THE BENEFITS OF CARDIAC REHABILITATION FOR POST-MYOCARDIAL INFARCTION PATIENTS

Honors Thesis

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Abstract

Myocardial infarction is one of the most significant causes of death worldwide. Factors leading to a patient's risk of having a myocardial infarction are obesity, smoking, high cholesterol, hypertension, and a sedentary lifestyle. If patients knew of these risks, the likelihood of a myocardial infarction occurring could decrease. Because of a lack of information about the topic, many patients unfortunately experience a myocardial infarction before it is preventable. Lack of knowledge about how serious the disease is and treatment is also a reason for not going through with cardiac rehabilitation. People around the world need to be educated about myocardial infarction risks and the positive outcomes of attending cardiac rehabilitation.

The aim of this study is to improve the quality of life of myocardial infarction patients by determining the long-term benefits of going through with cardiac rehabilitation. A review of the literature was conducted. CINAHL was used to search articles pertaining to the research topic. Results include the following: a lack of cardiac knowledge led to patients' unawareness of the need for attending cardiac rehabilitation; patients improved both physically and psychologically after attending rehabilitation; individualized education has been the most effective for myocardial infarction patients. Myocardial infarction can potentially be prevented through education of cardiac patients on the benefits and importance of cardiac rehabilitation. Results from this study have implications for helping to decrease morbidity and mortality among this high-risk population.

Keywords: myocardial infarction, patients, cardiac rehabilitation, benefits, knowledge, education

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Introduction

Myocardial infarction occurs in an individual when a blood vessel, which carries blood to the heart, becomes obstructed (Ehlke & Greenwood, 2006). Otherwise known as a heart attack, myocardial infarction is one of the leading causes of death worldwide. Specifically in Ireland, the number of deaths occurring has decreased substantially in the last couple of decades. About forty percent of the decreased mortality rate has been a result of improved and effective treatment, while more than half has been a result of knowledge and prevention of risk factors contributing to myocardial infarction (Garvey & Noonan, 2011). Some factors in which the cardiac patient population needs to be aware of are obesity, smoking, high cholesterol, hypertension, stress, diabetes and a sedentary lifestyle (Galdas & Kang, 2010). Due to the fact that myocardial infarction is a serious illness, treatment should involve primary and self-care, as well as rehabilitation (Garvey & Noonan, 2011). Rehabilitation is very crucial for the patient with cardiac disease. Treatment should include management of risk factors, a balanced exercise program, psychosocial support, and individualized education (Pluss et al., 2011).

Background/Significance

Evidence suggests that cardiac rehabilitation greatly improves the health of cardiac patients, physically and emotionally. The purpose of cardiac rehabilitation is to improve cardiac condition, return the patient to their normal functional capacity, and prevent the occurrence of a secondary cardiac event (Ehlke & Greenwood, 2006). Cardiac rehabilitation consists of three different phases: Phase I, Phase II, and Phase III. Phase I takes place while the patient is still hospitalized. It consists of minor physical activity and education, and usually lasts between two and six days (Ehlke & Greenwood, 2006). Phase II is performed in the outpatient setting and is

based on exercise and physical activity. It usually lasts one to twelve weeks, and consists of aerobic training and resistance exercise (Ehlke & Greenwood 2006). Phase III is community-based, and the main goals are to prevent disease and death through health management and teaching (Ehlke & Greenwood, 2006).

Physical and psychological improvements have been noted as a result of cardiac rehabilitation. According to a number of researchers in Japan, cardiac patients' physical activity improved drastically after completing cardiac rehabilitation (Yoshida et al., 1999). At a six-month follow-up, myocardial infarction patients' serum lipid concentrations significantly improved as well (Yoshida et al., 1999). Not only did patients improve physically, but psychologically. Patients were studied based on their levels of anxiety and depression. Anxiety was measured using Spielberger's State Trait Anxiety Questionnaire (Yoshida et al., 1999). This twenty-question scale covers "apprehension, tension, nervousness and worry" (Yoshida et al., 1999). A patient's depression was measured using the Self-Rating Questionnaire for Depression, also known as SRQ-D, which discovers mild depression (Yoshida et al., 1999). At the six-month follow-up, both scale results significantly improved from when they were first taken before attending cardiac rehabilitation (Yoshida et al., 1999). These results signify that cardiac rehabilitation does not just improve physical activity, but emotional and nutritional value as well.

Another important quality of rehabilitation is individualized care. Individualized education is necessary to deliver efficient care and receive positive results (Garvey & Noonan, 2011). For example, requirements are not being met if a nurse is educating both an eighty-year old and a thirty-year old to run twenty minutes daily. Because that advice is not realistic for the eighty-year old, the patient may be reluctant to follow an exercise routine. In order for teaching and education to be successful and effective, healthcare professionals need to examine how the

patient is taking in the education (Garvey & Noonan, 2011). It has been stated that mortality rates from myocardial infarction have significantly decreased when rehabilitation is suited for the specific individual (Garvey & Noonan, 2011). Although the care should be individualized for the patient, the incorporation of family members is just as important, particularly spouses. Promoting individualized care as well as the inclusion of family members can improve clinical outcomes and enhance the patient's quality of life (Nolan & Nolan, 1998).

Aim of Study

Although attending cardiac rehabilitation is extremely important and successful for a post-myocardial infarction patient, people still choose not to go through with rehabilitation for different reasons. Only ten to twenty percent of the hundreds of thousands of cardiac patients with heart disease are attending cardiac rehabilitation (Protecting Your Heart, 2002). There is limited research related to why patients choose not to attend rehabilitation. The purpose of this study is to conduct a systematic review of the literature in order to understand barriers to utilizing cardiac rehabilitation among this patient population. Results have shown the benefits from attending cardiac rehabilitation include "a 20-26% reduction in total mortality and improvements in social and emotional health and well-being" (Galdas & Kang, 2010, p. 3135). If more people attended rehabilitation, the quality of life may be improved based on recent evidence showing the benefits of lifestyle changes; healthy diet, exercise, and social-emotional health.

Methods

A systematic review of the literature was conducted to determine what barriers post-myocardial infarction patients face in going through with cardiac rehabilitation, even though the treatment is very effective. The database CINAHL was systematically searched from February to

May of 2015. The years of publication of the included studies are 1998 through 2011. Keyword search terms included: post-myocardial infarction patients, cardiac rehabilitation, benefits, and reasons why people do not attend. Figure 1 depicts the search strategy of included studies in this review (N=8).

Results

Table 1 describes included studies. While reviewing the literature, eight different themes became apparent as to why post-myocardial infarction patients choose not to attend cardiac rehabilitation. These themes include transportation, cost, knowledge deficits of cardiac disease, knowledge deficits of the content of cardiac rehabilitation, language barriers, exercise, stress, and social interaction. It is important for not only post-myocardial infarction patients, but for healthy individuals as well, to understand these barriers and to realize how attending cardiac rehabilitation can actually benefit the individual.

According to the literature, a main barrier patients face while choosing to go through with cardiac rehabilitation is transportation. Some patients may not have a car, or are not in any condition to drive a car if they have undergone surgery. Patients may have the option of having a family member drive them, however that is not always an option to all patients. According to a study by Galdas and Kang (2010), many patients explained they were unable to attend cardiac rehabilitation because their family members worked everyday during the time cardiac rehabilitation would be held. Some patients may be able to walk to the rehabilitation, however some people were not comfortable walking long distances (Galdas & Kang, 2010).

Another common theme from the literature is the cost. Post-myocardial infarction patients may not be covered by insurance to attend rehabilitation. Therefore, the expenses may be unrealistic and too expensive for some patients. Other patients may worry about the cost for

fuel and parking at the hospital or rehabilitation facility (Galdas & Kang, 2010). This theme can be linked with another theme found from the literature, the stress related to taking time off work. Because patients have taken time off work for hospitalization after the myocardial infarction, patients may be reluctant to take more time off work for rehabilitation and spend more money on expenses, such as gas and parking. According to a study conducted by Cooper, Jackson, Weinman and Horne (2005), one patient explained how taking a longer amount of time from work to attend cardiac rehabilitation would lead to more stress. However, based on evidence, stress is a factor that causes and increases the risk factor for having a myocardial infarction or another form of heart disease (Galdas & Kang, 2010). It is important to consider this risk factor and keep the patient remaining stress-free and as healthy as possible.

An important and common theme from the literature is the patients' knowledge deficits of cardiac disease. To understand a myocardial infarction, an individual has to not only understand what occurs, but also the risk factors and lifestyle changes that need to be modified. A patient may believe that cardiac disease occurred just by chance, and the individual does not need to do change anything to decrease their risk factors. Based on evidence, the risk factors include obesity, smoking, high cholesterol, hypertension, stress, diabetes and a sedentary lifestyle (Galdas & Kang, 2010). According to one study, the patients studied did not understand the causal relationship between these risk factors and the cardiac disease (Cooper et al., 2005). Because of the knowledge deficits of the cardiac disease, patients may not feel it is necessary to attend cardiac rehabilitation and modify their lifestyle.

Not only did patients experience knowledge deficits of cardiac disease, but of the content of the cardiac rehabilitation as well. Most patients believe that cardiac rehabilitation solely involves going to the gym or working out (Cooper et al., 2005). Patients were unaware of the

multidisciplinary aspect of cardiac rehabilitation, meaning both the physical and psychological improvements studied previously (Yoshida et al., 1999). Because so many patients were unaware of what actually goes on during the course, a review during the first hospital stay of what is covered during recovery may be helpful and should be taught to the patient.

Some patients state they do not attend cardiac rehabilitation due to language barriers. Based on the study conducted by Galdas and Kang (2010), most of the patients were Punjabi-speaking. In that particular study, some Punjabi-speaking patients were able to speak with a Punjabi-speaking practitioner during cardiac rehabilitation. Those who did receive this opportunity stated how beneficial it was to receive "culturally-appropriate" advice (Galdas & Kang, 2010). The population today is only becoming more and more diverse. If the language spoken by medical professionals is mostly English and an interpreter is not available, people of different cultures may be reluctant to attend cardiac rehabilitation.

Another crucial theme that was evident in the literature is exercise. According to the study researched by Cooper et al., (2005), patients who believed the process of cardiac rehabilitation only included working out felt as if they could recover independently on their own time if they just went to the gym. Getting exercise may improve one's health, but the patients would need to be educated on lifestyle changes as well. Patients also worried about feeling embarrassed about their ability to exercise compared to other people attending the program (Cooper et al., 2005). It is important for the patients to realize an individual's process of cardiac rehabilitation should not be compared to another's. The care should be individualized to a patient's needs in order to be most effective.

Lastly, patients did not want to attend cardiac rehabilitation because of the social interaction aspect (Cooper et al., 2005). Similar to how people felt they could just simply go to

the gym to improve their health, other patients believed they could read information from home about improving health rather than going in and attending rehabilitation (Cooper et al., 2005). People should not be intimidated by others who are attending cardiac rehabilitation. It should be a setting where people are comfortable to attend and want to improve their health. People may even find themselves making companions to walk and exercise with. If people were able to overcome the fear of social interaction with others, they may truly benefit from attending cardiac rehabilitation.

Discussion

A review of the literature highlighting the benefits of cardiac rehabilitation and barriers to why patients do not attend identified an absence of individualized patient education. The eight common barriers in the literature preventing patients from attending include transportation, cost, knowledge deficit of the disease, knowledge deficit of the cardiac rehabilitation content, language barriers, exercise, stress and social interaction. About half of these themes could be modified with a strong patient and nurse individualized education process. According to (Garvey & Noonan, 2011) standardized education does not address patients' differences, and individualized education is necessary for effective cardiac rehabilitation post-myocardial infarction (Garvey & Noonan, 2011).

Two important themes include patients' knowledge deficits of their cardiac disease as well as the patients' knowledge deficits of cardiac rehabilitation content. Most patients did not understand the risk factors, such as smoking and high cholesterol, related to cardiac disease (Cooper et al., 2005). It is the nurse's job to address these risk factors with patients who have a habit of smoking or eat foods high in cholesterol. If patients are specifically educated on modifying their risk factors for cardiac disease, they may find themselves experiencing a

secondary myocardial infarction or other cardiac related diseases. Not only were patients unaware of their cardiac disease, but also what was taught in cardiac rehabilitation.

A patient stated how he was unaware of what people learn during cardiac rehabilitation, but heard from somebody else that the program consisted of solely exercise (Cooper et al., 2005). People who believe that only exercise is covered may just open a gym membership (Cooper et al., 2005). This would be a result of the lack of individualized education. If a patient states their lack of knowledge of cardiac rehabilitation, the nurse is responsible for explaining all that is covered. If this was done more frequently, more patients may attend rehabilitation because they are taught about all the benefits of attending and the different aspects of health that are covered.

Another theme reviewed in the literature was the patients' fears of language barriers. In a study conducted by Galdas and Kang (2010), patients stated their misunderstanding of the content because it was primarily spoken in English. Some patients whose primary language is other than English may fear attending cardiac rehabilitation due to the language barrier. However, it is the nurse's role to understand this problem. The nurse should individually educate this specific patient population about the use of language translators for different ethnicities and cultures to understand what is being taught. If this patient population knew of translators, they may be more agreeable to attending rehabilitation.

Another barrier found in the literature was the use of exercise in cardiac rehabilitation. Based on recent evidence, resistance exercise training benefits the post-myocardial infarction patient "by increasing physical strength and helping patients return to their jobs and a normal lifestyle" (Ehlke & Greenwood, 2006, p. 57). Many patients believed they could just go to the gym, while others were embarrassed about not being able to push themselves as much as others in the cardiac rehabilitation program (Cooper et al., 2005). Patients should be educated about the

idea of an individualized exercise plan, rather than every patient receiving the same workout frequency and weight amount. For example, it is important for the nurse to educate an elderly and overweight patient how cardiac rehabilitation will start this patient off slowly with safe exercise routines, rather than offering the same workout plan as a thirty-year old cardiac patient. Teaching the patient about his or her individualized plan may improve people's misconceptions about the exercise portion of cardiac rehabilitation.

Based on evidence, individualized education is necessary for successful results for post-myocardial infarction patients (Garvey & Noonan, 2011). Although the patient is the primary focus, the patient is not the only person who should be considered by the nurse and medical team. The literature has shown that patients state the importance of the nurse also educating their family members for emotional and physical support post-myocardial infarction (Garvey & Noonan, 2011). An individualized education plan would greatly diminish the barriers of attending cardiac rehabilitation, such as knowledge deficits of cardiac disease, rehabilitation content, languages barriers, and exercise. Based on findings, if the nurse is able to identify an individualized plan for the patient and his or her family members, rehabilitation will be successful.

Conclusion/Recommendation

The information brought about in this study is important for both cardiac patients and healthy individuals. It is crucial for people to understand the risk factors of developing cardiac disease, as well as the benefits of attending cardiac rehabilitation following a cardiac event and why some patients choose not to attend. In this systematic review conducted, evidence has shown that patients choose not to attend cardiac rehabilitation because of issues with

transportation, cost, knowledge deficits of cardiac disease, knowledge deficits of the content of cardiac rehabilitation, language barriers, exercise, stress, and social interaction. This topic is relevant in nursing today because of the importance of individualized care. Positive results are met when the nurse and patient are able to structure the care based on the patient's individualized needs. Based on the results of this study, there is limited research related to why patients choose not to attend cardiac rehabilitation. The next step in the state of science would be to recommend qualitative study. This study would include a small group of cardiac patients themselves to further understand their perspectives about what the barriers are.

References

Cooper, A.F., Jackson, G., Weinman, J., Horne, R. (2005). A qualitative study investigating patients' beliefs about cardiac rehabilitation. *Clinical Rehabilitation, 19,* 87-96.

Ehlke, K., Greenwood, M. (2006). Resistance exercise for post-myocardial infarction patients: current guidelines and future considerations. *National Strength and Conditioning Association, 28*(6), 56-62.

Galdas, P. M., Kang H. B. K. (2010). Punjabi Sikh patients' cardiac rehabilitation experiences following myocardial infarction: a qualitative analysis. *Journal of Clinical Nursing, 19,* 3134-3142.

Garvey, N., Noonan, B. (2011). Providing individualized education to patients post-myocardial infarction: a literature review. *British Journal of Cardiac Nursing, 6*(2), 73-79.

Nolan, J., Nolan, M. (1998). Cardiac rehabilitation following myocardial infarction. *British Journal of Nursing, 7*(4), 219-225.

Pluss, C. E., Billing, E., Held, C., Henriksson, P., Kiessling, A., Karlsson, M. R., Wallen, H. N. (2011). Long term effects of an expanded cardiac rehabilitation programme after myocardial infarction or coronary artery bypass surgery: a five-year follow-up of a randomized controlled study. *Clinical Rehabilitation, 25,* 79-87.

Yoshida, T., Kohzuki, M., Yoshida, K., Hiwatari, M., Kamimoto, M., Yamamoto, C., Meguro, S., Endo, N., Kato, A., Kanazawa, M., Sato, T. (1999). Physical and psychological improvements after phase II cardiac rehabilitation in patients with myocardial infarction. *Nursing and Health Sciences, 1,* 163-170.

(2002). Protecting your heart after the heart attack. *Tuft's University Health & Nutrition Letter. 19*(12), 1-6.

Appendix A

First Author (year)	Study Design or paper aim/purpose	Theoretical/conceptual framework (if mentioned) or identified policy	Location, Target population of analysis	Identified Themes	Identified Problems	Results / Discussion as presented by authors, or discussed in their literature reviews
Pluss et al. (2011)	- Quantitative Design - To determine whether an extended cardiac rehabilitation program, focused on making lifestyle changes, could decrease the events of acute myocardial infarction and other cardiac diseases compared to the standardized program	- None identified	- Danderyd Hospital, Sweden - Two hundred and twenty-four patients under the age of seventy-five - Patients experienced either a recent acute myocardial infarction or coronary artery bypass graft surgery	-Effects of physical training, counseling, education, smoking cessation, stress management, diet counseling	-Cardiac rehabilitation should aim at improving the individual's lifestyle -A large gap exists between healthy lifestyle choices and the patients' realistic lifestyle choices - It is crucial for patients to learn how to make healthy lifestyle choices into their habits and daily routine	-During the five year follow up period, fifty-three patients in the extended rehabilitation group and sixty-eight patients in the standardized group experienced either an acute myocardial infarction, chronic ischemic heart disease, heart failure, chest pain, revascularization, a stroke, or angina pectoris -The risk of experiencing a cardiac event for those who attended the

						extended rehabilitation decreased by 12.4% -The extensive cardiac rehabilitation program reduces death due to cardiac issues and decreases the length of hospital stays -Exercise training and stress management are very important factors of cardiac rehabilitation
Cooper et al. (2005)	-Qualitative Study - To determine patients' thoughts and beliefs about the cardiac rehabilitation program after experiencing a myocardial infarction	-Leventhal's self-regulatory model of illness behavior	-Study takes place at the London Teaching Hospital -Thirteen myocardial infarction patients were interviewed after they were discharged	-Patients' beliefs about the cardiac rehabilitation information and content -The exercise portion of cardiac rehabilitation -The benefits of attending cardiac rehabilitation for the patient	-It is unclear whether the patients' beliefs about cardiac rehabilitation is influencing their lack of attendance	-Patients were unsure how exercise could positively attribute to recovery -The lack of the patients' cardiac knowledge influenced their decision to not attend rehabilitation

			from the hospital -The patients had not yet attended cardiac rehabilitation	-The barriers restricting patients from attending cardiac rehabilitation -The patients' cardiac knowledge -The patients' attendance of cardiac rehabilitation		-Patients were unsure of the course content and information
Ehlke et al. (2006)	-This article looks into resistance training exercises in the cardiac rehabilitation program for patients who experienced a myocardial infarction -Discusses strength and conditioning exercises focused on the patients' recovery	-American Association of Cardiovascular and Pulmonary Rehabilitation	-Cardiac patients who experienced a myocardial infarction between six and sixteen weeks ago	-Common medications prescribed to patients after experiencing a myocardial infarction -Resistance exercise routines to benefit patients after a myocardial infarction -Resistance training program content during and after phase II of cardiac rehabilitation -Common resistance	-There is a lack of research explaining why resistance training is delayed for patients after experiencing a myocardial infarction -More research on resistance training briefly after a myocardial infarction is necessary	-Cardiac rehabilitation greatly improves the patient's quality of life -Resistance exercise suited for the individual patient is safe several weeks after an MI -The duration of recovery time can be improved -Patients may be able to return to their normal active lifestyle sooner than planned due to resistance exercise training

				exercises based on the patient assessments		
Endo et al. (1999)	-Quantitative design -Determine whether cardiac rehabilitation benefits the physical and psychological status of patients experiencing a myocardial infarction	-Spielberger state-trait anxiety inventory questionnaire -Self-rating questionnaire for depression (SRQ-D)	-Twenty-nine patients (twenty-seven males and two females) who experienced an acute myocardial infarction -Patients were enrolled in the four-week long in-patient phase II rehabilitation program	-Rehabilitation schedule and content information -Testing of the patients' exercise tolerance and serum lipid concentration prior to rehabilitation -Exercise tolerance, frequency and serum lipid concentration after rehabilitation -Psychological status before and after rehabilitation using the SRQ-D	-The number of patients with an acute myocardial infarction in Japan increases significantly every year -Therefore, the medical expenses have also significantly increases -Patients find it difficult to adapt to new lifestyle changes with only two-three sessions of rehabilitation weekly	-Patients' physical and psychological status significantly benefitted from the in-patient phase II cardiac rehabilitation program -Patients kept up with lifestyle changes and improvements at the six month follow-up -Lipid levels significantly improved based on exercise, a clean diet, psychological support from family members, and medications -Psychological status greatly impacted by exercise

Galdas et al. (2010)	-Qualitative Study -Focused on the experiences of Punjabi Sikh patients attending cardiac rehabilitation after experiencing a myocardial infarction	-McGill Illness Narrative Interview schedule	-Cardiac rehabilitation program is held in British Columbia, Canada -Study includes fifteen Punjabi Sikh patients after experiencing a myocardial infarction	-Importance of religious faith in the lives of Punjabi Sikh individuals -Patients were unsure of which cooking methods were healthy or unhealthy -The importance of one-on-one discussions with medical professionals at cardiac rehabilitation -Lack of transportation affecting attendance	-Punjabi Sikh individuals have a high risk of coronary heart disease and morbidity rate at a young age -Punjabi Sikh people also have a higher risk of developing further cardiac disease following a myocardial infarction	-Patients may be more likely to attend cardiac rehabilitation if influenced by religious faith -Patients were successful in making clean eating habits and exercise routines

Garvey et al. (2011)	-Literature Review -Discuss the importance of individualized care to myocardial infarction patients -Determines the importance of patient education	-"Perception Model"	-This study is located in Ireland -Hospitalized patients after experiencing a myocardial infarction -Patients six weeks after discharge from hospitalization due to a myocardial infarction	-Symptoms associated with a myocardial -Most patients viewed their myocardial infarction event as an indication of needing to change their lifestyle -The benefit of individualized education for the patient	-The information being provided to the patients was not realistic and individualized -Health care professionals need to realize how patients view education they are taught -Sometimes nurses are unaware how the patient will adhere to the education	-Individualized education is the most beneficial for patients attending cardiac rehabilitation -Programs need to be reassessed to meet the education needs of patients

Nolan et al. (1998)	-Literature review -To determine how nurses can better influence care -Emphasizes the importance of family involvement, sexuality, and gender issues	-None identified	-Patients who have experienced a myocardial infarction	-The need for follow-up arrangements after attending cardiac rehabilitation -The importance of check-ups with primary care physician -The impact of heart disease on family members	-Some programs solely looked into the psychical status of the patient rather than the psychological aspect	-Patients significantly benefitted from a telephone follow-up from the medical team after attending rehabilitation -Patients also benefitted from being sent home with the "Heart Manual" instructional package -The nurse's knowledge and education greatly impacts the patient's

No Author (2002)	-The article aims to inform the reader about the benefits of cardiac rehabilitation after a myocardial infarction event	-None identified	-Post-myocardial infarction patients (Americans)	-Reasons why people choose to not go through with cardiac rehabilitation include insurance coverage and transportation -Cardiac rehabilitation helps prevent a second heart attack -The benefits of exercise and lifestyle changes are mentioned	-Some physicians fail to refer cardiac patients to cardiac rehabilitation -Some patients may not be aware of the need to go through with cardiac rehabilitation -Insurance coverage may prevent patients from attending rehabilitation	-A healthy diet and exercise routine result in weight loss -Weight loss controls high cholesterol, diabetes and high blood pressure -Patients are able to learn how to deal with their stress during the cardiac rehabilitation program

Appendix B

Cooper, A.F., Jackson, G., Weinman, J., Horne, R. (2005). A qualitative study investigating patients' beliefs about cardiac rehabilitation. *Clinical Rehabilitation, 19,* 87-96.

The purpose of this article is to explain the importance of attending cardiac rehabilitation programs following heart disease, such as a myocardial infarction. The authors also wanted to determine why cardiac patients failed to attend or keep up with cardiac rehabilitation. The participants included seven women and thirteen men, aged between thirty-seven and eighty-two years, and the study's setting is the London Teaching Hospital. Participants explained they had previously not attended because of lack of knowledge, being embarrassed about exercising in front of other people, fear of failing to complete exercises, and transportation. This article is resourceful because it explains how not many patients know the process of cardiac rehabilitation in detail, making it known that nursing teaching to patients is necessary.

Ehlke, K., Greenwood, M. (2006). Resistance exercise for post-myocardial infarction patients: current guidelines and future considerations. *National Strength and Conditioning Association, 28*(6), 56-62.

This article summarizes the importance of resistance-training exercise for post-myocardial infarction patients. Myocardial infarction patients' common medications are discussed, such as beta-blockers, calcium channel blockers, vasodilators and diuretics, and their affect on the body's heart rate and blood pressure. A guideline is made for cardiac patients who are undergoing resistance training, including the frequency, intensity, volume, progression and recovery aspects of an expected workout. Even though the resistance training is important, exercising with caution is even more important, especially ones that increase intra-thoracic pressure. This article is very resourceful because it highlights reasons to workout and gives a workout guide for cardiac patients, but also explains the importance of exercising with caution.

Galdas, P. M., Kang H. B. K. (2010). Punjabi Sikh patients' cardiac rehabilitation experiences following myocardial infarction: a qualitative analysis. *Journal of Clinical Nursing, 19,* 3134-3142.

The purpose of this article is to focus on the Punjabi Sikh patient population and their experiences with cardiac rehabilitation. The participants included fifteen Punjabi Sikh patients in the British Columbian cardiac rehabilitation program. Participants were interviewed after having a myocardial infarction. Most patients explained their lack of interest in cardiac rehabilitation was related to their lack of knowledge about the topic as well as a healthy diet, and difficulty with transportation. Most patients stated staying in touch with healthcare professionals at the rehabilitation about their progress truly benefitted their health and kept them motivated. This source was very useful and relevant. It is interesting to read how most patients do not go through cardiac rehabilitation because of their lack of knowledge of the subject. This article is resourceful because it states the importance of educating patients on this field of nursing. If more patients knew about the subject, the instances of secondary myocardial infarction would decrease.

Garvey, N., Noonan, B. (2011). Providing individualized education to patients post-myocardial infarction: a literature review. *British Journal of Cardiac Nursing, 6*(2), 73-79.

This article highlights the importance of individualized care to post-myocardial patients for successful healing. Most patients failed to continue with cardiac rehabilitation or other healthy lifestyle habits because of their lack of knowledge on the topic. Individualized education made patients and their families calmer and less anxious. It is also important to individualize care based on age and which healthy lifestyle changes are the most crucial for patients of a certain age to live by and keep up with. Also, patients may differ in that they want a one-on-one session, rather than a group session, and vice versa. This article is very beneficial for the field of nursing today. Not only does it explain ways to individualize care, but also proves its positive effect on the health and quality of life for cardiac patients. This important in research because it shows how differently nurses can provide care for a successful outcome.

Nolan, J., Nolan, M. (1998). Cardiac rehabilitation following myocardial infarction. *British Journal of Nursing, 7*(4), 219-225.

This article discusses ways to enhance cardiac rehabilitation. The authors discuss the need for better training from the nurses as well as better psychological care in cardiac rehabilitation. The authors stress the importance of including the family in the rehabilitation experience, and not solely the patient. Also, the authors touch upon the importance of assessing the patient's sexuality, which could be a factor of the people not going through with cardiac rehabilitation. This article is very relevant and resourceful because it gives the field of nursing topics to look into,

causing an increase of patients involved in cardiac rehabilitation. This article is beneficial for the field of nursing, specifically cardiac rehabilitation.

Pluss, C. E., Billing, E., Held, C., Henriksson, P., Kiessling, A., Karlsson, M. R., Wallen, H. N. (2011). Long term effects of an expanded cardiac rehabilitation programme after myocardial infarction or coronary artery bypass surgery: a five-year follow-up of a randomized controlled study. *Clinical Rehabilitation, 25,* 79-87.

This article emphasizes the importance of cardiac rehabilitation for cardiac patients. The participants included two hundred and twenty four patients, either having a previous myocardial infarction or coronary artery by-pass grafting, at the University hospital. Patients were examined after they had completed sessions of rehabilitation, including exercise training and healthy dieting. Over a period of five years, instances of myocardial infarctions decreased, as well as hospital visits for these patients. This is a very relevant source. The information is reliable and clearly executed. The goal of this article is to determine the effects of cardiac rehabilitation by measuring the rates of continued myocardial infarction instances while adhering to rehabilitation. This source was very helpful for further research. Some patients question whether cardiac rehabilitation is worth it, and this article clearly proves the benefits for cardiac patients.

Yoshida, T., Kohzuki, M., Yoshida, K., Hiwatari, M., Kamimoto, M., Yamamoto, C., Meguro, S., Endo, N., Kato, A., Kanazawa, M., Sato, T. (1999). Physical and psychological improvements after phase II cardiac rehabilitation in patients with myocardial infarction. *Nursing and Health Sciences, 1,* 163-170.

The purpose of the article is to determine the effectiveness of cardiac rehabilitation regarding physical and psychological status. The participants included twenty-seven males and two females. A patient's physical status was tested through exercise tolerance, and measuring anxiety and depression assessed a patient's psychological status. After undergoing rehabilitation, the patients' physical status improved as well as the patients' depression and anxiety. This program would most likely prevent the instances of secondary myocardial infarctions. This is a very useful and reliable source. The methods and results are very detailed. However, the men to women ratio should have been equal. This article can be used for further research. Most articles focus on the physical health aspect, but this article gives a great amount of information on the psychological well being of patients after rehabilitation.

(2002). Protecting your heart after the heart attack. *Tuft's University Health & Nutrition Letter*. *19*(12), 1-6.

This article emphasizes the importance of keeping the heart healthy after a heart attack. The article states, "cardiac rehab could prevent the premature deaths of hundreds of thousands of people with heart disease" (p 1). More and more people fail to go because of insurance and lack of doctor referrals. The article summarizes a typical day at rehabilitation, such as talking about a patient's health history and current medications with a nurse, and having vital signs checked. Patients seek different medical professionals to deal with smoking, dietary habits, or even mental illnesses. Exercise is also personalized for an individual undergoing rehabilitation. This article is very relevant because it explains the cardiac rehabilitation process for people who are unaware.