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Rheumatoid Arthritis: Educating Patients on the Benefits of Physical Activity

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RHEUMATOID ARTHRITIS: EDUCATING PATIENTS ON THE BENEFITS OF PHYSICAL ACTIVITY

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by

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Abstract

Background: Rheumatoid Arthritis (RA) is a chronic autoimmune and systematic disease mistakenly attacking the joints and surrounding healthy tissues. This inflammatory process affects more than 1.3 million Americans. The symptoms might include unusual fatigability, lack of energy, lethargy, and worsening deformities. With increased deformities, patients ultimately lose joint function and range of motion, and eventually may become disabled.

Problem: The problem is that most patients with RA have a knowledge deficient regarding how physical activity exercises can possibly help to alleviate the symptoms of RA and help patients improve their quality of life while living with RA.

Purpose: The purpose of this project is to implement an educational intervention that educates patients about the benefits of physical activity exercises and will teach, and reinforce how important these exercises can be in helping to alleviate symptoms of RA thereby improving quality of life.

Theoretical Framework: This project will be guided using the construct of the ACE (Academic Center of Evidence-Based Practice) star model of knowledge transformation by Stevens (2012).

Methods: This project will take the form of a quality improvement project. An educational program will be developed to educate participants and evaluate knowledge learned. Patients will be recruited from a local medical center in the South Florida area. Patients with RA will be the specific targeted group of participants for this project. Participants will be recruited when they attend their regularly scheduled primary care visits at the medical center.

Results: The majority of the sample 86.6% (n = 13) of participants were females, and 13.4% (n = 2) were males. A mean of ($\bar{x}$=78.6%) participants have checked "Definitely" for all five statements when compared to a mean of ($\bar{x}$=8%) participants who selected "Definitely not." The Majority of participants 93.3% (n =14) answered both fill-in-the-blank questions while 6.7% (n =1) did not answer any of the questions.

Conclusions: The data collected from the results shows that 86.6% of participants have gained knowledge from the educative program. A significant limitation to this study is the inability to accurately measure participants' willingness to put the knowledge gained into action.

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to those who have provided me with their support and encouragement during this challenging journey. To God who gave the strength to successfully complete this journey. To my mother, Mrs. Mireille Cazeau, who has always encouraged and motivated me throughout this journey, and who stuck by me through thick and thin to complete this project. To my committee members, who challenged and pushed me to work at my highest potential. To Dr. Corvette Yacoob who kept faith in me to finish this project. To my colleagues and friends who encouraged me throughout the way.

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DEDICATION

I would like to dedicate this project to the late Mr. Jean Better Cazeau, who passed away in 2007 from the complications of rheumatoid arthritis. I am grateful for your persistence, your love, and the principles that you have instilled in me. You will always be loved and remembered.

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SECTION ONE

Rheumatoid Arthritis (RA) is a chronic autoimmune, inflammatory, and systematic disease, which occurs when the immune system primarily targets the synovial membrane, lining the peripheral joints. An autoimmune disorder takes place when the body's immune system attacks and jeopardizes healthy body tissue by mistake (National Institutes of Health, 2013). As the disease attacks the synovial membrane of the joints, an inflammatory response occurs. This inflammatory response—synovial proliferation and hypertrophy—can result in the erosion of articular cartilage and bone, the disruption of supporting soft tissue structures, and eventually, joint deformity and dysfunction. This autoimmune disease with unknown etiology can develop at any age. Despite the unknown etiology, susceptibility to the disease is associated with genetics, a branch of biology. This branch of biology is concerned with examining the deoxyribonucleic acid (DNA) sample for gene changes. Genes are part of the cell body that contain the biological information that parents pass to their children. Genes are contained in DNA, a substance inside the center (nucleus) of cells that contains instructions for the development of the cell (WebMD, 2014). It has been postulated that almost all patients affected by RA have a class II human leukocyte antigen (HLA) containing an identical five-amino-acid sequence. As joints and the surrounding tissues are damaged, pain, stiffness, swelling, and loss of function ensue. RA usually affects joints of the body equally and bilaterally, which might include the most commonly affected joints of the wrists, fingers, knees, feet, and ankles. The hallmark of RA involves an inflammatory arthritis affecting the proximal interphalangeal joints (PIP) and the metacarpophalangeal joints (MCPs) in a symmetrical fashion.

Initially, the progression of the disease can be slow and is recognized by some distinguishing symptoms such as morning stiffness lasting for one hour or more; tender, stiff, and warm joints; joint pain bilaterally; loss of range of motion; and deformity. The progression of RA varies as the disease can follow at least three possible courses. The monocyclic course is defined by having one episode lasting between 2 to 5 years from initial diagnosis without recurrence. Another course, known as polycyclic, is defined by the progression of the disease fluctuating over its course. A third course, the progressive stage, occurs as RA progresses in severity without any periods of remission **(**Centers for Disease Control and Prevention, 2011).

RA is initially diagnosed with the rheumatoid factor (RF) test, which looks for an immunoglobulin M (IgM) reacting against immunoglobulin G (IgG) in an autoimmune fashion. An immunoglobulin test is performed to measure the level of immunoglobulins or antibodies in the blood. Immunoglobulin or antibodies are substances made by the body's immune system in response to bacteria, viruses, fungus, animal dander, or cancer cells. IgG antibodies, the smallest but most common antibody of all the antibodies, are found in all body fluids. They are very important in fighting bacterial and viral infections. On the other hand, IgM antibodies are the largest antibody and are found in blood and lymph fluid and are the first type of antibody made in response to an infection. In addition, they also cause other immune system cells to destroy foreign substances (WebMD, 2012). The rheumatoid factor test provides both qualitative and quantitative information that is used in conjunction with the body's changes consistent with the illness. It is estimated that 75% of patients who have arthritis have a positive RF test result (Dunphy, Winland-Brown, Porter, & Thomas, 2011). In addition to the RF test,

other diagnostic tests might include the erythrocyte sedimentation rate (ESR), which is elevated with active disease. ESR indirectly measures how much inflammation is in the body and is also used to detect infection, cancers, and autoimmune diseases (National Institutes of Health, 2013). Additionally, the C-reactive protein (CRP), a nonspecific inflammatory marker, will be elevated during the acute phase of the disease. The quantitative antinuclear antibodies (ANA) is another diagnostic test used in RA which may help differentiate RA from systemic lupus erythematosus (SLE). The ANA test is used to detect antibodies in tissues and organs throughout the body. Lower ANA serum titers are indicative of RA.

In addition to the laboratory exams, great attention should be focused on the physical signs and symptoms to establish a definitive diagnosis. Patients with active RA have the gel phenomenon, a stiffness and resistance to movement after a period of immobility. This gel phenomenon can be noted in the morning upon arising. It could be debilitating due to the fact that patients will experience stiffness lasting longer than 30 minutes, or generalized stiffness lingering for hours. Experiencing debilitation with RA is not solely a daily burden; it can potentially carry out a negative impact on the health-related quality of life of those affected by the illness. The Centers for Disease Control and Prevention (CDC, 2014c) postulated that individuals affected by RA have the worse functional status when compared to those without arthritis. Furthermore, those affected by RA were more likely to report poor general health, were more likely to necessitate help with personal care, and were more likely to experience health-related limitations. Additionally, the CDC indicated that individuals with RA experienced more losses in

function than people without arthritis in every domain of human activity including work, leisure, and social relations.

Once the diagnosis of RA is established, multiple treatment regimens can be implemented (Dunphy et al., 2011). Usually, treatment for most patients is initiated with the administration of non-steroidal anti-inflammatory drugs and corticosteroids. Subsequently, treatment may merge to non-biologic disease-modifying antirheumatic drugs (DMARDs) and to biologic DMARDs for those unresponsive to the previous drugs. The prescription of non-biologic DMARDs within three months of diagnosis is currently being advocated to reduce disease activity and prevent joint deformity. Further, researchers suggest pairing non-biologic and biologic therapies with non-medical interventions which include physical and occupational therapy and anti-inflammatory pharmacologic interventions (Centers for Disease Control and Prevention, 2011).

According to the National Public Health Agenda for Osteoarthritis (2010), released by the Centers for Disease Control and Prevention (CDC, 2014a), researchers have shown that physical activity decreases pain, improves function, and reduces disability with all forms of arthritis. The CDC indicated that being physically active can decelerate the onset of disability in individuals suffering of arthritis.

In order to convey the above information to patients, nurse practitioners have to uphold their primary duty of educating their patients; this duty plays a crucial role in primary prevention and tertiary prevention. Tertiary prevention aims for the management of conditions and diseases. The CDC (2013) identified education as a tertiary prevention strategy that is effective in promoting self-management of arthritis. Primary prevention plays a fundamental role in health care since providers are responsible for educating

clients about means to improve their health and to prevent illness and hospitalizations. Failing to educate patients about RA management not only creates more opportunity for the illness to persist with its physical burden on individuals affected by the disease but also affects the health of this nation from a community and financial standpoint.

Background

According to Ruderman and Tambar (2012), RA is the most common form of autoimmune arthritis, affecting more than 1.3 million Americans. The disease is most likely to prevail between the fourth and sixth decades of life; however, RA can be diagnosed at any age.

The description of RA per the standards of modern medicine was initially acknowledged by Augustin Jacob Landré-Beauvais from the year 1800. This condition, which was believed to mainly affect the poor, and more women than men, led physicians to ignore those affected by the disease as they wanted to be acclaimed and compensated for their work. Over time, the course of RA has gone from being under-looked as a result of its association to the poor, to being thoroughly investigated by using x-rays in order to compare skeletal remains to living patients during the 20th century. Recent research approaches on the origins and etiology of RA has emphasized a molecular perspective.

Some researchers believe that genetics play a key role on the onset of RA. Over the past three decades, there has been research that indicates an association between RA and a group of major histocompatibility complex (MHC class II) cell surface receptors encoded by alleles of the HLA-DR locus on chromosome six. The MHC locus is highly distinct, and different populations differ in allele frequency. The particular set of alleles individuals carry is highly predictive of their potential of developing RA. Although

many genes can potentially contribute to RA, the most important contribution comes from the MHC locus (Entezami, Fox, Clapham, & Chung, 2011). Smoking has been identified as another potential trigger. Entezami et al. (2011) have indicated an association between smoking and the incidence of RA in individuals with the HLA susceptibility allele.

The CDC postulates that the safest and most effective physical activities for RA are low impact, moderate intensity aerobics. Those activities might include walking, water exercise, cycling, and muscle strengthening exercises. To improve arthritis, the CDC further posits that an individual might invest as little as 60 minutes per week of exercise time. However, a minimum of 150 minutes of moderate intensity aerobic activity as well as two days of muscle strengthening exercise per week are recommended to improve arthritic pain and function and to prevent and manage the development of other chronic conditions. Further recommendations for arthritic patients include avoiding inactivity, and engaging in activities that they are physically able to tolerate. Ultimately, physical activity can decelerate the onset of disability in individuals suffering of arthritis (Centers for Disease Control and Prevention, 2011).

Myasoedova, Crownson, Kremers, Therneau, and Gabriel (2010) indicated several environmental factors that contribute to the incidence of RA. Among the multiple factors identified as contributors to RA's incidence, socioeconomics is of great relevance. Among the different aspects of socioeconomics, Bird, Conrad, Fremont, and Timmermans (2010) identified education as an interchangeable indicator of socioeconomic status. Further, education is of great relevance to health. Bergström,

Jacobsson, Nilsson, Wirfält, and Turesson (2013) argued that a low formal education was found to be inversely associated with the risk of developing rheumatoid arthritis.

In addition to the inverse relationship between a low formal education and the risk of developing RA, Rudd et al. (2009) posited a negative impact of the lack of basic prose literacy on health outcomes. They argued a correlation between poor literacy skills and unfavorable health outcomes for a number of chronic diseases such as diabetes, asthma, HIV, heart disease, and rheumatoid arthritis. Lacking basic prose literacy skills is defined as being unable to read and understand any written information in English and being unable to easily locate easily identifiable information in short, or commonplace prose text. Included in the group of lacking basic prose literacy are individuals with language barriers and below the most simple and concrete literacy skills (National Center for Education Statistics, 2003). Further, Williams, Baker, Parker, and Nurss (1998) postulated a strong correlation between individuals with poor literacy skills and poor disease knowledge. In addition to the negative impact of poor literacy on RA, another challenge hindering improved outcomes with the disease is the frequent delay in treatment and assessment of patients with RA as identified by Robinson and Taylor (2011).

Early assessment and treatment promotes a reduction in disease activity, joint damage, a decrease in functional impairment, and an increase in chances of remission. Furthermore, Robinson and Taylor (2001) explored some of the reasons involved in the delay of treatment and assessment of rheumatoid arthritis. The reasons investigated included poor rapport between clients and their primary care physicians (PCP); clients wanting to avoid wasting their time and the PCP's; and most importantly, a lack of public

knowledge about RA, the significance of the illness, and the necessity of early treatment. The lack of public knowledge of RA stems in part from the lack of counseling from primary care providers. Hébert, O'Caughy, and Shuval, (2012) indicated that most primary care providers agree that physical activity (PA) counseling is important and that PCPs are aware of their role in promoting PA to their patients; however, a knowledge deficit on the benefits of physical exercise is present.

Problem Statement

The problem is that most patients with RA have a knowledge deficiency regarding how physical activity exercises can possibly help to alleviate the symptoms of RA and help patients improve their quality of life while living with RA. Nurses have always played an important role in patient education, this role is crucial to health promotion and disease prevention. Early assessment and treatment promotes a reduction in disease activity, joint damage, a decrease in functional impairment, and an increase in chances of remission. The CDC shows that physical activity decreases pain, improves function, and reduces disability with all forms of arthritis (Centers for Disease Control and Prevention, 2014b). If physical activity is implemented early in RA, according to the recommended guidelines, disease complications could be significantly limited. The earlier the intervention is administered, the better chance there is for improved quality of life.

Purpose

The purpose of this project was to implement an educational intervention that educates patients about the benefits of physical activity exercises and will teach, and reinforce how important these exercises can be in helping to alleviate symptoms of RA thereby improving quality of life. Patients need to be educated on the importance of how

early assessment and treatment promotes a reduction in disease activity, joint damage, a decrease in functional impairment. Robinson and Taylor (2011) explored some of the reasons involved in the delay of treatment and assessment of rheumatoid arthritis. The reasons investigated included poor rapport between clients and their primary care physicians (PCP); clients wanting to avoid wasting their time and the PCP's time; and most importantly, a lack of public knowledge about RA, the significance of the illness, and the necessity of early treatment.

Definitions

Discovery Research

Discovery research is the stage where knowledge is generated (Stevens, 2012). This stage is reflected in this capstone project as a scientific inquiry that challenges the lack of skills and understanding in RA patients to perform physical activity exercises that can help alleviate their symptoms, and improve their quality of life.

Evidence Summary

Evidence summary is the stage of research synthesis into a single, meaningful statement of the state of the science (Stevens, 2012). It is reflected through the literature review, which synthesizes the corpus of research on the role of physical activity in individuals with RA.

Practice Integration

Practice integration is the step that involves changing both individual and organizational practices through formal and informal channels (Stevens, 2012). This stage entails administering the intervention, the education program, to participants in

order to improve their quality of life through the implementation of physical activities in their lifestyle.

Knowledge Transformation

Knowledge transformation represents the conversion of research findings from primary research results, through a series of stages and forms, to impact health outcomes by way of evidence-based care (Stevens, 2012).

Translation to Guidelines

During this stage, the summarized research evidence is interpreted and combined with other sources of knowledge and then tailored to the specific client population and setting (Stevens, 2012). The most current practice guidelines on physical activity and RA will be articulated to the capstone project's participants.

Outcome Evaluation

In this phase, outcomes are evaluated (Stevens, 2012). This stage will be reflected through the appraisal of the efficacy of the educative program. Such evaluation will be determined by data obtained from the post evaluation administered to the participants.

Physical Activity

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure (World Health Organization, 2015).

Project Objectives

The objectives for this DNP project were to:

1. Identify a targeted evidenced based tool that will educate patients with RA on the benefits of physical exercises as it relates to their disease process.

2. Educate patients with RA regarding the importance and benefits of physical activity exercises and their disease process

3. Create a targeted educational intervention program for patients with RA using an evidenced based tool to:

a. Review the disease process of RA

b. Encourage the participants how important it is to start treatment early

c. Educate the participants on the benefits of physical activity exercises as they relate to the disease process of RA

4. Evaluate the effectiveness of the educational intervention provided to patients with RA regarding the benefits of physical activity exercises and their disease process.

Project Questions

The aim of this project was to answer the following questions:

1. Will an educational intervention addressing the recommended benefits of physical activities for patients with Rheumatoid Arthritis be effective in improving patients basic lack of knowledge regarding the benefits and importance of physical activity and RA?
2. Will the educational intervention help to promote self-management of RA symptoms by encouraging patients to participate in physical activity exercises?

Theoretical Framework

The star model of knowledge transformation is a model for understanding the cycles, nature, and characteristics of knowledge that are utilized in various aspects of evidence-based practice (EBP) (Stevens, 2012). The star model organizes both old and

new concepts of improving care into one unit and provides a framework with which to organize EBP processes and approaches. Known as the ACE (Academic Center for Evidence-Based Practice) star model, it is a simple representation of the relationships between various stages of knowledge transformation, as newly discovered knowledge is integrated into practice. Knowledge transformation is the conversion of research findings from primary research results, through a series of stages and forms, to impact health outcomes by way of evidence-based care. The ACE star model depicts various forms of knowledge in a relative sequence, as research evidence is moved through several cycles, combined with other knowledge and integrated into practice. The ACE star model provides a framework for systematically putting evidence-based practice processes into action. This model comprises five major stages of knowledge transformation: discovery research, evidence summary, translation to guidelines, practice integration, and process/outcome evaluation (Figure 1) (Stevens, 2012). Evidence-based processes and methods fluctuate from one point on the star model to the next.

The discovery research stage is the knowledge generating stage. New knowledge is discovered through the traditional research methodologies and scientific inquiry, which might include qualitative and quantitative studies. This phase builds the body of research about clinical actions.

The evidence summary is the first unique step in EBP—the task is to synthesize the body of research knowledge into a single, meaningful statement of the state of the science. This stage is also considered a knowledge generating stage, which occurs simultaneously with the summarization. Evidence summaries produce new knowledge by combining findings from all studies to identify bias and limit chance effects in the

conclusions. The systematic methodology also increases reliability and reproducibility of results. It is usually referred to as evidence synthesis, systematic review, meta-analysis, integrative review, review of literature, and state of the science review (Stevens, 2012).

The translation to guidelines step emphasizes providing a useful and relevant package of summarized evidence to clinicians and clients. Those recommendations, also referred to as clinical practice guidelines (CPGs), are tools to support informed clinical decisions for clinician, organization, and client. Summarized research evidence is interpreted and combined with other sources of knowledge and then applied to the specific client population and setting.

The practice integration step involves changing both individual and organizational practices through formal and informal channels. Further, this step considers the individual or organizational factors affecting the integration of knowledge into the system.

The evaluation is the last stage in knowledge transformation during which outcomes are evaluated. This stage entails the evaluation of the impact of EBP on patient health outcomes, provider and patient satisfaction, efficacy, efficiency, economic analysis, and health status impact. As new knowledge is generated through the five stages, the ultimate outcome is evidence-based quality improvement of health care (Stevens, 2012).

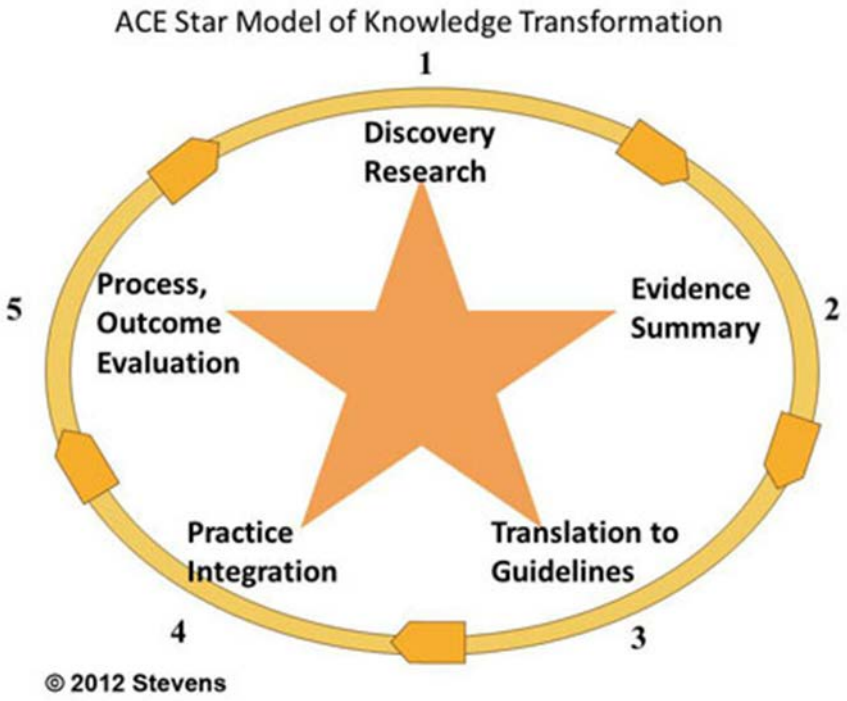

Figure 1. ACE star model of knowledge transformation (Stevens, 2012).

Relationship of ACE Star Model of Knowledge Transformation to Study

This capstone project was guided through the use of the constructs of the theory of ACE star model of knowledge transformation due to its relevance to the project. This theory comprises five major stages of knowledge transformation: discovery research, evidence summary, translation to guidelines, practice integration, and process/outcome evaluation

The discovery research step creates an opportunity to generate new knowledge, as a scientific inquiry challenges the lack of skills and understanding in RA patients to perform physical activity exercises that can help alleviate their symptoms and improve their quality of life.

The evidence summary step is noted in the literature review, a synthesis of the corpus of research on the role of physical activity with RA. This synthesis gathered from both qualitative and quantitative studies brings the most current evidence on the subject in question.

The translation to guidelines will be demonstrated by articulating the most current practice guidelines on physical activity and RA to the capstone project's participants. The summarized evidence on PA, which is explicit and reproducible, will inform participants about empirical and evidenced-based practices on physical activity to improve their quality of life with RA.

The practice integration will entail administering the intervention, the education program, to participants in order to improve their quality of life through the implementation of physical activities in their lifestyle. Ultimately, at the end of this intervention program, participants will engage in physical activities.

The evaluation will be reflected in this capstone by appraising the efficacy of the educative program. Such evaluation will be determined by the data obtained from comparing both the pre- and post-evaluation administered to the participants.

Significance of Problem to Nursing

The Centers for Disease Control and Prevention (2010) indicated that physical activity decreases pain, improves function, and reduces disability with all forms of arthritis. However, this information remains inaccessible to the public as previous studies indicated a lack of knowledge on the benefits of exercise. Additionally, studies have indicated an association between the lack of knowledge on the benefits of physical activity and several other factors. These factors include the lack of basic prose literacy

and poor counseling from physicians to their patients about exercise. Education, a vital component in nursing, promotes positive health behaviors. The Centers for Disease Control and Prevention (2010) identify education as a tertiary prevention strategy that can contribute to better health outcomes. An education program, guided by the DNP essentials, will be implemented to address the previously identified lack of knowledge.

Significance of the Problem to the DNP Essentials

The support for doctoral education for nursing practice stems from a review of current master's level nursing programs. In this review, dated from 2004, the American Association of Colleges of Nursing (AACN) exposed the concern of many nursing programs that indicated that many created curricula were exceeding the usual credit load and duration of the typical master's degree. Furthermore, the AACN identified that the credit requirements in these programs expanded beyond the norms of a master's degree. Subsequently, DNP essentials were created to articulate the foundational competencies that are important to all advanced nursing practice roles. The following paragraph will provide a brief overview of each essential.

Under Essential I, the Doctor of Nursing Practice (DNP), the DNP is expected to use science-based theories and concepts, integrate nursing science with knowledge from ethics, biophysics, psychosocial, analytical, and organizational sciences, and evaluate outcomes. By using scientific-based theories and procedures, this project will address the lack of knowledge that patients with RA have regarding the benefits of physical activity and their disease process through an educational intervention and the program evaluation, which will serve to evaluate outcomes.

Under Essential II, the DNP is expected to tailor and evaluate evidence-based care delivery approaches catering to the needs of patient populations, ensure accountability for quality health care and patient safety, and develop and/or evaluate effective strategies to manage ethical dilemmas inherent in patient care. To promote quality health care, this project will be tailored to the need of the participants by educating them on their lack of knowledge of the benefits of physical activity, while remaining relevant and accountable for quality care by applying current evidence-based findings to guide the program.

Under Essential III, the DNP is prepared to appraise existing literature and other evidence, to design and implement processes based on evidence to evaluate outcomes, and to evaluate quality improvement methodologies based on practice and research for the purpose of improving healthcare outcomes and promoting patients' safety. The synthesis of the existing literature on physical activity on RA will assist in designing the educative program about the topic in question. Thereafter, to evaluate the effectiveness of the program, participants will provide their feedback through a program evaluation.

Under Essential IV, the DNP is prepared to use information systems/technology to support and improve patient care and health care systems and provide leadership within health care systems and/or academic settings. The body of knowledge incorporated in this educative program stems from search databases such as Cumulative Index to Nursing and Allied Health Literature (CINHAL), Google Scholar, and the National Guideline Clearinghouse. A great level of skills related to information systems, such as inputting the right keywords in the search engines, assisted the researcher with appropriately managing the level of information retrieved from the above listed databases.

Under Essential V, the DNP is expected to exhibit his or her role as an advocate on behalf of the public and provide interferences between practice, research, and policy. The implementation of this project reflects advocacy through the design and implementation of a program promoting improvement of health outcomes as it responds to an identified problem, a lack of knowledge on RA and physical activity.

Under Essential VI, the DNP is prepared to lead interprofessional teams, apply consultative and leadership skills with intraprofessional and interprofessional teams, and apply effective communication and collaborative skills to implement scholarly product. This project becomes feasible through the collaborative effort between the researcher and the multidisciplinary members from United States Bones and Joints Initiative (USBJI) who granted permission to incorporate their evidence-based educative tool in this program.

Under Essential VII, the DNP analyzes, synthesizes, develops, implements, and evaluates scientific evidence to improve health promotion and disease prevention. By implementing an education program through this project, a tertiary prevention strategy is being promoted. As a tertiary prevention measure, education aims to delay the progression of a disease or illness. This education program will be designed to educate participants on the utilization of exercise and to promote self-management skills for RA.

Finally, under Essential VIII, the DNP is prepared to practice with refined assessment skills while applying biophysical, psychosocial, behavioral, sociopolitical, cultural, economic, and nursing science, as appropriate in the area of specialization. To deliver quality care with expertise to the project's participants, the implemented education program will be grounded in evidence-based findings, emphasize treatment

modalities and disease pathologies, and be extracted from both the medical branch of rheumatology and the science physical therapy.

Significance of the Project and Potential Impact

This project's significance will be reflected through the increased awareness and benefits of physical exercise to improve health care outcomes of patients affected by RA. Additionally, this project will create an opportunity that will help to promote patients self-management of their RA symptoms. Furthermore, this project has significance in the areas of practice, health care outcomes, health care delivery, and health care policy.

Practice

Nurses have always played an important role in patient education; this role is crucial to health promotion and disease prevention. Prevention in nursing comprises primary, secondary, and tertiary prevention. Primary prevention initiatives utilize education to help prevent risk factors for disease. Secondary prevention initiatives focus on disease in its earliest stages, when treatment is deemed more effective. Tertiary prevention aims for the management of conditions and diseases. The CDC (2013) identified education as a tertiary prevention strategy deemed effective in the promotion of self-management of arthritis. As a tertiary prevention, education seems to delay the progression of disease. On the other hand, primary prevention plays a fundamental role in health care since providers are responsible for educating clients about means to improve their health by preventing illness.

This project may impact practice by providing the most current exercise guidelines to participants. If exercise is implemented according to guideline recommendations, the complication of the disease can be significantly limited. The large

fluctuations in ambulatory care settings, as indicated by the National Ambulatory Medical Care and National Hospital Ambulatory Medical Surveys, reflects the failure of preventative methods towards RA. This survey recorded 2.9 million ambulatory care visits in the United States among people with RA. Most of these visits, 2.6 million, constituted of physician office visits, with 1.9 million visits to medical care and specialty offices (CDC, 2011). According to the DNP Essential VII, the DNP is able to analyze, synthesize, develop, implement and evaluate scientific evidence to improve health promotion and disease prevention. Therefore the DNP will educate participants on the most current existing knowledge on the benefits of physical activity and the disease process of RA. As a result, they will learn about both health maintenance and health preventative behaviors.

Health Care Outcomes

Currently, the CDC shows that physical activity decreases pain, improves function, and reduces disability with all forms of arthritis (Centers for Disease Control and Prevention, 2014). The healthcare outcomes for patients with Rheumatoid arthritis are dependent upon disease severity and the patients' functional abilities. If physical activity is implemented early in RA, according to the recommended guidelines, disease complications could be significantly limited. The earlier the intervention is administered, the better chance there is for improved quality of life. The outcomes may result in an improved quality of life and in savings for RA-related expenditures.

Health Care Delivery

This project may impact healthcare delivery by addressing a gap in patient education and their awareness of how important physical activity is regarding their

disease process. Decreasing complications of RA not only helps the patients physically but also addresses the financial burden that can occur with disease progression. The use of evidence-based care reduces disparities and promotes safe practice.

Health Care Policy

Efforts to increase public awareness about the benefits of exercise on RA require increasing outreach to the public. The knowledge generated from the results of this project may help identify areas that require public awareness and may serve as groundwork for future research and needs assessment. Implementing this project may increase the awareness of exercise locally and will equip those patients with better resources to care for their illness. The improved outcomes resulting from this project at a community level will not only set grounds for future research but may influence the state government to become more inclined to disperse funding and allocate better resources to promote the advancement of exercise benefits on RA. At a national level, the CDC has gone beyond making the information readily accessible on the internet by creating partnerships with the Young Men Christian Association (YMCA) and other organizations to promote activity for seniors in order to substantiate the value of exercise.

Section Summary

This section discussed the benefits of physical activity and how PA can help in alleviating symptoms of the disease and improving quality of life for patients with RA. The problem statement, purpose, and objectives were identified. The theoretical framework that guided this project was also delineated. Linkages of selected Doctor of Nursing Practice Essentials to the project were outlined. Likewise, the significance of

this project to nursing practice, health care outcomes, health care delivery, and health care policy was discussed.

SECTION TWO

The purpose of this project was to implement an educational intervention that educates patients about the benefits of physical activity exercises and how these exercises can help to alleviate symptoms of RA thereby improving quality of life. An extensive search on Turning Research Into Practice (TRIP), Cumulative Index to Nursing and Allied Health Literature (CINHAL), Google Scholar, and the National Guideline Clearinghouse was conducted. The timeframe stretched from January 1, 2008 to March 30, 2013. The following keywords were utilized in CINHAL: rheumatoid arthritis and physical activity, rheumatoid arthritis management and physical activity, rheumatoid arthritis and exercise, and management of arthritis and exercise. On the National Guideline Clearinghouse, the following keyword was applied: rheumatoid arthritis management. On TRIP, the following keywords were used: rheumatoid arthritis and physical activity. Finally, on Google Scholar, the following keywords were applied: rheumatoid arthritis and physical activity. In this literature review, the efficacy of the use of exercise in RA patients will be explored.

Rheumatoid Arthritis: A Need for Knowledge

Robinson and Taylor (2011) indicated that there is a delay of treatment and assessment of rheumatoid arthritis. This delay suggests that rheumatoid arthritis is not addressed at the primary prevention level. Sheppard, Kumar, Buckley, Shaw, and Raza (2008) postulated that the lack of knowledge about RA has often contributed to a delay in visit to primary care since patients never associate symptoms such as joint pain, stiffness, and swelling with an underlying diagnosis of RA. Sheppard et al. (2008) further suggested that there is poor public involvement in the rheumatological community in the

recognition of a condition for which highly effective treatments are now available. In the nursing community, those findings are suggestive of a lack of advocacy and protection of individuals, families, and communities. Additionally, the findings are also consistent with poor health promotion and prevention of illness and injury. The American Nurses Association (n.d.) defines nursing as the "protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations." Therefore, to uphold the standards established by the ANA, nurse practitioners have a duty to retrieve the most current knowledge in order to educate their patients.

According to the most current knowledge from the National Public Health Agenda for Osteoarthritis (2010) released by the Centers for Disease Control and Prevention (CDC), research has shown that physical activity decreases pain, improves function, and reduces disability with all forms of arthritis. The safest and most effective physical activities are low impact, moderate intensity aerobics. Those activities might include walking, water exercise, cycling, and muscle strengthening exercises. To obtain some improvements with arthritis, an individual might invest as little as 60 minutes per week of exercise time. However, a minimum of 150 minutes of moderate intensity aerobic exercise and two days of muscle strengthening exercise per week is recommended to improve arthritic pain and function and to prevent and manage the development of other chronic conditions (CDC, 2011).

Despite the existing literature from the CDC, the use of exercise therapy in RA patients can be controversial as the following study by Breedland, Van Scheppingen,

Leisjisma,Verheij-Jansen, and Van Weert (2011) was limited due to the small number of participants. Additionally, the controversy was supported by a study conducted by Brodin, Eurenius, Jensen, Nissell, and Opava, (2008), who recommended the need for further exploration on the benefits of exercise as a lack of clarity on the mechanism of exercise was identified in relation to the study's result**.**

Rheumatoid Arthritis

Temprano and Diamond (2014) indicated that upon physical examination, limitation of motion, which varies with the time of day, dictates stiffness in patients with RA. However, stiffness that is likely consistent with articular surface derangement or soft tissue contractures about the joint does not vary with the time of day. Although severe stiffness in the hands may ameliorate with heat, exercise has been indicated to be the most effective at providing relief. Pain on motion, another common symptom of arthritis, is often used as a substitute for tenderness in joints that are not readily induced by direct palpation because of overlying muscle and other tissues. Those surfaces might include the cervical spine, shoulder, and hip. Joint instability or subluxation, and non-inflammatory processes interfering with normal joint friction, may result in joint pain on motion. Both joint pain and stiffness will eventually amount to limitation of motion in RA patients. Limitation of motion results from articular surface damage, joint and tendon sheath swelling, or alteration of joint supporting structures. Effusion, which may potentially cause joint pain or tightness, may limit joint motion and impede joint mobility. Fibrosis involving tendons and muscles may limit normal joint motion and result in flexion contractures. Other factors contributing to limitation of motion include joint deformities and subluxations.

Chamberlain (2014) aimed to explore barriers to early diagnosis and referral of RA. The author also aimed to facilitate prompt referral and commencement of treatment by focusing on means helping practice nurses identify people who may have RA. Identifying individuals with RA relies on good history taking and clinical examination. Upon history taking and examination, Chamberlain (2014) stated that patients may report increasing pain and stiffness, particularly in the morning. Furthermore, early morning stiffness can last in excess of 30 minutes and is often accompanied by swelling of some of the joints. Additionally, the onset of RA varies individually as it relates to the rate of progression.

This section articulated the limitations encountered with the progression of RA and some of debilitating symptoms experience by RA patients. However, there is a need for those studies to look into the benefits of physical activity on the limiting and debilitating sequelae of RA. This capstone project explored the benefits of physical activity on the limiting and debilitating consequences of RA.

Rheumatoid Arthritis and Treatment Methods

Owens (2013) posits that RA should be identified early to prevent joint damage and functional disability. Further, he indicates that therapeutic management should comprise biologic and non-biologic disease-modifying antirheumatic drugs (DMARD s) used in combination to limit joint damage and disability. Such combination is also better than single treatment modalities at suppressing radiographic joint damage. Additionally, Gibofsky (2014) emphasized the importance of combining biologic and non-biologic DMARDs or with DMARD combination therapy to inhibit the progression of RA.

Ryan (2014) indicated that the aim of managing RA comprises controlling inflammation, reducing pain and stiffness, preventing joint deformity, reducing systemic complications and optimizing physical, psychological, and social function through a combination of pharmacological and non-pharmacological interventions. She further indicated that disease modifying anti-rheumatic drugs (DMARDs), particularly methotrexate and biologic agents, have proven to be a major advancement in the management of RA by improving outcomes through suppressing the immune response and controlling inflammation. The goal of RA management is further supported by the Centers for Disease Control and Prevention, which showed that RA is treated by controlling pain, minimizing joint damage, and improving or maintaining function and quality of life. Although pharmacologic interventions have improved RA management, physical activity is of great importance to the treatment of RA (Centers for Disease Control and Prevention, 2014).

According to the CDC (2014), physical activity can reduce pain and improve function, mood, and quality of life for adults with arthritis. The CDC postulated that the safest and most effective physical activities for RA are low impact, moderate intensity aerobics. Those activities might include walking, water exercise, cycling, and muscle strengthening exercises.

Owens (2013) and Ryan (2014) articulated the benefits of a therapeutic management of RA. To reinforce the evidence already established by the CDC, this project focused on the benefits of physical activity.

Rheumatoid Arthritis and Pain: Role of Physical Activity

Knittle et al. (2011) examined physical activity and achievement of physical activity goals in relation to self-reported pain and quality of life among patients with RA. This multicenter longitudinal investigation was performed in the rheumatology outpatient clinics of three hospitals in the Netherlands. At baseline, 271 patients with RA were asked to specify a physical activity goal and completed questionnaires assessing physical activity, motivation, and self-efficacy for physical activity, arthritis pain, and quality of life. The authors identified pain and stiffness as the most limiting factors in rheumatoid arthritis patients and as contributing factors to a lower health-related quality of life (QOL) compared to healthy individuals. Furthermore, the authors indicated that achievement of physical activity goals seems to be related to lower self-reported arthritis pain, and higher levels of quality of life.

Kelley, Kelley, Hootman, and Jones (2011) used a meta-analytic approach to determine the effects of community-deliverable exercise on pain and physical function in adults with arthritis and other rheumatic diseases. This meta-analysis looked at 33 studies representing 3,180 men and women with rheumatoid arthritis, osteoarthritis, and fibromyalgia. According to Kelley et al. (2011), the most common cause of disability among adults is arthritis, and such disability results from the pain and stiffness occurring in one or more joints. The authors postulated that community-deliverable exercise improves pain and physical function in adults with rheumatoid arthritis.

Jahanbin et al. (2014) investigated the effects of conditioning exercises on the health status and pain in patients suffering from RA. In this randomized controlled clinical trial, 66 women with confirmed RA were enrolled. Participants in the case group

were asked to participate in conditioning exercise programs and received a training booklet explaining the exercises that they could do at home after the intervention. According to their study, chronic pain, fatigue, impaired mobility and limb deformities are the major complications caused by the disease. Ultimately, RA patients become crippled or paralyzed as a result of the progressive symptoms of the disease, which might include stiffness of the joints and movement disorders. Jahanbin et al. (2014) posited a reduction in pain score as a result of the effects of conditioning exercises.

All four studies described above identified the existing literature on the negative sequelae of pain on patients with rheumatoid arthritis and the role of physical activity in reducing that experienced pain. This capstone project reinforced the need for physical activity as a preventative method for RA.

Rheumatoid Arthritis and Physical Activity

Callahan et al. (2008) addressed the lack of knowledge on the effectiveness of the People with Arthritis Can Exercise (PACE), as a lack of solid evidence is noted on the improvements in symptoms, strengths, function, and psychosocial behaviors in relation to this program. A sample size of 346 individuals with self-reported arthritis from 18 sites participated in a randomized controlled trial of PACE. This RCT was conducted at multiple community locations with an intervention group and a control group that received the intervention on a delayed basis. This level one evidence controlled trial, where clients were randomly assigned to intervention and control groups, aimed at evaluating the basic 8-week PACE program for improvements in primary outcomes (symptoms, functioning, level of physical activity) and secondary (psychosocial) outcomes. This program was developed to promote self-management of arthritis through

exercise. Outcomes were measured at baseline and at eight weeks. Both outcome measurements were primary outcome, measuring symptoms, physical function, and level of physical activity, and a secondary outcome measuring psychosocial status. Both intent-to treat (ITT) and as-treated (AT) analyses were conducted. The intervention group expressed improvement in two symptoms from the primary outcome and one psychosocial outcome from the secondary measurement. In the AT analyses, the intervention group showed significant improvements in one symptom and one function outcome from the primary measure and one psychosocial outcome from the secondary measure. In addition, completers, defined as those participants who attended nine classes or more out of 16, experienced significant improvements in the intervention group in the categories of symptoms, functions, and psychosocial outcome at the end of the 8 weeks. This 8-week program indicated no significant effects on function and activity; however, from a short-term standpoint, improvements were noted on the aspects of pain, fatigue, and strength (one of the minor components of PACE). In addition, six months after the completion of PACE, measurements of symptoms such as pain and fatigue continued show improvements comparatively to baseline (Callahan et al., 2008).

Brodin et al. (2008) investigated the effect of a 1-year coaching program for healthy physical activity on perceived health status, body function, and activity limitation in patients with early RA. In this level one evidence study, participants were recruited at random. A total of 228 patients participated in the study. Once assigned to groups, clients were assessed with the following tools: EuroQol visual analog scale (VAS), Grippit, Timed-Stands Test, amongst others. Participants of the intervention group underwent a 1-year program focused on implementing healthy physical activity described

as moderately intensive. In addition to the implementation of this exercise program, individual coaching by physical therapists and education on exercise were also included. To analyze the data, between-group analyses was conducted using the chi-square test for nominal data, the Mann-Whitney U test for ordinal data, and the student's *t*-test. Further, data were analyzed on the basis of intention-to-treat. There were no differences in reaching healthy physical activity between the two groups at either the pre- or post-intervention assessment, IG (47%) and CG (51%) with ($p > 0.05$) at pre-intervention, and IG (54%) and CG (44%) with ($p > 0.05$) at the post-intervention. Furthermore, according to the analyses of outcomes, results were similar. This similarity was observed whether baseline values were carried forward or whether participants completed the study. The results of the analyses were related to a noted improvement in the intervention group over the control group in the EuroQol VAS ($p = 0.027$) at baseline and ($p = 0.02$) with study completed, in muscle strength ($p = 0.00$) with Time-Stands test at baseline and after study is completed, and in Grippit ($p = 0.03$) at baseline and ($p = 0.00$) at study completion. This study is externally valid for patients with early RA treated by specialized rheumatologists. No significant difference between the two groups in self-reported healthy activity after the intervention was noted. The study's results leave room to explore the lack of clarity related to the mechanism of that 1-year coaching program, as self-reported healthy activity did not increase.

In a level-one evidence clinical controlled trial, Ronningen and Kjeken (2008) aimed at testing the effect of an intensive hand exercise program in patients with RA. In another study, Malcus-Johnson, Carlqvist, Sturesson, and Eberhardt (2005) showed evidence that hand exercises are recommended to improve function and are frequently

used strategically in arthritic patients. The problem addressed in this study is the limited knowledge on the specific effect of hand exercises on patient with RA. The first 30 patients to consent received a conservative exercise program (CEP) to increase joint mobility and maintain hand strength. The next 30 patients received an intensive exercise program (IEP) aimed at increasing hand strength. Outcomes were assessed at baseline, after 2 weeks, and 14 weeks. Primary outcome measured hand strength bilaterally as grip and pinch strength. Secondary outcomes included hand pain, joint mobility, and function in daily activities. Both chi-squared tests and two sample *t*-tests were used to measure the difference in clinical and demographic variables at baseline between patients in the two treatment groups. These tests also measured the differences between patients who were lost to follow-up during study period and those who completed the study. At each outcome assessment, a significant difference was noted between the two groups in favor of the IEP. The results were the following: $p = 0.01$ in dominant hand and 0.05 in non-dominant hand in mean pinch strength in both hands, and $p = 0.04$ in mean grip strength in the non-dominant hand, after two weeks. Additionally, after 14 weeks, the following result $p = 0.04$ in mean grip strength in the non-dominant hand was observed. No significant differences existed between the two groups in relation to joint mobility and function measures. In this study, the authors indicated that the intensive hand exercise program is more efficient than a conservative program for improving hand strength. However, when it comes to the outcome of hand function, the authors leave room for future studies to explore the specific types of exercise that would improve hand functioning in patients (Ronningen & Kjeken, 2008).

Baillet et al. (2009) identified the lack of evidence on the use of exercise on the improvement in aerobic capacity and muscle strength, as well as on functional ability, physical capacity, quality of life, and structural damages. The aim of this project was to evaluate the functional, clinical, radiological, and quality of life outcomes of a four-week dynamic exercise program (DEP) in RA. This single-blinded randomized controlled trial is of level-one evidence: Patients were randomly assigned to their treatment groups. A total of 50 patients participated in the study. Outcomes were evaluated at baseline, 1, 6, and 12 months, except for simple erosion narrowing score (SENS), which was measured at baseline and at 12 months. Two outcomes were evaluated: the primary outcome that included functional status measured by Health Assessment Questionnaire (HAQ) and the secondary outcomes that included quality of life, functional, clinical, radiological, therapeutic, and biological modifications in both groups. Several tools were used in the secondary outcomes and included Nottingham Health Profile (NHP), Simple Narrowing Erosion Score (SNES), and disease activity score (DAS28), amongst others. Analysis of covariance (ANCOVA) was used to determine statistical significance of variation between baseline values between DEP and standard joint rehabilitation, considering that $p < 0.05$ was statistically significant. There was no significant difference between the two groups as functional status was being measured with HAQ. At 1 month, HAQ measurement was better in DEP than standard joint rehabilitation group ($p = 0.04$). No statistical significance was noted at 6 months ($p = 0.25$) or at 12 months ($p = 0.51$). After 1 month, quality of life measured by NHP in the DEP group was noted (-23 vs. +7 in control group, p +0.01). Another improvement was also noted in the aerobic fitness, which was measured on an exercise bike (+0.2km in 5 minutes, $\underline{p} = 0.02$). After the 1-

month mark, the progress was not statistically significant. Although DEP might have shown improvement after a month in patient's functionality, the specific effects of exercise on functional status evaluated by the HAQ remains unclear. Further, the sample may have been statistically influential in this study (Baillet et al., 2009).

Badsha et al. (2009) measured the effects of a bi-weekly Raj yoga program on rheumatoid arthritis (RA) disease activity. They further indicated that yoga is beneficial to RA and other forms of arthritis. This pilot study addressed the lack of sufficient evidence to support the use of yoga in United Arab Emirates RA patient. This small experimental study was of level-one evidence, although rheumatologists were not blinded and there was no randomization in the control group. A total of 47 participants enrolled in the study. They were required to complete questionnaires and participate in 12 yoga sessions. The main outcomes measured in the study were the DAS28 and the HAQ. All statistical analyses were performed using the intercooled STATA 8.2 for Macintosh with ($p = 0.05$) considered to be statistically significant. Clients who completed the 12 yoga sessions noticed improvement in all RA disease activity parameters. A statistically significant improvement was noted in the yoga group, particularly in the HAQ scores with $p = 0.015$. However, due to the small study size and the short time, Badsha et al. (2009) leave room for further exploration to be done.

Uhlig, Fongen, Steen, Christie, and Odegard (2010) aimed at examining how standardized tai chi group exercise program affected RA disease activity, physical function, health status, and patients' experience of tai chi. This study, in which 15 patients with RA were recruited, was achieved via a focus group interview. Furthermore, this study is of level-one evidence because it is an experimental study and the assessors

were independent. This study identified the lack of knowledge about the mechanism of benefit of tai chi on physiological and psychological level, the discrepancy between observed outcomes in spite of unchanged body functions, and the lack of studies exploring patients' experience during tai chi. It further examined whether quantitative physical or psychological outcomes correspond to how patients perceive tai chi. A study from the author's review of the literature, *Efficacy of tai chi brisk walking, medication, and reading in reducing mental and emotional stress* (1992), addressed the physiological and psychosocial benefits of tai chi. Fifteen participants were recruited for the study. After the implementation of an intervention, the outcomes measured, physical performance tests assessing balance, strength, and endurance in lower-limb and shoulder function, and self-report health status, were recorded at baseline, at a week, and at 12 weeks. Furthermore, 2 weeks after tai chi intervention, all patients were invited for a focus group interview. The Wilcoxon signed rank test was used for within-group comparisons with a level of significance of $p < 0.05$. Results for both disease activity and physical performance indicated that that were a significant within-group improvements in number of swollen joints at end of intervention ($p = 0.01$) and at 12 weeks ($p = 0.02$), and for time-stand test at the end of intervention ($p = 0.01$) and at 12 weeks ($p < 0.01$). From a health status standpoint, the results indicated statistically significant improvement for the SF-36 social functioning scale ($p = 0.03$) between baseline and 12 weeks. The interview indicated that patient expressed a positive experience from tai chi, increased body awareness, and relaxation and increased improvement in walking, while one patient reported increased pain that eventually decreased to a lower level. Improved health outcome was related to muscle strength and endurance both from a quantitative and

qualitative perspective. The authors addressed the lack of similar results from previous qualitative studies on the same problem. Therefore, it is not necessarily convincing that tai chi will decrease disease activity in RA (Uhlig et al., 2010).

Baillet et al. (2010) evaluated the efficacy of aerobic exercises in RA on quality of life, function, clinical, and radiologic outcomes. A systemic literature search was done using Medline, EMbase, and Cochrane databases up to July 2009. In this meta-analysis of randomized controlled trials (RCTs), of level-one evidence, the problem addressed was the lack of clarity noted from previous trials on the parameters listed above. The intervention utilized in this study was guided by the evidence-based recommendations made by the American College of Sports Medicine (1990). This meta-analysis, a review of 14 randomized controlled trials, included 1,040 patients. The analysis revealed that exercise showed some positive effect on HAQ ($p = 0.0009$), on swollen joint count ($p = 0.14$). A myocardial infarct and a pulmonary embolism were recorded in the intervention. The analysis further indicated that disease activity had not worsened in the exercise group. In addition, aerobic exercise had a positive impact on pain and quality of life but duration played a key factor. An important issue raised from this analysis is safety as myocardial infarct and pulmonary embolism were recorded. Since the mean age was between the ages of 44 to 68, concerns should be raised regarding the safe generalizability of this study to the elderly population (Baillet et al., 2010).

Sjoquist, Brodin, Lampa, Jensen, and Opava (2011) identified a need for more research since previous RCTs' results were inconclusive due to lack of long-term follow-up. A study from the author's review of the literature, Physical Activity and Public health: A recommendation from the Centers for Disease Control and Prevention and the

American College of Sports Medicine (1995), suggested that performing exercise of moderate intensity should help manage RA. This study aimed investigating the long-term effects on perceived general health, disease activity, pain, activity limitation, and cognitive behavioral factors of a one-year coaching program carried out in everyday practice to promote adoption of health-enhancing physical activity patients with early RA. This was a level-one evidence study as the treatment's recipients and administrators were blinded. Ordinary physical activity was made accessible to all participants. However, those in the IG group underwent a one-year coaching program. Between-group analyses were performed using the Chi-square test for nominal data, Mann-Whitney U test for ordinal data or student's *t*-test for interval data. From the primary outcome, CG participants reported better general health perception. On the other hand, no difference was noted between IG and CG as they pertained to the other outcomes (Sjoquist et al. , 2011).

In this randomized controlled study of level-one evidence, group assignments were randomized and treatment administrators were blinded. Breedland et al. (2011) identified that people with RA avoid physical activity and experience a decrease in muscle strength, muscle endurance, and aerobic capacity. The aim of this study was to evaluate the effects of a group-based exercise and educational program on the physical performance and disease self-management of people with RA. The author's review of literature contains multiple studies supporting the benefits of exercise. A total of 34 patients consented to the study. Participants from the IG underwent an educational program and physical exercise. Outcomes to be measured were the aerobic capacity and muscle strength, self-reported health status, and self-efficacy. The student's t-test and

chi-square tests were used to assess characteristics between intervention and WLC group. Results indicated that a major improvement was noted in vo2max after the intervention. Regarding upper and lower extremity muscle strength, significant changes were recorded over time in favor of the intervention group. The same trend was noted with participants' physical health. Although the author judges that implementing this study is safe and that it should be implemented as the standard of care in RA population, more exploration should be conducted, particularly pertaining to the elderly population and RA, due to the lack of diversity within the age groups (Breedland et al., 2011).

Baillet et al. (2012) indicated that few studies identified the efficacy of resistance exercise-based therapy for RA patients with respect to pain, disease activity, functional capacity, quality of life and structural damage. This study aimed to evaluate the efficacy of exercise on the parameters listed above. A systematic search was conducted up to August 2009 on PubMed, Embase, and Cochrane. This meta-analysis of RCT is of level-one evidence and comprised of 547 patients. Outcomes that were measured were muscle strength, disability, DAS28, swollen joint count, pain, ESR, exercise tolerance, and radiological damage. Results indicated that resistance exercise had a positive effect on isokinetic strength ($p < 0.001$), on isometric strength ($p < .0.001$), and on functional capacity ($p < 0.001$). Furthermore, resistance exercise was found to decrease swollen joint count ($p = 0.04$), causative to a significant decrease in ESR ($p = 0.005$). As Baillet et al. (2012) indicated, participants were of middle-aged range. Therefore, it can be argued that this study is not safe to generalize to the elderly population (Baillet et al., 2012).

All nine studies in this section articulated the benefits of physical activity of RA. This project reinforced the benefits of physical activity delineated in this section.

Section Summary

This section discussed the current state of the knowledge about the need for knowledge about the physical activity benefits, the clinical aspects of RA, the pain related to RA symptoms, the benefits of physical activity, and the role of therapeutic management. Furthermore, the literature was divided into categories. The current knowledge indicates that physical activity shows improvement in the progression of RA and is an appropriate solution for decreasing pain.

SECTION THREE

METHODS

The purpose of this project was to implement an educational intervention that educates patients about the benefits of physical activity exercises and how these exercises can help to alleviate symptoms of RA thereby improving quality of life. This chapter outlined the project design, setting, sampling strategies, and means for protection of human subjects. Additionally, project implementation, budget requirements, and project evaluation were addressed.

Project Objectives

The objectives for this DNP project were to:

1. Identify a targeted evidenced based tool that will educate patients with RA on the benefits of physical exercises as it relates to their disease process.
2. Educate patients with RA regarding the importance and benefits of physical activity exercises and their disease process
3. Create a targeted educational intervention program for patients with RA using an evidenced based tool to:
    a. Review the disease process of RA
    b. Encourage the participants how important it is to start treatment early
    c. Educate the participants on the benefits of physical activity exercises as they relate to the disease process of RA
4. Evaluate the effectiveness of the educational intervention provided to patients with RA regarding the benefits of physical activity exercises and their disease process.

Project Questions

1. Will an educational intervention addressing the recommended benefits of physical activities for patients with Rheumatoid Arthritis be effective in improving patients' basic lack of knowledge regarding the benefits and importance of physical activity and RA?
2. Will the educational intervention help to promote self-management of RA symptoms by encouraging patients to participate in physical activity exercises?

Project Design

The purpose of this project was to implement an educational intervention that educates patients about the benefits of physical activity exercises and will teach, and reinforce how important these exercises can be in helping to alleviate symptoms of RA thereby improving quality of life. Patients need to be educated on the importance of how early assessment and treatment promotes a reduction in disease activity, joint damage, a decrease in functional impairment. Robinson and Taylor (2011) explored some of the reasons involved in the delay of treatment and assessment of rheumatoid arthritis. The reasons investigated included poor rapport between clients and their primary care physicians (PCP); clients wanting to avoid wasting their time and the PCP's time; and most importantly, a lack of public knowledge about RA, the significance of the illness, and the necessity of early treatment.

This capstone project sought to enhance care of patients with RA. This capstone project was guided using the construct of the ACE star model of knowledge transformation. The project took on a descriptive and interventional approach as the DNP student administered an educational intervention program for patients with RA that

will address knowledge deficits related to the disease process of RA, the signs and symptoms of RA, the progressive symptoms of RA, and the benefits and importance of physical activity exercises related to the disease process of RA. The program was presented with an emphasis on promoting self –management and how physical activity exercises may help in reducing the symptoms of RA and improving quality of life.

Project Phases

This educational intervention was conducted over a three phase process. Phase one entailed submitting and obtaining IRB approval, designing the flyer and consent, obtaining letters of support from the USBJI, and developing and organizing the educational intervention with the development of a program review. Phase two involved the recruitment of participants and the implementation of the educational program. The third phase included the descriptive analysis of the data. The timeline in (Figure 2) is a pictorial description of all three phases.

	Phase 1 **Apr.-May** **2015**	**Phase 2** **May-June** **2015**	**Phase 3** **June-July** **2015**
IRB Submission and Approval	→		
Design of Flyers	→		
Design of Consent	→		
Letters of Support	→		
Recruitment of Participants		→	
Design of Educational Program	→		
Implementation of Educational Program & Evaluation		→	
Data Analysis			→

Figure 2. Project timeline.

Phase One

Phase one included submitting and obtaining IRB approval from Barry University, designing the flyer and consent, obtaining letters of support from the USBJI, and developing and organizing the educational intervention with the development of a program review. Upon approval from Barry University's Institutional Review Board (IRB), an evidenced-based educative program was used to conduct the intervention. Authorization from the United States Bone and Joint Initiative (USBJI) was granted to use its educative program, *Experts in Arthritis* (EIA), a nationwide program tailored to improve the quality of life of those affected by RA. This educative interventional tool in the form of a power point with handouts from the national-evidenced based USBJI program was utilized to provide RA patients with evidenced-based data regarding RA. A literature review of nursing and medical sources, in addition to studies indicating the most current data on the topic, was appraised. A program evaluation, handouts, and a 15 slide PowerPoint presentation was used to conduct the educational program. The evaluations were used to assess the program's strength and weaknesses, and the improvement in participants knowledge base regarding the benefits of PA and RA, which would also help to create opportunities for improvement of future presentations. The evaluation was developed by the doctor in nursing practice (DNP) student.

Phase Two

This phase of the educational interventional program involved the actual implementation of the educational program. Permission was obtained in writing from the medical director (Appendix C) to conduct an educational program at a local South Florida medical center. This program will be presented via a power point format which

will include handouts of the presentation. Following the presentation a hand written evaluation was given to the participants and the DNP student left the room to provide privacy for the participants. The DNP student was available for questions if needed.

A desired sample size of 15 participants was targeted, and this educative event was scheduled to be held over a one month period. However, the possibility of not meeting this number or exceeding it was taken into consideration as a result of participants' obligations that may take place. Flyers were made available at the local South Florida medical center once approval was obtained from IRB. Participants were recruited during their regularly scheduled primary care visits to the medical center. If interested and willing to participate, information regarding the inclusion and exclusion criteria, the risks and benefits, the purpose of the program, was provided at the time of acceptance to participate is granted. During the implementation phase of the project, the DNP student utilized the help of the clinic staff in identifying patients that met inclusion and exclusion criteria for the project. No coercion at any time was placed upon the staff or the patients to be involved in the project

Once participation in the project was mutually agreed upon by the patient and the DNP student, participants were directed to a classroom environment located on the clinics premises. Prior to beginning the program, a cover letter and an informed consent was presented to the participants. This cover letter addressed several points including the duration of the program, alternative measures if they were to decline participation, risks, and benefits. Once the cover letter was fully read, and understood by the participant, and the consent to participate was obtained, the program was initiated. The program was estimated to last approximately 35 minutes. The education program was set up on a

laptop as a power point format and followed a didactic form of teaching which - encouraged the participants to engage in the program by asking questions while they were learning the information.

After completing the power point presentation on the laptop, a hand written evaluation form for the program was handed to each participant. The evaluation forms contained no names or identifiers. In addition to the evaluation form, participants were provided with a pencil, and a clipboard and asked to place the completed form in a locked box which was located in a designated area of the room. At this point the DNP student left the room to provide privacy for the participant.

At the end of the educational intervention, and once the targeted amount of participants was met, the surveys were removed from the box and were evaluated by the DNP student.

Phase Three

In this phase, the data from the evaluation reflected the significance and validation of the educational intervention. In the first three sections of the evaluation, participants were asked to rate 5 statements with choices from (1-4) definitely to definitely not. The mean score of each of those was calculated to assess participants' perceptions about the program.

The second section of the evaluation consisted of two fill-in-the-blank questions and was analyzed by recording the percentage of participants who answer those questions. Furthermore, the comments generated from those two questions was sorted as either positive or negative. After a descriptive analysis of the evaluation forms is completed, all forms were kept in a locked cabinet at the completion of the project.

Setting

Permission (Appendix D) to access and recruit potential participants for this project was granted by the medical director of a local South Florida medical center. Patients with rheumatoid arthritis (RA) were the targeted group for this project. Participants were recruited during their regularly scheduled primary care visits to the medical center. The targeted population in this project included men and women affected by RA who are 18 years of age or older and who attended the clinic as their primary care office.

Sampling Strategies

Inclusion Criteria

This convenience sample included men and women with self-reported diagnosis of rheumatoid arthritis. Participants must have been 18 years old or older and English speaking and would be instructed at the beginning of the educational intervention that this was only an educational program, and that they were required to obtain permission from their physicians before starting any form of physical activity program.

Exclusion Criteria

Exclusion criteria for this sample included anyone younger than 18 years old, and non-English speaking patients or those unwilling to participate.

Ethical Considerations/Protection of Human Subjects

Approval for the project was obtained from the Barry University IRB. Permission from the facility's medical director was granted to have access to the facility and recruit subjects for the education interventional program. Consent to be a research participant in this project was strictly voluntary and should the participant declined or chose to drop out

at any time during the project, there would be no adverse effects afforded to the participant. No risks were involved as this project has been conducted for educational purposes only. There were no direct benefits for participating in this project. No names or identifies were collected on any instruments used. The DNP student sought to improve the knowledge base of the participants regarding PA and RA, which would ultimately help participants to be more aware of how early treatment could help in alleviating the symptoms of RA.

Resources

The budget for this capstone included personnel, supplies, equipment, and travel expenses. Expenses included $202 for 6 hours of editing services, $200 for commuting expenses, $15 for 60 flyers, $25 for 60 pamphlets, $45 for one poster board, and $5 for 40 pencils. The total budget estimated to carry out this project is $492 dollars. This budget was subjected to change upon completion of the project.

40 Pencils	$5.00
1 Poster board	$45.00
60 Pamphlets	$25.00
60 Flyers	$15.00
Commuting expenses	$200.00
Editing services	$127.00
Data analysis software	Free
	TOTAL: $492.00

Figure 3. Project budget.

Outcomes Measures

The first objective of this project was to identify a targeted evidenced- based tool that would educate patients with RA on the benefits of Physical activity exercises as it related to their disease process. This objective was met by utilizing an evidenced- based educational program tool which has been tailored by the United States Bone and Joint Initiative which is a nationally recognized action network that focuses on improving quality of life for individuals living with joint and bone conditions

The second objective was to educate a group of RA patients in order to inform them of the importance and benefits of physical activity exercises and their disease process. This objective was met by utilizing the evidenced-based educational program tailored by the United States Bone and Joint Initiative. This program include educational handouts and a PowerPoint presentation.

The third objective was to evaluate the effectiveness of the educational intervention provided to patients with RA regarding the benefits of physical activity exercises and their disease process. This objective was met by using descriptive analysis to evaluate the evaluation forms completed by the participants of the program. This evaluation was used to assess what participants learned regarding the benefits of physical activity exercises and their disease process and was used to promote any improvements needed for future presentations.

Summary

This section discussed the methodology implicated in the development of this educational interventional program. The key concepts associated with the project design were delineated. The project phase, purpose, objectives, setting, and sampling strategies were identified. The ethical considerations associated with the development of this program were articulated. Similarly, the project implementation including the budget, data analysis, outcomes to be measured, and project evaluation were discussed.

SECTION FOUR

RA is the most common form of autoimmune arthritis, affecting more than 1.3 million Americans. The CDC postulates that the safest and most effective physical activities for RA are low impact, moderate intensity aerobics. Most patients with RA have a knowledge deficit regarding how physical activity exercises can possibly help to alleviate the symptoms of RA and help patients improve their quality of life while living with RA. Robinson and Taylor (2011) identified the lack of public knowledge about RA, the significance of the illness, and the necessity of early treatment as some of the reasons involved in the delay of treatment and assessment of rheumatoid arthritis. To remediate the lack of knowledge identified and to improve the quality of life of patients with RA, the emphasis of this project has been directed towards the implementation of an educational intervention that educates patients about the benefits of physical activity exercises and that teaches, and reinforces how important these exercises can be in helping to alleviate symptoms of RA. This section discusses; the findings of the project, the evaluation of the educational intervention, the strengths and limitations of the project, the implications of the project, the link of the findings to the doctor of nursing practice essentials, and recommendations for future research.

Objectives

The objectives for this DNP project was to:

1. Identify a targeted evidenced based tool that will educate patients with RA on the benefits of physical exercises as it relates to their disease process.
2. Educate patients with RA regarding the importance and benefits of physical activity exercises and their disease process.

3. Create a targeted educational intervention program for patients with RA using an evidenced based tool to:

    a. Review the disease process of RA

    b. Encourage the participants how important it is to start treatment early

    c. Educate the participants on the benefits of physical activity exercises as they relate to the disease process of RA

4. Evaluate the effectiveness of the educational intervention provided to patients with RA regarding the benefits of physical activity exercises and their disease process.

Project Questions

1. Will an educational intervention addressing the recommended benefits of physical activities for patients with Rheumatoid Arthritis be effective in improving patients' basic lack of knowledge regarding the benefits and importance of physical activity and RA?
2. Will the educational intervention help to promote self-management of RA symptoms by encouraging patients to participate in physical activity exercises?

Findings of the Project

Discussion of Phase One

The objectives of phase one were met by completing several steps. Phase one consisted of submitting and obtaining IRB approval, designing the flyer and consent, obtaining letters of support from the USBJI, and developing and organizing the educational intervention with the development of a program review.

Permission from Barry University was granted to carry on with the capstone (Appendix A). A flyer (Appendix G) was designed to promote the educative program.

The content of this flyer included the title of the project, the inclusion and exclusion criteria, the duration of the project, and some contact information if any patients were interested in participating in this project. Due to the greater prevalence of Haitian patients attending this clinic, the inclusion criteria was modified to include Haitian patients in this project. A revision of both the inclusion and exclusion criteria of the flyer (Appendix P) was made to include the Haitian patients who attend the medical center as their primary care office. Additionally, a consent form was created to inform participants about the inclusion and exclusion criteria, the risks and benefits, and the purpose of the program. The consent form (Appendix Q) was translated in Haitian Creole for Haitian patients living with RA who would want to participate in the educative program. The implementation of this project was facilitated by obtaining permission from the United States Bone and Joint Initiative (USBJI) to use its educative program, *Experts in Arthritis* (EIA). EIA is a nationwide and evidence based program tailored to improve the quality of life of those affected by RA. The letters of support from the USBJI addressed the possibility to modify its' program to tailor it to the population in question. Therefore, the program was modified to a 15 slide PowerPoint (Appendix F) that has been utilized to educate the patients at a South Florida medical center. Further, an evaluation was developed by the doctor in nursing practice (DNP) student to assess the program's strengths and weaknesses. Additionally, this evaluation appraised the improvement in participants' knowledge base on the benefits of physical activity (PA) and RA, which will create opportunities for improvement of future presentations.

Discussion of Phase Two

Phase two entailed the recruitment of participants and the implementation of the educational program. The objectives of phase two were met by completing the following steps. Prior to conducting the educational program at the local South Florida medical center, permission to host the program at the facility was obtained in writing by the medical director (Appendix E). Subsequently, flyers were made available at the medical center. Although the duration of the project was initially estimated to last over a month, the sample size of 15 was reached over a period of five days. Participants were recruited during their regularly scheduled primary care visits to the medical center. During that time period, the staff at the medical center identified the patients who met inclusion and exclusion criteria for the project. No coercion at any time was placed upon the staff or the patients to be involved in the project.

The patients who were interested and willing to participate were provided information about the project by the DNP student. The provided information addressed the inclusion and exclusion criteria, the risks and benefits, and the purpose of the program.

Once participation in the project was mutually agreed upon by the patient and the DNP student and after they were provided with the project's information, participants were directed to a classroom environment located on the clinics premises. Prior to beginning the program, a cover letter and an informed consent was presented to the participants.

This cover letter addressed several points including the duration of the program, risks, benefits, and alternative measures if they were to decline participation. To include the Haitian patients in the study, the cover letter (Appendix L), the program's evaluation

(Appendix M), and the PowerPoint presentation (Appendix N) were translated in Haitian Creole. Once the cover letter was fully read, and understood by the participant, and the consent to participate was obtained, the program was initiated. The program lasted at most 35 minutes. The educational program was set on a laptop as a PowerPoint format and followed a didactic form of teaching which encouraged the participants to engage in the program by asking questions while they were learning the information.

After completing the PowerPoint presentation on the laptop, a hand written evaluation form for the program was handed to each participant. The evaluation forms contained no names or identifiers. In addition to the evaluation form, participants were provided with a pencil and a clipboard, and asked to place the completed form in a locked box which was located on a table in the room. At this point the DNP student had vacated the room to provide privacy for the participant.

On the fifth day, at the end of the educational intervention, and once the targeted amount of participants was met, the results were removed from the box to be evaluated only in the presence of the DNP student.

Discussion of Phase Three

The third phase was the descriptive analysis of the data. Microsoft Excel was used to calculate this descriptive analysis. Eighteen participants met inclusion criteria; however, three declined participating in the program. The reasons for their decline included one patient believing that her participation would have negatively impacted her medical benefits from the government. Another patient was unable to participate in the program because her husband did not want to wait an additional 35 minutes after her visit

with her primary care physician (PCP). The third patient became uninterested in the program once she had learned about the purpose of the study.

Demographic Characteristics of Study

All participants were 18 years old or older living with RA (N = 15). An analysis of the number of patients who participated in the project indicated that 86.6% (n = 13) were females, and 13.4% (n = 2) were males. This finding is expected and supports the existing evidence that more women than men are affected by RA. According to the American College of Rheumatology, RA, the most common form of autoimmune arthritis, affects more than 1.3 million Americans. Of these, about 75% are women (Ruderman, & Tambar, 2012). Furthermore, 86.6% (n = 13) were Haitian Creole speaking, and 13.4% (n = 2) were English speaking.

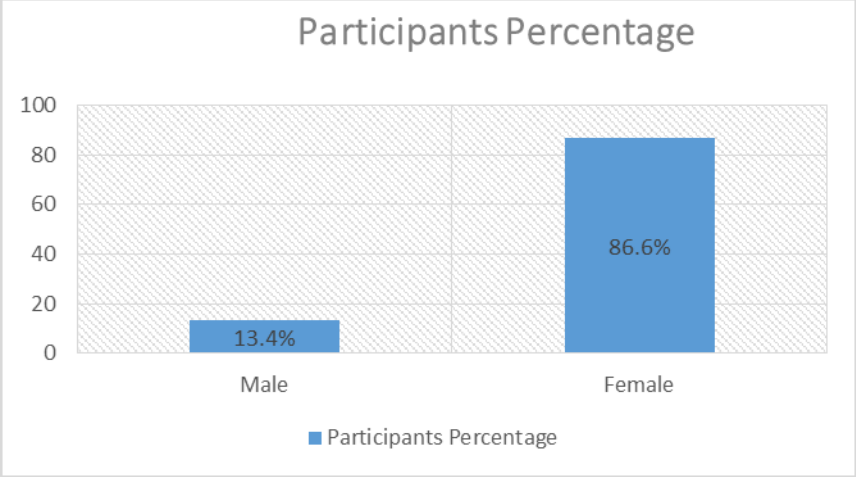

Figure 4. Gender percentage of sample population.

Educational Program Evaluation

About the Presentation

The data retrieved from the *About the Presentation* section of the educative program reflects the significance and validation of the educational intervention. This

section of the evaluation asked participants to rate 5 statements with choices from (1-4) definitely to definitely not. The mean score of each of those choices was calculated to assess participants' perceptions about the program. Additionally, participants are asked to check the boxes for the best answer that suits their opinion. The analysis of the first statement "I can identify some of the common signs and symptoms of rheumatoid arthritis" indicated 60% (n = 9) of the participants checked "Definitely", 13.3% (n= 2) "Maybe", 6.7% (n = 1) "Maybe not", and 20% (n = 3) "Definitely not". The analysis of the second statement "I can identify some of the ways that I can help myself be healthier" showed that 86.6% (n = 13) participants checked "Definitely", and 13.4% (n = 2) checked "Maybe". The third statement "I understand how these exercises that I have learned about can help in alleviating the symptoms of rheumatoid arthritis" indicated that 86.6% (n = *13*) of the participants checked "Definitely", and 13.4% (n = 2) checked "Maybe". The fourth statement "I understand the importance of physical activity and rheumatoid arthritis" indicated that 73.3% (n = 11) checked "Definitely", 6.7% (n = 1) checked "Maybe", and 20% (n = 3) checked "Definitely not". The fifth statement "This presentation was beneficial in helping me to understand the benefits and importance of physical activity exercises" showed that 86.6% (n =13) of the participants checked "Definitely", 6.7% (n =1) checked "Maybe", and 6.7% (n = 1) checked "Maybe not". As indicated by the responses on this fifth statement, participants reported an increase in knowledge. This not only shows knowledge acquisition, but also addresses the gap in knowledge about RA and the benefits of physical activity. As indicated by the average mean for the four different answer choices, a greater number of participants reported that they were able to identify the signs and symptoms of RA, the means to become healthier,

and the different types of physical activity and its importance. A mean of ($\bar{x}$=78.6%) participants have checked “Definitely” for all five statements when compared to a mean of ($\bar{x}$=8%) participants who selected “Definitely not”. Those who selected “Maybe” had a mean of ($\bar{x}$ = 10.7%), and a mean of ($\bar{x}$=2.7%) for those who checked “Maybe not”.

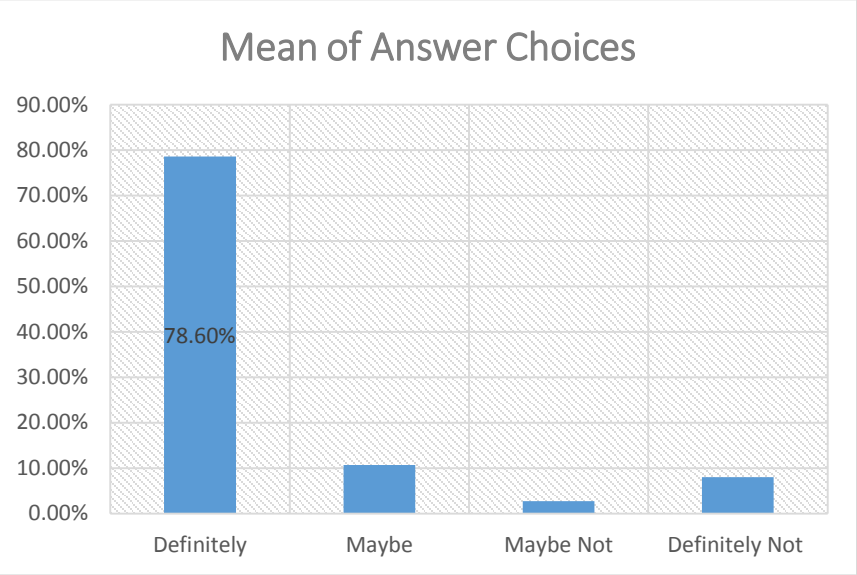

Figure 5. Mean of answer choices.

Fill-in-the-Blank Questions

The second section of the evaluation consisted of two fill-in-the-blank questions and was analyzed by recording the percentage of participants who answer those questions. The comments generated from those two questions were sorted as either positive or negative. A total of 93.3% (*n* =14) answered both fill-in-the-blank questions while 6.7% (*n* =1) did not answer any of the questions.

The first fill-in-the blank question “What did you like about the presentation?” generated all positive answers. The major theme identified in this section of the evaluation was the acquisition of new knowledge. Several participants mentioned how appreciative they were of the knowledge gained about physical activity exercise and its

benefits to alleviate the symptoms of RA and improve their quality of life. One participant stated “Sa’m te renmen se aprann fason pou’m soulaje doulè nan jenou mwen.yo.” Her statement translates as follows in English “What I liked is learning ways to relieve my knee pain.”

The second fill-in-the-blank question “What did you dislike about the presentation?” generated all positive answers. Most patients stated that they liked everything about the presentation. One patient stated “I liked everything that you said. They’re all necessary. Sitting down stationary is no good.” Another patient stated “I think it was wonderful. Every patient should be educated on this condition so they can take control to live with it longer.”

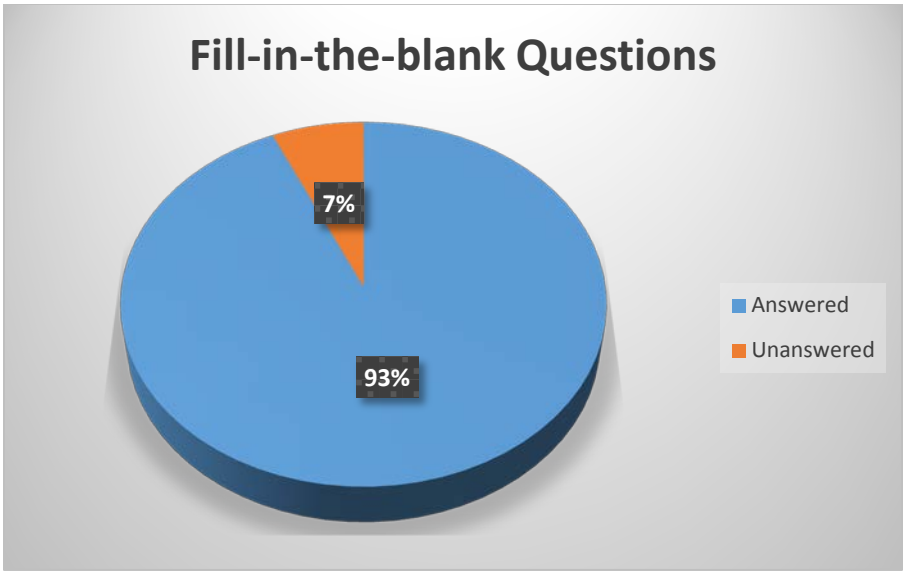

Figure 6. Percentage of answered and unanswered fill-in-the-blank questions.

Strength and Limitations

The information retrieved from the evaluation of the program provided crucial data proving the effectiveness of the program. Most importantly, it addressed the following question, will an educational intervention addressing the recommended

benefits of physical activities for patients with Rheumatoid Arthritis be effective in improving patients' basic lack of knowledge regarding the benefits and importance of physical activity and RA? The data from the evaluation indicated that 86.6% of the participants have acquired knowledge from this educational intervention. Furthermore, as discussed previously, the data supports the existing literature postulating a greater prevalence of RA amongst women when compared to their male peers.

A significant limitation to this study is the inability to accurately measure whether participants will or will not put the knowledge gained into action. This uncertainty makes it challenging to answer the following question, Will the educational intervention help to promote self-management of RA symptoms by encouraging patients to participate in physical activity exercises? Although participants may affirm that they would partake in self-management of their symptoms by participating in physical activity, there is not enough information or proper tools to accurately measure those outcomes. Another limitation to this study is lack of diversity amongst the sampling population. The majority of the sample (86.6 %) was Haitian which limits the opportunity to explore the problem amongst other groups.

Implication of the Project

Healthcare Practice

The findings of this study are a reflection of the pivotal role of education. The nurses' role in patient's education is crucial; this role is detrimental to health promotion and disease prevention. The CDC (2013) identified education as a tertiary prevention strategy deemed effective in the promotion of self-management of arthritis. As a tertiary prevention, education seems to delay the progression of disease. Despite the existing

literature on the importance of education, and despite the awareness amongst primary care providers (PCPs) of the importance of their role in promoting physical activity to patients, the lack of knowledge remains stagnant.

The findings of this educative program may impact nursing practice by reiterating the urgency for PCPs to promote the importance of physical activity to their patients. The data collected from the results shows that 86.6% of patients who participated in this study indicated that they gained knowledge from the presentation delivered by the DNP student. Those findings create an opportunity to remind nurse practitioners of their role as educators. Furthermore, it creates an occasion to explore the means to make the educative process more feasible and more effective between the provider and the patient. The role of educator most definitely applies to register nurses particularly at the bedside. The registered nurses' role as educators is pivotal to health promotion and to the improvement of the patients' quality of life. Additionally, physical therapists should reinforce physical activity in patients affected by rheumatoid arthritis as the literature indicates the importance of physical activity on this disease.

Health Care Outcomes

The findings from this project may play an integral part in advanced practice nursing because they are reflective of the importance of promoting self-management skills for RA. Self-managing RA entails practicing physical activity which decreases pain, improves function, and reduces disability with all forms of arthritis (Centers for Disease Control and Prevention, 2014). The healthcare outcomes for patients with Rheumatoid Arthritis are dependent upon disease severity and the patients' functional abilities. If physical activity is implemented early in RA, according to the recommended

guidelines, disease complications could be significantly limited. The findings of this project reflect a knowledge gain on the different aspects of RA which will assist patients with identifying better means to care for self. Whether patients will or will not utilize the information gained to implement better ways to manage their illness cannot be determined at this time. Those who choose to apply the knowledge gained by engaging in physical activity have a better chance to improve their quality of life.

Health Care Delivery

Nurse practitioners play an important role in health care delivery. Their role is multidimensional as they are able to provide care in different settings by using different approaches to care for their patients. The findings from this project may reinforce in the nurse practitioners' community the importance of the educative component of their plan when delivering care. As discussed earlier, the role of education is imperative to health promotion and disease prevention. Thus, health promotion and disease prevention improves patient quality of life. Increasing the quality of life and years of life and eliminating health care disparities are some of the United States Department of Health and Human Services (2014) Healthy People 2020 goals. Advance practice nurses who put into use their role as educators can contribute in many ways to achieving this goal by offering the freedom of knowledge to patients. Thus, educating patients to potentially influence their ability to make informed decision about their health will assist in eliminating health disparities.

Health Care Policy

The need to raise awareness on the importance of exercise on RA relies greatly on the efforts of the advance practice nurse to educate the public. The findings generated

from this educative program paves way for future research and needs assessment in order to find effective means for advance practice nurses to educate their patients. Ultimately, the study's results not only create new research opportunities; but also provide resources or data to support public health policy makers in developing new policies. Further, as substantial evidences are gathered, the government may eventually create policies mandating for nurse practitioners and health care providers to educate their patients living with RA on the benefits of exercise on the illness.

Doctor of Nursing Practice Essentials

The Doctor of Nursing Practice (DNP) essentials articulate the foundational competencies deemed important to all advanced nursing practice roles. The following paragraphs will provide a brief overview of each essential and how they are linked to this project.

Essential I articulates how the Doctor of Nursing Practice (DNP) is expected to use science-based theories and concepts, to integrate nursing science with knowledge from ethics, biophysics, psychosocial, analytical, and organizational sciences, and to evaluate outcomes which is reflected with the use of an evidence based practice (EBP) model that helped integrate both old and new concepts to improve care and provide a framework with which to organize evidence based practice (EBP) processes and approaches. The Academic Center for Evidence-Based Practice (ACE) star model is a simple representation of the relationships between various stages of knowledge transformation, as newly discovered knowledge is integrated into practice. This model comprises five major stages of knowledge transformation: discovery research, evidence summary, translation to guidelines, practice integration, and process/outcome evaluation.

The findings of this project indicates that the steps of this process were followed thoroughly. A lack of knowledge about RA and the benefits of exercise was first identified. Then, a literature review demonstrated the existing evidence on the benefits of exercise on RA. Subsequently, participants were educated about the benefits of exercise to influence its integration into their daily lives. However, finding out whether participants will or will not incorporate exercise in their daily lives after the educative program cannot be assessed at this time. The evaluation process indicated that participants did acquire knowledge from this project which addressed the problem identified.

Essential II addresses the expectation for the DNP to tailor and evaluate evidence-based care delivery approaches catering to the needs of patient populations, ensure accountability for quality health care and patient safety, and develop and/or evaluate effective strategies to manage ethical dilemmas inherent in patient care. In this study, the *Expert In Arthritis* (EIA), an evidence based program, was tailored to address the knowledge deficit amongst the group being studied and to fit their needs. Furthermore, it was evaluated to measure the degree of knowledge acquisition in the population in question. The findings of this evaluation not only measured the effectiveness of the program but also paved opportunities for future research.

Under Essential III, the DNP is prepared to appraise existing literature and other evidence, to design and implement processes based on evidence to evaluate outcomes, and to evaluate quality improvement methodologies based on practice and research for the purpose of improving healthcare outcomes and promoting patients' safety. Today, healthcare is governed by evidence based practice. Additionally, the safest and most

accurate data is used to deliver safe care to patients to positively influence outcomes. The literature appraising RA and the benefits of physical activity provided a wealth of information regarding the importance of physical activity and the disease process of RA.

Essential IV articulates the DNP's preparation to use information systems/technology to support and improve patient care and health care systems and provide leadership within health care systems and/or academic settings. The body of knowledge incorporated in this educative program stems from search databases such as Cumulative Index to Nursing and Allied Health Literature (CINHAL), Google Scholar, and the National Guideline Clearinghouse. The DNP student exhibited mastery on information systems, such as inputting the right keywords in the search engines to gather the proper evidence based information to effectively deliver the educational intervention.

Essential V addresses the expectation for the DNP to exhibit his or her role as an advocate on behalf of the public and provide inferences between practice, research, and policy. The researcher identified a lack of knowledge in patients living with arthritis. As a patient advocate, the researcher tailored a program addressing the problem by emphasizing the importance of physical activity in patients with RA to influence better health outcomes in patients affected by the disease. When delivering care to patients suffering from rheumatoid arthritis (RA), future recommendations for policy changes should mandate that all primary care providers educate their patients on the multiple aspects of RA and the benefits of physical activity exercise to improve quality of life and to promote health.

Under Essential VI, the DNP is prepared to lead interprofessional teams, apply consultative and leadership skills with intraprofessional and interprofessional teams, and

apply effective communication and collaborative skills to implement scholarly product. This project becomes feasible through the collaborative effort between the researcher and the multidisciplinary members from United States Bones and Joints Initiative (USBJI) who granted permission to incorporate their evidence-based educative tool in this program. The DNP student possesses the proper knowledge to adequately care for his patients and to effectively lead members of the interprofessional team when delivering care. Further, this student has acquired the communication skills to decide on the appropriate situations mandating the consult of other members of the interterdisplinary team when the given situation is beyond his scope of practice.

Under Essential VII, the DNP analyzes, synthesizes, develops, implements, and evaluates scientific evidence to improve health promotion and disease prevention. By implementing an education program through this project, a tertiary prevention strategy is being promoted. This educative program aims to delay the progression of RA. The data collected from the study results are indicative of analysis and synthesis of the information provided by the participants. Additionally, the data collected from the study's results reflect the participants' perception about the educative program. Further, the findings indicated that knowledge was acquired which may potentially influence the promotion of self-management skills for RA in the population in question.

Essential VIII addresses how the DNP is prepared to practice with refined assessment skills while applying biophysical, psychosocial, behavioral, sociopolitical, cultural, economic, and nursing science, as appropriate in the area of specialization. The DNP student mastered and refined his knowledge on the multiple aspects of RA to deliver quality and evidence base information to the study's participants.

Recommendations for Future Research

Determining whether the educational intervention will or will not promote self-management of RA symptoms by encouraging patients to participate in physical activity exercises is an ambitious task. Although participants may affirm that they would partake in self-management of their symptoms by participating in physical activity after going through the educative program, there is not enough information or proper tools to accurately measure those outcomes. Future research can be conducted to provide means to measure participants' self-management skills for RA and to provide statistically significant data on the health outcomes. Additionally, future research should explore the prevalence of RA amongst Haitian women and their health outcomes. The majority of the participants in this study were of Haitian decent. This data may correlate with an actual high prevalence of the disease in that population.

Summary

This section discussed the results implicated in the completion of this educational interventional program. The key concepts associated with the project design were delineated. The discussions of the phases, and the strength and limitations were articulated. The implications for practice, health care outcomes, healthcare delivery, and healthcare policy were identified. Similarly, the DNP essentials in relations to the project were discussed.

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APPENDIX A

PROJECT APPROVAL

Barry University

College of Nursing and Health Sciences

[redacted]

Dear Jean Cazeau:

The project titled: "Rheumatoid Arthritis: Educating Patients on the Benefits of Physical Activity" is an educational intervention which does not meet criteria for full Institutional Review Board approval. As a result, this project is approved using an evaluation method.

Sincerely

Terri Rocafort MSN,ANP-BC

Director of DNP and NP Specializations

Barry University

APPENDIX B

COVER LETTER

Dear Project Participant:

Your participation in a class for helping with rheumatoid arthritis pain is requested. The title of the project is *Rheumatoid Arthritis: Educating Patients on the Benefits of Physical Activity*.

The project is being conducted by Jean Better Berenice Cazeau, RN-BSN, a student in the Doctorate of Nursing Practice Family Nurse Practitioner program at Barry University, and is seeking information that will be useful to nursing.

The aim of the project is to teach patients about how exercises may help in reducing the symptoms of Rheumatoid Arthritis (RA).

We want 15 patients to come to the class. It will last 45-60 minutes.

If you decide to participate in this project, you will be asked to do the following: participate in education session, and tell us what you think after the class by answering some questions. This should take about 5 minutes.

Your consent is voluntary.

There are no known risks or benefits.

As a project participant, information you provide will be kept confidential. No names will be collected. The surveys will be put in a box after the class. The teacher will leave before you write your answers.

If you have any questions or concerns regarding the project, you may call me, Jean Better Berenice Cazeau at [redacted], my supervisor, Dr. Corvette V. Yacoob, DNP, ARNP, FNP-BC, at [redacted], or the Institutional Review Board point of contact, Barbara Cook, at [redacted].

Thank you/Merci

Sincerely,

Jean Better Berenice Cazeau, RN-BSN

APPENDIX C

EDUCATIONAL PROGRAM EVALUATION

Please respond to each question by checking the box for the response that best suits your opinion. Do not initial or sign the form. Your evaluation will assist in the ongoing assessment of the program and the development of new contributions. It will also assist the presenter in improving the content and his/her teaching methods.

ABOUT THE PRESENTATION

	Definitely	Maybe	Maybe not	Definitely not
	1	2	3	4
1. I can identify some of the common signs and symptoms of rheumatoid arthritis.				
2. I can identify some of the ways I can help myself be healthier.				
3. I can explain how the exercises I learned can help my arthritis.				
4. I can tell you at least 3 exercises that will help				

me feel less pain.				
5. I have learned the proper information to take control over my rheumatoid arthritis.				

Please fill in your answer in the blank area for this next section.

1. What could have helped been discussed that would help you take better care of yourself?

2. What aspect of this education program has provided you with the most knowledge to take better care of yourself?

APPENDIX D

PERMISSION TO USE EDUCATION PROGRAM

From: Blair, Sheila <[redacted]>
Sent: Tuesday, March 10, 2015 10:30 AM
To: Cazeau, Jean Better (Barry Student)
Subject: Experts in Arthritis

Jean,

Thank you for your interest in our ***Experts in Arthritis*** program. The session is designed to take around 45-60 minutes. There is a prepared presentation, although a presenter is able to modify it to suit. We send you hand-outs and a number of other materials. All materials are free of charge.

I am attaching a brochure on the program and a registration form. I am also attaching our guidelines for presenters/organizers. Once you have decided on a date and time and returned the completed registration form to me, I can send you the PowerPoint presentation with notes.

Will you be the presenter as well as the organizer?

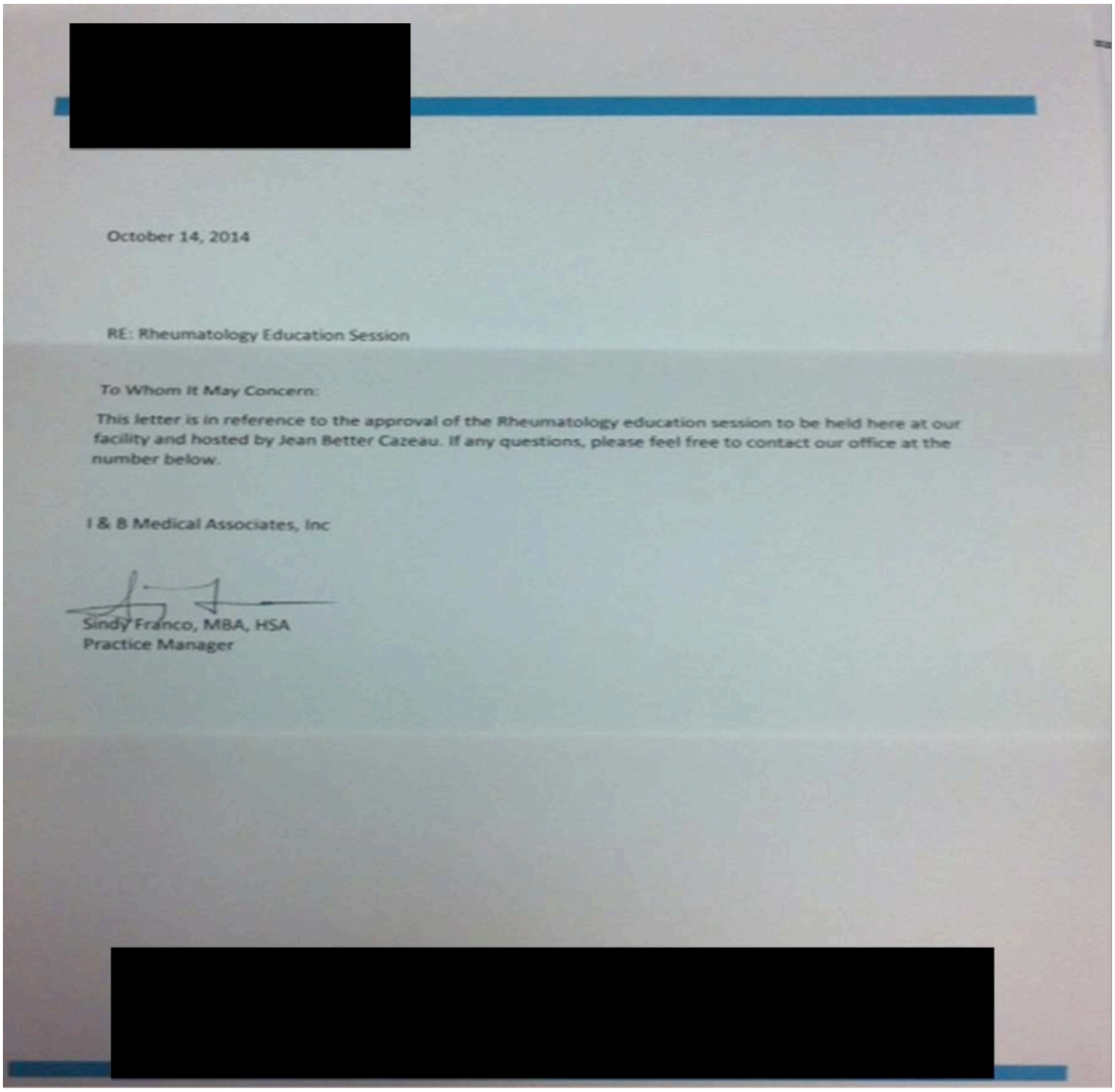
The USBJI is a network of 100 professional healthcare, patient and public organizations raising awareness of musculoskeletal health, prevention education and research.

I look forward to hearing from you,

Sheila Blair
Program Coordinator
My schedule: Tues, Wed, Thurs - 9 am – 3 pm
United States Bone and Joint Initiative, NFP
[redacted]
Public Education Programs
Fit to a T: visit www.fit2t.org
PB&J: visit www.pb-j.org
Experts in Arthritis: www.usbji.org

APPENDIX E

PERMISSION TO USE SITE FOR INTERVENTION



[redacted]

October 14, 2014

RE: Rheumatology Education Session

To Whom It May Concern:

This letter is in reference to the approval of the Rheumatology education session to be held here at our facility and hosted by Jean Better Cazeau. If any questions, please feel free to contact our office at the number below.

I & B Medical Associates, Inc

Sindy Franco, MBA, HSA
Practice Manager

[redacted]

APPENDIX F

EXPERT IN ARTHRITIS (EIA) POWERPOINT

Experts in Arthritis

A public seminar for people with arthritis and people who care

Experts in Arthritis

The Role of the Patient in Disease Management

Experts in Arthritis

Experts in Arthritis

Self-Management

An individual's ability to manage:

- Symptoms
- Treatment
- Consequences (physical & psychological)
- Lifestyle changes

Experts in Arthritis

The Team

- **You**
- Primary Care Physician (PCP), who will involve other health professionals: rheumatologists, nurses, occupational therapists, physical therapists, others
- Significant others, family and friends

Experts in Arthritis

Self-Management Programs *Do* Help

Self-management programs help you:

- Understand the disease
- Reduce pain while **remaining active**
- Cope physically, emotionally, and mentally
- Have greater control over the disease
- Build confidence in your ability to live an **active**, independent life

Experts in Arthritis

Emotional Strategies

- Coming to terms - Acceptance
- Learning to cope, overcoming negativity
- Managing emotions, perceptions, self-talk
- Gaining **energy,** concentration, sleep
- Appearance, attitude, managing stress

A **more active role** means added sense of well-being and taking control

Experts in Arthritis

Role and Impact of Exercise on Disease Management

Experts in Arthritis

Physical Strategies

- Fatigue – Pacing Your Activities
- Relaxation, distraction, fun
- Adequate sleep at night
- Diet and nutrition
- Exercise
- Heat and cold
- Assistive devices

Experts in Arthritis

Arthritis & Physical Activity

- Reduces pain & stiffness
- Increases flexibility & endurance
- Helps strengthen muscles around joints
- Increases energy over time
- Boosts immune system
- Can help keep weight in check
- Raises spirits & increases self-esteem

Experts in Arthritis

Educational and Treatment Strategies

- Visit your health care provider regularly and discuss self-management strategies
- Learn how to research credible sources
- Be compliant with your medication
- Follow through with physical therapy/rehab
- Practice joint protection

Experts in Arthritis

Goals of exercise program for arthritis

- **Flexibility**: Preserve/restore range of motion and flexibility around affected joints

- **Strength Building/Resistance**: Increase muscle strength
- **Endurance**: Increase aerobic conditioning to train heart and lungs (↑ health, ↓risks)

Experts in Arthritis

Flexibility

- Stretching or range of motion
  - Active, active-assistive, passive
  - Yoga or Tai Chi

Experts in Arthritis

Use healthcare professionals to tailor program

They can:

- Assess your form of arthritis, specific joint issues
- Check range of motion, joint flexibility, for pain and stiffness
- Set goals: flexibility, muscle strength, protecting joints
- Help you to start slow, build gradually

Experts in Arthritis

Strengthening/ Resistance

- Lifting weights or loads to fatigue muscles
  - Weights
  - Machines
  - Own body weight

Experts in Arthritis

Acknowledgements

Advisory Committee Members

Nancy A. Baker, ScD, MPH, OTR/L (Chair)
Anita Bemis-Dougherty, PT, DPT, MAS
Leigh Callahan, PhD
Joyce Peck Calone, MN, RN-CPNP, CDRC
Kelley Fitzgerald, PT, PhD, FAPTA
Amye Leong, MBA
Peggy Lotkovich
Eileen Moynihan, MD
Carol Oatis, PT, PhD
Debra Sietsema, PhD, RN
Terrance Stark, MD
Kimberly Templeton, MD
Janet Wyatt, PhD, RN, FAANP

Experts in Arthritis

Endurance / Cardiovascular

- Rhythmic, continuous motions
  - Low impact aerobic
  - Walking, bicycling, dancing, swimming, golf

Experts in Arthritis

Acknowledgements

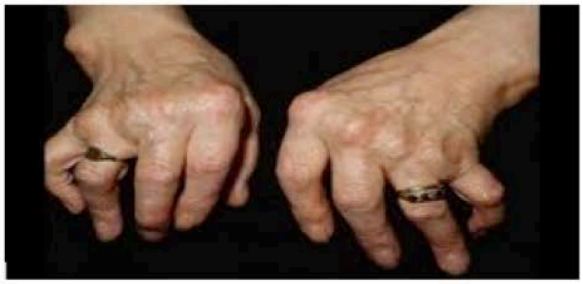
The USBJI thanks Genentech and Pfizer for supporting the ***Experts in Arthritis*** program with educational grants.


Experts in Arthritis
Acknowledgements
Collaborating Organizations
American Academy of Pediatrics
American Association of Nurse Practitioners
American Association of Occupational Health Nurses
American Legion Auxiliary
American Occupational Therapy Association
American Physical Therapy Association
Arthritis Foundation
Center for Disease Control & Prevention-Arthritis Program
Natl. Association of Colored Women's Clubs
Natl. Black Nurses Association
Natl. Hispanic Council on Aging
Natl. Institute of Arthritis & Musculoskeletal & Skin Diseases
Natl. Institute of Senior Centers
Public Library Association


Experts in Arthritis
Thank you for your participation!

APPENDIX G

FLYER



You are invited to Participate in a Doctor of Nursing Practice Project.

RHEUMATOID ARTHRITIS: EDUCATING PATIENTS ON THE BENEFITS OF PHYSICAL ACTIVITY

Inclusion criteria: men and women with self-reported diagnosis of rheumatoid arthritis. Participants must be 18 years old or older, English speaking, and will need permission from their physicians before starting any physical activity program

Exclusion criteria: anyone younger than 18 years old, and non-English speaking patients or those unwilling to participate.

Duration: the program will last approximately 35 minutes.

If you are willing to participate and have any questions about this project please contact:

Jean Better Cazeau, RN-BSN

[redacted]

Doctoral Student in the College of Nursing and Health Sciences at Barry University

If you have any questions, please contact:

Jean Better Cazeau, RN-BSN

[redacted]

Or

Dr. Corvette V. Yacoob, DNP, ARNP, FNP-BC, Committee Chair

[redacted]

Or

Barbara Cook, Institutional Review Board point of contact

[redacted]

APPENDIX H

RESEARCH WITH HUMAN PARTICIPANTS PROTOCOL FORM

PROJECT INFORMATION

1. **Title of Project** Rheumatoid arthritis: Educating patients on the benefits of physical activity

2. **Principal Investigator** (Jean Better Berenice Cazeau)

Student Number or Faculty Number: 1729989

Name: Jean Better Berenice Cazeau

School – Department: Barry University – College of Nursing and Health Sciences

Mailing Address: [redacted]

Telephone Number: [redacted]

E-Mail Address: [redacted]

*NOTE: You **WILL NOT** receive any notification regarding the status of your proposal unless accurate and complete contact information is provided at the time the proposal is submitted.*

3. **Faculty Sponsor** (If Applicable)

Name: Corvette V. Yacoob DNP, ARNP, FNP-BC

School – Department: Barry University – College of Nursing and Health Sciences

Mailing Address: [redacted]

Telephone Number: [redacted]

E-Mail Address: [redacted]

Faculty Sponsor Signature:_____ Date: _____

4. **Is an IRB Member on your Dissertation Committee? Yes _____ No: ___X___**

5. **Funding Agency or Research Sponsor**
N/A

6. **Proposed Project Dates**

Start: May 20, 2015
End: May 19, 2016

Note: It is appropriate to begin your research project (i.e., the data collection process) only *after* you have been granted approval by this board. Proposals that list starting dates occurring before the date of submission will be returned without review. Please allow time for approval when determining your start date. It is best if the end date you choose is one year after the start date.

Please Provide the Information Requested Below

A. Project activity STATUS is: (Check one of the following three as appropriate.)

_X__NEW PROJECT
___ PERIODIC REVIEW ON CONTINUING PROJECT
___ PROCEDURAL REVISION TO PREVIOUSLY APPROVED PROJECT
(Please indicate in the **PROTOCOL** section the way in which the project has been revised.

B. This project involves the use of an **INVESTIGATIONAL NEW DRUG (IND) OR AN APPROVED DRUG FOR AN UNAPPROVED USE** in or on human participants.
___ YES _**X**__NO
Drug name, IND number and company:
_____

C. This project involves the use of an **INVESTIGATIONAL MEDICAL DEVICE (IMD)** or an **APPROVED MEDICAL DEVICE FOR AN UNAPPROVED USE.**
___ YES _**X**__NO

D. This project involves the use of **RADIATION** or **RADIOISOTOPES** in or on human participants.
___ YES _**X**__NO

E. This project involves the use of Barry University students as participants. (If any students are minors, please indicate this as well.)
___ YES Barry Students will be participants (Will minors be included? ___ YES ___ NO)
_**X**__NO Barry Students will participate

F. **HUMAN PARTICIPANTS** from the following population(s) would be involved in this study:

___ Minors (under age 18)
___ Abortuses
___ Prisoners
___ Mentally Disabled
___ Other institutionalized persons (specify)
___ Fetuses
___ Pregnant Women
___ Mentally Retarded
_X__ Other (specify) Patients with Rheumatoid arthritis attending a clinic.

G. Total Number of Participants to be Studied: ___15___

Description of Project

1. Abstract (200 words or less)

Rheumatoid Arthritis (RA) is a chronic autoimmune and systematic disease mistakenly attacking the joints and surrounding healthy tissues. This inflammatory process affects more than 1.3 million Americans. The disease can start at any age. Initially, the progression of the disease can be slow, constitutional, and unpredictable. These symptoms might include unusual fatigability, lack of energy, and lethargy. With time and continued inflammation, deformities worsen. As a result of increased deformities, patients ultimately lose joint function and range of motion. Eventually, R.A may become severe enough to the point where patients may become disabled. The problem is the patients with RA lack the skills and understanding to perform physical activity exercises that can help with alleviating their symptoms and in improving their quality of life. The purpose of this project is to implement an educational intervention that educates patients about the benefits of physical activity exercises and how these exercises can help to alleviate symptoms of RA thereby improving quality of life. This project will take the form of an educative intervention. An educational program will be developed to educate participants, and evaluate knowledge learned.

2. Recruitment Procedures

Describe the selection of participants and methods of recruitment, including recruitment letter if applicable. (**NOTE**: If the investigator has access to participants by virtue of his or her position within the study setting, please provide a brief description of such access.)

Flyers and posters will be made available at the local South Florida medical center once approval is obtained from IRB. Participants will be recruited during their regularly scheduled primary care physician visits to the medical center. If interested, information about the inclusion and exclusion criteria, the risks and benefits, the purpose of the program, and the dates of the presentation will provided to the participants. Additionally, the staff at the medical center will be utilized to help in identifying patients who meet inclusion criteria for the project. No coercion will be used towards the staff or the patients to participate in the project. Patients with a history of RA will be informed about the educational project at the medical center. If they are interested in participating in the

program, they will be directed to the classroom area located on the medical centers premises.

3. **Methods**

Describe procedures to which humans will be subjected. Include a description of deceptive techniques, if used, and debriefing procedures to be used on completion of the study. Use additional pages, if necessary.

The educational interventional program of the project will be the implemented after approval is received by the Barry University IRB. This program will be presented via a power point format which will include handouts of the presentation. Following the presentation a hand written evaluation will be provided to participants and the DNP student will vacate the room to provide participants privacy, however the DNP student will be available for questions if needed.

A desired sample size of 15 participants is targeted, for this educative event which will be held over a one month period time frame. However, the possibility for not meeting this number or exceeding it should be taken into consideration as a result of participants' obligations that may take place.

Prior to beginning the program, a cover letter and an informed consent will be presented to the participants. This cover letter will address several points including the duration of the program, alternative measures if they were to decline participation, risks, and benefits. Once the cover letter is fully read, and the consent to participate is obtained, the program will be initiated. The program is estimated to last approximately 35 minutes. The education program will be set up on a laptop as a power point format. This program will follow a didactic form which will encourage the participants to engage in the program by asking questions while they are learning the information.

After completing the power point presentation on the laptop, a hand written evaluation form for the program will be handed to each participant. The evaluation forms will contain no names or identifiers. In addition to the evaluation form, participants will be provided with a pencil, and a clipboard and asked to place the completed form in a locked box which will be located in a designated area of the room.

At the completion of the educational intervention, and once the targeted amount of participants is met, the results will be removed from the box to be evaluated only in the presence of the researcher.

4. **Alternative Procedures**

Describe alternatives available to participants. One alternative may be for the individual to withhold participation.

Participants may choose not to participate or withdraw at any time.

5. **Benefits**

Describe benefits to the individual and/or society.

There are no direct benefits to participating in this project.

6. **Risks**

Describe risks to the participant and precautions that will be taken to minimize them. Include physical, psychological, and social risks.

There is no risk in this project.

7. **Anonymity/Confidentiality**

Describe methods to be used to ensure the confidentiality of data obtained.

To maintain confidentiality, participants will place their evaluations in a locked box which will be located in a designated area of the class room.

8. **Consent**

Attach a copy of the consent form(s) to be signed by the participant and/or any statements to be read to the participant or informational letter to be directed to the participant. **(A copy of the consent form should be offered to each participant.)** If this is an anonymous study, attach a cover letter in place of a consent form.

9. Certification

I certify that the protocol and method of obtaining informed consent as approved by the Institutional Review Board (IRB) will be followed during the period covered by this research project. Any future changes will be submitted to IRB review and approval prior to implementation. I will prepare a summary of the project results annually, to include identification of adverse effects occurring to human participants in this study. I have consulted with faculty/administrators of any department or program which is to be the subject of research.

_ Jean Better Cazeau _ _____

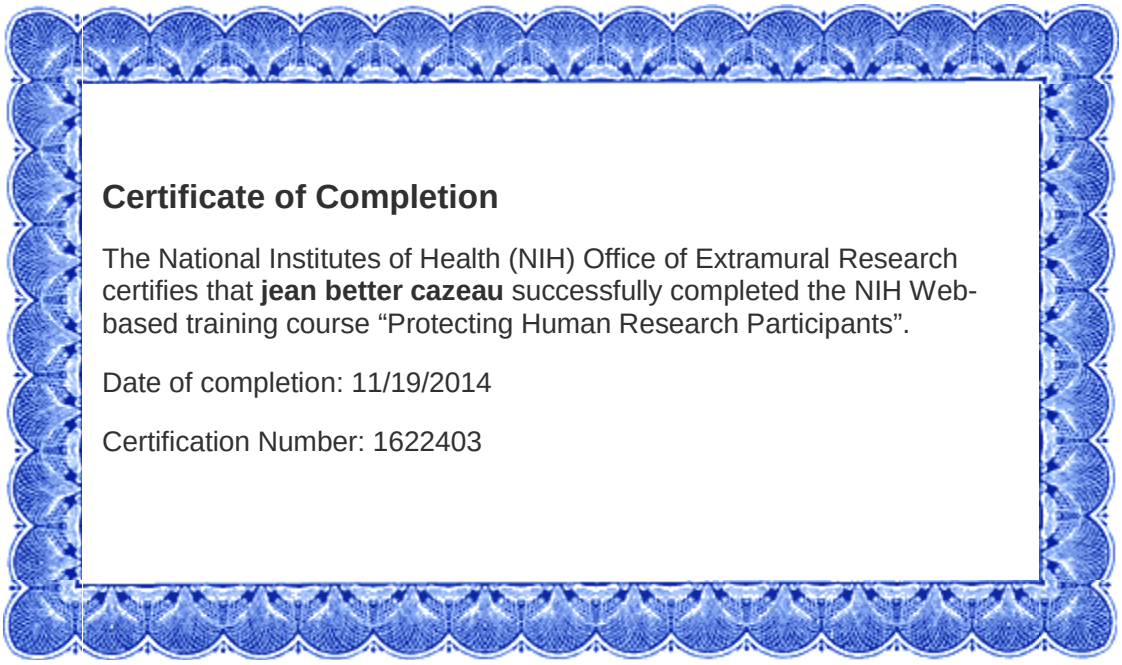
Principal Investigator *Date*

***Reminder*: Be sure to submit sixteen (16) individually collated and bound (i.e. stapled or paper clipped) copies of this form with your application.**

*NOTE: Your proposal **WILL NOT** be reviewed until the completed packet is received in its entirety.*

APPENDIX I

CERTIFICATE OF COMPLETION



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **jean better cazeau** successfully completed the NIH Web-based training course “Protecting Human Research Participants”.

Date of completion: 11/19/2014

Certification Number: 1622403

APPENDIX J

BARRY UNIVERSITY INFORMED CONSENT FORM

Barry University

Informed Consent Form

Your participation in a research project is requested. The title of the study is Rheumatoid Arthritis: Educating Patients on The Benefits of Physical Activity. The research is being conducted by Jean Better Cazeau, a student in the nursing department at Barry University, and is seeking information that will be useful in the field of Nursing. The aims of the research are to implement an educational intervention that educates patients about the benefits of physical activity exercises and how these exercises can help to alleviate symptoms of RA thereby improving quality of life. In accordance with these aims, the following procedures will be used: an educational intervention to inform RA patients of the importance and benefits of physical activity exercises and their disease process. We anticipate the number of participants to be 15.

If you decide to participate in this research, you will be asked to do the following: participate in 30 minutes educational program followed by filling out an evaluation form.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects on your health care, employment, or grades.

There are no known risks to you. Although there are no direct benefits to you, your participation in this study may help our understanding on what participants learned regarding the benefits of physical activity exercises and their disease process and will be used to promote any improvements needed for future presentations.

As a research participant, information you provide will be held in confidence to the extent permitted by law. Any published results of the research will refer to group averages only and no names will be used in the study. Data will be kept in a locked file in the researcher's office. Your signed consent form will be kept separate from the data. All data will be destroyed after one year.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Jean Better Cazeau, at [redacted], my supervisor, Dr. Corvette Yacoob, at [redacted] or the Institutional Review Board point of contact, Barbara Cook, at [redacted]. If you are satisfied with the information provided and are willing to participate in this research, please signify your consent by signing this consent form.

Voluntary Consent

I acknowledge that I have been informed of the nature and purposes of this experiment by Jean Better Cazeau and that I have read and understand the information presented above, and that I have received a copy of this form for my records. I give my voluntary consent to participate in this experiment.

_____ _____

Signature of Participant *Date*

_____ _____ _____ _____

Researcher *Date* *Witness* *Date*

(Witness signature is required only if research involves pregnant women, children, other vulnerable populations, or if more than minimal risk is present.)

APPENDIX K

CONSENT FORM CHECKLIST

NOTE: The consent form should be written in the *third person* (i.e., "your participation…", or "your child's participation…")

N/A	YES	NO	
___	X	___	1. Is the consent form written in lay language? The consent form should avoid jargon and should be written simply for understanding the contents.
___	X	___	2. Is coercive language avoided (e.g., if you participate in this research, we will be well on the road to finding a cure for AIDS)?
___	X	___	3. Is the participant fully advised of his or her rights? Is the consent form free of any exculpatory language through which the participant is made to waive any legal rights, including any release of the investigator, the sponsor, the institution, or its agents from liability for negligence?
___	X	___	4. Is an introduction of the researchers, their affiliation, the purpose of the study and the expected duration of participation included?
___	X	___	5. Are descriptions of procedures included, including the expected duration of participation?
___	X	___	6. Is there a disclosure of available alternative procedures or treatments, if any that might be advantageous to the subjects? Remember, choosing to refrain from participating is an alternative.
___	X	___	7. Is there a description of any risks or discomforts to the participant?
___	X	___	8. Is there a benefits statement?
___	X	___	9. Is there a statement describing the extent to which confidentiality of records identifying the participant will be maintained?
___	X	___	10. Is the principal investigator and faculty sponsor's name and contact number given for answers to questions about the research study?
___	X	___	11. Is the anticipated number of participants given in the Consent Form as well as the protocol?
___	X	___	12. Is it disclosed that participation of the participant is completely voluntary and that he or she has the right to withdraw at any time without penalty?
___	X	___	13. Does the form provide for the signature of the consenting participant and the investigator?
___	X	___	14. Does the form state "Barry University, (Parent) Consent Form" at the top of the first page?

APPENDIX L

LÉT ENTWODIKSYON

Chè Patisipan Pwojè lan:

Yap mande ou pou patisipasyon ou nan yon kou pou ede ak doulè rumatoid artrit [rimatism]. Tut pwojè a se *Rheumatoid Arthritis: Educating Patients on the Benefits of Physical Activity [Edike Pasyan ak Rumatoid Artrid (Imagism) de Benefis Pou Aktivite Fizik]* .

Se Jean Better Berenice Cazeau, RN-BSN, yon etidyan nan program Enfimye Diplome Fanmi, nan Barry University kap dirije pwojè sa, è li ap chèche enfòmasyon ki pral ede moun kap pratike metye enfimye.

Bi wpojè sa se pou enfòme pasyan sou kijan egzesis ka ede redwi sentòm Rimatism (RA).

Nou bezwen 15 pasyan pou vini nan klas lan. Klas lan pral dire 35 minit.

Si ou ta deside pou patispe nan pwojè sa, yo pral mande ou fè swivan yo: patisipe nan yon sesyon fòmasyon, epi di nou kisa ou panse de kou a pa reponn kèk kesyon. Sa a pa pran apepre 35 minit.

Alò ou volontè.

Pa gen okenn benefis oswa risk ke nou konnen.

Kòm yon patisipan pwojè a, enfòmasyon ou bay pral rete konfidansyèl. Nou pap pran non okenn moun. Sondaj yo pral rekolte nan yon bwatt aprè kou an fini. Elèv DNP lan pral kite pyès la avan ke fòm evaliyasyon a lekri an pral komanse, mèn li pral disponib pou okenn kesyon si li ta nesesè.

Si ou ta gen okenn kesyon oswa enkyetid regadan pwojè a, ou ka reel m, Jean Better Berenice Cazeau, nan [redacted], sipevizè mwen an, Dr. Corvette V. Yacoob, DNP, ARNP, FNP-BC, nan [redacted], oubyen pwen kontak Institutional Review Board lan, Barbara Cook, nan [redacted].

Mèsi

Sensèman,

Jean Better Berenice Cazeau, RN-BSN

APPENDIX M

EVALIYASYON PWOGRAM EDIKASYONÉL

Tanpri reponn chak kesyon an tchèkan bwatt pou repons ki dekri opnyon ou miyo. Pa mete inisyal ou oswa sinyen fòm sa. Evaliyasyon ou pral ede nan asesman kontinyèl pwogram lan epi ak devlopman nouvo kontribisyon. Li pral ede moun kap fè prezantasyon an tou pou amelyore enfòmasyon an ak metòd fòmasyon li yo.

KONSÉNAN PREZANTASYON AN

	Definitivman	Petèt	Petèt Pa	Definitivmannon
	1	2	3	4
6. Mwen ka idantifye kèk nan syn komen ak sentòm rimatism.				
7. Mwen ka idantifye kèk fason pou mwen ka ede tèt mwen pou mwen ka an pi bònn sante.				
8. Mwen konpran ke egzesis mwen aprann yo ka ede mwen nan soulaje sentòm Rimatism.				
9. Mwen konpran enpòtans aktivite fizik ak Rimatism				
10. Prezantasyon sa te vreman ede mwen pou mwen konpran benefis ak enpòtans aktivite egzesis.				

Nan pwochen seksyon an tanpri make repons ou nan espas vid lan.

3. Kisa ou te renmen nan prezantasyon an?

4. Kisa ou pat renmen nan prezantasyon an?

APPENDIX N

EXPERTS IN ARTHRITIS (KREYOL)

Experts in Arthritis

Yon seminè piblik pou moun ki gen rimatis ak moun ki renmen yo

Experts in Arthritis

Wòl Pasyan lan nan Jere Maladi

Experts in Arthritis

Experts in Arthritis

Otojesyon

Kapasite yon moun pou jere:

- Sentòm
- Tretman
- Konsekans yo (fizik & sikolojik)
- Chanjman stil lavi

Experts in Arthritis

Ekip Lan

- **Ou menm**
- Doktè Swen Prensipal (PCP), ki pral travay ansanm ak lòt pwofesyonèl lasante: rimatolojis, enfimye, terapis okipasyonèl, terapis fizik, lòt
- Konpanyon, fanmi ak zanmi

Experts in Arthritis

Pwogram Otojesyon *Vreman* Ede

Pwogram otojesyon ede ou:

- Konprann maladi a
- Redwi doulè pandan ou **rete aktif**
- Simonte fizikman, èmosyonèlman, ak mantalman
- Gen plis kontwòl de maladi an
- Ogmante konfyans ou pou viv yon vi **aktif** ak endepandan

Experts in Arthritis

Strateji Emosyonèl

- Vin aksepte - Aksepte
- Aprann souviv, konbat pesimism
- Jere emosyon, pesepsyon, monolog
- Gen plis **èneji,** konsantrasyon, domi
- Aparans, atitid, jere estrès

Yon wòl pli aktif vle di gen plis sans byenèt ak pran kontwòl

Experts in Arthritis

Wòl ak Efè Egzesis nan Jeman Maladi

Experts in Arthritis

Strateji Fizik

- Fatig – Kontwòle Ritm Aktivite Ou
- Rilaks, distraksyon, plezi
- Domi ase lannwit
- Dyèt ak nitrisyon
- Egzesis
- Chalè ak fredi
- Aparèy pou ede ou

Experts in Arthritis

Rimatis & Aktivite Fizik

- Redwi doulè & rèd
- Ogmante fleksibilite & andirans
- Ede fòtifye misk yo òtou jwenti yo
- Ogmante eneji a la long
- Stimile sistèm iminite
- Ka ede kenbe pwa ou stab
- Leve espri ou & ògmante amour pwòp

Experts in Arthritis

Strateji Edikasyonèl ak Tretman

- Ale wouè doktè ou sou yon baz regilye epi pale sou diferan strateji otojesyon
- Aprann kijan pou fè rechèch sous fiyab
- Pran medikaman ou jan yo preskri yo
- Swiv tout sesyon terapi/rihab fizik ki preskri an
- Pratike bonjan pwoteksyon jwenti

Experts in Arthritis

Bi pwogram egzesis pou rimatism

- **Fleksibilite**: Prezeve/rejwenn permèt mouvman ak fleksibilite òtou jwenti ki afekte yo

- **Ogmantasyon Fòs/Rezistans**: Ogmante fòs misk yo
- **Andirans**: Ogmante kondisyonman areyobik pou antrenen kè ak poumon (↑ sante, ↓risk)

Experts in Arthritis

Fleksibilite

- Elongman oubyen perimèt mouvman
  - Aktif, aktif-asiste, pasif
  - Yoga oubyen Tai Chi

Experts in Arthritis

Sèvi ak pwofesyonèl lasante pou adapte pwogram

Yo ka:

- Jije ki kalite rimatis ou genyen, ki pwoblèm jwenti ki genyen
- Tchèke nivo mouvman, fleksibilite jwenti, pou doulè ak rèd
- Mete bi yo: fleksibilite, fòs misk yo, pwoteje jwenti yo
- Ede ou komanse dousman epi gradyèlman ògmante

Experts in Arthritis

Ranfòsman/ Rezistans

- Leve fè oubyen pwa pou tatufe misk yo
  - Fè
  - Machin
  - Pwòp pwa kò ou

Experts in Arthritis

Rekonesans

Manm Komite Konsèy

Nancy A. Baker, ScD, MPH, OTR/L (Chair)
Anita Bemis-Dougherty, PT, DPT, NCS
Leigh Callahan, PhD
Joyce Peck Calonia, MN, RN CPNP, CCRC
Kelley Fitzgerald, PT, PhD, FAPTA
Amye Leong, MBA
Peggy Lotkovitch
Eileen Moynihan, MD
Carol Oatis, PT, PhD
Debra Sietsema, PhD, RN
Terrance Starz, MD
Kimberly Templeton, MD
Janet Wyatt, PhD, RN, FAANP

Experts in Arthritis

Andirans / Kadiyovaskilè

- Mouvman ritmik, kontinyèl
  - Aerobik a ti enpakt
  - Mache, monte bisiklèt, danse, natasyon, golf

Experts in Arthritis

Rekonesans

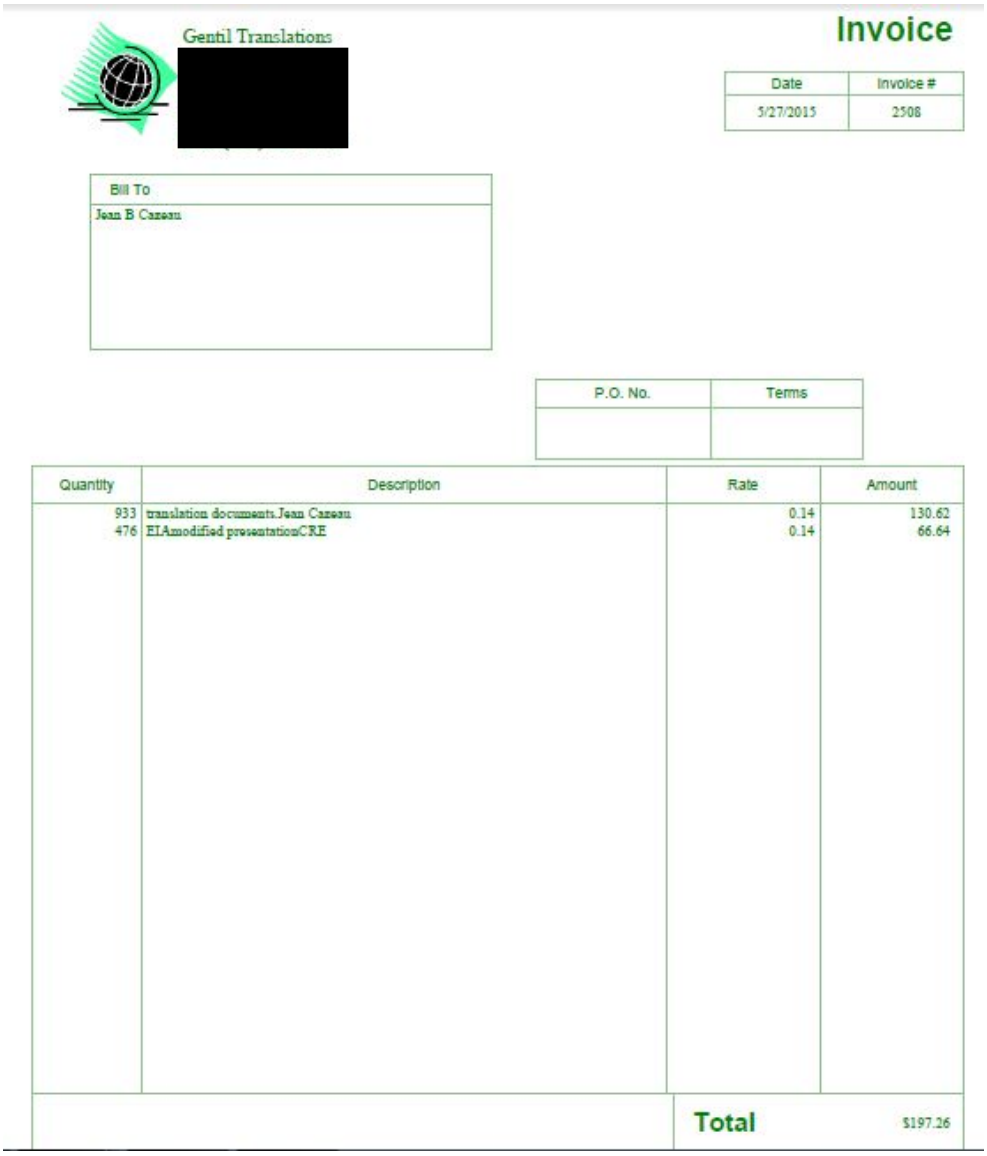
USBJI lan remesye Genentech ak Pfizer poutèt yo sipote pwogram ***Experts in Arthritis*** ak lajan pou rezon edikasyonèl.


Experts in Arthritis
Rekonesans
Oganizasyon ki Kolabore
American Academy of Pediatrics
American Association of Nurse Practitioners
American Association of Occupational Health Nurses
American Legion Auxiliary
American Occupational Therapy Association
American Physical Therapy Association
Arthritis Foundation
Center for Disease Control & Prevention-Arthritis Program
Natl. Association of Colored Women's Clubs
Natl. Black Nurses Association
Natl. Hispanic Council on Aging
Natl. Institute of Arthritis & Musculoskeletal & Skin Diseases
Natl. Institute of Senior Centers
Public Library Association


Experts in Arthritis
Mèsi pou patisipasyon ou!

APPENDIX O

INVOICE



Gentil Translations

[redacted]

Invoice

Date	Invoice #
5/27/2015	2508

Bill To
Jean B Caneau

P.O. No.	Terms

Quantity	Description	Rate	Amount
933	translation documents.Jean Caneau	0.14	130.62
476	EIAmodified presentationCRE	0.14	66.64
		Total	$197.26

APPENDIX P

FLYER (REVISED)

You are invited to Participate in a Doctor of Nursing Practice Project.

RHEUMATOID ARTHRITIS: EDUCATING PATIENTS ON THE BENEFITS OF PHYSICAL ACTIVITY

Inclusion criteria: men and women with self-reported diagnosis of rheumatoid arthritis. Participants must be 18 years old or older, English and Creole speaking, and will need permission from their physicians before starting any physical activity program

Exclusion criteria: anyone younger than 18 years old or those unwilling to participate.

Duration: the program will last approximately 35 minutes.

If you are willing to participate and have any questions about this project please contact:

Jean Better Cazeau, RN-BSN

[redacted]

Doctoral Student in the College of Nursing and Health Sciences at Barry University

If you have any questions, please contact:

Jean Better Cazeau, RN-BSN

[redacted]

Or

Dr. Corvette V. Yacoob, DNP, ARNP, FNP-BC, Committee Chair

[redacted]

Or

Barbara Cook, Institutional Review Board point of contact

[redacted]

APPENDIX Q

BARRY UNIVERSITY

FÒM AKÒ ENFÒME

Yap mande pou patisipasyon ou nan yon pwojè rechèch. Tit ètid lan se Rhumatoid Artritit Edike Pasyan sou Benefis Aktivite Fizik. Rechèch sa ap fèt pa Jean Better Cazeau, yon elèv nan depatman enfimye nan Barry University, è lap cheche enfòmasyon ki pral itil nan domènn Pwofesyon Enfimye. Bi rechèch lan se pou egzekite yon entèvansyon edikasyonel ki pral edike pasyan yo sou benefis aktivite fizik ak egzesis è kijan egzesis sa yo ka ede soulaje sentòm RA epi ki pral amelyore kalite lavi. Konfòman ak bi sa yo, yo pral sèvi ak demach swivan yo: yon anviwonman edikasyonèl pou enfòme pasyan RA yo sou enpòtans ak benefis aktivite fizik ak egzesis epi pwosesus maladi yo an. Nou antisipe yon valè de 15 patisipan.

Si ou ta deside patisipe nanrechèch sa, yo pral mande ou fè swivan yo: patisipe nan yon pwogram edikasyonèl ki dire 35 minit enkli ak rannpli yon fòm evaliyzsyon.

ou pou ou se yon patisipan rechèch strikteman volontè è si ou ta refize patisipe oubyen si ou ta chwazi pou sispann a nenpòt ki lè pandan etid lan, pap gen okenn efè advès nan swen lasante ou, travay ou oubyen nòt ou yo.

Pa gen okenn risk anvè Akò oumenm. Malgre pa gen okenn benefis direk pou ou, patisipasyon ou nan etid sa ka ede nou konprann sou kisa patisipan yo aprann regadan benefis egzesis ak aktivite fizik ak pwosesus maladi yo epi yo pral sèvi avèk sa pou egzekite amelyorasyon nesesè pou prezantasyon nan le fiti.

Kòm yon patisipan rechch lan, enfmasyon ou pral rete konfidansyl dapr sa lalwa pmt. Nenpt ki rezilta rechch sa ki ta pibliye pral refere mwayenn gwoup la slman yo pap svi ak okenn non nan etid lan. Yo pral kenbe enfmasyon an nan yon fichye kibloke nan biwo moun kap fè rechèch lan. Yo pral kenbe fòm akò ou sinyen an apa de done yo. Yo pral detwi tout done yo aprè 5 ans.

Si ou ta gen okenn kesyon oswa enkyetid regadan etid sa oubyen patisipasyon ou nan etid lan, ou ka rele m, Jean Better Cazeau, nan [redacted], sipèvize mwen, Dr. Corvette Yacoob, nan [redacted], oubyen kontak Institutional Review Board lan, Barbara Cook, nan [redacted]. Si ou satisfè ak enfòmasyon ki founi an è ou ta renmen patisipe nan rechèch sa, tanpri endike ou dakò an sinyan fòm akò sa.

Akò Volontè

Mwen rekonèt ke yo enfòme mwen de nati ak rezon ekspeyans ke Jean Better Cazeau ap menen è mwen li ak kontran tout enfòmasyon ki prezante anlè a, è ke mwen resevwa yon kopi fòm lan pou dosye mwen. Mwen volontèman dakò pou patisipe nan ekspeyans sa.

_____ _____

Sinyati Patisipan an *Dat*

_____ _____ _____

Moun kap fè Recchèch lan *Temwen* *Dat*

(Sinyati temwen an obligatwa sèlman si rechèch lan gen fi ansent, timoun, lòt popilasyon vilnerab, oubyen si gen plis ke risk minimòm ta prezante.

VITA

Education

2008-2010	**Barry University** Bachelor of Science in Nursing
2011-2015	**Barry University** Doctor of Nursing Practice

Professional Licensure:

2010	Florida RN license issued Florida RN # RN9311080 Effective thru 2016

Certifications:

2014-2016	BLS certification ACLS certification

Professional Experience:

2010-2011	**South Bay Hospital** Staff nurse in Medical-Surgical Unit
2011-2015	**North Shore Medical Center** Staff nurse in Telemetry Unit
2015 - Present	**North shore Medical Center** Nurse Manager in Telemetry Unit

Poster Presentation:

Cazeau, J. (2014). *Utilizing Physical Activity to Decelerate the Progression of Rheumatoid Arthritis*. Poster session presented at Sigma Theta Tau International Conference, Miami, FL.