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Diagnosing Fibromyalgia: Using A Diagnostic Screening Tool In Primary Care

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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2016

Abstract

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MSN, Grand Canyon University, 2010

BSN, Northeastern University, 1980

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Fibromyalgia (FMS) goes undiagnosed in as many as 3 out of 4 people who have the disease. Primary care providers (PCPs) are the first to evaluate patients; therefore, PCPs need to be able to recognize FMS, implement initial treatment, and refer for further consultation. The Fibromyalgia Diagnostic Screening Tool (FDST), a validated instrument to identify FMS, can improve the speed and accuracy of FMS diagnosis. The purpose of this project was to familiarize PCPS with the FDST, evaluate their receptiveness to the tool, and train them in its use. The Leventhal, Diefenbach, and Levanthal, common sense model of illness provided the theoretical framework to guide this quality improvement project. A 45-minute in-service and accompanying reference manual was given to 4 participating PCPs, along with a demographic questionnaire asking about their age, race, gender, marital status, and years in practice. Following the in-service, a 10-question self-completed questionnaire consisting of a combination of open-ended and nominal scale yes/no questions, was administered. A thematic analysis revealed 2 primary barriers for diagnosis without the FDST: lengthy screening time and trouble differentiating FMS from a patient's other conditions. In response to one of the yes/no questions, the participants all replied that the in-service on FDST was helpful in diagnosing FMS. Implications for social change include improved diagnosis with a diagnostic screening instrument, improved quality of health care, and cost effectiveness at the system level for chronic disease prevention and management. This project demonstrates in a localized primary care setting that the FDST may offers PCPs a reliable method to diagnose FMS.

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Dedication

This project is dedicated to all those practitioners whose clinical expertise assisted in my treatment from my automobile accident to where I am today. I owe each and every one of you all my gratitude for the relentless motivation and fight you instilled in me and how hard you made me work even when I wanted to give up and throw in the towel. It has taught me to be a better practitioner and to see things from the eyes of the patient. Thank you!

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Table of Contents

List of Tables

List of Figures

Section 1: Nature of the Project

Introduction

“Fibromyalgia (FMS) is a chronic, widespread, musculoskeletal pain disorder” (Arnold, Stanford, Welge, & Crofford, 2012, p. 231). There are no visible symptoms of FMS, no biological markers, nor any laboratory or diagnostic tests; therefore, persons with symptoms of FMS face great difficulty in being accurately diagnosed (Arnold, Stanford, et al., 2012). According to Arnold, Clauw, and McCarberg (2011), “patients with FMS live with many troubling and disabling symptoms such as generalized pain, chronic fatigue, sleep disturbances, headaches, stiffness, numbness, tingling, decreased libido, bladder and bowel insufficiencies, focus, concentration, anxiety and depression for extended periods” (p. 457). Physicians and nurse practitioners may find working with FMS patients disheartening because of the length of time it takes to make a diagnosis and to treat these patients (Arnold, Clauw, et al., 2011). By the time a diagnosis of FMS is reached, patients have typically seen many specialists and have had many diagnostic tests and evaluations (Arnold, Clauw, et al., 2011). Because so many patients first turn to their primary care provider (PCP) for an assessment of symptoms indicative of FMS, and because so many of those patients with FMS go undiagnosed, it is important to help PCPs identify FMS in the primary care setting by familiarizing PCPs with the Fibromyalgia Diagnostic Screening Tool (FDST; Arnold, Stanford et al., 2012). Even though the information available about FMS has increased, patients are still not being diagnosed appropriately with FMS in as many as three out of four cases (Arnold, Clauw, et al., 2011).

With more patients being seen in primary care for an evaluation of FMS, all providers need to strive to communicate clearly as well as act as advocates for patients so that all patients feel that they are receiving quality care and providers feel that they have worked effectively on their patients' behalf (Hayes et al., 2010). The goal in diagnosing FMS is to recognize the symptoms of FMS and begin therapy as soon as possible, even if further assessment is necessary to determine and verify other pathological conditions that may also require care (Arnold, Clauw, et al., 2011). All patients should receive individualized care that is based on their level of pain, functional disability, and other medical conditions (Arnold, 2009). The problem at many primary care practices, including my practicum site, is that there is no easy-to-use standardized screening tool for making a diagnosis of FMS.

Background

According to Clauw et al. (2011), fibromyalgia follows osteoarthritis as the next most common problem seen by rheumatologists in the United States, yet rheumatologists treat less than 20% of patients with FMS. FMS often begins when individuals are in their 30s or 40s, and the likelihood of developing FMS increases with age (Centers for Disease Control and Prevention [CDC], 2012). FMS is seen in all age groups, including children, adolescents, and the elderly, but it is seen most often in middle age (Toma, Houck, Wagnild, Messecar, & Jones, 2013). In addition, 84% of people with FMS have one or more other pathological conditions that "further complicate and delay diagnosis including musculoskeletal, psychological, gastrointestinal, cardiovascular, genitourinary, respiratory, and endocrine disorders" (Toma et al., 2013, p. 16). FMS affects an estimated 7 to 10 million people in the United States and an estimated 3% to 6% of the world population (NFA, 2014). FMS is seen more often in women than in men (Perrot, Choy, Petersel, Ginovker, & Kramer, 2012). Additionally, there is evidence that pain management differs by race and ethnicity, according to a selective review (Mossey, 2011). Chronic pain can cause a person to become disabled from the degree of pain and nature of the cause (Jensen, 2011).

There are more emergency room visits, physical and occupational therapy appointments, instances of work and school absenteeism, instances of reduced productivity, and disability claims for FMS patients than for those with other pain-related disorders (Kasper, 2009). The approximate annual costs in the United States associated with chronic pain are between 560 to 635 billion dollars (Institute of Medicine [IOM], 2011), and direct and indirect health costs are approximately double for patients with FMS compared to the costs for patients without FMS (CDC, 2012). Sparks (2014) “reported that the annual direct patient costs for provider office visits, diagnostic tests, medications, emergency visits, and out of pocket expenses, totaled $7,973 for FMS patients compared to $4,013 for non- FMS patients” (p. 9). “Annual indirect costs related to absenteeism and disability totaled an additional $10,697” (Sparks, 2014, p. 9). Arnold, Stanford, et al. (2012) stated that “FMS patients reported that it took an average of 2.3 years and visits to an average of 3.7 physicians before receiving a diagnosis of FMS” (p. 231).

Problem Statement

As stated, the problem at many primary care practices (PCPs), including my practicum site, is that there is no easy-to-use standardized screening tool for making a diagnosis of FMS. Presently, there are no objective tests to substantiate the diagnosis of FMS. FMS has become a clinical problem less seen in specialty clinics and more commonly seen and managed by primary care providers (PCP) such as advanced practiced registered nurses (APRNs) in the primary care setting (Arnold, 2012). There is a lack of knowledge as well as skill in diagnosing FMS in the primary care setting that has left providers such as APRNs unsure of whether they are making an accurate and reliable diagnosis of FMS. Providers need to have all of the current diagnostic criteria made available to them in addition to evidence-based strategies known to produce success in symptom reduction and self-management (Peterson, 2007). The FDST developed by Arnold was introduced to a practice of PCPs. They received instructions on how to assess and diagnose FMS patients using the FDST.

Purpose Statement

The purpose of this project initiative was to implement and familiarize practitioners with the FDST for identifying, assessing, and improving the diagnosis of FMS in a women's primary health practice in the southeastern part of the United States. Arnold, Stanford, et al. (2012) developed the FDST to use in primary care settings to help assess and diagnose patients suspected of having FMS.

Until the development of the FDST, the American College of Rheumatology (ACR) conditions remained the standard for identifying FMS (Wolfe et al., 2010). Clinical practice guidelines remain controversial regarding how FMS should be diagnosed and adequately treated. Making an accurate diagnosis of FMS is an important initial step toward effective care and improved results for patients with FMS (Arnold et al., 2011). Studies have demonstrated that FMS is hard to care for in the primary care setting because PCPs such as physicians and nurse practitioners have little time to determine the many symptoms and other pathological problems associated with FMS (Choy et al., 2010).

Goals and Objectives

The goal of this evidence-based project was to familiarize the providers at a women's primary care practice in the southeastern part of the United States with the FDST in order to help them diagnose FMS patients. PCPs, physicians, and nurse practitioners have been using the ACR criteria as the standard for diagnosing FMS since their establishment in 1990 as part of a multicenter study (Wolfe et al., 1990; Wolfe et al., 2010). Presently, this primary care practice in the Southeast does not use the FDST to diagnose FMS patients. However, the number of patients coming to this practicum site with symptoms indicative of FMS is increasing, so an effective screening tool is necessary for the providers.

Arnold, Stanford, et al. (2012) recommended that providers stress the importance of education and health technology to both the patient and the provider because education is a fundamental element and must be an integral part of managing FMS. Studies indicate that PCPs often miss common rheumatic disorders that are labeled inaccurately or wrongly diagnosed as FMS (Arnold et al., 2011). Understanding whether the provider has had any experience or knowledge in using the FDST developed by The Fibro Collaborative Review is important (Arnold, Stanford, et al., 2012). The decisions that providers make about diagnosis, referrals, tests, and prescribing are influenced by the providers' experiences and vary between providers (Angeles-Pastor et al., 2012). Using a new technology such as the FDST would give PCPs more confidence in their technical skills as well as greater satisfaction in managing patients, and patients would experience greater satisfaction with their health care (Angeles-Pastor, 2012).

This project’s aim was to familiarize providers with the FDST based on findings from evidence-based information and peer-reviewed literature on FMS. In the literature, FMS is presented as an unrelenting and possibly disabling disorder that can have destructive effects on a person’s life (Arnold, Stanford, et al., 2012). An in-service was scheduled to familiarize the providers with the new FDST and support them in changing to its use. After I familiarized the providers with the FDST, they had an opportunity to use the FDST in practice. Finally, I asked the providers for feedback on using the FDST through a questionnaire (Appendix A).

The secondary goal was to use the FDST with PCPs, physicians, and advanced practice nurse practitioners to assess whether the tool was effective in improving their skill in diagnosing FMS, whether it raised their comfort level in making a diagnosis of FMS, and whether it thus improved the provider-patient relationship (Arnold, Stanford, et al., 2012). Finally, I sought to determine whether the providers wanted to continue to use the FDST after the project was over. The providers recounted their experiences of using the FDST with particular FMS patients and recounted what worked well and what did not work well. Using new technology such as the FDST would give primary care providers more confidence in their technical skills as well as greater satisfaction in managing patients, and patients would experience greater satisfaction in their health care (Angeles-Pastor, 2012).

Significance of the Project

Because of the continued growth in the number of patients seeking an FMS evaluation in the primary care setting; a useful FMS screening tool such as the FDST is important for providers to make an accurate, reliable diagnosis of fibromyalgia (Arnold et al., 2011). Studies show that PCPs often overlook common rheumatic conditions that are labeled incorrectly as FMS, miss the diagnosis of FMS, or lack the ability to understand or treat these patients successfully (Arnold et al., 2011; Wolfe et al., 2010). Thus, while there is ambiguity concerning the diagnostic criteria for FMS, differences in providers' knowledge base determine the care patients receive (Angeles-Pastor et al., 2012). Having the FDST will give nurse practitioners and physicians in primary care more confidence in their technical skills by providing them with greater satisfaction with interpersonal management of patients, and patients will experience greater satisfaction in their care (Angeles-Pastor, 2012). In addition, once a patient has a diagnosis of FMS; exercise and other treatments can be implemented to assist the patient with pain and promote activities of daily living.

Implications for Social Change

Nurse practitioners and physicians in primary care were educated on the use of the new FDST with the aim of providing these PCPs with more confidence in their technical skills as well as greater satisfaction with their interpersonal management of patients, and with the aim of offering patients greater satisfaction with their care (Angeles-Pastor, 2012). Improved diagnosis with a diagnostic screening instrument could improve health care quality as defined by adherence to guidelines and decreased errors, safety, and efficiency and would also be cost effective at the system level for chronic disease prevention and management (Angeles-Pastor, 2012). Through the research that Arnold et al. began on the FDST, there has been a decrease in healthcare costs after a patient is made aware of his or her diagnosis of FMS with the FDST (Annemans et al., 2008). Other benefits of the current use of the FDST are that FMS patients find that they have lower overall symptoms and less symptom intensity related to the diagnosis (Huynh, Yanni, & Morgan, 2008).

Fibromyalgia can have detrimental effects on quality of life, damaging the patient's capability to work and engage in his or her profession and participate in activities of daily living (ADL), as well as affecting the patient’s relationships with family, friends, and employers (Huynh, Yanni, & Morgan, 2008). For this project, I introduced the FDST to a women’s primary care practice in order to improve the providers’ skill and comfort level in diagnosing FMS and thus improve the patients' quality of care and even the provider-patient relationship. With the Affordable Care Act, more advance practice nurses are seeing more patients in primary care practices, and using the FDST is crucial to the care of patients with FMS.

Definitions of Terms

American College of Rheumatology (ACR) criteria: "The standard for diagnosis of FMS is for pain greater than three months, 11 of 18 tender points, with four kilograms of exerting force" (Wolfe et al., 2010, p. 600).

Common sense model (CSM): Addresses " how different people respond to the threat of a diagnosis of a chronic medical disease and construct a hierarchically organized model as an adaptive system when there is no clear pathophysiological explanation looked for" (Oliveira & Costa, 2012, p. 68).

DEGAM: "Working party on guidelines for General Practice of DEGAM, the German Society for General Practice and Family Medicine" (Beyer, Brockmann, & Gerlach, 2004, p. 9).

Fibromyalgia syndrome (FMS): "An idiopathic, chronic, nonarticular pain syndrome defined by widespread musculoskeletal pain disorder and generalized tender points" (Arnold et al., 2011, p. 457).

Fibromyalgia Diagnostic Screening Tool (FDST): Involves "a patient-completed questionnaire" and having a "clinician complete a section consisting of a brief physical exam" (Arnold, Stanford, et al., 2012, p. 231).

London Fibromyalgia Epidemiology Study Screening Questionnaire (LFESSQ): Survey performed in five countries (France, Germany, Italy, Portugal, and Spain) to estimate the prevalence of fibromyalgia in the general population (Branco et al., 2008, p. 1; Martin et al., 2014, p. 1).

Nurse practitioner (NP): "A nurse that has taken a certifying exam by American Nurse Credentialing Center (ANCC) or American Academy of Nurse Practitioners (AANP), who can provide a range of healthcare services, assessments, order and interpret diagnostic tests and prescribe treatments and medications. An NP works in collaboration with a physician and other healthcare professionals" (AANP, 2014, p. 9).

Primary care: "A patient's main source for regular medical care, ideally providing continuity and integration of health care services, and first access of care" (Yoder-Wise, 2007, p. 111).

Tender Points (TP)—American College of Rheumatology (ACR): "Pain Assessment 11out of 18 tender points over the entire body for a diagnosis of FMS" (Wolfe et al., 2010, p. 600).

Widespread Pain Index (WPI): "Axial pain, left and right-sided pain, and upper and lower segment pain" (Wolfe et al., 2010, p. 600).

Assumptions and Limitations

Assumptions

An *assumption* is something that is taken or accepted as true without proof (Terry, 2012). The current project involved the following assumptions:

1. Faster diagnosis of FMS with the use of the FDST.
2. Use of the tool will improve the PCPs' comfort level in diagnosing and treating FMS.
3. Use of the tool will increase awareness about FMS.
4. Providers interviewed will be truthful about FMS diagnostic practices.

5. Providers interviewed will have increased confidence in diagnosing FMS after using the FDST.
6. General practitioners (GPs)/PCPs look at the patient holistically; they look at the social, psychological, spiritual, ecological, and physical aspects of the patient.

Limitations

Limitations are theoretical and methodological restrictions or weaknesses that may decrease the generalizability of the findings and are time-consuming to understand (Anderson, 2010). The current project involved the following limitations:

1. The FDST might not be generalizable to other PCPs in other parts of the United States.
2. The practice where the FDST is being used cares only for women, and thus the findings would not be generalizable to men.
3. Possibility for over diagnosis of FMS with the use of the FDST.

Summary

Section 1 has presented a brief overview of the problems that primary care providers have in diagnosing FMS. A major problem at my primary care practicum site is that there is no practical, easy-to-use, standardized screening tool such as the FDST for making a diagnosis of FMS. The purpose of this project was to familiarize practitioners with the FDST and educate them on its use for identifying, assessing, and improving the diagnosis of FMS in a women's health primary practice in the southeastern area of the United States. FMS is not often seen in specialty clinics and is usually treated and managed by GPs, APRNs, and physician assistants (PAs) in primary care settings. Section 2 contains a review of the literature on diagnosing FMS, women and diagnosing FMS, different practice guidelines, and the study’s theoretical framework, the common sense model and self-management.

Section 2: Review of Literature and Theoretical and Conceptual Framework

Introduction

Section 2 presents a review of the literature on diagnosing FMS using the FDST. The experiences of patients with FMS have demonstrated many problems in the present health care arena whereby healthcare treatment has not been enough to address all of the physiological, psychological, and social symptoms of patients burdened with FMS. Patients have felt more discouraged, desperate, and defensive due to failed treatment options. Present practice guidelines have questioned how providers should diagnose and treat FMS and introduce the FDST (Williams et al., 2010). FMS is a complicated disease that is hard to diagnose and care for, which makes it impossible to have one treatment strategy (Arnold et al., 2010).

The literature reviewed supported a need for the FDST in primary care. The first FDST study was done at a primary practice at the University of Cincinnati by Dr. Lesley Arnold. Arnold and colleagues (2012) recommended that the FDST be validated further in more diverse primary care settings to improve the time it takes to diagnose FMS and distinguish it from other pain disorders in both men and women. The scholarly literature has demonstrated that primary care providers need further education and resources to assist with the diagnosis and treatment of FMS (Arnold, Stanford, et al., 2012).

Additionally, educating the patient as part of routine care is an evidence-based strategy that demonstrated improvements in physical, psychological, behavioral, and social impairments. A theory was used to provide a structure for using the nursing process to solve a clinical problem (McEwen & Wills, 2011). The common sense model of illness representation (CSM) provided the theoretical framework that guided this EBP project because it provided a better understanding of the importance of a quick and accurate diagnosis for patients with FMS, as well as an effective plan of care between the health care provider and the patient.

Literature Search Strategy

A systematic search strategy was electronically conducted to capture the most relevant research on diagnosing FMS from PubMed, CINAHL, Medline, EBSCO, ProQuest, and the Cochrane Library between the years 2001 and 2014. The key MeSH search terms included *fibromyalgia*, *fibromyalgia diagnosis*, *musculoskeletal pain diagnosis*, *chronic pain*, *primary care diagnosis*, and *evidence-based care*. Selected references were hand-chosen from prior reference lists. Articles older than 10 years were discarded unless they were considered to be classic or landmark research publications. Ten peer-reviewed journal articles were selected from the original search. The website Fibro Guide was used. The literature over the last 10 years described the recurrent physiological, psychological, sociological, and behavioral diagnostic burdens reported by patients with FMS (Reed & Herrmann, 2011).

Burden in Diagnosing FMS

FMS is a complex biopsychosocial condition in which difficulties in diagnosis and management make it hard to have a treatment plan (Arnold et al., 2010). FMS has been poorly understood, scrutinized with few resources, and managed inconsistently, which has contributed to the slow integration of nonpharmacological practice guidelines in patient care (Reed & Herrmann, 2011, Williams et al., 2010). Patients define physical signs past widespread pain that encompass headaches, dizziness, bladder dysfunction, fatigue, irritable bowel disorder, dysmenorrhea, allodynia, hyperalgesia, and extremity numbness (Arnold, Stanford, et al., 2012).

In the 1970s, several researchers proposed that depression is the psychogenic component of fibromyalgia (Breen, 2002; Reed & Herrmann, 2011; Williams et al., 2010). The Jensen study findings (2011) demonstrated that psychosocial influences are important forecasters of pain in individuals with physical disabilities and that people can engage in pain coping efforts—such as social support—to decrease pain severity or its negative impact on functioning. Whether or not psychological symptoms are present does not preclude the fact that the symptoms of FMS are real. Depression is a common symptom found in individuals with FMS. In addition, patients reported psychological problems with mood and emotional regulation as well as anxiety, posttraumatic stress, memory loss, and cognitive impairment, termed "fibro fog" (Arnold, 2010; Fitzcharles & Yunus, 2012; Goldenberg, 2009; Marcus & Deodhar, 2011). The burden of these physical and psychological symptoms had considerable effects on patients' level of activity, work attendance, productivity, daily task completion, and connections to family and friends (Dennis, Larking, & Derbyshire, 2013; Goldenberg, 2012). Yunis (2007) referred to FMS as being a central sensitivity syndrome (CSS) and stated that providers need to be well-informed regarding the biological and psychosocial causes of CSS diseases.

Fibromyalgia is a relatively new diagnosis that symptoms may get more pronounced or severe with time. In addition, there are no objective findings such as those ordinarily found in laboratory or imaging evaluations. Jones (2009) examined how physically traumatic events in childhood such as hospitalization, surgery, death of a parent, and financial hardships can be associated with a 50% rise in the danger of chronic widespread pain (CWP) or development of FMS. The development of FMS is subtle and worsens over time, but, according to Fitzcharles and Yunus (2012), may suddenly appear after a trauma. Dr Winfield (2011) stated that the development of FMS in adulthood might stem from certain traumas in childhood such as childhood abuse, parental alcoholism, and living with dysfunctional or chronically ill parents.

Diagnosing Women With FMS

Hellstrom, Bullington, Karlsson, Livdqvist, and Mattsson (1998) and Skuladottir (2008) interviewed GPs and rheumatologists in Sweden using a phenomenological, psychological approach with regard to doctors' documented efforts to make sense of their tentative and subjective comprehensions of FMS patients and their varying ailments. One of the aims of this project was to determine these providers’ understanding of FMS, as well as their relationship to FMS patients. Encouragement from health providers can significantly influence whether women in chronic pain maintain or lose control of their pain (Skuladottir, 2008). Treatment can vary considerably, in that providers may be influenced by prejudices, attitudes, notions, thoughts, and feelings that structure the way in which they perceive the patient and the patient's symptoms (Hellstrom, 1998; Skuladottir, 2008).

Lofgren, Ekholm, and Ohman (2006) identified five themes related to women's experiences of living and working with FMS: grief, loss, struggle, anger, and vulnerability. According to Lofgren et al. (2006), “working is associated with better health, greater economic independence, and higher self-esteem, even in low status jobs, compared to not having a job” (p. 448). Women can use pain to signal stress and as an indicator to make changes to their commitment level, whereby they retain a good self-image by remaining positive and rejecting the stigma attached to the sick role (Menhshoel, 2004). Physicians, other healthcare providers, spouses, and friends can reinforce these feelings (Lofgren, 2006).

Another theme is how FMS has drastically changed and interrupted patients' lives, in that every simple daily task produces pain (Lofgren et al., 2006). Because FMS, at present, has no cure, patients who do not respond positively to treatment are often stigmatized in the eyes of their providers, their loved ones, and others. This stigma often discourages further help-seeking behavior and causes health care personnel to give up on the care of the patient with FMS (Lofgren et al., 2006).

Practice Guidelines

In 1990, after reviewing over 3,000 peer-reviewed studies, the ACR established two criteria in the first well-designed, multicenter study for a FMS diagnosis:

> 1) a history of widespread pain for at least three months including pain on both the right and left sides of the body, pain above and below the waist, and axial skeletal pain (cervical spine or anterior chest or thoracic spine or low back pain); 2) the presence of at least 11 out of a possible 18 tender point sites. (Wolfe et al., 2010, p. 600)

Despite their simplicity, the ACR criteria are not regularly used by PCPs, and many patients given a diagnosis of FMS do not satisfy the ACR criteria (Reed & Hermann, 2012). According to Arnold et al. (2011), women react to painful stimuli more than men on the tender point examination and consequently have a larger reaction to the tender point examination that is encompassed in the ACR standards (tenderness on digital palpitation at predesignated sites). Men with CWP seldom meet ACR standards, in spite of having a comparable pathologic procedure (Clauw, 2007), and thus might benefit from a standardized tool. As a result of studies, the FDST diagnoses both men and women with equal results (Arnold et al., 2012).

Two decades after the ACR criteria were developed, the ACR updated and revised its old diagnostic criteria in order to simplify diagnosis for PCPs (Wolf et al., 2010). Wolfe (2010) stated in his study that the original 11/18 tender points from the 1990 ACR criteria had not been used reliably as a diagnostic tool because many physicians and nurse practitioners did not know how to examine FMS patients for tender points and were not using the criteria correctly. The Wolfe study (2010) also indicated that at least 25% of patients with FMS never fulfilled the 1990 criteria, and new criteria were suggested to look at a larger field of symptoms using two measurable instruments: the Widespread Pain Index (WPI) and the Symptom Severity Scale (SS). Wolfe (2010) recommended that patients being assessed for FMS have a physical examination either with or without an evaluation of tender points.

This criterion was updated in 2010, revised in 2011, and changed again in 2012, with the recommendation of the WPI and SS scale to measure symptoms (Garg & Deodhar, 2012; Sparks, 2014). The Fibro Collaborative, consisting of 23 leading faculty and experts in FMS, reviewed medical literature and developed an evidence-based approach for FMS guidelines established by the ACR for PCPs to better understand, assess, diagnose, and treat FMS in the primary care setting (Arnold et al., 2010). In 2012, the Fibro Collaborative and the Canadian Pain Society guidelines provided an approach to FMS care that differed from previous guidelines by using a self-management educational guide for FMS patients called the Fibro Guide (Fitzcharles et al., 2012).

Diagnosis of FMS

There is slight indication that the incidence or absence of a diagnosis of FMS has any consequence for the progression of the disease (White, Nielson, & Harth, 2002). What does seem to improve with a diagnosis is patients' approval concerning their wellbeing: the label might not assist people in recuperating or functioning better, but many are pleased or relieved to understand what the problem is and to know that it is not life threatening (Choy, Perot, & Leon, 2010). In the United Kingdom, Hughes (2006) found that provider visits for any purpose were less frequent for 2 years after a diagnosis of FMS was made but that after the 2 years, the frequency of doctor visits rose to higher levels—over twice that of controls. After the initial relief of finding out that there is a diagnosis of FMS, individuals may relapse into depression and feel hopeless (Choy et al., 2010). The Food and Drug Administration (FDA) has approved new drugs for FMS, and pharmaceutical companies broadcast commercials for these treatments on television for all viewers to see. In spite of this awareness, it is still hard to diagnose FMS in the primary care setting. For example, patients report difficulty in communicating their symptoms to their PCPs, who have restricted time to access the numerous symptoms and other pathological complaints of FMS. Further, many PCPs report lack of education or training to diagnose FMS or to distinguish FMS from other pain syndromes (Choy et al., 2010).

Perrot et al. (2012) conducted a survey of 1,622 providers in Mexico, South Korea, and six European countries. The purpose of the survey was to collect information on knowledge and perceptions about the diagnosis and treatment of FMS (Perrot et al., 2012). In the Perrot et al. Study, "physicians were randomly sampled from proprietary databases, association lists, and the specialties of the physicians included PCPs, and equal numbers of rheumatologists, neurologists, psychiatrists, and pain specialists" (p. 2). Results from Perrot et al. indicated that 53% of the physicians studied reported difficulty in diagnosing FMS; 54% said that their training in FMS was inadequate; 64% agreed that patients found it hard to convey their FMS symptoms; 32%

considered themselves not knowledgeable about FMS; 79% of providers concluded that they needed to spend more time to recognize FMS; 38% were not confident in distinguishing the symptoms of FMS; and 48% were not confident in distinguishing FMS from conditions with comparable symptoms. Perrot et al. confirmed the findings in Choy et al. (2010) and concluded that FMS is hard to treat in a primary care setting because PCPs don’t have time to assess the numerous symptoms and other pathological disorders related to FMS. As previously mentioned, Choy and colleagues found that it took several years after experiencing symptoms and several providers before patients were finally diagnosed with FMS, and an instrument such as the FDST would be beneficial.

Primary Care: Best Place to Diagnose/Treat FMS

FMS is a common disorder seen in rheumatology practices, with many patients being evaluated and diagnosed initially by their PCPs (Porter, 2009; Reed & Hermann, 2012). According to Shir and Fitzcharles (2009), rheumatologists often refer FMS patients back to the primary care setting after a diagnosis has been established for long-term management of the disease. An organization in Germany, the German Society for General Practice and Family Medicine (DEGAM), developed and contributed to primary care guidelines for FMS as to why primary care is the best place to treat FMS patients (Reed & Hermann, 2012). According to Reed et al. (2012), these DEGAM Guidelines state,

> GPs are professionals seen first in health care; GPs perform a filtering and steering function for their patients’ medical issues; GPs look at their patients holistically from a social, physical, psychological, spiritual, and ecological points of view and all may be involved in their treatment; GPs are involved in emergency, acute, chronic, prevention,

> and long-term care education; GPs have long-term relationships with their patients. (p. 128)

Arnold et al. (2012) developed and tested the FDST to improve the assessment of patients with FMS in primary care settings. This study was done at the University of Cincinnati, College of Medicine, on both male and female participants. This research found that the FDST was able to precisely screen for FMS in primary care patients with pain lasting for more than 30 days. Findings indicated that the FDST had good sensitivity and specificity and can be used to screen patients for FMS (Arnold et al., 2012). Arnold and colleagues (2012) recommended that the FDST be validated further in more diverse primary care settings. The contribution of the FDST in PCP and patient outcomes can improve the time it takes to diagnose FMS in both men and women because many providers report a lack of knowledge or training sufficient to diagnose FMS or distinguish it from other pain complaints (Martin, Coon, McLeod, Chandran, & Arnold, 2014).

Martin et al. (2014) conducted a multicenter, cross-sectional study of 150 adult chronic pain patients who each underwent a physician-administered structured history and physical exam to determine the performance of the FDST. The study evaluated the screening ability of the London Fibromyalgia Epidemiology Study Screening Questionnaire (LFESSQ) and the modified (2010) ACR. The study participants completed three screening questionnaires and bloodwork. Most participants reported preferring the FDST at 49% over the ACR-Fibromyalgia Diagnostic Criteria (FDC) (22%) or LFESSQ (16%). The Martin et al. results indicated that “item-level analyses provided support for the response categories, predictive ability of most of the FDST items, and demonstrated that this tool, with continued testing, can show good validity, specificity, and sensitivity in diagnosing FMS"(p. 1). According to Martin et al. the FDST is an effective new clinical tool to assist in the assessment of FMS in primary care settings.

Theoretical Framework

Common Sense Model

The CSM developed by Howard Levanthal and colleagues (1992) looked at how different patients, in the late 1960s, responded to the threat of a diagnosis from a chronic disease, and Levanthal et al. constructed an organized model to demonstrate the adaptive system. The CSM of self-regulation of health and illness can be used to understand both the providers' management of FMS and the patients' ability to manage and cope with a chronic medical condition (Hagger and Orbell, 2003). Patients who are faced with a chronic medical problem such as FMS create a model and representation of FMS to try to cope with the illness and symptoms (van Wilgen, van Ittersum, Kapstein, & van Wijhe, 2005). Every patient with a chronic illness will develop their own thoughts of their illnesses' identity, timeline, treatment, and consequences (van Wilgen et al., 2008).

The CSM can be used to understand both the providers' management of FMS and the patients' ability to manage and cope with a chronic medical condition such as one like FMS (Hagger and Orbell, 2003). Levanthal et al., (1992) described the CSM model "as featuring three main constructs as (1) representation of the illness experience that might guide, (2) action planning or coping responses and performance followed by (3) appraisal, or monitoring of the success or failure of coping efforts"(p. 143). CSM emerged for use in chronic medical conditions when there was no obvious pathophysiological explanation, high uncertainty, lack of an effective cure, and high incidence of emotional problems (Hagger and Orbell, 2003). Hagger and Orbell (2003) described CSM and its five components of illness representations:

1. Identity: does the condition have any specific labels or symptoms associated with it.
2. Cause: the individual's perceptions of their condition, which may or may not be true. These perceptions may be attributed to information collected from personal experience, as well as the views of health providers, family, friends, and media sources.
3. Timeline: how long the disorder lasts, is it an acute or chronic illness.
4. Consequences: the person's perceptions about the condition and will this impact the patient both physically and socially.
5. Curability/controllability: the patient's perceptions about whether the disorder can be cured or controlled, plus the level of involvement that the individual plays in achieving this.

Based on the CSM, the theoretical definition of quality of life in FMS can best be described not as a description of a person's health status, but rather how they understand and respond to their health care needs and how this reaction affects his/her physical, emotional, and psychological well-being (Hagger & Orbell, 2003). In FMS, both the GP and patients reported frustration and dissatisfaction dealing with the problem (Angeles-Pastor et al., 2012). The decisions that providers make about diagnosis, referrals, tests, and prescribing are influenced by the providers' perceptions and vary between providers. Thus, while there is ambiguity over the diagnostic criteria for FMS, variations in clinicians' beliefs will determine the care patients receive (Angeles-Pastor et al., 2012).

Improved technology such as a FDST would give PCPs increased confidence in their technical skills, greater satisfaction with interpersonal management of patients, and patients would experience greater satisfaction in their overall care (Angeles-Pastor, 2012). In addition, with this new technology, providers teach their patients the knowledge needed on how to live with a chronic illness and support self- management behavior derived from the patients' preferences and values (Knight & Shea, 2013).

The purpose of this evidence-based project (EBP) was to familiarize primary care practitioners with the FDST for assessing, and improving the diagnosis of FMS in a women's primary health practice in the Southeast, United States. The scholarly literature demonstrated that primary care providers needed further education and resources to assist with the diagnosis and treatment of FMS. The knowledge acquired from this evidence-based project would lead to providing general practitioners and internal medicine providers with an FDST to use in diagnosing potential FMS patients and assessing whether this FDST expedites an accurate, faster diagnosis, and assessment of FMS (Arnold, Stanford et al., 2012). The EBP is an evaluation of the current evidence, best clinical practices, clinical judgement, and patient preferences and values in using the FDST (Melnyk et al., 2005). Providers need to educate their patients concerning their symptoms and to reassure them as to a positive outlook in order to break the negative cycle and consequences developed and to form positive treatment goals and coping skills.

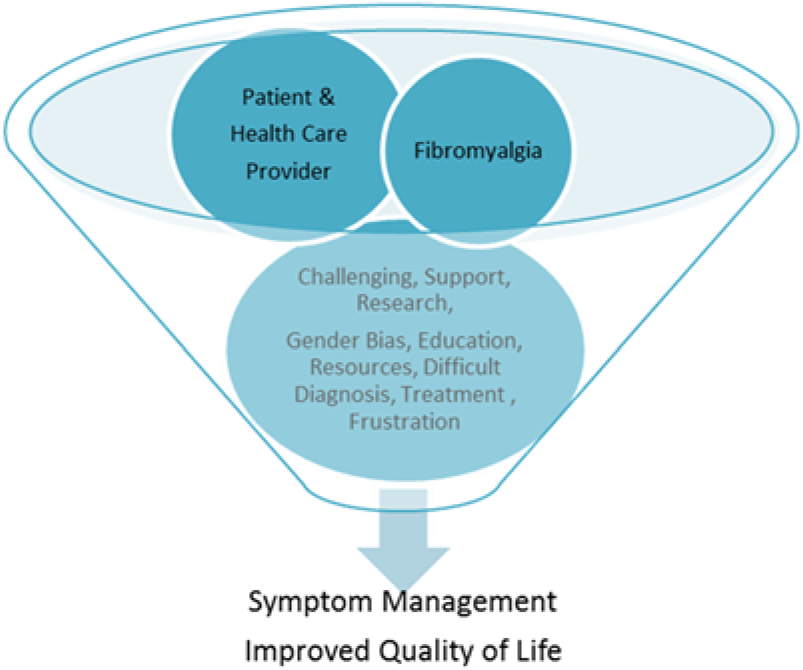

Figure 1. Theoretical model: Health care provider and patient interactive model for the diagnosis and treatment of FMS.

Background and Context of Diagnosing Fibromyalgia

During routine collaboration, the DNP student engaged FNPs, ARNPs, Physicians, and Physician Assistants (PAs), in open discussions about their perceptions of patients with FMS and their attitudes, as providers, toward treatment. Surprisingly, many providers believed that FMS is an emotional, psychosomatic disorder that holds little genuine physiological legitimacy. There are many physical reasons for discrepancies between men and women when it comes to pain: genetic make-up, body mass index, hormones, metabolic differences, and differential brain chemistry to name a few examples. The overall feelings of the PCPs were that diagnosing FMS is difficult and that having a standardized tool would make it easier for them to diagnose FMS (Arnold, Stanford et al., 2012). In addition, by 2030, an estimated 19.6 % of the population of the United States will be over the age of 65 years old (CDC, 2012). Chronic, unrelenting pain that is associated with FMS can be disabling in any age group, but in particular older adults experience more pain than in younger persons (Toma, Houck, Wagnild, Messecar, & Jones, 2013).

The practicum site in Southwest, Florida is experiencing an increase in FMS patients within the last five years, between 2009 and 2014. In 2009, Florida examined arthritis which is very familiar and similar to FMS in both symptoms and comorbidities and has a large public health impact (CDC, 2012). The CDC reported that: 3,768,000 adults had arthritis; 1,726,000 were disabled; 30/24 women to men; 34% between ages 45-64 and 53% above age 65 had arthritis; 68% arthritis who are obese; and 31% of White population, 18% Black population, and 14% Hispanic population.

The practicum project aligns with the primary care facility's mission, vision, and planning. The healthcare practice is committed to providing compassionate care to all women with a vision of improving human life. One of the owners of the practice has been in practice in the Southeast for nearly 50 years treating and caring for women. He has experience in medicine dating back to the Vietnam War where he was a doctor in Thailand. I am facilitating this project and am a family nurse practitioner and a nurse educator. I teach in an Associate of Science in Nursing Program, and teach women's health. I was also a student in a Ph.D. program where I have experience in doing research. I did a qualitative mentored research project on Fibromyalgia titled: The Healthcare Providers' Attitudes towards Treating a Patient with Fibromyalgia. Eleven providers participated in this study, which included physicians, nurse practitioners, and physician assistants in family practice, internal medicine, and pain specialties. The interviews took place in Florida, North Carolina, and Wisconsin. Seven themes were derived from the data using grounded theory for analysis. The themes were (a) challenging patient, (b) difficult diagnosis, (c) gender bias, (d) treatment, (e) support, (f) research, and (g) education and resources.

Recommendations from this preliminary study showed that PCPs need assistance with diagnosing FMS patients. This project demonstrated that there might be a need for a standardized assessment instrument and treatment options, which would lead to a faster diagnosis and improved symptom management. In addition, through my experience as a Family Nurse Practitioner in primary care, I have come into contact with many chronic pain patients as well as providers who treat these patients. These experiences have influenced my decision in wanting to do another project in primary care on chronic pain such as FMS. My perceptions will be influenced and supported by the evidence. Education on FMS would be beneficial in using the FDST to improve the provider's diagnosing skills, the patient's quality of care, and the provider-patient relationship.

Summary of Section 2 and Transition

In Section 2, scholarly evidence was introduced on the burden of FMS, diagnosing women with FMS, practice guidelines, diagnosing FMS in primary care, and the common sense model. Research demonstrated that history has rejected the concept that FMS was nothing more than someone having a case of hypochondria. FMS has proven to be a real and chronic disorder that is now a fully recognized disorder by the medical community. FMS has taken a long time to be accepted by providers and many still have problems recognizing the disease. After the research that Arnold, Stanford et al. (2012) began, there have subsequently been many benefits identified by using the FDST. One benefit is a decline in healthcare costs after a patient knows his/her diagnosis of FMS (Annemans et al., 2008). Also reviewed in this section were the benefits of diagnosing an FMS patient in primary care and the need to familiarize the PCP to the FDST.

Over the last couple of decades, there have been many studies published on the different ways to diagnose and treat FMS (Reed & Hermann, 2012). There have been many meaningful and useful guidelines developed to help providers diagnose and treat patients with FMS. Still, to date there are no physical tests that are consistently positive in those with FMS. Theoretical frameworks and models such as the CSM have been brought to bear on the problem of diagnosing FMS. However, there is still a significant gap in the literature that there is no gold standard that enables providers to make a quick diagnosis of FMS. In Section 3, the design, methodology, population, setting, data collection, analysis for the project was outlined.

Section 3: Methodology

Introduction

The purpose of this evidence-based project was to familiarize practitioners with the FDST in a women's health primary care practice in the southeastern area of the United States. Earlier sections of this document covered the complexities of the practice issue surrounding the fact that the ACR criteria remain the standard for the diagnosis of FMS (Arnold, 2012; Wolfe et al., 2010). Section 3 contains a description of how the FDST project was implemented. The project design, population, setting, data collection, and data analysis are presented and discussed.

Project Design

The purpose of this evidence-based approach was to familiarize providers with the FDST. This project used a descriptive design to describe the FDST (Melnyk & Fineout-Overholt, 2005). The descriptive design is a design aimed at describing, explaining, or predicting a phenomenon, problem, issue, or situation as it stands at the time of the project (Melnyk & Fineout-Overholt, 2005). I undertook a leadership role in this project and directed the activities associated with this process, such as creating the questionnaires.

The project was carried out in two phases. The first phase was an in-service whereby the providers were familiarized with the FDST. Prior to the start of the in-service, the providers were given a Demographic Questionnaire (Appendix B). For the second phase of the project following the in-service on the FDST, the providers were given a self-completed, yes/no questionnaire (Appendix A) to measure their knowledge and attitudes about the in-service education provided on the FDST.

Population and Setting

Women's Healthcare Physicians of Naples has met the obstetrical and gynecological needs of women in Naples, Florida, for over 40 years. The providers—three medical doctors (two men [one of which was working as my preceptor] and one female DO [Doctor of Osteopathy]) and one physician assistant—were invited based on their knowledge, ability, medical capability within the practice to diagnose FMS, and potential to use the FDST. One physician associated with my preceptor who specializes in pain management within primary care also participated in the in-service on the FDST and answered the questionnaire afterward. The providers were invited to attend an in-service session on the FDST from noon to 1:00 p.m., because this is usually the only time that no patients are seen by the providers. I provided refreshments.

The in-service was conducted in the providers' lunch-room. The lunchroom is quiet and allows for privacy.

Protection of Human Subjects

Consent was sought from the Walden University Institutional Review Board (IRB). Some of the providers of this Southeast Women's primary care practice participated in this evidence-based project. Once IRB gave its approval (10-16-15-0432947), the participants were informed of the objectives, provided the education, and given the details of the project.

Data Collection

Data collection began approximately 7 days after receiving approval from the Institutional Review Board (IRB) of Walden University. The providers at this practicum site were invited to participate in this project. The providers were invited in person to participate in an in-service session, and the FDST project was explained in its entirety. Prior to the in-service on the FDST session, a reminder was sent via email to the office manager as a reminder of the date and time of the planned in-service.

Prior to the start of the in-service, the providers were given a Demographic Questionnaire (see Appendix B) that consisted of items on age, race, gender, education, specialty, marital status, and years in practice. There were no names used on these questionnaires for privacy purposes. The providers returned the Demographic Questionnaire to me prior to the in-service on FDST. The Demographic Questionnaire was put into a sealed envelope for travel.

There was 1 hour allotted for the in-service and questions on the FDST. I arrived early to get ready for the scheduled in-service on FDST. I created an educational manual on the FDST for the providers to keep and use as a resource. Following the FDST in-service, the participants were given a self-completed questionnaire prepared by me from the evidence-based literature (Appendix A), consisting of 10 questions, which had a nominal scale consisting of yes/no answers. The objective of the self-completed questionnaire was to collect data to assess, investigate, and understand the experience of using the FDST in diagnosing FMS. This questionnaire was given to the providers and returned to me after the in-service.

Data Analysis

I read through all of the data received after the in-service from the demographic questionnaire and the self-completed yes/no questionnaire. The data analysis was an important part of the project because the responses provided important, meaningful findings (Melnyk et al., 2005). Data gained from this questionnaire might be used to design in-service education workshops in the future to enhance the providers’ knowledge and skills on the FDST (Melnyk et al., 2005). A demographic questionnaire is useful in any project to tell the reader about the participants on whom the results are based (Terry, 2012).

The data analysis started following the collection of the demographic and self-completed questionnaires. The data analysis process included coding, data input, analysis, and reporting results. Descriptive analysis is useful for providing percentiles, frequencies, and central tendencies to understand the behaviors observed in each variable (Fawcett & Garity, 2009), and findings can be represented in Excel. The self-completed yes/no questionnaire used a nominal scale. Most of the data took the form of two responses (either yes or no), as binary data using median split, and were analyzed as proportions using means. Responses on the self-completed questionnaire were coded and assigned a number for each question on the survey; yes was 1, and no was 2. Frequency analysis was appropriate for these data. Nominal data are analyzed using percentages and the “mode,” which represented the most common responses (Melnyk et al., 2005). A frequency distribution can be developed when the values are grouped into ranges and then frequencies are represented by using a chart.

Reliability and Validity

Determining the reliability and validity of the FDST involved checking the status of the data collected to determine whether the data were valid and reliable (Terry, 2012). The providers will want to check whether the FDST is reliable in use. It is important to know whether a provider will continually get similar results from the FDST each time it is used to diagnose a new patient with FMS (Terry, 2012). Evidence-based literature has indicated that the tool is reliable, consistent in giving the same results, and valid in that it measures FMS in primary care for patients with pain lasting more than 30 days (Arnold et al., 2012).

Future Implementation Plan

The implementation plan is a small evidence-based project to familiarize the practice in the southeastern United States to the use of the FDST for female patients. The plan, if successful, is to do a larger pilot program in the future in order to compare the use of the tool by primary practice providers with use of the tool by rheumatologists and pain specialists. If the existing FDST is successful with primary care providers, findings can form the basis for an electronic medical record (EMR) standardized template. In the future, I plan to gather the results of this tool to standardize it and use it in a computerized clinical decision support systems (CDSS) and EMR. This diagnostic screening instrument will raise awareness of FMS in those providing primary care and thus enable the identification of patients with FMS sooner rather than later.

Timeline

Task	April/May 2015	June/July 2015	Aug/Sep 2015	October 2015	Nov/Dec 2015	Dec/Jan 2016	Feb 2016	March 2016
Chair and Member Selection	🟦							
Revised and defended Proposal		🟦						
Updated Proposal			🟦					
IRB application			🟦	🟦				
Submit Application to IRB				🟦				
IRB Approval					🟦			
Data Collection					🟦			
Data Analysis					🟦	🟦		

Complete Final Paper						▨		
Defend Project							▨	

Figure 2. Timeline.

Summary of Section 3

Section 3 has presented the methodology that was used in this descriptive design project. I have also offered information on the data collection process and data analyses, including results from questionnaires on familiarizing the participants with the FDST. Finally, I have discussed the appropriateness of the project design, the participants, and the protection of human subjects. This project design involved one contact with the participants of the project, and the only cost incurred for the project was the cost of lunch/refreshments. The benefit of this project design was that it included rapid data collection and flexibility.

In Section 4, the results of this project are examined and assessed. Despite increased knowledge about FMS, there is currently no cure; however, has been revealed to improve a person’s general sense of health over time (Arnold, 2012). Although medication treatments are available, an exercise regimen is critical to the treatment an FMS patient receives from a provider (Ang et al., 2013). The rationale for using exercise as a treatment modality in FMS is that patients often become sedentary due to pain and fatigue associated with having FMS (Arnold, 2009). If patients lose their muscle tone and become deconditioned as a result of inactivity; this can make the symptoms of FMS worse. Results on the use of the FDST will be written up for dissemination in a peer-reviewed journal.

Section 4: Findings, Discussion, and Implications

Introduction

The purpose of the project was to familiarize primary care practitioners with the FDST in order to assist them in diagnosing women with FMS. Provider education plays an important role in successfully treating FMS in primary care, beginning with making an accurate diagnosis and continuing through the treatment period. The aim of this project was to familiarize providers with the FDST based on findings from evidence-based, peer-reviewed literature on FMS. I have been studying and reviewing the literature on diagnosing FMS for several years as well as collaborating with several colleagues who saw the collective need to introduce the FDST into primary practice in the southeastern part of the United States.

In this section, I present the findings of the project, implications for practice, goals and objectives, the project's strengths and limitations, and a self-analysis in relation to the development of the project. The project's findings and conclusions within the context of applicable literature and the theoretical framework are also discussed. Lastly, I examined my role as a scholar, practitioner, project manager, and professional, with details on how managing this project related to my future professional goals.

Summary of Findings

Several providers in primary care were invited to an in-service on the FDST. The purpose of the in-service was to familiarize the providers with the FDST. Emails were sent to schedule the in-service and remind the providers about it. An educational binder was prepared for the providers/practice as a resource containing the FDST and other pertinent evidence-based articles on diagnosing FMS. Each provider was given the consent form and asked to complete a demographic survey that consisted of items on age, gender, culture/race, occupation, education, and marital status. The contents of the manual (especially the FDST) were referred to during the in-service. Prior to the scheduled in-service, approval from Dr. L. Arnold, the creator of the FDST, was received to use the FDST for the DNP project (Appendices C and D). The in-service discussion lasted approximately 45 minutes, including time for questions and discussion. Once the in-service on familiarizing the providers with the FDST had been completed, I gave the providers enough time to digest the information and ask questions. Each provider was given a self-completed survey (Appendix A) to answer and return by the end of the in-service. Due to a scheduling emergency, one physician did not participate.

Demographics

Demographic variables are shown in Table 1; each provider completed a demographic survey. Participants were four providers, two men and two women (50% men and 50% women). Three of the providers were medical doctors (75%), and one was a physician assistant (25 %). All of the participants were White (100%) and married (100 %). In terms of age, one provider indicated 30s (25%), one indicated 40s (25%), one indicated 60s (25%), and one indicated 70s (25%). The participant sample was $n = 4$, and the mean age was 56 years. The mean range of years in practice was 26.25. In terms of educational level, 75% were educated as medical doctors, and 25% had a master’s degree as a physician’s assistant (PA). The doctors all had board certification in medicine; the physician’s assistant did not carry any specialty but practiced in primary care. One physician had nearly 50 years of experience working in women’s health. All participants (100%) had various degrees of experience with FMS but did not argue the point that it would be possible for them to come into contact with a patient experiencing symptoms of FMS.

Table 1

Demographic Survey

Variables	Number	Percent
Age:		
30	1	25%
40	1	25%
60	1	25%
70	1	25%
Gender:		
Male	2	50%
Female	2	50%
Race/Ethnicity:		
White	4	100%
African American	0	
Asian	0	
Hispanic	0	
Education		
Medicine	3	75%
PA	1	25%
Marital status:		
Married	4	100%
Nonmarried	0	0%
Board certification:		
MD (Ob-Gyn):	2	50%
MD (Pain Mgmt)	1	25%
Phys Asst	1	25%
Years in practice:		
0-5	0	
5-10	1	25%
10-20	1	25%
20-30	0	0%
30-40	1	25%
40 >	1	25%

Self-Completed Survey on FDST In-Service

The participants were given a self-completed questionnaire with 10 yes/no questions in order to collect information on their experience with the in-service on how they were familiarized with using the FDST. After the in-service, each provider was handed the questionnaire, which had no identifiers, and was asked to return it. The questionnaire was used as a program evaluation—a means of collecting, analyzing, and using information to answer questions about projects, policies, and programs (Kettner et al., 2008). Participants in a project want to know if the project yielded the desired effect and whether the providers plan to continue to use the FDST after the project is over (Kettner et al., 2008). The self-completed questionnaires provided me with a measure from the providers' perspective of the quality and value of the Fibromyalgia Diagnostic Screening Tool as a health assessment instrument.

Table 2

Self-Completed Questionnaire

Question number	Question text
Question 1	Do you use the ACR (1990) classification on tender point areas?
Response:	Yes—4 participants No—0 participants
Question 2	What factors that contribute to the difficulty in diagnosing FMS in the primary care setting have you experienced, if any?
Response:	Not having enough time; inconsistency of symptoms; on pain medication for other medical problems; mimics other diagnoses; differentiating it from arthritis; biases against FMS.
Question 3	Do you believe that this FDST will assist you in diagnosing FMS in the primary care setting?
Response:	Yes—4 participants No—0 participants
Question 4	Do you believe the information in the in-service will assist you in your diagnosis of FMS?
Response:	Yes—4 participants No—0 participants
Question 5	Will this in-service education provide you with more confidence to make a FMS diagnosis?
Response:	Yes—4 participants No—0 participants
Question 6	Do you feel that the educational in-service was helpful and provided you with a new perspective on FMS?
Response:	Yes—4 participants No—0 participants

(*table continues*)

Question number	Question text
Question 7	Do you feel that men should be diagnosed differently than women?
Response:	Yes—4 participants No—0 participants Possible deeper pressure on tender point areas
Question 8	Do you think that the in-service education provided should be different in regard to using the FDST on men and women?
Response:	Yes—0 participants No—4 participants
Question 9	Do you plan to implement the FDST as part of your routine diagnosing of FMS?
Response:	Yes—3 participants No—1 participant
Question 10	Are there resources available to support FMS patients in your practice or community?
Response:	Yes—0 participants No—4 participants

Discussion of Findings

All providers admitted on the questionnaire to using the ACR 1990 classification of tender point areas (100%). In response to Question 2, on what factors contribute to the difficulty in diagnosing fibromyalgia in the primary care setting participants had experienced the answers received were: time; not having enough time to hear all the problems patients experience in primary care; FMS mimicking other conditions; other differential diagnoses such as arthritis; not having a good understanding of FMS to diagnose it; needing more education; not having an instrument to assist with diagnosing FMS; and treating patients who do not have health insurance and must pay for tests or treatments out of pocket. The question demonstrated that many providers in primary care do not have resources available to diagnose and treat FMS in the primary care setting; thus, a tool such as the FDST would provide PCPs with what they need to make a diagnosis and treat FMS.

A major point brought up by one provider was that if primary care providers have biases against treating patients with FMS, these might prevent them from treating FMS effectively and wanting to use the FDST. All providers felt that the FDST would be beneficial in diagnosing FMS. This is important in that if there is going to be a change in diagnosing FMS in the primary care setting, it is imperative that all providers use the FDST in making a diagnosis. The providers (100%) all felt that the in-service on FDST was helpful in diagnosing FMS, as several providers had no knowledge that the FDST even existed. In terms of increasing confidence, three of four providers (75%) felt that the in-service increased confidence, and one (25%) felt that more education would be needed to have an effect. One provider suggested that I get in touch with a new rheumatologist, who might be interested in providing a presentation to the area's medical society on this screening tool. All providers felt that the educational in-service was helpful and provided them with a new perspective on FMS. They also felt that men and women should not be diagnosed differently. One provider felt that women and men might experience pain differently (e.g., as evaluated by the tender point exam). In order to diagnose men using the tender-point evaluation, the provider would need to press harder than with a female in order to elicit a similar response.

The providers were willing to use and wanted to use the FDST in their practice to diagnose FMS. One provider felt that he might use the tool but that more education was still needed. All of the providers felt that the FDST is helpful for diagnosing FMS in primary care. In regard to resources available in their practice and community to support FMS, all providers felt that support groups or even online support groups for patients with FMS were needed.

The answers from this survey reinforced the need for a diagnostic screening tool for fibromyalgia in the primary care setting to provide a guideline for the diagnosis of FMS. The tool will not only provide PCPs with the knowledge and confidence to make a FMS diagnosis in a shorter period of time, but also provide patients with increased satisfaction concerning their provider. The provider will also feel increased satisfaction in providing FMS patients with the care and treatment they require. The FDST tool has been neither widely used in primary care practices nor written about in the literature, but wherever it has been used, it has demonstrated validity.

Financial Plan

Costs for this project were relatively low. The educational material was provided at no cost, and the articles were given by free access. There was no expense associated with acquiring the FDST. Dr. Arnold gave her permission to use the FDST (Appendix C). The in-service was held when the staff was done seeing patients so that the session would not interrupt scheduling and seeing patients.

Project Strengths and Limitations

Strengths

A standardized diagnostic screening instrument for FMS holds the promise of improved health care quality, increased efficiency, and reduced healthcare costs. Because there were only a few evidence based articles in the literature on the subject, this project held the potential for a relatively significant impact on the treatment of FMS and chronic pain patients. In the absence of other tools, it was likely that providers would be receptive to a standardized/universal tool such as the FDST to use for diagnosing FMS. As a valid tool, the FDST will decrease the time and costs involved in diagnosing a new patient with FMS. One of the participants in the project had a background in working with FMS and pain patients. The opinion of this provider was highly positive, adding weight to the idea that a tool such as the FDST is needed and would likely be disseminated quickly within the community of providers treating FMS.

Limitations

There were several limitations to the project. One limitation was that a diagnostic-screening instrument such as the FDST would need to be validated in many diverse PCP practices. Because the sample had only four subjects, the results cannot be generalized. In addition, the project was limited to a small practice in one section of the United States. Another limitation was that the practice where the FDST was used cared only for women, and thus the findings are not generalizable to men.

Implications for Practice

This FDST may have a major effect on the way in which healthcare providers diagnose patients with FMS. Presently, healthcare providers have limited time to diagnose and assess patients and have insufficient knowledge or training to diagnose FMS or differentiate it from other chronic pain disorders. With the FDST, providers will have a means of rating their patients' most common FMS symptoms and an objective screening tool to diagnose FMS in the primary care setting. The tool may help to increase provider awareness of FMS and aid in the identification of patients with FMS (Arnold, Stanford et al., 2012). Further testing of the FDST is needed to validate the tool in many different types of PCP.

Implications for Future Research

Because this project was small and limited to one primary care practice that specialized in women's health, future research studies are needed to validate the FDST further in larger, more diverse primary care practices. The results for the FDST in this small project were favorable, and the providers all felt that it was beneficial in identifying patients with FMS in primary care and increasing awareness of FMS. Continuing the project in a larger, multisite primary care practice for both men and women would be beneficial in validating the FDST further. Further research may determine the sensitivity and specificity of the FDST and whether it may be used to screen patients alone for FMS. Expedited diagnosis would help providers to help FMS patients get the proper treatment to improve their outcomes.

Implications for Social Change

An increased number of patients are seeking care from GPs and PCPs for evaluation of symptoms because of The Affordable Care Act. The FDST will help PCPs to keep health care costs down by being able to accurately diagnose FMS. Thus it is important for all PCPs to be able to recognize and diagnose FMS through using an evidence-based screening tool to expedite diagnosis and treatment. After using the FDST in the project, the PCPs may now feel confident that they can use the FDST to make a thorough and accurate diagnosis of FMS and patients no longer have to feel as though their symptoms are not believed or trusted. This is a tool that can be used for both men and women. Even though this is a small project of four providers, limited to women only, the project highlights the needs for increased provider, patient, family education, and patient resources, such as the FDST to improve the course of FMS and the patients' quality of life with additional, future studies. Larger studies might demonstrate that the use of the FDST may help to decrease health care costs and the burden of fibromyalgia on society.

Project Developer

I feel that I have done an excellent job as a project developer. The project is my third project related to FMS. My first project with IRB approval was in June 2011 on "*The Perceptions of Providers with Patients with FMS*". The purpose of the study was to explore the providers' attitudes and knowledge that influenced the treatment of FMS. Patients' perceptions and coping strategies related to fibromyalgia are presented in the literature, but very few deal with the issue of the health care providers' perceptions of fibromyalgia. There was a gap in the literature concerning providers' attitudes towards the treatment of fibromyalgia, which may lead to an individual's pain going untreated because of it. My second project was a Scoping Methodology on using exercise in FMS, which I plan to submit for publication. The aim of this knowledge synthesis is to explore how non-drug treatments such as exercise can reduce pain and promote physical function in adults who have painful conditions like FMS. By integrating evidence from diverse knowledge sources to assist knowledge users and decision makers, knowledge syntheses can include several types of reviews; systematic reviews, meta-analysis, literature reviews, and scoping reviews. A scoping methodological review was chosen for this study because it is appropriate to address a broader topic. Finally, this IRB approved project on using a FDST in diagnosing FMS in primary care provided me with additional experience as a project developer and manager.

Analysis of Self

As an educator and practitioner the project has increased my visibility and credibility within the chronic pain community of providers and my own organization of higher education. The project will provide a self-analysis of myself in regards to being a scholar, practitioner, and project developer, and will discuss the implications of the project toward future professional development. I remained unbiased throughout the project, was thankful for all feedback and have learned to welcome all constructive criticism. I also realize that there are different points of view among providers related to the diagnosis of FMS because it primarily affects women and not men (Arnold, 2012).

As Scholar

As a doctoral prepared nurse and nurse educator, integration and application of new knowledge and best practices are demonstrated within my practice as a network educator and provider with the development of my DNP project on FMS. As both a scholar, and an educator, my confidence has grown, as well as my contributions to the practice of nursing within the specialty area of chronic pain management. Providers in chronic pain management are asking to collaborate and network on using the FDST to diagnose FMS patients. In addition, as an educator I teach my students that nursing is a discipline whereby you must continuously learn and educate yourself to new knowledge and technology. I plan to write and disseminate the findings from the project, and attend meetings with different organizations to promote the use of the FDST, in my county, state, and country. As suggested by one of the providers, I plan to contact one of the new rheumatologists, who specializes in FMS and determine if we can collaborate on educating other PCPs locally on the use of the FDST by having a presentation at the local medical society. I have also been a member of The Nurses Chronic Pain Management Organization, which will also assist with dissemination on the FDST.

As Practitioner

In today's health care environment with the Affordable Care Act and with a shortage of PCPs, there is a need for nurses with advanced education. I feel that I am well equipped with what I have learned to further my career as a DNP. I feel that I handled myself professionally without any biases towards FMS or chronic pain patients. The study has furthered my desire to want to work with patients who have chronic pain such as FMS. I have seen how the FDST can assist providers in making an accurate, skillful diagnosis of FMS. The project has enhanced my skills as a practitioner in assisting FMS patients in chronic pain so that they do not have to go years undiagnosed and untreated with the condition. In the future, I plan to continue with my professional development by working with FMS patients in primary care and would like to continue with the research already started.

Professional Development

I have worked towards making a positive change in nursing over my entire career as a nurse. I believe that a vision is important in addition to planning goals to complete one's professional development. Over the last 10 years, I have accomplished many goals. On completion of my Master's Thesis, I was asked to write my professional development for the next five to ten years; which I reviewed and accomplished all that was on my development plan.

As part of my development plan, I planned to work as a nurse and/or primary care provider with chronic pain patients and in women's health. I have experienced firsthand hearing the perceptions that my colleagues have concerning chronic pain patients and then treating these patients based on the biases they hold. I found that joining a professional organization on pain management was instrumental in helping me with my professional development. Joining a professional organization helps to advance one’s professional development in many ways, such as networking with other professionals who have similar interests. This membership within a professional organization assists with my professional development by developing my communication skills, interrelation skills, and problem-solving skills. I have developed my communication skills whereby I am able to discuss and contribute relevant information to group and individual discussions on chronic pain, more specifically FMS. In addition, through networking and reading peer reviewed articles, I have been introduced to the top professionals in FMS.

As part of my future professional development, I hope to continue the project I started and to do it on a larger scale than before. One of the providers on this project as mentioned suggested introducing the FDST at the local medical society meeting and then after the in-service meeting I could do a similar survey. Once, I acquire my doctorate, I hope to hold a leadership role within my employment, professional organization, and hopefully even within a political arena, to help people suffering with chronic pain management. Working politically will give these FMS patients a real voice to be heard where I can make a difference in their outcomes.

Summary

The evidence-based project provides for the validity of the FDST and provides clear, concise instructions on diagnosing chronic pain patients suspected of having FMS. Based on the feedback from these providers and evidence-based, peer reviewed literature, the FDST was used to diagnose FMS and may help increase public awareness with diagnosing FMS across the country. All providers felt that the educational in-service was helpful and that they gained a better understanding of the FDST. The results of the study highlighted the need for additional education and understanding of the FDST by PCPs. Using the FDST provided a clear and concise method to diagnose FMS patients in the primary care setting.

Fibromyalgia is characterized by large resource consumption; it is a public health problem of the first order; the increased cost is related to the severity of the patients' symptoms and increased co-morbidity found in FMS (Thompson, 2011). The screening tool offers practitioners a standardized method to use in diagnosing FMS in the primary care setting. The FDST may have a major effect on the way healthcare providers diagnose and treat FMS patients. More research and interventions with a larger group are needed before disseminating and validating a diagnostic screening instrument with FMS to PCPs.

Section 5: Scholarly Product

Diagnosing Fibromyalgia: Using a Diagnostic Screening Tool in Primary Care

By

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Introduction

Dissemination is the targeted distribution of information and evidence-based interventions to improve healthcare delivery (Agency for Healthcare Research and Quality, 2012). Dissemination of the evidence will increase awareness about the FDST and make the diagnoses of FMS easier. The purpose of dissemination is to relay knowledge and experience from the evidence-based project to health care providers, as well as the public. My plan is to submit the manuscript to online peer reviewed journals such as The Journal of Pain Management Nursing or Women's Health and to present the findings at nursing meetings such as the Southern Nurses Research Society (SNRS).

Objective: To familiarize primary care providers (PCP) with the Fibromyalgia Diagnostic Screening Tool

Background: The aim of the project was to familiarize practitioners with a Fibromyalgia Diagnostic Screening Tool (FDST) for diagnosing FMS in a women's health primary practice in the Southeast area of the United States (U.S.).

Method: The project used an evidence-based approach to familiarize the PCPs to the FDST and asked for their feedback by taking a self-completed questionnaire after an in-service on the FDST. The project provided critical insights into educating providers on the FDST that helped to facilitate diagnosis and improve patient care outcomes.

Participants: Local providers from local primary care practices consisted of Three Physicians and one Physician Assistant (PA).

Results: All providers felt that the educational in-service was helpful and they gained a better understanding of the FDST. The screening tool may have a major effect on the way healthcare providers diagnose patients with FMS and 75% said they would use it in their practice.

Conclusions: The use of the FDST will identify symptoms and diagnose FMS more effectively in patients in the primary care setting. To validate the FDST further, additional studies are necessary in larger, diverse primary care practices that do not solely treat women.

Key Words: The key MeSH search terms included Fibromyalgia, Fibromyalgia diagnosis, musculoskeletal pain diagnosis, chronic pain, and primary care diagnosis and evidence-based care.

Introduction

Providers find working with FMS patients disheartening because of the length of time it takes to make a diagnosis of fibromyalgia (FMS) (Arnold et al., 2011). By the time a diagnosis of FMS is reached, patients have seen many specialists and have had many diagnostic tests and evaluations (Arnold et al., 2011). Fibromyalgia is a disorder seen in many rheumatology practices, but more FMS patients are seen first in primary care practices (Arnold, Stanford, Welge, &Crofford, 2012). Patients first turn to their primary care providers (PCP) for an initial assessment of FMS symptoms and because so many of those patients with FMS go undiagnosed; it is important to help PCPs identify FMS in the primary care setting by familiarizing PCPs with the Fibromyalgia Diagnostic Screening Tool (FDST) (Arnold, Stanford et al., 2012). Even though there is increased information about FMS, patients are still not being diagnosed appropriately with FMS in as many as three out of four cases (Arnold et al., 2011).

With more patients being seen in primary care for an evaluation of FMS; all providers need to strive to communicate clearly as well as act as an advocate for the patient so that every patient feels they are receiving quality care and providers feel they have worked effectively on their patients' behalf (Hayes, et al., 2010). The goal in diagnosing FMS is to recognize the symptoms of FMS and begin therapy as soon as possible, even if further assessment is necessary to determine and verify other pathological conditions that may also require care (Arnold, Clauw, & McCarberg, 2011).

Background and Objectives

After osteoarthritis, FMS is the next most common problem seen by rheumatologists in the United States, yet rheumatologists treat less than 20% of patients with FMS. FMS often begins when individuals are in their 30s or 40s, and the likelihood of developing FMS increases with age (CDC, 2012). FMS has been seen in all age groups including children, adolescents, and the elderly, but not as often as in middle age (Toma, Houck, Wagnild, Messecar, & Jones, 2013). In addition, 84% of people with FMS have one or more other pathological conditions that "further complicate and delay diagnosis including musculoskeletal, psychological, gastrointestinal, cardiovascular, genitourinary, respiratory, and endocrine disorders" (Toma et al., 2013, p.16). FMS affects an estimated seven to ten million people in the United States and an estimated three to six percent of the world population (NFA, 2014). FMS is seen more often in women than men (Perrot, Choy, Petersel, Ginovker, and Kramer, 2012). Additionally, there is evidence that pain management differs by race and ethnicity, according to a selective review (Mossey, 2011).

Chronic pain can cause a person to become disabled from the degree of pain and nature of the cause (Jensen, 2011).

There are more emergency room visits, physical and occupational therapy appointments, work and school absenteeism, reduced productivity, and disability claims for FMS patients than those with other pain-related disorders (Kasper, 2009). The annual costs in the United States associated with chronic pain are approximately between 560 to 635 billion dollars (IOM, 2011) and the direct and indirect health costs were approximately double for patients with FMS compared to the costs for patients without FMS (CDC, 2012). Sparks (2014) "reported that the annual direct patient costs for provider office visits, diagnostic tests, medications, emergency visits, and out of pocket expenses, totaled \$7,973 for FMS patients compared to \$4,013 for non-FMS patients." (p. 9) "Annual indirect costs related to absenteeism and disability totaled an additional \$10,697" (Sparks, 2014, p.9). Arnold, Stanford et al. (2012) stated that "FMS patients reported that it took an average of 2.3 years and visits to an average of 3.7 physicians before receiving a diagnosis of FMS" (p. 231).

Theoretical Framework

The chronic sense model (CSM) developed by Howard Levanthal and colleagues (1992) constructed an organized model to demonstrate how health and illness can be used to understand both the providers' management of FMS and the patients' ability to manage and cope with a chronic medical condition (Hagger and Orbell, 2003). Patients who are faced with a chronic medical problem such as FMS created a model and representation of FMS to try to cope with the illness and symptoms (van Wilgen, van Ittersum, Kapstein, & van Wijhe, 2005). CSM emerged for use in chronic medical conditions such as FMS when there was no obvious pathophysiological explanation, high uncertainty, lack of an effective cure, and high incidence of emotional problems (Hagger and Orbell, 2003). Levanthal et al., (1992) described the CSM model "as featuring three main constructs as (1) representation of the illness experience that might guide, (2) action planning or coping responses and performance followed by (3) appraisal, or monitoring of the success or failure of coping efforts" (p. 143).

Project Method

The purpose of this evidence-based approach was to familiarize providers with the FDST. A descriptive design was used to describe the FDST (Melnyk & Fineout - Overholt, 2005). The descriptive design was aimed at describing, explaining, predicting a phenomenon, problem, issue or situation as it stands at the time of the project (Melnyk et al., 2005). I undertook a leadership role in the project and directed the activities associated with this process such as creating the questionnaires.

The project was carried out in two phases. The first phase was an in-service whereby the providers were familiarized with the FDST. Prior to the start of the in-service the providers were given a Demographic Questionnaire (Appendix B). The second phase of the project following the in-service on the FDST, the providers were given a self-completed, yes/no questionnaire (Appendix A) that measured their knowledge and attitudes about the in-service education provided on the FDST.

Data Analysis

Analysis of all the data received after the in-service from the demographic questionnaire and the self-completed, yes/no questionnaire was completed. The data analysis provided important, significant findings for the project. Following an in-service on the FDST, I collected a

Demographic and a self-collected questionnaire. No personal identifiers were included within the data pertaining to any individual. The data analysis process included coding, data input, analysis, and reporting results. Descriptive analysis was useful for the project in providing percentiles, frequencies, and central tendencies in order to understand the behaviors observed for each variable and findings, which are represented in Table 2 and Table 3.

The self-completed, yes/no questionnaire used a nominal scale. Most of the data had binary data using either yes/no answers or an answer requiring a short response. Responses to questions on the self-completed questionnaire was coded and assigned a theme and for each question on the survey requiring yes/no answers were assigned a percentage. Frequency analysis was appropriate for this data. Nominal data was analyzed using percentages, which represented the most common responses. A frequency distribution can be developed when the values are grouped into ranges and then frequencies were represented by using a chart. One participant was not available due to a patient emergency.

Table 2 Demographic Survey

Variables	**Number**	**Percent**
Age:		
30	1	25%
40	1	25%
60	1	25%
70	1	25%

Gender:		
Male	2	50%
Female	2	50%
Race/Ethnicity:		
White	4	100%
African American	0	0
Asian	0	0
Hispanic	0	0
Education		
Medicine	3	75%
PA	1	25%
Marital Status:		
Married	4	100%
Non-Married	0	0%
Board Certification:		
MD (Ob-Gyn):	2	50%
MD (Pain Mgmt)	1	25%

Phys Asst:	1	25%
Years in Practice:		
0-5	0	0%
5-10	1	25%
10-20	1	25%
20-30	0	0%
30-40	1	25%
40 >	1	25%

Table 3

Self-Completed Questionnaire

Question Number	Question Text
Question #1	Do you use the ACR (1990) classification on tender point areas?
Question #2	What factors contributed to the difficulty in diagnosing FMS in the primary care setting have you experienced, if any?

Question #3 Do you believe that this FDST will assist you in diagnosing FMS in the primary care setting?

Question #4 Do you believe the information in the in-service will assist you in your diagnosis of FMS?

Question #5 Will this in-service education provide you with more confidence to make a FMS diagnosis?

Question #6 Do you feel that the educational in-service was helpful and provided you with a new Perspective on FMS?

Question #7 Do you feel that men should be diagnosed differently than women?

Question #8 Do you think that the in-service education provided should be different in regards to the use of the FDST on men and women?

Question #9 Do you plan to implement the FDST as part of your routine diagnosing of FMS?

Question #10 Are there resources available to support FMS patients in your practice or community?

Discussion of Findings

Demographic Variables

Demographic variables included age, marital status, gender, education, race / ethnicity, and years in practice (Table 2). There was a 50% division between females and males. The mean age of the providers was 56 years old, 100% of the participants were White, and 100% were married. The participants were 75% medical doctors and 25% were Physician Assistants prepared at the master’s level. The mean range of years in practice were 26.25 years. One doctor had practiced for 50 years in women’s health and the least amount of time practiced was 8 years.

Questionnaire

All providers on the questionnaire admitted to using the American College of Rheumatology (ACR) 1990 classification on tender point areas. The ACR has been what providers have been taught to use for diagnosing FMS since the 1990s when FMS was first recognized as a disease process (Wolfe, 1990).As far as question two, on what factors contribute to the difficulty in diagnosing fibromyalgia in the primary care setting have you experienced, the answers received were: time; not having enough time to hear all the problems patients experience in primary care; that FMS mimics; other differential diagnoses such as arthritis; not having a good understanding of FMS to diagnose it; needing more education; not having an instrument to assist with diagnosing FMS; and treating patients, who do not have health insurance to pay for tests or treatments out of pocket. The question demonstrated that many providers in primary care do not have the resources available to diagnose and treat FMS in the primary care setting thus having a tool like the FDST would provide PCPs with what they need to make a diagnosis and treat FMS.

A major point brought up by one provider was that if primary care providers have biases against treating patients with FMS that might preclude one from treating FMS effectively and wanting to use the FDST. All providers felt that the FDST would be beneficial to diagnose FMS. This is important for the fact that if there is going to be a change in diagnosing FMS in the primary care setting it is imperative that all providers use the FDST in making a diagnosis. All the providers felt that the in-service on FDST was helpful in diagnosing FMS, as several providers had no knowledge that the FDST even existed. In terms of increasing confidence three of four providers (75%) felt that the in-service increased confidence and one (25%) felt that more education would be needed to have an effect. One provider suggested that I get in touch with a new rheumatologist to the area, who would possibly be interested in providing a presentation to the areas Medical Society on this screening tool.

All providers felt the educational in-service was helpful and provided them with a new perspective on FMS and felt that men and women should not be diagnosed differently. One provider felt that women and men might experience pain differently, for example as evaluated by the tender point exam. In order to diagnose men using the tender-point evaluation, the provider would need to press harder with a male than a female in order to elicit a similar response.

The providers were willing and wanted to use the FDST in their practice to diagnose FMS. One provider felt he would possibly use the tool but that more education was still needed. All of the providers felt that the FDST is helpful for diagnosing FMS in primary care. In regards to resources available in their practice and community to support FMS, all providers felt that support groups or even on-line support groups for patients with FMS were needed.

The answers from this survey re-enforced the need for a diagnostic screening tool for fibromyalgia in the primary care setting to provide a guideline to use to diagnose FMS. The tool will not only provide PCPs with the knowledge and confidence to make a FMS diagnosis in a shorter period of time, it will also provide patients with increased satisfaction towards their provider. The provider will also feel increased satisfaction in providing a FMS patient with the care and treatment they require. The FDST tool has not yet been widely used in diverse primary care practices, but according to the literature wherever it has been used, it is demonstrating validity. Future studies using the FDST should be on a larger more diverse participant pool.

Conclusion

FMS is a challenging multifaceted condition of unknown etiology; seen primarily in primary care settings by GPs, NPs and Internal Medicine. Most providers find it taxing to see a chronic pain patient especially FMS because it is time consuming, costly, and there are no easy guidelines to manage their care. The scholarly literature demonstrated that primary care providers need further education and resources to assist with the diagnosis and treatment of FMS. The knowledge acquired from this evidence-based project demonstrated that the FDST had the potential to expedite an accurate, faster diagnosis, and assessment of FMS in the primary care setting. It is still believed that education is needed in order to make a difference in treating FMS. The FDST will need to be tried by more primary care practices so that it receives the exposure it needs. The FDST has the potential of being a first line approach to the management of FMS in primary care.

References

Agency for Healthcare Research and Quality. (2012). *Evidence-based practice center systematic review protocol: Communication and dissemination strategies to facilitate the use of health and healthcare evidence*. Retrieved from http://effectivehealthcare.ahrq.gov/ehc/products/433/1208/CommunicationDissemination_ResearchProtocol_20120731.pdf

Anderson, C. (2010). Presenting and evaluating qualitative research. *American Journal of Pharmaceutical Education, 74*(8), 1-7.

Ang, D., Kaleth, A. S., Bigatti, S., Mazzuca, S., Jensen, M.P., Hilligoss, J… Saha, C. (2013). Research to encourage exercise for fibromyalgia (REEF): Use of motivational interviewing, outcomes from a randomized-controlled trial. *Clinical Journal of Pain, 29*(4), 296-304.

Angeles-Pastor, M., Roig-Lopez, S., Johnston, M., Garcia, R., & Daza, P. (2012). Clinical self-efficacy and illness beliefs in ambiguous chronic pain conditions: General practitioners' management of fibromyalgia. *Anales de Psicologia, 28*(2), 417-425.

Annemans, L., Wessely, S., Spaepan, E., Caikelbergh, K., Caubere, J. P., Le Lay, K., & Taieb, C. (2008). Health economic consequences related to the diagnosis of fibromyalgia syndrome. *Arthritis Rheumatology, 58*(3), 895-902.

Arnold, L. M. (2009). Strategies for managing fibromyalgia. *American Journal of Medicine, 122*, S31-S43.

Arnold, L. M., Clauw, D. J., Dunegan, L. J., & Turk, D. C. (2012). A framework for fibromyalgia management for primary care providers. *Mayo Clinic, 87*(5), 488-496. doi:10.1016/j.mayocp.2012.02.010

Arnold, L. M., Clauw, D. J., & McCarberg, B. H. (2011). Improving the recognition and diagnosis of fibromyalgia. *Mayo Clinic Proceedings, 86*(5), 457-464. doi:10.4065/mcp2010.0738

Arnold, L. M., Crofford, L. J., Mease, P. J., Burgess, S. M., Palmer, S. C., Abetz, L., & Martin, S. A. (2008). Patient perspectives on the impact of fibromyalgia. *Patient Education Counsel*, *73*, 114-120.

Arnold, L. M., Hudson, J. I., Keck, P. E., Auchenbach, M. B., Javaras, K. N., & Hess, E.V. (2006). Comorbidity of fibromyalgia and psychiatric disorders. *Journal of Clinical Psychiatry, 67,* 1219-1225.

Arnold, L. M., Stanford, S., Welge, J., & Crofford, L. (2012). Development and testing of the fibromyalgia diagnostic screen for primary care. *Journal of Women's Health, 21*(2), 231-239. doi:10.1089/jwh.2011.3029

Barr, V., Robinson, S., Marin-Link, B., Underhill, L., Dotts, A., Ravensdale, D., & Salivaras, S. (2003).The expanded chronic care model: An integration of concepts and strategies from population health promotion and the chronic care model. *Hospital Quarterly, 7*(1), 73-81.

Beyer, M., Brockmann, S., & Gerlach, F., (2004). The German project to develop guidelines for general practice: Results and experiences, WONCA Europe, Amsterdam, 1-10. Retrieved from http://www.allgemeinmedizin.uni-frankfurt.de/lit/guidelinesAmsterdam1.pdf

Bieber, C., Muller, G., Blumenstiel, K., Schneider, A., Richter, A., Wilke, S., … Eich, W. (2006). Long-term effects of a shared decision-making intervention on physician-patient interaction and outcome in fibromyalgia: A qualitative and quantitative 1-year follow-up of a randomized controlled trial. *Patient Education and Counseling, 63*, 357-366. doi: 10.1016/jpeg.2006.05.003

Branco, J., Failde, I., Blotman, F., Nacci, F., Lay, K., & Matucci- Cernic, M. (2009). *Prevalence of fibromyalgia: A survey in five European countries*. Retrieved from http://www.cnbc.pt/jpmatos/15.Branco.pdf

Centers for Disease Control and Prevention. (2012). Fibromyalgia. Retrieved from http://www.CDC.gov/arthritisbasics/fibromyalgia.htm

Choy, E., Perrot, S., & Leon, T. (2012). A patient survey of the impact of fibromyalgia and the journey to diagnosis. *BMC Health Service Research,10*, 356-462. doi:10.1186/1472-6963-12-356

Choy, E., Perrot, S., Leon, T., Kaplan, J., Petersel, D., Ginovker, A., & Kramer, E. (2010). A patient survey of the impact of fibromyalgia and the journey to diagnosis. *BMC Health Services Research, 10,*102-111. doi: 10.1186/1472-6963-10-102

Clauw, D. J. (2007). Fibromyalgia: Update on mechanisms and management. *Journal of Clinical Rheumatology,13*(2), 102-109.

Clauw, D., Arnold, L., & McCarberg, B. (2011). The science of fibromyalgia. *Mayo Clinic Proceedings, 86*(9), 907-911.

Crabtree, B. & Cohen, D. (2006). Qualitative research guidelines project. Robert Wood Johnson Foundation. Retrieved from Http://www.qualres.orgHomeServ-3629.html

Creswell, J. W., Klassen, A. C., Clark, V. L., & Smith, K. C. (2011). Best practices for mixed methods research in the health sciences, Retrieved from http://obssr.od.nih.gov/mixed_methods_research/pdf/Best_Practices_for_Mixed_Methods_Research.pdf

FibroCollaborative Review. (2009). *The FibroCollaborative roadmap for change: A call to action for Fibromyalgia.* Advocacy Working Group, Washington, DC.

Fitzcharles, M. A., Ste-Marie, P. A., Goldenberg, D. L., Peirra, J. X., Abby, S., Choiniere, M., & Shir, Y. (2012). Canadian guidelines for the diagnosis and management of fibromyalgia syndrome. *Pain Research Management, 18*(3), 119-126. PMC3673928

Fitzcharles, M. A., & Yunus, M. B. (2012). The clinical concept of Fibromyalgia as a changing paradigm in the past 20 years. *Pain Research and Treatment*, 1-8 doi:10.1155/2012/184835

Gilchrist, V.J. & Williams, R.L. (1999). Key Informant Interviews… In BF Crabtree and W Miller (Eds). *Doing Qualitative Research* (2nd Ed.) Thousand Oakes: Sage Publication Inc., p. 71-88.

Goldenberg, D. L. (2009). Diagnosis and differential diagnosis of fibromyalgia. *The American Journal of Medicine, 122*, S14-S21.

Hagger, M.S. & Orbell, S. (2003). A meta-analytic review of the common-sense model of illness representations. *Psychology and Health, 18*(2), 141-184. DOI:10.1080/088704403100081321

Hayes, S., Myhal, G., Thornton, J., Camerlain, M., Jamison, C., Cytryn, K., & Murray, S. (2010). Fibromyalgia and the therapeutic relationship: Where uncertainty meets attitude. In Pai

Hesse-Biber, S.N. & Leavy, P. (2011). *The practice of qualitative research*. (2nd ed.). Los Angeles, CA: Sage.

Hughes, G., Martinez, C., Myon, E., Taïeb, C., & Wessely, S. (2006). The impact of a diagnosis of fibromyalgia on health care resource use by primary care patients in the UK: an observational study based on clinical practice. *Arthritis Rheumatology, 54,*177-183.

Institute of Medicine. (2011). *Relieving pain in America: A blueprint for transforming prevention, care, education, and research*. Washington DC: The Nation Academies Press.

Jensen, M., Moore, M., Bockow, T., Ehde, D. & Engel, J. (2011). Psychosocial factors and adjustment to chronic pain in persons with physical disabilities: A systemic review. *Arch Phys Med Rehab, 92*, 146-160.

Jones, G., Power, C., & Macfarlane, G.J. (2009). Adverse Events in Childhood and Chronic Widespread Pain in Adult Life: Results from the 1958 British Birth Cohort Study. *International Association for the Study of Pain, 143*, 92-96.

Kettner, P. M., Moroney, R. M., & Martin, L. L. (2008). *Designing and managing programs: An effectiveness based approach* (3rd Ed.) Thousand Oakes, CA: Sage.

Levanthal, H., Diefenbach, M., & Levanthal, E.A. (1992). Illness cognition: Using common sense to understand treatment adherence and affect cognitioninteractions. *Cognitive Therapy and Research, 16*(2*)*, 143-163.

Martin, S. A., Coon, C. D., McLeod, L. D., Chandran, A., & Arnold, L. (2014). Evaluation of the fibromyalgia diagnostic screen in clinical practice. *Journal Evaluation of Clinical Practice 20*(2), 158-165. DOI: 10.1111/jep.121

Melnyk, B. & Fineout-Overholt, E. (2005). *Evidence-based practice in nursing & healthcare: A guide to best practice*. Philadelphia, PA: Lippincott, Williams, & Wilkins.

Mossey, Jane (2011). Defining racial and ethnic disparities in pain management. Clinical *Orthopedic Relation Research, 469*(7), 1859-1870.actice 20(2)158165. doi: 10.11111/jep.12102.

National Fibromyalgia Association. (2014). Past, present and future. Retrieved from http://www.fmaware.org/articles.html

Oliveira, P.J., & Costa, E. (2012). Psychosocial factors in fibromyalgia: A qualitative study on life stories and meanings of living with fibromyalgia. Dr. William Wilke (Ed) InTech. Retrieved from http://www.intechopen.com/books/new-insights-into-fibromyalgia/psychoscocial-factors-in-fibromyalgia-a-qualitative-study-on-life--stories-and -meanings-of-living-with

Perrot, S., Choy, E., Petersel, D., Ginovker, A., & Kramer, E. (2012). Survey of physician experiences about the diagnosis and treatment of Fibromyalgia. *BMC 12.* Retrieved from http://www.biomedcentral.com/content/pdf/1472-6963-12-356. pdf

Reed, M., & Herrmann, M. (2012).The difficulties in developing and implementing Fibromyalgia guidelines; In: new insights into fibromyalgia. Dr. William S. Wilke (Ed.), Intech-Verlag, S. 117- 138. DOI: 10.5772/36495. Retrieved from http://www.intechopen.com/books/new-insights-into-Fibromyalgia/the-difficulties-in-developing-and-implementing-Fibromyalgia-guidelines

Rogers, E. M. (1983, 2003). *Diffusion of innovations*. New York: Free Press.

Sparks, T. (2014). Merging educational technology into routine care for patients living with fibromyalgia. University of Nevada Doctor of Nursing Practice, 21-48, 1-82

Toma, L., Houck, G.M., Wagnild, G, Messecar, D., & Jones, K. (2013). Growing old with fibromyalgia. *Nursing Research 62*(1), 16-24.

Terry, A. (2012). *Clinical research for the doctor of nursing practice*. Sudbury, MA: Jones& Bartlett

The Chronic Pain and Fatigue Research Center. (2014). FibroGuide. The University of Michigan. Retrieved from https://fibroguide.med.umich.edu/aboutus.html

Thompson, J. M., Luedtke, C.A., Oh, T.H., Shah, N.D., Long, K.H., King, S., Branda, M., & Swanson, R. (2011). Direct medical costs in patients with fibromyalgia: Cost of illness and impact of a brief multidisciplinary treatment program. *American Journal of Physical and Medical Rehabilitation, 90*, 40-46.

Van Eijk-Hastings, Y., Kroese, M., Bessems- Beks, M., Landewe, R., & Vrijhoef, B. (2012). Supporting healthcare professionals systematically to improve the quality and person centeredness of Fibromyalgia management in primary healthcare. *The International Journal of Medicine 2*(4), 837-844.

Van Wilgen, C., Van Ittersum, M.W., Kaptein, A., & Van Wilje, M., (2008). Illness perception in patients with fibromyalgia and their relationship to quality of life and catastrophizing Retrieved from https://www.rug.nl/research/portal/files/6726146/van_Wilgen_2008_Arthritis_Rheum.pd 3618-3626

White, K.P., Nielson, W.R., & Harth M., Ostbye, T., & Speechley, M. (2002). Does the label fibromyalgia alter health status, function, and health service utilization? A prospective, with-in group comparison in a community cohort of adults with chronic widespread pain. *Arthritis Rheumatology, 47*(3), 260-265.

Williams D.A, Kuper, D., Segar, M., Mohan, N., Sheth, M., & Clauw, D. J. (2010). Internet enhanced management of fibromyalgia; A randomized control trial. *Pain, 151*, 694-702. doi: 10.1016/j.pain2010.08.034

Winfield, J. B. (2011). Fibromyalgia. Retrieved from http://emedicine.medscape.com/article/329838-overview

Wolfe, F., Smythe, H., Yunus, M., Bennet, R., Goldenberg, D.,…& Sheon, R. (1990). The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. *Arthritis and Rheumatism, 33*(2), 160-172.

Wolfe, F., Clauw, D., Fitzcharles, M.A., Goldenberg, D. L., Katz, R., Mease, P.,…& Yunus, M. (2010). The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. *Arthritis Care & Research, 62*(5), 600-610. doi: 10.1002/acr.20140.

Yoder- Wise, P. (2007). *Leading and managing in nursing*. (4th Ed.) St. Louis, MO: Mosby.

Yunis, M. (2007). Central sensitivity syndromes: A new paradigm and group nosology for fibromyalgia and overlapping conditions, and the related issue of disease versus illness. *Seminars in Arthritis and Rheumatism, 37*(6), 339-352. Doi:1016/jsemarthrit2007.09.003

Appendix A: Project Questions for Providers

1. Do you use the American College of Rheumatology (ACR) 1990 classification on tender point areas? Yes [ ] or No [ ]?

2 What factors contribute to the difficulty in diagnosing fibromyalgia in the primary care setting if any have you experienced? ____

____

3 Do you believe that this FDST will assist you in diagnosing fibromyalgia in the primary care setting? Yes [ ] or No [ ]?

4. Do you believe that the information in the in-service will assist in your diagnosis of FMS? Yes [ ] or No [ ]?

5. Will this in-service education provide you with more confidence to make a FMS diagnosis? Yes [ ] or No [ ]?

6. Do you feel that the educational in-service was helpful and provided you with a new perspective on FMS? Yes [ ] or No [ ]?

7. Do you feel that men should be diagnosed any differently than women? Yes [ ] or No [ ]?

8. Do you think that the in-service education should be different in regards to using the FDST on men and women? Yes [ ] or No [ ]?

9. Do you plan to implement the FDST as part of your routine diagnosing of FMS? Yes [ ] or No [ ]?

10. Are there resources available to support FMS patients in your practice and community? Yes [ ] or No [ ]? Any Comments/Questions?

Appendix B: Demographic Questionnaire

Number _______________ Date____________

Gender: 1) Male, 2) Female

Married1) ___ Single___ 2) Married ____3) Divorced____ 4) Widowed

Age: 1) 20-30, 2) 30-40, 3) 40-50, 4) 50-60, 5) 60-70

Title: 1) MD, 2) FNP, 3) ANP, 4) DNP, 5) PA

Education- Medical School

Nursing Masters_____ NP or DNP_______

Physician Assistant Masters_____________ Doctoral Level______________

DO______________

4. Specialty: 1) Family Practice, 2) Internal Medicine, 3) Pain Specialist 4) Rheumatology

5. Years in Practice recorded in years___________

6. Board Certification: 1) Yes, 2) No NP Certification ____Y ___N PA Cert ___Y ___N

7. Area of Certification: 1) Family Practice, 2) Internal Medicine, 3) Adult 4) Pain Management

8) Race = "1" White "2" Black or African American "3" Hispanic" "4" Asian

"5" Native Hawaiian or Other Pacific" "6" American Indian "7" Other

Appendix C: Letter Requesting Permission From Dr. Arnold to Use Fibromyalgia Diagnostic Screening Tool

Lesley Arnold MD

Women's Health Research Program

University of Cincinnati College of Medicine
222 Piedmont Ave Suite 8200
Cincinnati, OH 45219

April 18, 2015

Dear Dr. Arnold

I am a Doctoral Nursing Student at Walden University and am researching Fibromyalgia for my final Capstone Project for graduation. I have been following your work for many years and am interested in your Fibromyalgia Diagnostic Screening Tool and would like your permission to use it at my practicum site with one group of doctors who specialize in Women's Health. I found it in the Journal of Women's Health and it will not be used at multiple sites.

I am hoping that you will give permission for me to use the Fibromyalgia Diagnostic Screening Tool for my project. Email sent

Sincerely,
Lilo Fink RN, MSN, FNP
Doctoral Student

Appendix D: Permission E-mail From Dr. Arnold

April 18, 2015

To Lilo Fink

Arnold, Lesley (arnoldlm) <ARNOLDLM@ucmail.uc.edu>

Please use the screening tool and let me know how it goes! Best wishes!

Lesley M. Arnold, M.D.
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Director, Women's Health Research Program
University of Cincinnati College of Medicine
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