practical guiding. In addition, it is directing, leading or conducting. As a professional action, counseling happens in circumstances involving goal-oriented talks about a person's medical issues related to situation and learning. In the counseling process a person is being helped and supported to deal with a certain situation. The counseling process proceeds formally and

systematically or informally and routinely. Teaching, education, coaching and up-bringing are used as synonyms to counseling. The concept of counseling is used concurrently with other concepts, such as guidance and information. Counseling differs from guidance, thus refraining from giving straight advices. In addition, counseling helps to make choices. (Kyngäs, et al. 2005.)

Kyngäs et al. (2005) writes that the aims of counseling are promoting changes regarding feelings, attitudes and behavior, learning to make decisions, changing social relationships and also improving quality of life. Counseling is an active and goal-oriented action between the counselor and the counseled person. Physical and verbal, as well as thoughts and feelings, related interaction between the counselor and counseled person is central. At its best, the counselor and the counseled person are an equal team which plans together the contents and process of the counseling to reach the goals. Counseling requires professional responsibility from the counselor. In addition, the counselor promotes choices and secures sufficient counseling. (Kyngäs, et al. 2005.)

Counseling provided before medical procedure or examination helps to alleviate patients' negative emotional reactions. One part of the counseling is to ensure that the procedure can be performed efficiently and safely. Forms of counseling change, but at least verbal and written guidance should be given. Written counseling often emphasizes and supplements verbal counseling. It also gives a possibility to verify the information after verbal counseling. (Kyngäs, et al. 2005.) Counseling can be considered successful and high-quality if its content responds to patients' expectations and needs, needs of family members' information and support as well as the nursing staff's perceptions of what the patient should know in order to cope with the follow-up treatment at home. (Kaappola, et al. 2011.)

## **4 Goal and purpose of the Bachelor thesis**

Our bachelor thesis topic is “Counseling of the Percutaneous Coronary Intervention Patient Before and After the Percutaneous Coronary Intervention”. Our thesis objective is to describe counseling of the PCI patient before and after the actual procedure. The aim of the thesis is to find information about PCI patients’ feelings and experiences, as well as counseling situations related to them.

The research questions of our Bachelor thesis are:

1. What kind of counseling do patients receive before and after the percutaneous coronary intervention?
2. What kind of feelings and experiences do patients have concerning coronary artery disease and percutaneous coronary intervention?
3. What kind of counseling do patients need concerning percutaneous coronary intervention?

## **5 Implementation**

### **5.1 Literature review**

We used systematic literature review as a research method because it was already predefined as part of our Bachelor thesis.

Systematic literature review is a scientific research method which identifies and collects already known information. In addition, it assesses the quality of information. The chosen research questions can be argued and specified by systematic literature review. Systematic review consists of a research plan, definition of research questions, retrieval and selection of original research, assessment of quality and analyzing and presenting the results. Systematic literature review has been established to be one of the most reliable means to combine previous information. (Kääriäinen, Lahtinen 2006.)

### **5.2 Acquisition of the content**

The acquisition of the content started immediately after choosing the topic. We used databases from Internet to find scientific articles relating to our topic. Our aim was to use as fresh information as possible, so we limited the articles' publication time to be between the years 2001 and 2012. We used keywords both in Finnish and English and different combinations of them e.g. percutaneous coronary intervention, AND counseling or pallolaajennus AND counseling.

At first we decided to divide the searching so that one concentrates on the articles concerning counseling before PCI and the other one after PCI. However, soon we found out that it was not that simple, so we were satisfied if we even found an article including both PCI and counseling. But after using different combinations of keywords, we found more considerable articles. Altogether, we found 532 articles from Internet databases and 42 of them were suitable for us considering the title. After reading the abstracts, 11 articles were left that were usable. In addition, we searched articles manually from scientific journals.

### **5.3 Content analysis**

According to Kyngäs et al. (2011) content analysis is used as an analyze method in qualitative research. On the other hand, in quantitative research content analysis is used analyzing the open answers. Content analysis can be defined in different ways. Generally it is defined as a procedure which can analyze documents systematically and objectively. Content analysis is used in describing examined phenomenon. In addition, content analysis can help to create categories which describe the examined phenomenon, concepts, concept systems, mind maps or models. (Kyngäs, Elo, Pölkki, Kääriäinen and Kanste, 2011.)

Contents analysis can be implemented as inductively or deductively. The reason to use one of the methods depends on the purpose of the research. Inductive analysis proceeds by the terms of the material. In deductive analysis an analysis frame will be done first according to the previous knowledge. Then facts suitable for the content will be searched from the material. (Kyngäs et al. 2011.)

Our bachelor thesis is carried out by using inductive content analysis, because it was beforehand decided as a part of our bachelor thesis.

## **6 Results**

### **6.1 Counseling before PCI**

Patients undergoing PCI for the first time may not get enough education and information for their needs. Emergency PCI-patients may not get the opportunity to receive pre-procedure education which makes the information given after the procedure even more important. Patients' thoughts about the simplicity of the procedure need to be considered. Patients may prefer written or visual information to verbal discussion, and ideally materials should cater for a range of learning styles. Family members' information needs also need to be addressed. (Corones et al. 2009.)

#### **6.1.1 Fears experienced by patients before PCI**

In nursing science, fear means the mood where a person experiences that some specific danger threatens her/his presence, body, health, value or the close ones. The strong fears are hazardous for heart patients, because that affects physiological functions the same way as stress, which increases pulse, increases blood pressure and strains the heart. (Koivula et al. 2004.) Because of these physiological side effects of fear, it is important that nurses are there for the patients to calm them in order for the procedure to be as successful as possible.

According to Koivula (2004), a quarter of the patients can be remarkably fearful before the operation. The most common fears were the pain, myocardial infarction, death, separation from family and worsen state of health. According to previous qualitative researches, the fears are part of heart patients' experiences of the care and how patients see their own life situation and treatment. (Koivula et al. 2004.)

Patients who didn't have fears at all felt their character as fearless. The causes of fearlessness were presented so as they were not able to fear or did not have time, because of cancellation for example. Waiting for the operation, the consequences

of the procedure, survival from future problems are reasons that cause fear. Patients were scared of the results of examinations and where they might lead. (Koivula et al. 2004.) Hence, nurses need to remember to guide and counsel patients in every possible situation, because e.g. taking an ECG can be a new and frightening situation for somebody.

### **6.1.2 Nurses' methods to reduce patients' fears**

According to Koivula et al. (2004), it is nurses' responsibility to reduce the fears individually affecting patients' emotions and thoughts also by giving information. The preparation of the operation which will be done in the hospital reduces fears. In addition, patients meeting other patients encouraged them. Information, hospital care and patients' own resources reduce fears before operation. According to patients, experimental information from relatives and closest ones reduce fear. Otherwise, also the common information from hospital e.g. consistence of the operation team and success of the operation is experienced as a fear reducing method. Also doctor's information did calm patients. (Koivula et al. 2004.)

Trust, hope and faith were patients' own resources against fear. Knowledge about successful operations of close relatives increases the feeling of trust. Also patients trusting themselves reduced fear. Patients that trusted themselves describe their character and attitude as fearless, confident, unconcerned, positive and lively. Patients having a lot of life experience expressed just a little fear. Faith presumes trusting in God or believing in destiny. The hope of a better life is a remarkable resource. (Koivula et al. 2004.)

According to nurses' opinion, the causes of patients' fears are related to death, hospitalization, treatment and their family's concerns. In nurses' point of view, the fear of death is the result of the heart disease or risks related to heart surgery. Nurses examine fear individually in different ways from different patients using either direct or indirect questions as well as observation. In counseling situations, nurses try to reduce patients' fear by creating a free and safe atmosphere. Friendly behavior, understandable speech and discussion are means to calm the

fearful patient. When nurses are reducing patients' fears, they highlight that fear is a normal feeling. Realistic discussions about operation risks are an important way to reduce fear. Also sedative drugs are mentioned to reduce fears and calm the patient. Nurses try to create trust regarding the treatment. Hence, patients experience trust which reduced their fears. (Koivula, et al. 2004.)

People who were waiting for admission to heart surgery were very uncertain. They felt unable to make plans for the future and were constantly waiting for the phone call about the progress. Also they were uncertain about treatment plans, surgery, health and diagnosis. People experienced dissatisfaction and frustration because of the waiting, and anger because they were not given information about the timing of the operation. Some had specific fears about the surgery, including drainage tubes, anesthetics and the incision. (Screeche-Powell, Owen, 2003.)

Patients who expressed hope can be frustrated about their condition but also accept the need of the operation. To avoid frustration and confusion, it is important to clarify the waiting time when the decision for operation is taken. (Screeche-Powel et al. 2003.)

## **6.2 Peri-PCI counseling**

During the PCI procedure, the nurse plays two important roles at the same time. First, the nurse needs to work as assistant for the doctor. Secondly, the nurse is also the one providing care for the patient. (Rolley et al. 2009.) Measuring and controlling blood pressure is part of a nurse's duties. Elevated blood pressure during the procedure and at times of sheath removal has been suspected to increase vascular access site problems. The recommended systolic blood pressure should be at least lower than 180 mmHg; otherwise, it should be treated first before the procedure. (Dumont, 2007.)

Patients can be overwhelmed because of the speed of the events. They might feel shocked about what occurred and question the seriousness of the situation. In

addition, patients may be uncertain about what really happened. Patients' expectations about the procedure do not always match the reality. Patients are confused if the operation is done under general anesthesia or local anesthesia. Patients assume the procedure being a big surgical operation e.g. because of the environment and staff's clothing. (Astin, et al. 2009.)

### **6.3 Post-PCI counseling**

Nurses monitor and assess patients after PCI. It is nurses' duty to determine and intercede for the changes in patients' condition e.g. if time in bed is no longer appropriate for the patient. Decreasing time in bed after PCI is desirable because it decreases the anxiety and discomfort of the patient. (Dumont, 2007.) Patients require close observation and care. The standards of care for walking and head of bed elevation differ according to hospitals and cardiologists. Most protocols require patients to remain in bed rest with elevated head at maximum 15 degrees. The leg with introducer sheath must remain immobile usually 6 to 8 hours until the sheath is removed, to decrease bleeding. The problems that patients identified after being immobile were back pains and leg discomfort after the procedure. (Miller, Reynolds, Waterhouse 2001.)

The nursing implementations include providing preparatory information for patients, assessing their coping skills and assessing their pain level. An important aspect after the procedure is to comfort patients. Non-analgesic interventions that increase the comfort of patients include using specific foam or air mattresses during the period of immobility. Back rubs, massages and changes of position may be used as interventions. Early walking decreases patients' discomfort without increasing the risk of hematoma or bleeding. (Miller, et al. 2001.)

Because patients do not get pain or scars and have an unexpected energy level after the operation, they may not understand the seriousness of their condition. This may reduce their motivation regarding healthy lifestyle changes after the procedure. Patients have different emotional reactions concerning the PCI: shock,

fear, disbelief and denial. They have feelings of disconnectedness because of the surreal environment. Patients can also be unable to assimilate what is happening to them. Because of the shock and disbelief, patients can have difficulty recalling events and information about the procedure. For some patients, fear may persist for a long time after the PCI. Thus it can affect patients' sleeping and walking abilities. Patients considered the following causes being the reason for their illness: smoking, unhealthy eating, heredity, obesity, previous chest infections and alcohol consumption. (Astin, et al. 2009.)

### **6.3.1 Medical counseling**

According to Roffman (2010), oral antiplatelet therapy is used as prevention of adverse events for patients undergoing PCI with stent placement. During the PCI procedure, vascular endothelium can be disrupted resulting in vascular injury. That is why patients using oral antiplatelet therapy must be educated about the importance of using the medication. Patients must also be aware of the risks involved if they stop using the medication. (Roffman 2012.)

According to Kervinen (2011), the normal dosage of acetylsalicylic acid (ASA) is 100mg/day for acute coronary syndrome patient (Kervinen, 2011). Roffman (2010) found out that some clinical signs and genetic variabilities may affect the response of antiplatelet therapy. Clinical signs such as higher age, decreased weight and increased triglyceride levels were correlated with lower platelet responsiveness. Patients with poor metabolism were more prone to suffer from a cardiovascular event or even death within one year. Also in different ethnic populations, the response to treatment seemed to be less effective. (Roffman, 2010.)

Even though oral antiplatelet therapy has remarkable advantages for patients with ACS, thrombotic events will still be a major cause of mortality and morbidity. Two major complications after PCI are restenosis and stent thrombosis. (Roffman, 2010.)

### 6.3.2 Quality of life

Quality of life can be defined as the experience of a person concerning her or his own life. It covers a large range of components such as psychological well-being, satisfaction, happiness, life situations, and quality of social relationships. (Akyol, Sevinc, 2010.)

The main goals of the PCI are to stop the progression of the coronary artery disease, ensure its regression and protect individuals from complications and also increase the quality of life and survival period by improving psychological, physical and social conditions. It is important to reduce symptoms, improve functional and emotional, social and general health perceptions and the overall well-being. Rehabilitation, medical therapy and risk factor modification are general rules in management and they need to be considered individually to meet each patient's needs. (Akyol, et al.2010.)

The modifiable risk factors of CAD are diabetes mellitus, obesity, tobacco use and physical inactivity. These risk factors can lead to significant damage and have a negative impact on the quality of life. The main goals of the risk factor modification are improving the survival period and quality of life in order to decrease disability and death rates among patients with CAD. (Akyol et al. 2012.)

Dumont (2007) writes that vascular complications have been reported as occurring anywhere, depending on the definition of the problem and covariates including the type of procedure, closure devices, anticoagulation, age, sex and co-morbidities. The factors found to increase the risk of vascular complications are PCI with increased level of anticoagulation as opposed to cardiac catheterization alone, the female sex and over 60 years of age. (Dumont 2007.)

According to Akyol et al. (2010), the risk factor modification and different kinds of training programs which ensured participation of patients and relatives are important in improving PCI patients' quality of life. Nurses should pay attention to their role to provide education to patients with the disease and focus on reducing and controlling cardiac risk factors and increasing their quality of life. Education

programs that nurses provide include non-pharmacological interventions like weight control, exercise and smoking cessation which offer the potential for preventing hypertension, decreasing blood pressure and reducing cardiovascular risk factors. (Akyol, et al. 2010.)

### **6.3.3 Learning needs of the patient**

The most important learning categories are emotional and psychosocial information, physical activity and disease-specific items, according to patients. Recognizing and managing symptoms, lifestyle factors and medication management are included in the learning needs of cardiac patients. The need for physical and psychological support and importance of psychosocial support should be highlighted. All information and guidance that patients receive should be based on individual's needs. (Kilonzo, O'Connell, 2011.)

Kilonzo et al. (2011) write that psychosocial functioning like vitality, depression and physical recovery are the main concerns among patients who have undergone PCI. Patients might be concerned about their overall recovery and immediate well-being, hence the possibly of postponing secondary preventive issues. Information about smoking, treatment and heart problems are the most important secondary preventive issues. Also physical exercise and risk factor knowledge were ranked just after other previous issues. Secondary prevention was a learning priority to patients with smoking, bad eating habits and risk factors according to nurses. (Kilonzo, et al. 2011.)

According to nurses, the nurse-patient interaction is important for patients. Patients are satisfied with the time given for discussions. Patients who had individualized care and positive interpersonal contact felt well-cared-for. In patients' opinion, individual interaction between patient and nurse is more valued than nurses perceived it to be. Patients prioritize issues related to their immediate well-being such as PCI treatment, preventive issues such as medication, risk factors, exercise, heart problems and individual nursing counseling. (Kilonzo, et al. 2011.)

Rolley et al. (2009) say that every patient has an individual and unique experience of the health care system. The experience depends on many factors including gender, social and psychosocial support, race and culture. This is why it is challenging for health care workers to provide adequate counseling for every patient. In addition, nurses need to acknowledge that the PCI procedure is only a blimp in the patient's journey as a patient and family members are about to deal with a chronic situation.( Rolley, et al. 2009.)

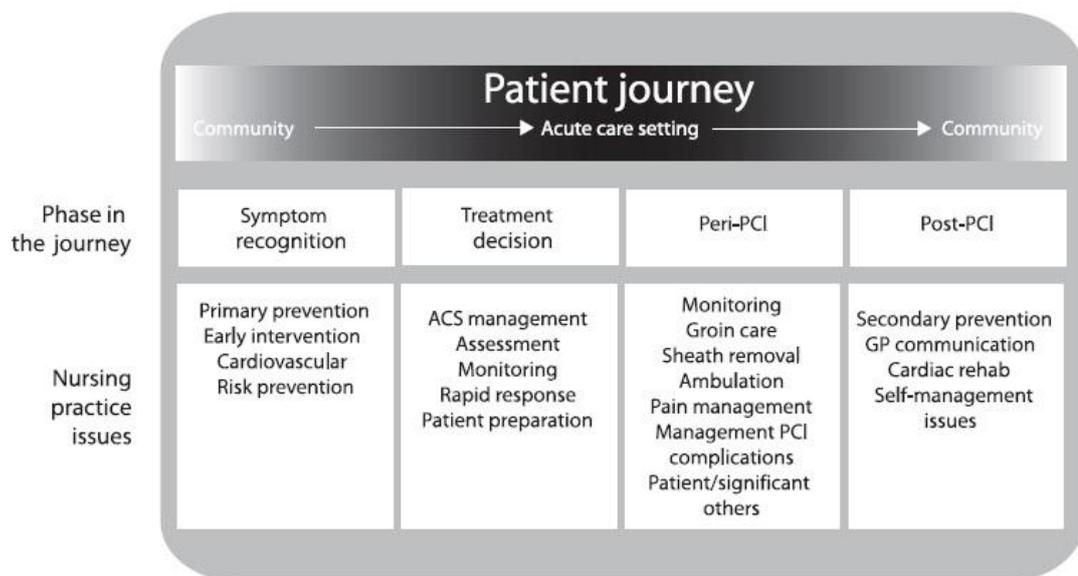


Figure 2. Patient's journey framework for PCI. (Rolley et al. 2009)

## **7 Discussion**

### **7.1 Ethics and reliability of the thesis**

A well-executed research is often an ethically sustainable research. The reliability and ethical admissibility of the research require that it is done by following adequate scientific practice. Also the moral status and rights of the research target have to be considered in an appropriate manner. When making a research directing to a real person, following ethical questions must be taken into consideration: inviolability of human dignity, permission of the researched person and risks and disadvantages caused by the research versus impending benefits of the research. (Launis, 2007.)

Every researcher's duty is to understand and acknowledge adequate scientific customs, because the reliability of the research, as well as the researcher's survival in a scientific community, are depending on it. According to the researcher's professional ethics and science ethics, the researcher needs to provide trustworthy information about the reality and be able to pass it on. (Muukkonen, 2010.)

We used scientific articles as references in our Bachelor thesis. This guarantees the reliability of the sources. However, in concepts we used information from Heart Association's leaflets which are non-scientific publications. We wanted our results to be valid so we used articles between the years 2001 and 2012.

## 7.2 Examining the results

The aim of our Bachelor thesis was to find information about PCI patients' feelings and experiences and also counseling situations related to them. However, this appeared to be challenging because we did not find information about how nurses counsel patients in every day practice, so it would be easier to compare results to the practice.

Counseling has a major role in PCI patients' care. Nurses may not even realize the importance of counseling or always remember that these issues can be new to patients. According to Coronas et al. (2009), nurses should provide a different range of learning styles e.g. some patients may prefer written information over verbal. Nurses need to play a challenging role during the PCI procedure because, while assisting the doctor, nurses must take care of the patient as well (Rolley et al. 2009). In addition, providing practical guidance to patients is also an important part of nurses' work (Miller, et al. 2001), including medical counseling. It is important for patients to be properly instructed about using the medication, dosage and discontinuing the medical treatment (Roffman, 2012). Counseling patients is a continuous process during percutaneous coronary intervention procedure. Nurses should be constantly alert and consider patients' physical and psychological needs.

Patients experience emotional and psychosocial information, physical activity and disease-specific items as important learning needs. For cardiac patients, recognizing and managing symptoms, lifestyle factors and medication management should be discussed with patients. All counseling provided to patients should be based on individual needs. (Kilonzo, et al. 2011.) Patients ought to present their wishes about the counseling subjects so that nothing remains uncertain.

According to Koivula et al. (2004), the most common fears affecting patients are pain, myocardial infarction and death. It is nurses' duty to reduce fears by providing information in a free and safe atmosphere. Furthermore, it is important to highlight that fear is a normal feeling. (Koivula, et al. 2004.) Talking about fearful

issues is essential in order for patients to have the possibility to share and discuss about their feelings and fears with professionals.

One of the main goals of PCI is to improve the quality of life and stop the progression of CAD. Non-pharmacological interventions used by nurses are weight control, physical exercise and smoking cessation in order to decrease blood pressure and reduce cardiovascular risk factors. (Akyol, et al. 2010.) Patients do not always understand the seriousness of their condition because they are feeling so well after the PCI (Astin, et al. 2009). Hence, nurses should be able to make patients realize the danger of the CAD and that PCI alone does not cure the CAD.

### **7.3 Further studies**

The results of our Bachelor thesis can be utilized in counseling situations for patients undergoing percutaneous coronary intervention, considering the background and the needs of the patient. From the results arose many issues that patients were concerned about and some of these issues may be of such kind that nurses do not even consider e.g. focusing on secondary prevention.

When exploring the chosen scientific articles, we found out that there were quite few articles which directly dealt with counseling of the PCI patient. Most articles dealt with some other topic and counseling was only a minor part. The largest part of our articles was analyzed from nurses' point of view. Therefore, we suggest that further research to be done from the patients' perspective as well.

An interesting research topic could be about how nurses counsel PCI patients in everyday life. Hereby pros and cons could be evaluated and the counseling could be further developed.

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## APPENDICES

**APPENDIX 1. Information searching process**

DATABASES	KEYWORDS	HITS	USABLE
Cinahl	Percutaneous coronary intervention AND counseling	3	1
	PCI AND counseling and experiences	417	22
Aleksi	Pallolaajennus	89	9
Pubmed	Percutaneous coronary intervention AND counseling	23	10

**APPENDIX 2. Example of inductive content analysis process**

ORIGINAL TEXT	SIIMPLIFICATION	SUB-HEADING
<p>“The quarter of the patients can be remarkable fearful before the operation. The most common fears were the pain, myocardial infarction, death, separation from family and worsen state of health.” (Koivula M., Åstedt-Kurki, 2004.)</p>	<p>Patients are experiencing many kinds of fears before the PCI.</p>	<p>Fears experienced by patients before PCI</p>
<p>“Patients must be educated about on the importance of taking their antiplatelet medications and the risk associated with their discontinuation.” (Roffman, 2010.)</p>	<p>Patients must be educated about the medication.</p>	<p>Medical counseling</p>
<p>“The main goals of the PCI are to stop the progression of the coronary artery disease, ensure its regression and protect individuals from complications and also increase the quality of life and survival period by providing, psychological, physical and social conditions.” (Akyol &amp; Sevinc, 2010.)</p> <p>“The modifiable risk factors of CAD are diabetes mellitus, obesity, tobacco use and physical inactivity. These risk factors can lead to significant damage and have negative impact on quality of life.” (Akyol &amp; Sevinc, 2010.)</p>	<p>PCI improves patients’ life quality in many ways.</p> <p>Factors decreasing patients’ life quality.</p>	<p>Quality of life</p>