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How Do Health System Employees with Established Musculoskeletal Complaints Decide on Their Treatment Pathway? A Qualitative Approach

Noor Alshareef
University of South Carolina

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By

Noor Alshareef

Bachelor of Science
King Abdulaziz University,2008

Master of Science
University of Surrey, 2011

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Accepted by:

Melanie Cozad, Major Professor

Jan Ostermann, Committee Member

Mark Macauda, Committee Member

Charles Thigpen, Committee Member

Cheryl L. Addy, Vice Provost and Dean of the Graduate School

DEDICATION

To my parents whose tremendous and continuous support and prayers got me where I am today.

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ABSTRACT

Purpose: Non-pharmacologic treatment such as physical therapy (PT) are advocated for musculoskeletal pain for decreasing opioid use. Early access to PT has been shown to decrease costs and improve outcomes through direct access via self-referral. Although self-referral to PT is permitted in the majority of U.S states, health insurance coverage has been identified as a barrier preventing some patients with musculoskeletal complaints from using it. There are few studies examining patient factors related to early access to physical therapy via self-referral. The purpose of this study was to identify the factors outside of insurance that influence the choice to access physical therapy care through the self-referral or usual care pathway.

Methods: A program removing these barriers was administered in partnership with a self-funded employer where a physician referral was not required with lower copayments for each visit. After program implementation, the majority of patients still selected to access PT by seeking a referral from a physician (usual care pathway). Thirty-two in-depth semi-structured interviews were conducted after patients with this benefit accessed physical therapy for non-operative musculoskeletal complaints. Interviews lasted approximately 35 minutes. Each interview was audio recorded and transcribed for qualitative analysis. Concurrent patient data was pulled from the ATI Patient Outcomes Registry including comorbidities, patient reported disability, duration of pain , and baseline level of pain. A

grounded theory approach using open, axial, and selective coding techniques thematically identified major factors contributing to the choice of the self-referral or the usual care pathway when accessing PT. Mann-Whitney U and Fisher's exact tests were used to compare baseline patient differences between groups. ($\alpha \leq 0.05$).

Results: There were no significant association in clinical or socio-economic variables and patient choice of care (usual care vs self-referral pathway). However, thematic differences included: 1,) patients' knowledge of the program, 2.) attitudes/preferences toward treatment, and 3.) resonant prior experiences with PT. Patients selecting the usual care pathway lacked program knowledge, preferred pharmacological treatments, and desired physician reassurance. Patients selecting self-referral knew about the program, were open to a wide array of treatment options which were associated with existing beliefs about pharmacological treatments and surgery. Patients using direct access also had positive prior experiences with PT or members of their network did.

Conclusion: This study provides evidence that knowledge, attitudes and beliefs about treatment, and resonant prior experience with PT influence patient choice of self-referral to PT. The sample is limited to employees of one health system in one metropolitan area within the southeastern U.S and is generalizable only to this demographic. Programs aimed at improving patient knowledge and changing patient attitudes appear warranted to increase utilization of self-referral to PT for musculoskeletal complaints

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CHAPTER ONE

INTRODUCTION

Background

Musculoskeletal disorders (MSDs) account for the most disabling and most expensive conditions in the USA [1] . They encompass a broad range of "inflammatory and degenerative conditions affecting the muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels" [2] . MSDs include both clinical syndromes and less standardized conditions such as "regional pain syndrome not caused by a specific pathology (e.g. low back pain)" [2] . MSDs cover a wide spectrum of conditions that range from those of acute onset and short duration to lifelong disorders [3] .

Given the many forms musculoskeletal disorders can take over a lifetime, MSDs impact hundreds of millions of individuals around the world, thus representing the fourth greatest health burden on the world's population [4]. In 2012, it was reported that half of the American adult population, 126.6 million adults over the age of 18, reported being diagnosed with musculoskeletal disorders [3] . The prevalence rate of MSDs differ between conditions [5], for example, arthritis, the most common cause of disability among American adults, is estimated to impact 25% of the adult population, 67 million individuals by 2030. Back pain, a frequent and common problem among the general adult population, is estimated to effect 50%-80% of adults at some point in their lifetime [6]. Neck pain, on the other hand, effects two-third of the adult population at least once in their lifetime [7].

Pain and disability from MSDs: 1.) limit a patient's functional status [8] , 2.) result in an inability to work or participate in preferred activities [9] , and 3.) negatively influence the quality of life [8] . In 2011, the annual U.S cost of direct treatment and lost wages due to musculoskeletal disorders was $213 billion [10] . Direct treatment costs include expenditures to healthcare providers, hospitalization and visits to other healthcare settings , and medications taken by patients with MSDs [3] . The mean annual cost per patient for treatment of a musculoskeletal disorder is $7,800 between the years 2009 to 2011 [10].

Given the high prevalence and to curb the tremendous economic costs of MSDs it is important to understand how patients with a musculoskeletal disorder access medical care. The ubiquitous nature of MSDs lead patients to seek medical care from a variety of medical specialties that includes physicians (e.g. primary care physicians and physical therapists). Primary care physicians and physical therapists play active but distinctive roles in the evaluation and treatment of MSDs. Primary care physicians can determine sick-leaves, prescribe anesthetics, and make referrals to specialists (i.e. orthopedic surgeons) and to other types of medical diagnostics such as X-rays and MRIs [11,12] . Physical therapists utilize rehabilitative approaches, therapeutic exercises, and manual therapy to restore, retain, and improve activity and movement, enabling individuals to function and move as well as they can, and maximizing health and quality of life [13] . They also provide support to individuals to manage their own condition in the long term, thus preventing future episodes of musculoskeletal complaints [13] . Physical therapists tend to have a high level of knowledge in managing musculoskeletal complaints compared to most physician specialties [14] , which suggests that physical therapists can provide optimal musculoskeletal care and a better path to recovery to these patients. According to Fritz et al.,[15] patients

seeking initial care from a physical therapist are less likely to receive injections, surgical interventions , and medications compared with patients consulting physicians (e.g. primary care providers) as their first provider of care. Therefore, there is need to understand why patients continue to consult physicians other than physical therapists for their musculoskeletal complaints.

Treatment Pathways to Physical Therapy

Patients can access physical therapy services through either the usual care or the self-referral pathway (Figure1.1). In the usual care pathway patients initially consult a primary care or specialty physician who will then refer them to physical therapy care. Self-referral, "direct access" or "PT-first" refers to the treatment pathway where patients are evaluated and treated by a physical therapist without receiving a referral from a physician [16] . This treatment pathway has been found to reduce patient waiting time, enhance convenience, and improve recovery time [17–19].

These findings support recent healthcare reforms in which healthcare providers and legislators have attempted to deliver efficient care by developing alternative pathways through which patients can seek care [20] . Some states have gone so far as to adopt legislation that offers some form of self-referral to physical therapy services [21]. South Carolina, for instance, offers self-referral to physical therapy with provisions such as:

- In the absence of a referral, the physical therapist must refer the patient to a licensed physician if providing PT service beyond 30 days after the initial evaluation.
- Patients must be referred to a licensed physician if the patient's condition is beyond the scope of PT [21].

While many states have legislation supporting self-referral, many barriers related to health insurance coverage exist. Insurance providers govern whether the services provided by physical therapy practices would be compensated in the absence of referral. Although many insurance providers reimburse for physical therapy services without a referral, and evidence suggest lower costs, some insurance companies still require referrals [22]. Insurers may also restrict access through limits on total annual PT payments or by limiting the number of physical therapy visits per year, per condition, or per episode [23]. Moreover, the classification of physical therapy as "a specialty" health service translates to a higher patient copayment that could be as high as $75 per visit [23]. Referral requirements, high copays, and limited insurance coverage impede patients from directly accessing physical therapy services.

Overview of the Problem and Knowledge Gap

The usual care treatment pathway of seeking care from a primary care or a specialty physician before accessing physical therapy services is not without implications on costs and healthcare utilization [24]. Physicians tend to favor costly management strategies such as imaging and medication prescription over universal and simpler recommended treatments [25]. For instance, currently, the core responsibility of primary care physicians is to provide advice, dispense medication, and offer onward referral to other healthcare professionals [26]. Prior research have demonstrated that utilization of medical imaging results in substantial healthcare cost without any health benefits [27,28]. Opioids, muscle relaxant, and nonsteroidal anti-inflammatory drugs are among the commonly prescribed medications for patients with a musculoskeletal complaint. Despite the potential benefit of these medications in managing musculoskeletal complaints, they may cause several adverse effects.

Nonsteroidal anti-inflammatory drugs are associated with an increased risk of cardiovascular and gastrointestinal toxicity, alterations in renal function, problems in blood pressure , hepatic injury and platelet inhibition [29]. In addition, opioids cause adverse side effects in several organ systems including gastrointestinal, immune, endocrine, respiratory, cardiovascular and central nervous system [30]. Opioids also have powerful positive effects on reinforcing brain circuits that might lead to difficulty discontinuing the use of the drug even in the absence of evidence of abuse or misuse [31] . Opioids have also been shown to be accompanied by an increase in mortality risk [32]. Muscle relaxant is associated with sedation, headache, drowsiness, dizziness, nausea, vomiting, and blurred vision. Potential for dependency and abuse has also been reported in the literature [33].

Nevertheless, the usual care pathway also contributes to long waiting times in which the patients must deal with the MSD before seeking a treatment solution. A recent study by Merritt Hawkins examining the time required to schedule a new physician appointment reported that the average physician appointment wait time is 24 days, an increase of 30% from 2014 [34]. These long wait times increase the probability that patients may seek care from the emergency room, which is a costlier form of care. A visit to the ER may result in prescribing medications that include opioids, steroids, and muscle relaxant to treat musculoskeletal complaints [35].

Long wait times, and ER utilization, as a result of the inability to consult primary care physicians as a first care provider for patients with MSD may become magnified due to the projected shortage of more than 44,000 primary care physicians stemming from the increased demand from newly insured individuals resulting from the Affordable Care Act [36]. In the face of these challenges, one solution is to change patient's entry point from

primary care providers to physical therapists whose scope of practice and expertise undoubtedly focus on musculoskeletal care.

Evidence on the effectiveness of "self-referral" to physical therapy in the literature is substantial. Self-referral has been shown to extend healthcare users' choice of providers [37] and to reduce treatment delay [38]. Several studies have also reported that self-referral is associated with lower costs to patients, insurance providers, and healthcare organizations [39–43]. Patients who access physical therapy via the self-referral treatment pathway have been shown to receive fewer prescriptions for diagnostic imaging and pharmacological interventions [39–42] without any reported adverse events [44]. Self-referral has also been found to enhance patient satisfaction and improve resources utilization efficiency [45].

Even though this evidence supports that self-referral is safe, efficient, and cost-effective - which clearly indicates that it is the superior pathway- studies have reported that patients utilization of self-referral remains low [41,45,46] .Thereby, for self-referral to become a more mainstream way for the millions of MSD patients to access physical therapy care more research is needed. Specifically, this research needs to focus on identifying the motivations for why patients choose to access care for MSD in the way that they do. Understanding these motivations will allow healthcare organizations to craft effective marketing strategies aimed at getting patients to change the ways in which they currently access care towards ones that are more efficient given the changing healthcare marketplace under the ACA. The evidence provided from this study can be used to inform and guide health system policymakers on making evidenced-based decisions on which treatment pathway employees with musculoskeletal complaints should follow as a means

of seeking care. It can also be used to inform practices adopting self-referral on better marketing and outreach strategies that could increase utilization of self-referral.

Research Purpose and Questions

This study's purpose is to identify the factors that influence why patients with MSDs choose to access physical therapy care through the self-referral treatment pathway or the usual care treatment pathway of being referred by a physician in a real-world clinical environment within the US. Since legislation and programs offering self-referral to physical therapy vary widely from state to state, this study focuses on a large integrated health system in the southeastern U.S. that offers its employees with musculoskeletal complaints the autonomy to choose between initiating physical therapy services through two treatment pathways: the usual care treatment pathway or the self-referral treatment pathway which is also known as the musculoskeletal (MSK) pathway (Figure1.1). The usual care treatment pathway refers to consulting a physician who will then issue a referral to access physical therapy services. The self-referral or MSK treatment pathway refers to the ability of a patient to access physical therapy services directly without receiving a referral from a physician [47].

This health system has been able to establish the musculoskeletal (MSK) program by partnering with a private physical therapy organization and a large insurance company. The program offers patients the opportunity to access physical therapy through the self-referral treatment pathway without any referral or insurance barriers. However, in spite of the availability of this treatment pathway over the last 5 years, a large proportion of employees (53.4%) still decide to initially consult with a healthcare physician who then refers them to physical

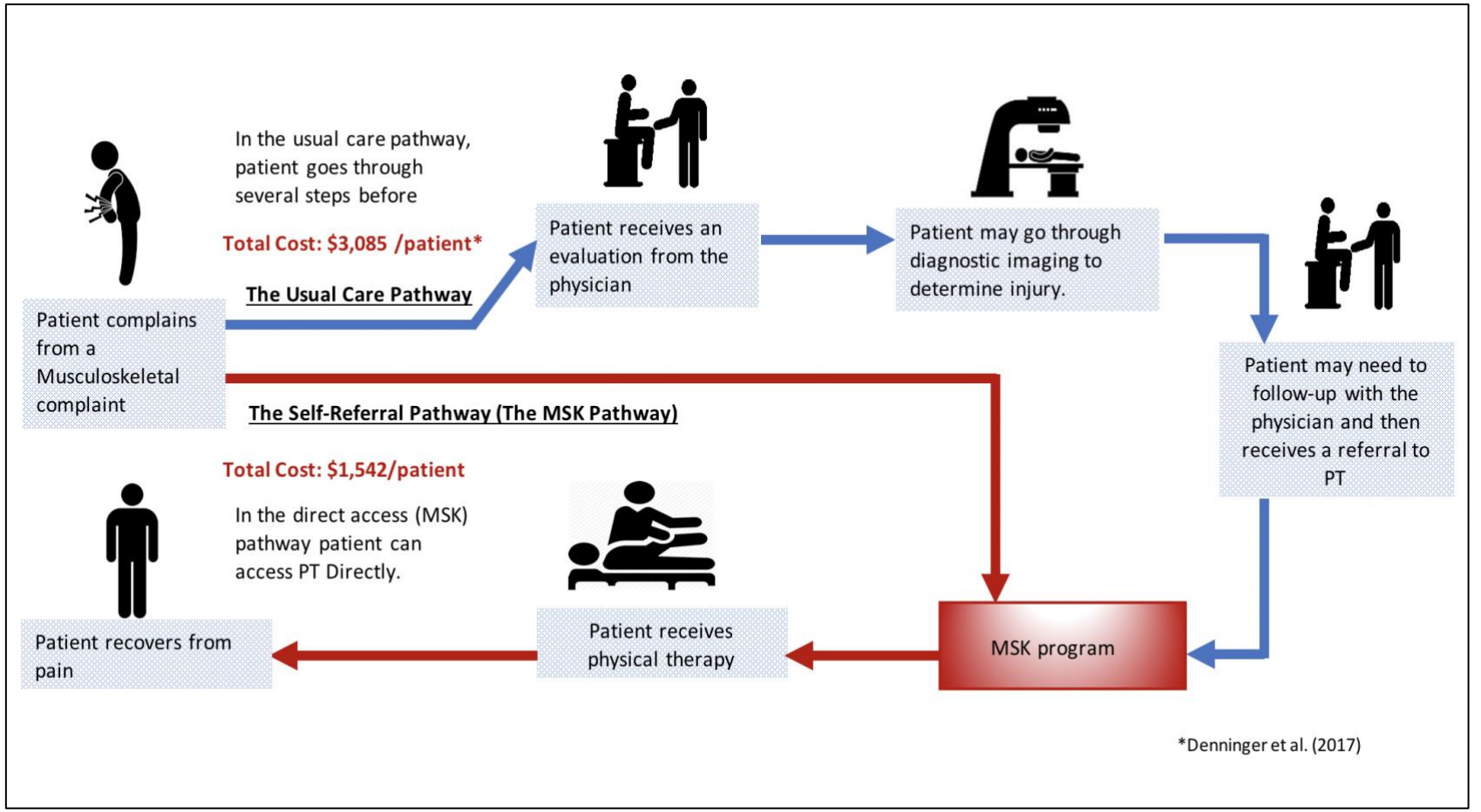

Figure 1. 1 Patient treatment pathways for musculoskeletal-related complaints.

therapy services for treatment. This study will attempt to understand why patients make those choices by answering the following research questions:

1. What are the drivers that influence health system employee's choice of care model (the usual care or self-referral pathway) when seeking treatment for their musculoskeletal related complaints?

2. What are the clinical and sociodemographic differences, if any, between patients using the usual care and the self-referral pathway?

Preview

This dissertation is presented in the following format: the next chapter, "Background and Significance," provides in-depth presentation of relevant research; Chapter 3, "Research Design and Methods," details specifics about the MSK program and the methodology used to answer the research questions; Chapter 4, "Results," provides the results of the study; and Chapter 5, " Discussion, Implications, Conclusions and Future Research," provides a discussion of the findings and presents the conclusion of this study and its implication for future research.

CHAPTER TWO

BACKGROUND AND SIGNIFICANCE

A patient's ability to go directly to physical therapy for care is not unique to the U.S. It has been established in other countries such as New Zealand, Canada, Australia, Scotland, and The Netherlands [48–50]. Despite the obvious international movement toward a wider introduction of self-referral to physical therapy services, arguments against this method of care are still ongoing [51].Fears regarding inaccurate diagnoses and missed pathology raise questions on whether physical therapists are equipped with the adequate knowledge to make an accurate diagnosis [52,53]. Opponents to self-referral including The American Medical Association (AMA), The American Academy of Orthopedic Surgeons, Chiropractic groups, and State Medical Societies argue that physical therapists may fail to identify serious medical conditions as they are not trained to make medical diagnosis and are unable to refer a patient for medical diagnostic testing. For this reason, they assert that all patients should initially be diagnosed by a physician [54,55]. The AMA states that "although allied healthcare professionals are useful as physician extenders, they would not serve the public well in an autonomous role" [39].

Opponents also argue that self-referral may increase healthcare costs due to overuse and/or inappropriate use of physical therapy [52]. To investigate this claim, Mitchell and de Lissovoy [39] analyzed Blue Cross Blue Shield claims data for 4 years in a direct access state,

Maryland. Blue Cross Blue Shield does not require a physician referral to reimburse for PT services. The study found that self-referred patients received fewer medical services, had a shorter duration of care, and were less costly than patients who were referred by a physician. The study concluded that "concern that self-referral will result in overutilization of services or will increase costs appears unwarranted." A further concern arising from opponents of self-referral, healthcare insurers, in particular, is the fear that the introduction of self-referral to physical therapy services will result in an overwhelming influx of users of physical therapy services, hence, resulting in higher costs for the insurer [51]. In Scotland and in the Netherlands, studies reported that self-referral did not appear to be a source of an increase in the overall referral rate to physical therapy following the introduction of self-referral [51,56].

At the other end of the spectrum, compelling arguments have been made in favor of self-referral. Advocates of self-referral to physical therapy services or using physical therapists as frontline screeners have identified benefits to healthcare providers, patients, and the healthcare system. Proponents of self-referral affirm that physical therapists are qualified to diagnose and treat conditions within their scope of practice and to screen for other conditions that require a physician's assessment [40]. The literature shows the clinical diagnostic accuracy of physical therapists when assessing musculoskeletal complaints to be similar to orthopedic surgeons and twice as accurate as non-orthopedic providers [44]. Proponents assert that self-referral can ease the workload of burdened primary care providers by giving physical therapists the privilege to act as the primary assessors for patients presenting with musculoskeletal complaints [57] and thereby help address the anticipated shortage of primary care physicians [58]. They also argue that patients have the

right to self-refer to physical therapy service if they desire and believe that this right increases the autonomy of the patient [16]. Patient freedom of choice increases and accelerates access to physical therapy services [37] by reducing delays before starting physical therapy treatment [38], and by preventing acute conditions from progressing to chronic conditions [59], thus, decreasing sick days [59]. Holdsworth et al. [50,60] found that patients accessing PT via self-referral were absent for half the mean time (2.5 days vs. 6 days) and were more in compliance with attendance than those referred by a physician.

Additionally, proponents also contend that self-referral could reduce healthcare costs by reducing unnecessary physician visits, subsequent diagnostic imaging, and medications prescriptions. Several studies [39,41,42,61,62] have revealed that self-referred patients received fewer drug prescriptions (e.g., nonsteroidal anti-inflammatory drugs and analgesics), were less likely to be referred for x-rays and secondary care and had a reduced need for invasive treatments.

In addition, proponents state that that self-referral promotes a high quality of care and improves patient outcomes. Although patients who directly access physical therapy use fewer medical services, they were found to display better discharge outcomes [53], which was achieved in fewer physical therapy visits [39,40,50,53] and without indications of adverse events to patients [44]. Leemrijse and colleagues [53] demonstrated that the percentage of patients who were able to fully achieve treatment goals at the end of treatment was 9% greater in the self-referred group than patients using the usual care pathway. Achievement of favorable clinical outcomes subsequently improved patient satisfaction [55,56] . Webster et al [55] found a significant association between referral group and patient satisfaction, patients

in the self-referred group demonstrated greater satisfaction relative to patients in the physician referral group.

The main benefit of self-referral is that it minimizes the time between seeing a physician for an initial diagnosis and starting physical therapy treatment. Although this mode of accessing physical therapy care seems to display good results in relation to healthcare cost, utilization, and patient outcomes and satisfaction, the choice of whether a patient uses physical therapy services is still based on patient's ability to recognize their need for physical therapy services [57]. Even if a patient has the ability to realize his or her need for physical therapy, his/ her choice of treatment pathway (self-referral vs. usual care pathway) may be governed by extrinsic factors - factors outside the patient's control such as state laws, insurance company policies, and healthcare organizational policies [20,45,46]. For example, a patient who might consider seeking care directly from a physical therapist may use the usual care pathway of being referred by a physician because he or she lives in a state that places restrictions on self-referral to physical therapy services or alternatively, the patient may be enrolled in a health plan that does not permit self-referral and thus the patient is forced to access PT care after consulting a physician first.

The Social Ecological Model as a Framework for Patients Self-Referral

The Social Ecological Model (SEM) is a theory that recognizes that individual behavior is framed by factors on different levels including policy, institutional, community, interpersonal and individual levels [58]. For the purpose of this study, this study will be using three levels: policy, institutional, and individual levels (Figure 2.1). Self-referral is ultimately a patient choice, however in the U.S., self-referral is determined by a policy and organizational factors before it becomes a personal choice. This study utilizes the SEM as

an organizing framework for presenting the policy and institutional level barriers that prevents patients from self-referring to PT. It will then present the individual level factors that drive patients' choice of treatment pathway

Policy level

In the US, self-referral to physical therapy is not uniformly implemented across the country. At present, all 50 states, allow patients to seek some form of treatment from a licensed physical therapist without a referral or a prescription from a physician. However, self-referral laws and regulations to access physical therapy services for treatment and evaluation vary across states. Eighteen states have no "restrictions" or limitations for self-referral in the absence of physician referral [59] . However, twenty-six states provide "self-referral with provisions" that include limiting the time or visits that a patient can be seen without a physician prescription, or referral requirements for certain treatment intervention such as spinal manipulation. Six states provide "limited patient access"; self-referral in these states is restricted to a specific patients population or under specific circumstances [59] .

Institutional level

At the institutional level, restriction of patients' choice of treatment pathway to access physical therapy comes from insurance providers and institutional policies. Lack of insurance reimbursement for physical therapy services has been cited as a primary barrier to self-referral in the literature [38,45]. Some private health insurance plans and Medicare do not reimburse physical therapy services without a prior physician referral [57], self-referral is thus unlikely for patients in health insurance plans where physicians act as gatekeepers for physical therapy services [52]. In addition, organizational management policy [38,60] linked

to rules and regulation that requires physician oversight for physical therapy services emerge as a further barrier to self-referral, including hospital or facility policies that require a physician referral regardless of state law [46]. These institutional barriers along with reimbursement requirements prevent patients from having the autonomy to choose between the two pathways for accessing physical therapy services.

Individual level

However, at other times, patients' choice to seek a particular treatment pathway is not controlled by extrinsic factors and is entirely determined by the patient. The underlying factors for a patient's choice are not always clear as in the case of a patient who continues to consult the same physician despite having the autonomy to seek care from an alternative healthcare provider. The literature points to a variety of patient-specific factors that influence how a patient accesses physical therapy care, including condition-related characteristics and past PT treatment**,** sociodemographic characteristics, patients' knowledge and attitudes, and the physical therapy practice geographical Location. The literature surrounding each of these factors is discussed in the subsections below.

Condition-Related Characteristics and Past PT Treatment

The literature indicates that condition-related characteristics and past PT treatment differ across those who self-refer to PT over patients who take the usual care pathway. Condition-related characteristics such as the presenting condition [61,62] , the duration of the presenting condition [48,53,61,63] , recurrence of the condition [61,63] , and receiving earlier physical therapy treatment [61,63] were found as strong predictors of the use of self-referral to PT. In terms of the presenting condition, two studies reported that patients who self-referred were disproportionately likely to complain about neck and back conditions.

Holdsworth et al. [62] investigated the profile of patients and mode of access to physical therapy services. Patients who presented musculoskeletal conditions related to their neck and back were more likely to self-refer than patients with other musculoskeletal complaints (i.e. shoulder, knee, and lower and upper limb). Similarly, Leemrijse et al. [61] found that patients with non-specific back and neck complaints were more likely to self-refer than patients with non-specific shoulder complaints and symptoms of the cervical spine.

Patients who self-refer to physical therapy appear to complain about the condition for a lesser duration, are more likely to have suffered from recurrent pain, and are more likely to have previously used PT services. Holdsworth and associates [62] reported that patients who self-refer had their symptoms for less than 14 days. Leemrijse and colleagues [61] also found that patients with health complaints existing for less than 1 month opt for self-referral to physical therapy compared to patients with conditions lasting for more than 3 months. Additionally, patients with recurring complaints were found to be more likely to self-refer to PT, as did patients who previously received PT treatment. Patient knowledge about their symptoms and the role of physical therapists could explain why patients with recurrent pain refer themselves more often than patients who have no previous experience with physical therapy [61].

These studies demonstrate that condition-related characteristics and past PT treatment influence patients' choice of treatment pathway to physical therapy care. Patient demographic characteristics, as well, could impact patients' choice of treatment pathway.

Sociodemographic Characteristics

Sociodemographic characteristics differ between those who self-refer to physical therapy and patients who take the usual care pathway. Patients who self-refer to physical

therapy services were reported to have a higher level of education compared with patients who were referred by a physician [61,63]. This could be because higher-educated patients are more able to inform themselves about their health symptoms and available health care options, and are thereby more inclined to make their own treatment decisions [61]. Patients who see a physical therapist via self-referral were found to be younger (between19-60 years of age) relative to patients who were referred by a physician [46,61,63]. This might be due to the fact that older patients tend to have a greater dependency on their primary care provider than younger patients as a result of the established provider-patient relationship [61]. Also, older patients are more likely to have comorbidities for which they consult their physician and may find it more convenient to ask for a referral to PT [63]. Male patients are more likely to self-refer to PT compared to their female counterparts[48,63]. Further, patients in paid employment are more likely to self-refer to physical therapy services compared with other patients (i.e. retired, unemployed, homemaker or students) [62]. This evidence shows that patients' sociodemographic characteristics may impact their decision to access physical therapy services directly.

Patients Knowledge and Attitudes

Knowledge about physical therapy and the ability to self-refer, attitudes to access, and beliefs about physical therapy effectiveness were found to differ between those who self-refer to physical therapy and patients who use the usual care pathway to access physical therapy services. In terms of awareness of the ability to self-refer, Webster et al. [55] surveyed 1310 patients about their awareness of their ability to self-refer and their source of knowledge. All patients from the self-referred group claimed awareness of the ability to self-refer compared with 26% of patients who were referred by their general practitioner.

The majority of self-referred patients reported that they had been aware of their ability to self-refer through word of mouth and the local press. However, patients referred by a physician stated that their physician was the primary source of information, followed by posters.

Patients' knowledge about the role of physical therapy was identified as a predictor of the use of direct access. Webster et al. [55] explored the association between patient perceived level of knowledge of physical therapy and referral pathway (physician-referral vs. self-referral) following patient discharge from PT care. They found that irrespective of the referral group, all patients demonstrated lack of knowledge of physical therapists' role despite having a recent experience. The authors assert that this is understandable given that patients are only exposed to specific aspects of physical therapy in an episode of care and that would be insufficient in itself to inform a general increased knowledge. This suggestion supports the findings made by other authors who reported that lack of knowledge about physical therapists scope of practice results in patients not using self-referral to access physical therapy services [45,64].

In addition to patients' knowledge about the profession, their attitudes and beliefs also vary between those who use the self-referral pathway vs. those using the usual care pathway. These attitudes and beliefs relate to access to physical therapy, patient autonomous behavior, and future utilization of physical therapy. According to Webster et al. [55] patients who use self-referral to physical therapy show strong support of being able to use this mode of access, agree that this mode of access could save them time, and express willingness to utilize the service again in the future. They also demonstrate a strong supportive attitude about adopting autonomous behavior [55], which conforms to other

findings that suggest that patients who directly access physical therapy are more autonomous, proactive, and compliant [48]. Webster et al.[55] also found that self-referred patients show a greater overall belief in physical therapy effectiveness when compared with physician-referred patients. These findings indicate that patient awareness about self-referral, patient ability to determine when physical therapy is appropriate, and patient knowledge about physical therapists' role and belief in their effectiveness in treating musculoskeletal conditions may influence patient choice of directly accessing physical therapy.

Physical Therapy Practice Geographical Location

The geographical location of the physical therapy practice (i.e. where the practice is located in a geographical setting; urban, semi-rural, or rural) was found to influence patients' choice of mode of access to physical therapy. In Scotland, Holdsworth et al. [53] attempted to establish the level of self-referral to physical therapy services housed in primary care practices in three locations; urban, semi-rural, and rural. The novel self-referral was introduced in parallel to the existing system of general practitioner referral across all these practices. The authors [53] found a considerable difference between the type of referral (self-referrals, and GP-referrals) and the geographic location of the practice. The proportion of patients who self-referred is slightly greater in rural locations (26%) than semi-rural (19%) and urban settings (23%). The authors suggested different reasons to explain this finding. First, the publicity strategy employed by each practice varied. Practices in urban settings that were situated nearby practices that were not having the self-referral service had to depend on practice-based publicity, whereby practices in more rural areas that involved a whole community able to market the self-referral service in a variety

of different places were regularly visited by the local community. This implies that rural communities have greater awareness of their ability to self-refer to physical therapy. Also, due to the greater use of physical therapy in rural areas, communities might be more knowledgeable about physical therapy care and place a significant value on its utilization [53]. This suggests that the geographical location of the physical therapy practice may affect patients' choice to access physical therapy directly.

Contribution to the Literature

According to the literature reviewed above, how patients within the U.S. choose between self-referral to physical therapy and the usual care pathway for their musculoskeletal related complaints is basically influenced by three main factors: 1.) state-level legislation, 2.) organizational-level policies, and 3.) individual-level characteristics. The relationship between these factors is illustrated in Figure 2.1. As demonstrated by the social ecological model, legislation developed in each state has an overt influence on whether patients are allowed to choose between self-referral or the usual care pathway. Even when patients reside in a state that offers some form of self-referral to physical therapy, the next sphere demonstrates that a patient's choice of self-referral might be still restricted due to organizational level policies developed by insurance providers and/or healthcare organizational management policies. When both state legislation and organizational level policies support self-referral. The third sphere shows that a patient's choice to self-refer to physical therapy services is determined by individual-level characteristics. However, the majority of studies suggesting that individual-level factors such as condition-related characteristics, sociodemographic characteristics, patients' knowledge and attitudes and, and the physical therapy practice geographical location

comes with limitations. First, these studies were conducted in countries that have different healthcare systems than that of the United States and therefore findings may not be generalizable. Second, these studies focused on the general population, but the choice of treatment pathway by the working population, specifically employees of healthcare organizations, is scarce. This is important to address as a study by the Healthcare Business of Thomas Reuters showed that hospital employees tend to consume more medical services and consequently accumulate higher healthcare cost than the workforce at large. Therefore, understanding if these factors still apply within the context of U.S. state legislation and organizational culture and policies is ambiguous. In addition, little research has focused on whether other individual-level factors impact patients' choices of treatment pathways to physical therapy within the United States. My contribution to the literature will help fill this knowledge gap by focusing on a population of patients that have both state and organizational level support to access physical therapy services through self-referral. Therefore, I will be able to elucidate what individual characteristics affect an individual's choice of self-referral or usual treatment pathway for patients seeking care for musculoskeletal related complaints specifically within the U.S. My study will evaluate the individual level characteristics found by previous studies outside of the U.S., and also shed light on other factors that may be unique to patients within a progressive organizational culture focusing on self-referral.

Figure 2. 1 The Social Ecological Model describing how a patient's choice of self-referral to physical therapy within the united states is affected by policy, organizational level policies, and individual characteristics.

CHAPTER THREE

RESEARCH DESIGN AND METHODS

This chapter provides a detailed depiction of the research methodology used in this study aimed at exploring the factors that affect the choice of treatment pathway (self-referral versus usual care) in a patient population with musculoskeletal related complaints within the United States. This chapter is presented and organized into several sections. It starts by giving specific details related to the state and organizational policies that enable the patient population I am focusing on access to physical therapy services through a self-referral mechanism. This chapter describes the research design and methodology employed.

The Musculoskeletal Program

Beginning in 2012, the Musculoskeletal Program (MSK) was established through a partnership between a private physical therapy organization, the Greenville Health System (GHS) [*employer*], Steadman Hawkins Clinics of the Carolinas, and Blue Cross Blue Shield [*insurance provider for all GHS employees*]. The program was exclusively offered to adult beneficiaries with neck and back related complaints. The pilot year of the program was met with positive episodic patient outcomes, high level of patient satisfaction, and substantial cost savings which led to a continued widening of the program to include shoulder and knee complaints by January 2016. By January 2017, hip was included. This

latest addition meant that the program was inclusive and provided treatment for all musculoskeletal related complaints. All health system employees and their dependents are eligible to participate in the MSK program. Those who decide to participate in the program may choose to access physical therapy care either through self-referral or the usual care pathway. Patients can access the program through any of the 8 physical therapy clinics co-located with GHS- Steadman Hawkins clinics within the greater Greenville Metropolitan area [41]. The availability of different physical therapy clinics locations aimed at reducing geographic constraints to access physical therapy care. From 2012 to 2015, information regarding the program was available in the employee health benefits booklet (Appendix A). However, at the beginning of 2016 the program was marketed to employees via a variety of mechanisms including department meetings, emails, and fliers across the health system.

State Legislation and Organizational Policies Enabling Self-Referral for Study Patient Population

The uniqueness of the MSK program is inherited in addressing both policy and organizational levels that might present obstacles for self-referring to PT. Putting the MSK program into the language of the social ecological model, at the policy level, patients are allowed by state legislation in South Carolina to directly access physical therapy with the following provisions:

- In the absence of a referral, the physical therapist must refer the patient to a licensed physician if providing PT service beyond 30 days after the initial evaluation.
- Patients must be referred to a licensed physician if patients condition is beyond the scope of PT [21].

Musculoskeletal (MSK) Program for Neck, Back, Shoulder, Hip and Knee Pain

Musculoskeletal injuries to the neck, back, shoulders, hips and knees are among the most common, and the most expensive, health concerns in the nation.

Targeted to GHS Health Plan participants, the MSK Program for neck, back, shoulder, hip and knee pain seeks to improve outcomes, increase patient satisfaction, and reduce wait times while avoiding unnecessary tests and treatments. GHS physicians and ATI physical therapists have developed evidence-based care pathways to provide faster access and active treatment to help participants return more quickly to the activities they value.

How does the MSK Program work?

The participant will be offered an appointment within 48 hours of calling to schedule a visit. At the first visit with a physical therapist, an evaluation will be made and a treatment plan set. If there are concerning symptoms, the participant will be scheduled to see an on-site physician. Otherwise, the physical therapist begins an individualized, research-backed treatment plan. Patient results are continually measured against national benchmarks for progress, experience and outcomes.

Most participants will need physical therapy only. If non-resolving symptoms continue, a referral to an orthopaedic consult or other provider will be made. MSK Program participants will have streamlined access to the next appropriate level of care.

Who is eligible?

GHS employees participating in the GHS Health Plan and their covered adult dependents (spouses and children age 18-26) who suffer acute, recurrent or persistent pain in the neck, back, shoulder, hip or knee are eligible.

How much does it cost?

Participants pay $20 per physical therapy visit. No physician copays, deductibles or coinsurance costs are associated with these physical therapy visits. Additional costs may apply, however, if the participant's condition requires additional care such as medication, imaging or surgery.

Note: Participants who do not follow the treatment plan as agreed upon during the first visit will be deemed non-compliant and therefore required to pay all deductible and coinsurance costs going forward.

What are the benefits?

- Improved access: First physical therapy visit offered within 48 hours
- Cost savings: only $20 copay for physical therapy visits
- Care begins during the first appointment
- Streamlined referral to orthopaedics consult as needed

How Do I Sign Up for the MSK Program?

No physician referral is required. Call (864) 528-5755 to schedule an appointment at a participating ATI Therapy location. Walk-ins are welcome; however, an appointment is recommended to reduce wait time.

Figure 3. 1 Information about the MSK program as presented in 2017 employee benefits summary.

To address these state provisions, the MSK program is designed as a triage system, in which patients are evaluated and screened for appropriateness for physical therapy services by trained physical therapists; once the patient is deemed appropriate, the treatment sessions start. The patient is then followed up with every 6, 12, and 18 treatment sessions. Those displaying progress within six treatment sessions could be approved for six more sessions up to a total of 18. However, if the patient failed to display progress after 12 treatment sessions or if the patient was not satisfied with his progression, a consultation with a senior physical therapist and physical medicine and rehabilitation physician is scheduled. Based on this consultation a medical plan is suggested, which may include further imaging, surgery, injections, or referral to pain management [41].

At the organizational level, throughout the 5 years (2012-2017) the MSK program has been an independently funded health insurance plan, managed by the main health insurance provider Blue Cross Blue Shield South Carolina (BCBSSC). By imposing a $20 visit co-pay, the program ultimately incentivizes health system employees to access physical therapy services. Plan benefits for physical therapy services are the same for the self-referral and usual care pathways.

It's important to note that regardless of how patients choose to access PT (through the usual care or self-referral pathway) participation in the MSK program allow patients to receive PT care at a low liability cost ($20 copay). Patients who consult a physician first however will incur additional costs as a result of the copayments associated with a physician visit ($60 copay for consulting a primary care physician or $80 copay for a consulting a specialist). For those who choose not to participate in the MSK program, the cost of receiving PT care will vary and depend on their deductibles and out of pocket cost.

For instance, if a patient hasn't met his deductible he would be responsible for paying $75 co-pay per visit. However, if a patient has met his deductible but not his out of pocket maximum, he would be responsible for paying 20% of the billed visit

Since the health system is a partner in the systemization of this program it has no policy in place that requires a physician referral for PT access. This implies that there is neither an institutional nor an insurance policy that oppose or prevent patients from self-referring to PT.

Purpose Statement of the Study

The research question resulted from observing a low percentage of patients accessing outpatient physical therapy intervention through self-referral (46.6%) throughout the 5 years (2012-2016). The percentage of patients accessing the program through the usual care and self-referral pathways is presented in Table 1.

Table 3. 1 Percentage of patients accessing the MSK program through the usual care and self-referral pathway from 2012-2016

Year	Total Patients	Patients Accessing the MSK Program Through the Usual Care Pathway (%)	Patients Accessing the MSK Program Through Self-Referral Pathway (%)
2012-2014	447	61.7%	38.2%
2015	434	61%	39%
2016	439	53%	47%

The low rate throughout the 5 years is concerning to the health system, preliminary investigations into 2016 showed that cost savings from patients accessing the MSK program through self-referral compared to patients who used the usual care pathway totaled

over $500,000. In addition, patients who self-referred to PT showed greater than 45% outcome improvement from the start of physical therapy care to discharge [65] .These results suggest that a physical-therapy-first approach can yield better patient outcomes at a lower costs. However, patients still seem to prefer consulting a physician initially when seeking treatment for musculoskeletal complaints [66]. Ultimately, it is the patient who chooses to either initiate physical therapy care through the usual care or self-referral pathway. This poorly understood behavior can be better explained by qualitative methods [67]. The majority of studies included in this literature involved the use of quantitative approaches such as questionnaires to understand determinates of patients' choice of treatment pathway to physical therapy services, while this type of data collection technique offers insight into topics the patients consider important, they do not allow patients to elaborate upon issues they perceive significant nor do they allow them to talk about issues not presented to them. However, qualitative methods, specifically interviews, allow patients to voice their own opinion in relation to issues raised by the interviewer. Thereby, offering the researcher detailed and comprehensive data.

Qualitative Methods and Background of Grounded Theory

Qualitative research refers to; "Any type of research that produces findings not arrived at by statistical procedures or other means of quantification. It [qualitative research] can refer to research about persons' lives, lived experiences, behaviors, emotions, and feelings as well as about organizational functioning, social movements, and cultural phenomena" (p.10-11). Qualitative methods can be used to achieve a fine-grained understanding regarding how patients made the choice of selecting a particular treatment pathway when seeking care for their condition by attending to their perspective and

providing them the opportunity to articulate their thoughts regarding this issue [68]. These participants are considered main stakeholders who have personal experiences of and insight into why did they initiate care the way they did: it is essential, therefore, to consider them as the sole experts of their individual experience [67].

Grounded theory is a widely adopted methodology approach for researchers conducting qualitative research and is considered the most used qualitative design among researchers [69]. According to Glaser, grounded theory is "a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area" [70]. In other words, grounded theory is a method that attempts to generate a theory grounded in the data using inductive reasoning to generate an understanding of the phenomena under study. The grounded theorist attempts to discover patterns of behavior to gain an understanding of how a group of individuals defines their reality [71].

A grounded theory approach was used to analyze the data. This approach was used because it allows the researcher to immerse herself in the data, allowing the data to generate concepts and theories and to answer the research question [72]. The paucity of research about the individual characteristics that affect a patient's choice of treatment pathway when seeking care for their musculoskeletal condition specifically within the United States means that many variables related to this phenomenon are to be identified. The development of a theory can be considered a precursor for further research relevant to this phenomenon and related concerns. Other qualitative research methods, quantitative research, or a combination of both can later be employed in succeeding research to test, extend or verify the qualitative propositions that develop from this study.

Study Population

The population of interest to this study are current employees of the Greenville Health System (GHS), specifically employees who are undergoing an episode of physical therapy care due to musculoskeletal related complaints. These employees should be participants in the musculoskeletal program (MSK) in one of the seven physical therapy practices participating in this study to be considered potential participants. To be eligible for the study, participants had to meet the following criteria,

a) A current employee in the Greenville Health System;
b) Experiencing a spine, shoulder, knee or hip related complaint;
c) A participant of the musculoskeletal program (MSK);
d) Adults over the age of 18, an English-speaker and;
e) Willing to provide a written consent prior to interview participation

Gaining Access and Recruitment of Participants

Purposive criterion-based sampling technique was used; the selection of participants is based on eligibility criteria that are of importance to this study [73]. After acquiring approval from the Greenville Health System institutional review board, the recruitment process began. The principal investigator (PI) set up a 10-minute meeting with each individual clinical director in the seven physical therapy clinics participating in this study. The meeting involved giving a brief overview of the purpose of the study and discussing ways of distributing flyers (Appendix A) to eligible patients upon their visit to physical therapy. To draw potential participants' attention, both the PI and clinical directors agreed that front desk staff and physical therapist are to hand out the flyers, briefly explain the purpose of the study, and encourage patients to participate. Those who were interested

in volunteering as participants were advised to contact the researcher to schedule a time for an interview via phone or email. Contact information was listed on the recruitment flyers.

Once a participant contacted the principal investigator, they were screened for eligibility over the phone before scheduling an interview. Following confirming eligibility, a meeting place, time, and date were set for the convenience of the PI and the participant. Depending on participant preferences, the 40 minutes in-depth semi-structured interview was conducted either in a medical office located at one of the Greenville Health System campuses or in the employee personal office space. Interviews were scheduled within a week or less of the screening date.

Data Collection Procedure

Prospective and retrospective data collection, a sample of 32 patients, was involved in this study, seventeen of which were patients who accessed physical therapy services via a referral from a physician and the remaining fifteen were patients who directly accessed physical therapy care without consulting a physician beforehand. Sampling was continued until saturation was reached, that is when the ability to acquire new information has been achieved [74] , further coding was no longer possible [74], and enough information was available to duplicate the study [75]. The process of data collection started from August 2017 to March 2018.

Interviews were conducted by the PI to guarantee consistency and completeness of the interviews. The PI secured and verified the meeting place, time and date with the participants. Before starting the interview, she ensured that the necessary equipment included audio recorder, notebook, and consent forms and confirmed that it was all prepared and in order before conducting the interview. She also ensured that the space or

the office was comfortable and provided privacy for both parties, with consideration to minimizing distractions.

Establishing a relationship with the participant began with the start of the interview. The PI introduced herself, gave a brief outline about the purpose of the study, read the consent form to the interviewee, and asked them to provide a signature of their willingness to be part of the study and that their rights within the study are being understood. Each interview lasted for approximately 40 minutes.

At the conclusion of the interview, participants received a monetary visa gift card ($30 dollar) as means to thank them for their participation and time. Interviews were then sent to a professional transcription service on the same day. Files were then imported into NVivo (a qualitative data analysis software) where they were analyzed.

A sociodemographic questionnaire (Appendix D) was administrated to the interviewee at the end of the interview. The questionnaire included questions on the highest level of education, ethnicity, and income. Information on age, and gender were obtained from the patient electronic health record.

Patient measures

Baseline descriptive information and self-reported outcomes were obtained from ATI Patient Outcome Registry including the number of comorbidities; primary disability measures (Neck Disability Index [NDI] and/or Oswestry Disability index [ODI] and/or Hip Disability and Osteoarthritis Outcome score [HOOS] and/or International Knee Documentation Committee [IKDC] and/or Penn Shoulder score [PENN]); baseline level of pain (categorized as pain at rest and pain at activity); region of pain (categorized by

back, neck, shoulder, hip , and knee) and duration of symptoms (categorized as < 90 days [acute symptoms] or ≥ 90 days [chronic symptoms]).

NDI and ODI: present row score values that range from 0 (no disability) to 100 (total disability).

HOOS, IKDC, and PENN: present row score values that range from 100 (no disability) to 0 (total disability).

Baseline level of pain: an 11-point scale that assess pain and ranges from 0 (no pain) to 10 (worst possible pain).

Instrument

The most common method of collecting qualitative data in healthcare research is the in-depth semi-structured interview [67]. Semi-structured interviews involve the use of predetermined open-ended questions that allow the interviewee to speak widely and expand on the issues being raised by the interviewer [67,76]. Interviews were the primary instrument employed in this study.

A pre-prepared interview guide was used in this study to structure the interview and to help elaborate on major components of the experience(s) under examination [67] (Appendix B and C). The interview guide was developed by the PI and her committee chair (MC). All questions were guided by the research question and intended to study participants' choice in seeking treatment for their musculoskeletal condition. Questions pertaining to pain were developed based on the literature on pain and access to physical therapy. The questions on pain aimed at the understanding of when pain led people to access care. Two interview guides were created, one for self-referred patients and one for physician-referred patients. The interview guide for the two groups contained the same key

questions to allow for comparison between the two groups. However, it differed in the content; the physician- referred group interview guide involved questions about consulted physician specialty, reasons for consulting the physician, and the physician suggested treatment options. The interview questions were ordered from general to specific to follow how participants made the decision to pursue care the way they did, and it was developed in the following order:

- Patient occupation information (occupation name and number of years working in the health system).
- Description of pain history (pain site, pain development, pain intensity, strategies to eliminate pain).
- Prior and current, considered and sought, treatment options
- Patient previous experience with PT, if any.
- Patient knowledge, and source of knowledge about the SSK program.
- Patient desired treatment goals of seeking PT care.
- Patient perception of the role of physical therapy.

A full list of interview questions is provided in Appendix B and C.

All participants were capable of reading and writing English, therefore, no assistance from the interviewer was needed. As previously mentioned the primary source of obtaining data was via one-to-one interview.

Data Analysis

For the first research question, transcribed interview constituted the main source of data. As previously discussed, the process of data collection, analysis occurred concurrently. Therefore, there was no distinct phase for either data collection or analysis;

analysis was carried out throughout the data collection process. For example, once an interview was conducted, audio records were subsequently sent to the professional transcription service, usually in the same or following day, and the analysis began before starting the following interview. This permits an early identification of categories and concepts, refinement of interview guide as needed, and an inquiry for more depth or clarification in the following scheduled interview.

Open, axial, and selective coding techniques were used in the analysis. As a first step, open coding involved assigning a label to each line of data, as it gives leads to pursue[77]. Codes that represented similar meanings were grouped together to create categories. During this step of coding the PI focused on the entire data through remaining open to the data, observing the nuances, and asking further questions leading to further collection of interviews and so on.

To ensure rigorous data analysis the investigator and two additional coders independently conducted open, line by line coding on the first five interviews. After achieving open coding independently, the group met to discuss and develop a coding scheme based on the emergent codes from the line-by-line coding; similar codes were combined, identified, and assigned conceptual labels. A codebook was developed that included 1) the name of the code, 2) a description of the code, and 3) an example to illustrate the code. Coding generated by team members were compared for each transcript to ensure that codes are representative of what is happening in the data. In the event of disagreement, codes were reconsidered until mutual agreement is achieved. Throughout the data analysis, a constant comparison method was applied. This method involved

comparing data, codes, and categories at each stage of the analysis to find similarities and differences[77], resulting in sequentially more abstract concepts and theory.

As each interview transcript was coded, the PI summarized each interviewee response about pain history, factors affecting their decision of treatment pathway, and knowledge about the program and physical therapy. Following summarizing each interview, the PI compared interviewee responses which aided in the axial and selective coding. Axial coding involved "the act of relating concepts /categories to each other" [78]. Selective coding, the process in which the core category is identified, selected and systematically related to other categories was the last phase of analysis. In this stage, the core category integrated the synthesized data into a unifying framework.

To find the association, if any, between sociodemographic data and patient measures with mode of access, data was analyzed using SAS software (Statistical Analysis System). Mann-Whitney U test was used to examine the association between the continuous variables (age, number of comorbidities, baseline disability [ODI, NDI, HOOP, PENN, and IKDC], and baseline level of pain [pain at rest and pain at activity]) and mode of access. Fisher Exact test was used to examine the association between categorical variables (gender, income, ethnicity, level of education, region of pain, and duration of pain) with mode of access

Ethical Considerations

Ethical Considerations involved Institutional Review board approval, the privacy and confidentiality of the participant, and the privacy of the documents. The Greenville Health System IRB approved this study. For participants' privacy and confidentiality, following the completion of the interview, the audio recorded interviews were saved into

a flash drive and sent to a professional transcriptionist service in order to transcribe it into a written form for analysis. At the time of the interview, the investigator assigned a number code to each participant, thus transcribed interviews only withheld the participant number code. Once the transcribed interviews were received back from the professional transcription agency service they were stored on a password-protected server known only to the PI. The sociodemographic questionnaire and consent form were also filed and stored in a locked file cabinet.

Strategies to Ensure Rigor

Trustworthiness

To ensure credible findings, a number of steps were taken. Two additional coders were involved to improve the credibility of the findings. Both coders understood the practice of coding and analyzed data independently to dispel any misinterpretations. The researcher along with the two additional coders met on a regular basis to discuss the codes. Each coder was allowed to create emergent codes if they saw fit. This practice provided a measure of inter-rater reliability, as well as improving the trustworthiness of the analysis. In addition, coding and preliminary findings were continually shared with committee members (MC and MM) as an additional check on validity.

Refinement of Recruitment Strategy

The significant low recruitment rate of participants, after a month of handing out the flyers led to the consideration of other recruitment techniques. Email announcements were considered as a second strategy to recruit patients; however, this strategy did not result in any participants. To ensure the patients received the flyers and are well-aware of the study, the PI conducted on-site in-person recruitment. While this strategy was able to

recruit a number of participants, the long-time interval between potential patients scheduled time led to the implementation of a third strategy.

The PI resorted to recruitment using telephone calls, with the help of a research assistant from one of the physical therapy clinics, patient's information was obtained from the scheduling system on a weekly basis. This strategy was able to recruit more than half of the patients.

CHAPTER FOUR

RESULTS

Of the 32 interviewed participants, 26 were females and 6 were males. The mean age was 49.09. Sociodemographic characteristics for the usual care and self-referral pathway patients are summarized and presented in Table 4.1. Statistical analysis showed no significant association in age, gender, education attainment, race/ethnicity, and household income and patients' choice of treatment pathway.

Similarly, no significant association was found between patient clinical characteristics, specifically region of pain (i.e. neck, back, hips, shoulder, and knee) , number of comorbidities, duration of pain from the onset of symptoms to initial evaluation , self-reported outcomes for disability (ODI, NDI, HOOS, PENN, and IKDC), and baseline pain level and patients' choice of treatment pathway (see Table 4.2).

Of the 32 participants in the sample, 62.5% were health care practitioners (e.g. nurses, surgical technologists, pharmacists, and respiratory therapists), and 37.5 were administrative workers (clinical supervisors, medical transcriptions, unit secretaries, and front desk specialists) within the health system. Figure 4.1 presents the distribution of occupation among the self-referral and the usual care pathway patients. The number of healthcare practitioners and administrative workers in the two groups is presented in figure 4.1.

Table 4. 1 Summery of the sociodemographic characteristics of patients who used the usual care and the self -referral pathway

Variable	Choice of Treatment Pathway		P.value
	The Usual Care Pathway Patients (n=17)	The Self-Referral Pathway Patients (n=15)	
	N (%)	N (%)	
Age	47.64 (12.07) *	50.7(9.52) *	0.306†
Gender			0.658
Female	13(76)	13(87)	
Male	4(24)	2(13)	
Education Attainment			0.324
Completed some high school	0	1(7)	
High School Graduate	3(18)	2(13)	
Associate's degree	7(41)	2(13)	
Bachelor's degree	5(29)	7(47)	
Master's Degree	2(12)	3(20)	
Race/ Ethnicity			0.402
White	12(71)	13(87)	
Black or African American	5(29)	2(13)	
Hispanic or Latino	0	0	
Other	0	0	
Household Income			0.885
Less than 24,999	1(6)	0	
25,000 to 49,999	4(24)	2(14)	
50,000 to 99,999	8(47)	8(57)	
100,000 or more	4(24)	4(29)	

Note: Income percentages for the self-referral group do not sum to 100 because of a missing value.
*Age is a continuous variable and values indicates mean (standard deviation).
†Test of comparison Mann-Whitney U test.

Table 4. 2 Summary of the clinical characteristics of patients who used the usual care and the self -referral pathway.

Variable	Choice of Treatment Pathway		P.value
	The Usual Care Pathway Patients (n=17)	The Self-Referral Pathway Patients (n=15)	
	Mean (SD)	Mean (SD)	
N. of comorbidities	2.235(1.92)	1.733(2.12)	0.298
Baseline disability	67.18(15.75)	76.58(30.65)	0.290
Duration of pain			0.450†
Acute (<90 days)	13(76) *	9 (60) *	
Chronic (≥ 90 days)	4(24) *	6(40) *	
Baseline Pain Level			
Pain at Rest	3.42(2.31)	1.84(1.57)	0.068
Pain at Activity	7.42(2.02)	6.15(2.23)	0.104
Region of Pain			0.746†
Neck	9(53)*	5(33) *	
Back	3(18)*	3(20) *	
Shoulder	3(18)*	2(13) *	
Hip	1(6)*	2(13) *	
Knee	1(6)*	2(13) *	
Back & Neck	0	1(7) *	

Note: Region and duration of pain are categorical variables and values indicates number (percentage).
†Test of comparison is Fisher Exact test.

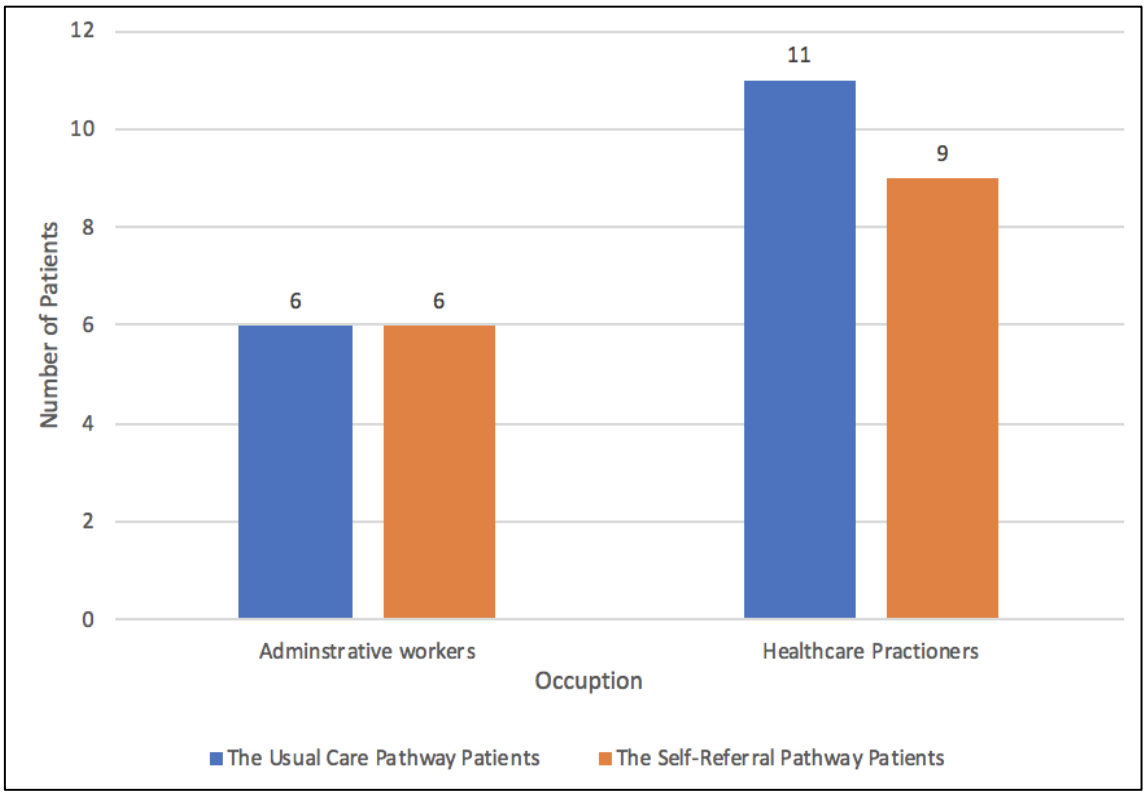

Figure 4. 1 Patients occupation in the health system across the usual care and self-referral pathway.

Since there are no significant differences in observable sociodemographic and clinical characteristics among the usual care and self-referral patients that could provide an explanation of patients' choice of treatment pathway, other non-observable factors must be influencing patient choice.

Based on the review and analysis of the 32 semi structured interviews, 14 themes were identified. Seven themes pertained to participants decision to use the usual care pathway. These themes were consolidated into three major themes that are: 1.) patients lack knowledge of the MSK program, 2.) patients' attitudes and beliefs toward treatment and illness [which includes 4 subthemes: 1. disbelief in PT care despite past experience, 2. preference for pharmacological treatments, 3. need for physician reassurance, 4. and

coincidental discussion], and 3.) necessary physician care. The remaining 7 themes were identified among the self-referral pathway participants. These themes were also organized into three major themes that are: 1.) patients' knowledge of the MSK program, 2.) resonant prior personal and network experience with PT care, and 3.) patients 'attitudes and beliefs toward treatment (which includes 4 subthemes 1. Openness to alternative therapies, 2. beliefs about medications and surgery, 3. patient expectation of physician treatment recommendations, and 4. financial considerations). A description of each of these identified major themes and subthemes along with supporting quotations is presented below.

Before patients made the decision to access care, initially all participants took self-care measures to relief the pain which involved the use of analgesics and relaxing techniques (e.g. massaging the affected area and applying hot and cold pads). However, when these self-care measures failed to provide pain relief patients considered seeking medical care.

Decision to Use the Usual Care Pathway:

In analyzing the interviews, Table 4.2 shows the three major themes that emerge to begin to explain why patients decided to use the usual care pathway.

Table 4. 3 Key themes about why patients decided to use the usual care pathway.

Theme 1	Lack of knowledge of the MSK program
Theme 2	Patients attitudes and beliefs toward treatment and illness
	a. Disbelief in PT Care Despite Past Experience.
	b. Preference for Pharmacological Treatments

	c. Need for Physician Reassurance
	d. Coincidental Discussion During Consulting for a Different Condition
Theme 3	Necessary physician care

1- Lack of Knowledge of the MSK Program.

One strong theme to emerge from participants who decided to use the usual care pathway was unawareness of the availability of the MSK program that allows them to access PT directly without a physician referral. This was often cited as a common reason of why the participant decided to use the usual care pathway. Lack of knowledge constituted a failure to know or recognize the opportunity to self-refer to PT in that the patients' unawareness of the program lead them to consult a physician first. Patients primary source of knowledge about the program was either from physicians during consultation or from physical therapists upon accessing physical therapy after receiving a referral.

"I first heard about it when I visited the MD here when they did refer me to the PT. I went from my MD appointment here, right across the hall to the ATI office. When they saw I was a GHS employee, that's when they told me about the MSK program" (4).

"He's the one (a pediatric and internal medicine physician) that suggested I try this program. I didn't know anything about it and I was like, "Yeah, $20, that's good " (14).

While the majority of patients gained knowledge about the program following receiving a referral, one patient talked about how financial implications associated with seeking certain therapies (i.e. chiropractic care and massage therapy) led her to actively explore alternative treatment options. Because such treatments are not usually covered by health insurance, the patient sought help from human resources whom informed her about the availability of the MSK program at a low patient liability. She says,

*"Once I realized that Blue Cross Blue Shield wasn't gonna pay for any of that (*chiropractic care and massage therapy). *They tried to submit it, but I ended up having to pay out of pocket for that. So, I quit seeing them….and so then, I reached out to human resources and they told me that physical therapy, this program was paid for. More so, it was a $20 copay for something like that" (5).*

A few patients did report having some knowledge about the MSK program, yet they sought care through the usual care pathway because of failure to recall the program at the time they made the decision to seek medical care for their complaint.

"I had read about it on that community thing that GHS sends out email. I had read about it before and then X (the physical therapist) mentioned it to me too when I first started. Cause I really had forgot about it but then when he mentioned it, I was like oh yeah, I remember reading something or email or something on it. So, he kind of made me aware of it" (19).

Other patients, who had knowledge about the program, were confused about how the program in general was administered and had misconceptions about how the program worked. One misconception patients expressed was that they assumed that a physician referral was required in order to receive PT treatments and for insurance to cover the cost of their visits.

"I think I had seen it (*MSK program adverts) on the newsletter that comes out. But I really didn't know how it worked" (10).*

"I thought I needed a doctor's order to do that (go to PT)" (9).

"I thought I was going to need a referral, and that's why I didn't go (to PT directly). I thought that a referral was needed." (1).

One patient presented a narrative different than that of other participants. Although she had knowledge about the program, recognized the pain, and identified the need for PT, she had concerns regarding whether insurance would cover it without a referral. This concern led her to informally consult a physician with whom she has an established working relationship. She says,

"I did not go to my primary because I knew by now what was going on. I recognized the symptoms, and so I went down to Dr. X (orthopedist physician), who I work for, and I said to him, "You know, I think I need some PT for my neck, it's acting up…. I thought that a

referral was needed. Then he did write it out just in case. I didn't see him on a formal basis, it was just like a desk. He was standing at the front counter, and I was like, I'm having neck pain, I need to see a therapist." He was like, "Oh." He looked at Y, he says, "Give her a slip…. So that's why I went to the doctor because I was worried about making sure that insurance covered it" (1).

A few patients who knew about the program, demonstrated lack of awareness of the ability to go straight to PT even *after being a former participant* in the program. The ability to go straight to PT is a vital element of the program along with other elements including: 1.) low cost per visit, 2.) number of visits allowed, and 3.) the exclusivity of the program to the health system employees. Apparently, patient participation in the program solidified patient awareness of the low cost per visits, the number of visits allowed, and the fact that the program is offered to the health system employees, however it did not result in any clarification regarding the ability to access PT without a physician referral.

Patients Attitudes and Beliefs Toward Treatment and Illness.

Another theme to emerge from participants who used the usual care pathway was patients' attitudes and beliefs toward treatment and illness. Within this broad theme, four subthemes emerged that included: a) patient disbelief in PT despite past experience; b) preference for pharmacological treatments; c) need for reassurance regarding what was wrong; and d) coincidental discussion. Following is a discussion of each of these subthemes.

a. Disbelief in PT Care Despite Past Experience.

Some patients revealed that it had not occurred to them to consider physical therapy as a potential treatment option upon making the decision to seek care for their current condition. These patients did not believe that PT as a treatment approach would help in relieving their pain, despite having a PT experience in the past.

"I wasn't thinking about it. I just wasn't thinking about physical therapy as it being something that would be able to help" (25).

"I don't know. I just didn't think about that. I really didn't. I didn't think PT was going to help me. Because it was something I thought I had to live with. I never thought about it, really..... I didn't want to kind of miss things and I really didn't think about PT during that part" (28).

These patients only considered PT as a possibility when recommended by a physician as a treatment option.

"I didn't personally think of that (going to PT directly), no. The doctor said that might be a good idea to go to" (16).

b. Preference for Pharmacological Treatments

More than half of the patients who used the usual care pathway had a previous encounter with PT. In spite of having a positive experience, patients preferred pharmacological treatments in controlling their current pain as a first-line approach. These patients preferred treatments that offered prompt relief and within a short period of time,

"I was trying to find a quick release for the pain, instead of thinking that it was going to go away, like maybe a shot or something. I think I was looking for a quick relief when I knew it was going to take longer then, I wanted it to be over with" (17).

"But a couple of people at work, one lady I think her shoulder had been hurting and another lady had knee issues, and they chose just to go to the doctor and get a shot… I think that's just the difference in a person's mindset of "Hey I can just go get a shot and I'll be good to go tomorrow. Even if it runs out in four or five or six months. I can just go get another one" (10).

One patient talked about preferring a treatment that he previously used for treating a similar condition in the past as a first attempt despite its ineffectiveness for treating that pain.

"Just, I thought, we would try … Prednisone first because that's kind of what I did before… Just trying that, I guess, conservative treatment instead of going straight to physical therapy" (2).

The quote above underscores what the patient considered "conservative treatments". This patient classified medications, which are considered by physical therapists, doctors, and increasingly society as being over prescribed and used, as conservative treatments. He opted for trying them as a first line approach despite its ineffectiveness in achieving relief with his past and current condition.

At the other end of the spectrum two patients, who used the usual care pathway, talked about pharmacological treatments being suggested as an option or a first-line solution by their physician. However, one of these patients was averse to the use of medications because of awareness of its role in alleviating the symptoms but not the cause of the pain. The patient did not favor medications as an approach to treat her condition and verbalized this to the physician. Instead, her preference was for a treatment that treats the ultimate cause of the problem. The other patient's aversion to medication came from deep rejection of being dependent on medications as means to achieve relief. For these reasons, both patients had requested an alternative treatment approach, which led them to receive a referral to PT.

"And so, I said "Well I really don't want to just take Aleeve or whatever. I want to fix the problem. Not just cover it up." And then she told me about the ... since I am a GHS employee that they do have the physical therapy where you can go as an employee for that" (13).

"He (orthopedic physician) said I had options. It was two or three options. It was surgery, therapy, and some medications. I chose to try to do the therapy….I see a lot of people in pain and I don't want to be that person that depends on something. I didn't want to be a dependent. I had enough going on with my other medications for cholesterol and a little hypertension, so I didn't want to add to them" (28).

c. Need for Reassurance:

Participants using the usual care pathway perceive physicians as "the experts in the human body" who are able to make an informed clinical judgment and offer expert care.

There was a sense among the participants who selected the usual care pathway that physical therapists are non-specialists; therefore, they would be unable to identify the root cause of the problem. This perception about physical therapists as non-experts reflects participants' needs for reassurance from physicians particularly when they have concerns surrounding their illness and/or treatment. Patients' concerns about illness were revolved around the presence of a serious injury.

"*I wanted to make sure that there wasn't anything structurally wrong or that there wasn't an actual injury before starting physical therapy. I wanted the opinion of an MD before I started seeking other professional consults. …. I didn't want to postpone getting to the real root of the cause. If that was the case, why go to physical therapy before going to an MD. I wanted to make sure that there wasn't anything physically wrong with my shoulders" (4).*

Patients' illness-related concerns were also about having an underlying medical condition or a specific disease. For these patients, physician care was perhaps the only route to ease concerns and gain reassurance surrounding their assumptions while relying on the physician to make treatment decisions.

"*I really assumed it was arthritis, and I wanted to find out for sure if it was arthritis or if going to physical therapy, if it were arthritis, would that hurt it? Or would that make it better? Or what the standard of care maybe for arthritis if that's what it was" (10).*

Reassurance was also sought when patients had certain concerns regarding their need for a particular treatment approach (e.g. invasive treatments). Their concern was based on having a prior experience with surgery that yielded desired outcomes when all other treatment approaches including physical therapy had failed.

"In my mind, since I already had the surgery one time, I just knew I was going to have to have it again. That was in my mind. I wanted to schedule an appointment with the doctor who did the surgery prior. And because he knew what was going on with my back. He viewed my MRI and he told me. He said, "I just don't see anything major. You've got a slight bulge there, but I don't see anything major to where I think you're going to have to have surgery. That was a relief to me" (20).

Physician reassurance was also important in verifying whether PT was the only available treatment option or that physicians can offer, especially when a previous experience with PT for the same pain was perceived as yielding temporary results or unhelpful.

"I decided to go to the physician at Stedman-Hawkins and then, he (orthopedist) recommended going back to physical therapy…. I wanted to make sure that, that was something that I needed to do. And there wasn't anything else that he would be able to do" (21).

d. Coincidental Discussion During Consulting for a Different Pressing Condition

Although participants described their pain as impacting their usual daily activities "*I could hardly even stand up*" (10) "*my mobility was limited"* (25), participants voiced that receipt of referral to PT care ensued from discussing the pain during consulting a physician for a different condition and not from actively seeking care for that pain.

"The day I came I had seen the oncologist and they always ask if you're in pain, and I usually say no, but my neck was really hurting that day for some reason…. I just talked to my oncologist and it really felt muscle-related. I didn't feel sick or, and it really just felt muscle-related and tightness in my neck, so he referred me" (9).

"I probably wouldn't have gone to the doctor for that, but I was going for another reason, so it was kind of just "Hey while I'm here what do you think? Do I have arthritis?" So, I was probably having issues with it for a couple months I'd say" (10).

"It was just my annual physical anyway and I just happen to mention the pain to my primary care physician and so that's when he said, "Okay, well I can refer you. I can give you this prescription for whatever you call it, for physical therapy" (25).

"The doctor (primary care doctor), when I went to see him, my GHS doctor, because I had to start with them. He wanted to see me go through physical therapy and see if he can get me off of the muscle relaxers because they're considered a narcotic and that kind of stuff" (14).

Patients forwent direct medical care and only discussed their condition as part of another consultation because of several factors. One patient assumed that her current pain was a natural occurrence of aging and consequently forwent consulting a physician for that specific pain; she says,

"Because I'm 55 and you just sort of when things like this start happening you just go "I guess I'm getting old." Or whatever and you don't really take it too seriously at first... I didn't have an injury to it. It's not like I had fallen and hurt my hip or my knee on that side. So, I just kind of thought it was old age and its probably arthritis hit me. Just because that's what you hear about"10.

Some patients talked about their ability to endure and live with the pain either because the pain had bearable intensity, which for the patient did not necessitate medical interference, or because the patient was "stubborn" with the pain.

"I'm just like my mother and I just bear pain and go on with life and being stubborn, like she was. I think I got a little bit of that in me" (28).

"Probably because working and getting other things done is more of a priority than um, than the pain. I mean it wasn't awful. It was not... Once it got to the point where I was losing, and it was affecting me when I worked. That's when I started going in earnest" (24).

Another patient cited convenience of access as a reason of why she had not sought physician care for her condition and rather waited on discussing the pain during her annual checkup; she says,

"It was more of a convenience thing as well because I knew I had the appointment for my annual physical. I knew that if there was something that needed to be done, then he could get the ball rolling because I was already an established patient" (25).

Ability to manage the pain through certain therapies that the patient perceived as helpful was mentioned as a reason for forgoing consulting a physician for that particular pain.

"*Usually, just to maintain, I'd go to the chiropractor about once or twice a month, just depending on whether it was a stressful time or not because I carry my stress in my shoulders too, so that kind of combats it as well to where it'll act up and inflame and it's just terrible…. but I typically didn't go unless I was having like a flare-up, like severe pain" (14).*

3- Necessary Physician Care

A few patients had legitimate reasons to consult a physician first as they had experienced a health crisis that dictated immediate medical attention, or the complaint was beyond patient ability to determine its cause. For instance, one patient spoke about his neuromuscular pain and how it would be normally solved on its own within a matter of days and without any medical interference; however, experiencing a sudden bout of pain following a specific body maneuver resulted in seeking immediate care.

"I don't know, like I lifted something wrong or bent wrong, something along those lines. The sciatic issues that I had I had never had treated medically. It was just some

strengthening that relieved my problems. It probably happened two times before, not severe though… Over the course of the next several days I felt like my sciatic problems were just getting a little stronger as far as it wasn't bothering me actually initially. Over the next several days up until that Wednesday night that I worked I noticed my leg was starting to get painful, the sciatic type pain…. the pain was just getting so severe that I ended up going to MD360 (urgent center) to see if they could do something for me" (12).

Another legitimate reason to consult a physician initially is inability to recognize the condition. Patients are not always capable of identifying the cause of their pain or condition and subsequently are not always able to make an informed decision about treatment.

"It started with a Morton's neuroma behind my left knee and I went to my doctor and he said exercise would help with it so I tried exercise. And that didn't help any and then he put me on an anti-inflammatory. And then pain medicine and then I developed a baker's cyst in my other knee and the pain just kept getting worse and worse, so he sent me to physical therapy" (8).

When this patient was asked why she hadn't considered going to PT directly she says,

"Because first of all I didn't know what it was… And then when he told me what it was, and he had a set of treatments for me, the home exercise, anti-inflammatory pain medicine, and then physical therapy. So, I was just following his plan" (8).

Decision to Seek the Self-Referral Pathway:

For patients who decided to use the self-referral over the usual care pathway, three main themes emerge and are listed in table 4.3. Identified subthemes are discussed within each major theme.

Table 4. 4 Key themes about why patients decided to use the self-referral pathway

Theme 1	Knowledge of the MSK program
Theme 2	Resonant Prior Personal and Network Experience with PT care
Theme 3	Patients Attitudes and Beliefs Toward Treatment
	a. Openness to Alternative Therapies
	b. Beliefs about Medications and Surgery
	c. Patient Expectation of Physician Treatment Recommendations
	d. Financial Considerations

1- Knowledge of the MSK program

A notable theme among participants who used the self-referral pathway was knowledge about the MSK program. The majority expressed awareness about the program mainly through distributed announcements and flyers throughout the health system. It was clear that these patients' knowledge about the program clearly constituted knowledge of ability to self-refer to PT without seeing a physician.

"*Well, probably several different ways. One, information does get fed to your offices, but I also see it in management meetings. They'll have different people come through and speak on different subjects. People from MSK program have spoken at some of the management meetings. I've learned about it from there too, but we have some flyers at my office and things like that too" (13).*

"I saw it, on Fridays they send out the news blast things. I saw it there one time and had printed it out and saved it. I went to the site and said, "You know that might be something." I read about it and it was. I called, and they were great on the phone. I called and got the information from the physical therapy and then I went in for an interview with them, for them to evaluate me" (15).

However, few patients who used the self-referral pathway were not aware of the MSK program. These patients cited co-workers as their primary source of knowledge.

"I've known about this for several years, 'cause I know other coworkers that have gone to the program…. They said that there's a program that's available and you don't have to go to your doctor or be referred first, that you can go, I don't know, six or eight times or something like that over a month or two period and do some exercises to see if it gets better, and it's a $20 copay" (29).

Two patients talked about having an emergency situation in which they were informally referred to PT by someone. Patient high pain intensity coupled with lack of

access to medical care resulted in seeking the available treatment option, which in this case was PT. In the following excerpt a patient discusses how inaccessibility to care, mainly because her physician was off that day coupled with an unexpected meeting with a physical therapist, resulted in directly accessing PT, she says,

"So, I ran into X (referring to a physical therapist). She was in the break room the morning I was hurting so severely, and she told me to try physical therapy first to see if that would help it, and if not, they would recommend maybe a physician for me to see…. At that point I figured anything would help. I felt like especially the hands on would break it because it felt like a trigger point area. I figured that was the best route to go before pursuing the surgeons or sports medicine physicians here" (3).

A similar situation was described by another patient who was experiencing severe back pain. He mentioned that lack of access to physician care during an annual holiday along with personal disinclination to visit the ER were influences that led him to ask for help from the "Employee Health" - an employee wellness program offered by the health system - and from which he was advised on going to PT.

"I called employee health, I was desperate, I needed to see anybody. I just didn't want to bring myself to the emergency room with the flu scare going on, I was worried that I was going to catch something when I was there. So, I called employee health… they said have you ever heard of the MSK program through ATI therapy, I said no. They said you can come right in and see a physical therapist with no referral" (26).

2- Resonant Prior Personal and Network Experience with PT

Patients who used the self-referral pathway talked about having a previous encounter(s) with physical therapy. These positive physical therapy experience(s) installed beliefs about the efficacy of PT in treating musculoskeletal complaints and substantially contributed to patient re-access to PT services upon developing a new musculoskeletal complaint. The following accounts indicates how patients past experience was a significant influencer in considering PT for their current musculoskeletal pain.

"*I had hurt my back many years ago, lower back, and I had intense physical therapy. This was in Charleston. It was the factor that made me ... Physical therapy enabled me to not have to have surgery. It prevented me from going to surgery and they strengthened my back and they taught me a lot" (15).*

"I just have always had really good experiences, like, good outcomes in terms of pain relief and function following a PT program. I just thought that that would probably be what I need" (27).

"I have episodes of low back pain, so I went to therapy then and it helped with my low back pain. Then when my shoulder started hurting and after the cortisone shot, that was my second experience with therapy and it helped that issue. When this third one popped up, I said, "I'm going to go to therapy," because each time I've went to therapy it has improved" (32).

Having a prior experience formed a trusted relationship between the patient and the physical therapists. From participants narrative, it was clear that these relationships, were why some of these patients preferred resorting to PT first when they experienced a recurrent or a new musculoskeletal pain to ask for help and guidance.

"*Just due to my past experience with the results that I had with physical therapy…. Once X (referring to a physical therapists) saw me for my lower back I went on my way. Then, I guess it was something earlier this year, I had numbness in my hand, and I lost basically all my strength on my left arm…. I called X up and said, "I can curl, but I can't push." I said, "I have no strength in my arm." He said, "It sounds like a cervical issue. Come in, let's take a look at you." I went in, took a like at me, he treated me and did a great job on that" (6).*

"But then it worsened, and the neck pain was getting more intense. At that point I sent an email to that physical therapist and said, okay, here's what's going on, what do you suggest?... So that's when she put me in touch with this physical therapist that I'm seeing now because he has more experience with this area of the neck" (7).

The patient's personal PT experience is not the only influence on his or her choice of care pathway, co-workers experience with PT could also play a role in influencing some participants' decision on how to go about treatment for their current musculoskeletal pain. Patients who used the self-referral pathway but did not have a prior PT experience mentioned work networks as shaping their decision to access PT directly. Healthcare

workers, work in a social context- they work in concert with each other and share clinical knowledge. This knowledge, as reported by one participant was informative to what physical therapy can help with and therefore PT was initially sought upon developing a musculoskeletal-related complaint.

"*I started to go to therapy, because I thought that might help it, because I work with the orthopedic physicians here. I know that therapy can be beneficial with arthritis…. Because part of my job is understanding what happens with my patients, so I knew that PT would be helpful for arthritis" (18).*

Others identified co-workers as an important source of influencing their decision to seek PT initially for their musculoskeletal complaints. Hearing co-workers positive experience with PT seemed to go a long way toward influencing these patients' choice of care pathway in seeking treatment.

"Actually, one of my coworkers was coming and she said it helps her tremendously and she recommended that I come…. So, I thought maybe that would help some" (22).

"I have another coworker who's used it (the MSK program) for her back. I thought, "Well, they do hips, so I'll see them" (13).

3- Patient Attitudes and Beliefs toward Treatment:

A significant theme to emerge from participants who used the self-referral pathway was patients' attitudes and beliefs toward treatment. Within this broad theme, four subthemes emerged that included: a) Openness to Alternative Therapies; b) Beliefs about

medications and surgery; c) Patient expectation of physician recommendations; and d) Financial Considerations.

a. Openness to Alternative Therapies

Patients have plenty of treatment options if they chose to seek care for their musculoskeletal complaints. In that context, the majority of patients who used the self-referral pathway displayed a sense of openness to a wide variety of treatment interventions. In conjunction with use of medications, they talked about experimenting with different modalities and providers including chiropractic care, massage therapy, and yoga to find out what works for them, prior to considering physical therapy care.

"I've been a nurse for almost 40 years, so I'm into kind of treating myself and I think that other modalities may work first. Like heat therapy, maybe doing yoga, doing self-care treatments first" (23).

"I did start seeing a massage therapist back in January hoping that, that could alleviate a lot of it. Actually, the first month it did, like I really noticed a lot of benefit, but then it kind of came back" (13).

"I had started doing some yoga that I was watching on YouTube" (30).

b. Beliefs about Medications and Surgery

While some patients were experimenting with alternative therapies to find what works along with using medications, others directly resorted to the use of medications that they either self-administrated or had been prescribed by a physician in the past – as more

than half of the self-referral patients complained from chronic pain, half of whom did seek physician care at one point in time – perhaps such consultations involved medication prescriptions. However, regardless of how these medications were administrated the majority of patients expressed aversion to its use. For some participants, this aversion was because of their experience with medications, which they perceived as ineffective in controlling their pain or offering them long-term relief.

"Really, I didn't really see too much of a difference with or without it (pain medications) anyway" (13).

"Well the medication and what I was doing wasn't helping a whole lot, so I thought the massaging would loosen it up, yeah know some of the muscles and tension would probably help" (22).

Conversely, several patients acknowledged that pharmacological treatments were to an extent effective means to control their pain, yet they had concerns over the sustainability of these treatments in managing their pain. Their concern over pharmacological treatments' potential long-term adverse effects impelled them to reconsider their frequent use and refrain from its intake.

"I felt amazing. And it improved but you can't take those (referring to cortical steroids) long term because it's not healthy for you" (11).

"No, I don't want to be prescribed pain medicine and where I have to have it. I can tolerate pain, so I don't have to be where I have to have pain medicine because just from my experience of working in the ER is that you go to the doctor, I've seen I don't know how many hundreds of people like that that go to the doctor and they give them pain medicine and then you get to the point that you know what to ask for because you know this is not going to work, and you have to have this. Then I would hear people sit there and say, well I can't go to this doctor no more, I can't go my doctor won't see me anymore, I can't go back to the office anymore, and now you start coming to the ER and now you're constantly coming to the ER and you're constantly trying to get pain medicine" (31).

"it was not what I wanted to do. I don't believe in taking medicine for every single little limb of pain. And I certainly don't want to take a lot of medicine. I try to be as natural as I can with the things that I put in my body. So, yes, there was relief for several hours of the day. But it wasn't anything that was long-term, and I really tried not to take the medicine… Because I know medicine's not a long-term fix. It's a short-term fix" (30).

Others displayed concerns over medications' short-term side effects and talked about how they interfered with their day-to-day routine, for that patients had to pursue an alternative treatment approach.

"The medication that I take for these (Shoulder pain) because they're not every day, makes me kind of sleepy and dull and that's difficult to work, so I started exploring other options" (15).

For these patients it was clear that even though pharmacological treatments play a role in controlling the pain they do not offer what these patients want, precisely addressing the root cause of the problem rather than masking the symptoms. Therefore, participants preferred to take an active role toward treatment.

"I know physical therapy is an option for people when they have back pain. Because I'm not going to take pain meds, I'm a nurse, so I'm not going to take pain medication I'd rather do something that maybe is more proactive" (11).

"I wanted something that would fix it, as opposed to just tolerating it" (7).

Although perception about medications were clearly the most predominant concern that steered patients to seek PT directly, it was not the only intervention that participants had concerns with. Few participants expressed concerns over having to go through surgery to control their pain; awareness about the potential risks and complications inherent in surgical procedures drove these patients to seek PT as a preventative measure.

"I'm tired of it. I'm really not wanting to even look towards a hip replacement. You start getting worried, what can I do to make sure I don't go there" (13).

"If I can do therapy, I'm going therapy. I will not go under the knife because I've gone under the knife. I had orthopedic knee surgery from football, and so it's going to take me a

lot to get me back under surgery. I'd have to be on, basically, on my deathbed. It ain't happening" (6).

c. Patient Expectation of Physician Recommendations

Several patients anticipated how their treatment would unfold if they consulted a physician first. Some participants expected that PT was going to be recommended by a physician as a course of treatment and therefore self-referring to PT was a shorter route to care. Others feared that physician consultation would result in medication prescription, which does not align with their beliefs about medications, and thus they decided on skipping the middleman and accessing PT directly.

"I know there's really nothing the physician can do for me. Maybe order an MRI or something, but usually back pain usually resolves on its own over a period of time" (29).

"I didn't have to see a physician, I didn't have to get a needle stuck in that place. It was great for me. I would go that approach again if I was having that issue, before seeking a physician because 9 times out of 10, they're going to tell you to try PT first" (3).

"Because I know if you go to the doctor the first thing they're going to do is prescribe you pain medicine. Then if any time your pain is constant, then they're going to send you to pain doctor, that's why I got them, then you're sent to them and of course they're going to give you pain medicine" (31).

"I guess just because before when my shoulder was hurting, I had went to therapy. My PCP had referred me to the orthopedist who did the shot of cortisone, and then they sent me to therapy. I thought, "Well, if it's going to end up in therapy, I'll just go straight to therapy" (32).

"I felt like if I went to a physician, that that's what they would do is refer me to PT, so, it was easy enough to just start their" (27).

This patient elaborated more on her choice of self-referral saying *"So one of the other reasons why I didn't go to a physician first is just because ... so if my pain was the result of an injury, I fell, or I was in an accident, I feel like you need the reassurance of a physician to make sure that there's nothing broken, or that would need surgery, or something like that, but if you're just having chronic pain that's been coming on for a long time, my hip hurts, my knee hurts, my back hurts, I feel like physical therapy and exercise is most often what the treatment that's going to be recommended, so I just went there first" (27).*

As seen in the above quote, the patient was able to distinguish her pain from one that is a result of an injury or one that would require a surgery. It was evident that this patient had more confidence in her decision to access PT because of her ability to self-diagnose and recognize PT as the best course of treatment to seek.

d. Financial Considerations

Financial costs were clearly an element influencing the choice of care pathway, particularly among patients who accessed PT directly. Some participants talked about the costs associated with accessing PT directly relative to consulting a physician first; they say,

"I was like, "Do I spend 50 dollars a visit to my orthopedist," when the first time around you know she recognized things wrong in my MRI, but going to her four or five times, paying 50 dollars for her co-pay, with not even really getting a full physical exam. To be honest, I was like, I'd rather go to PT and hopefully this physical therapist can help reduce my pain again, and I can continue with exercises" (11).

"Because you go and see a doctor that's more money for him to tell me to come over here when I can just call and come. So, I thought it would be more feasible" (22).

"Now a specialist is $50. Yeah, that's another reason why I thought, "Well, I'm not going to go to the orthopedic doctor if I can go to therapy. Bypass that $50 co-pay at orthopedics and go on to therapy and see if they can help." (32).

"I feel like, for me, it's cheaper than if I would have been referred through the physician and I know this 'cause of my bill from last year. Paying $20 a visit is much cheaper than meeting your deductible and still having a co-pay, so, I just thought it would be worth it" (27).

As seen in the quotes above, the low cost of self-referring to PT treatment compared to the cost of seeing a physician, motivated patients to bypass physician care and seek the less-costly but effective care.

CHAPTER FIVE

DISCUSSION, IMPLICATIONS, CONCLUSIONS, AND FUTURE RESEARCH

Discussion

This study has provided interesting insights into the underlying factors that affect the choice of treatment pathway (usual care vs. self-referral) into physical therapy (PT) among employees of a healthcare system. Employees were financially incentivized through lower copays to self-refer to PT, so it is important to understand why patients take a longer and potentially more expensive route to treating their musculoskeletal pain in the presence of a shorter route (self-referral). Using qualitative, grounded theory as an analytical lens, this study developed a model of the determinants of treatment pathway choice for patients seeking care for musculoskeletal pain (see figure 5.1). The model can be utilized to inform health system efforts aimed at changing patients' behaviors toward using PT as a first line approach for treating and managing their pain. It also provides physical therapists, health administrators, and human resource managers with an understanding of how to target and attract patients to PT services directly.

The conceptual model of choice of treatment pathway emerged from sorting participants-generated factors. Patients practice self-care upon the development of musculoskeletal pain, when the pain gets worse, and self-care fails to yield any relief, then patients make the decision to seek medical care. The pathway that leads patients into the MSK program starts with the decision to access care for their musculoskeletal pain;

however, the decision to use usual care verses self-referral into the program is driven by several different determinants. Lack of knowledge about the MSK program and patients' attitudes and beliefs toward the condition and/or treatment are the main determinants that influence patients' decision to use the usual care pathway. However, knowledge of the MSK program – its key element being the ability to self-refer to PT without a physician referral –, resonant prior personal and network experience with PT, and patients' attitudes and beliefs toward treatment drive a patient to forgo physician care and self-refer directly to PT. It's important to note that for some patients, one factor predominates and drives the decision more than other components.

The most expected observation from this study was the contrast between the usual care and self-referral pathway patients with respect to knowledge about the program and ability to self-refer to PT. In contrast to self-referral patients, those who used the usual care pathway reported lack of knowledge about the MSK program and hence knowledge about their ability to access PT without a physician referral. This distinction between the two groups reflect the fact that lack of knowledge about the program prevents patients from using the self-referral service when appropriate. As suggested by other authors, a fundamental factor influencing contact initiation is knowledge; thus, lack of knowledge hinders autonomous behavior [55,79,80]. Although the majority of the usual care pathway patients haven't had any information regarding the program. Those who were aware of it had misconceptions that prevented them from using the self-referral pathway. Although it might have been assumed by the program developers that program adverts conveyed a clear message regarding patient's ability to self-refer to PT without a physician referral and without any insurance coverage consequences, this was not found to be the case.

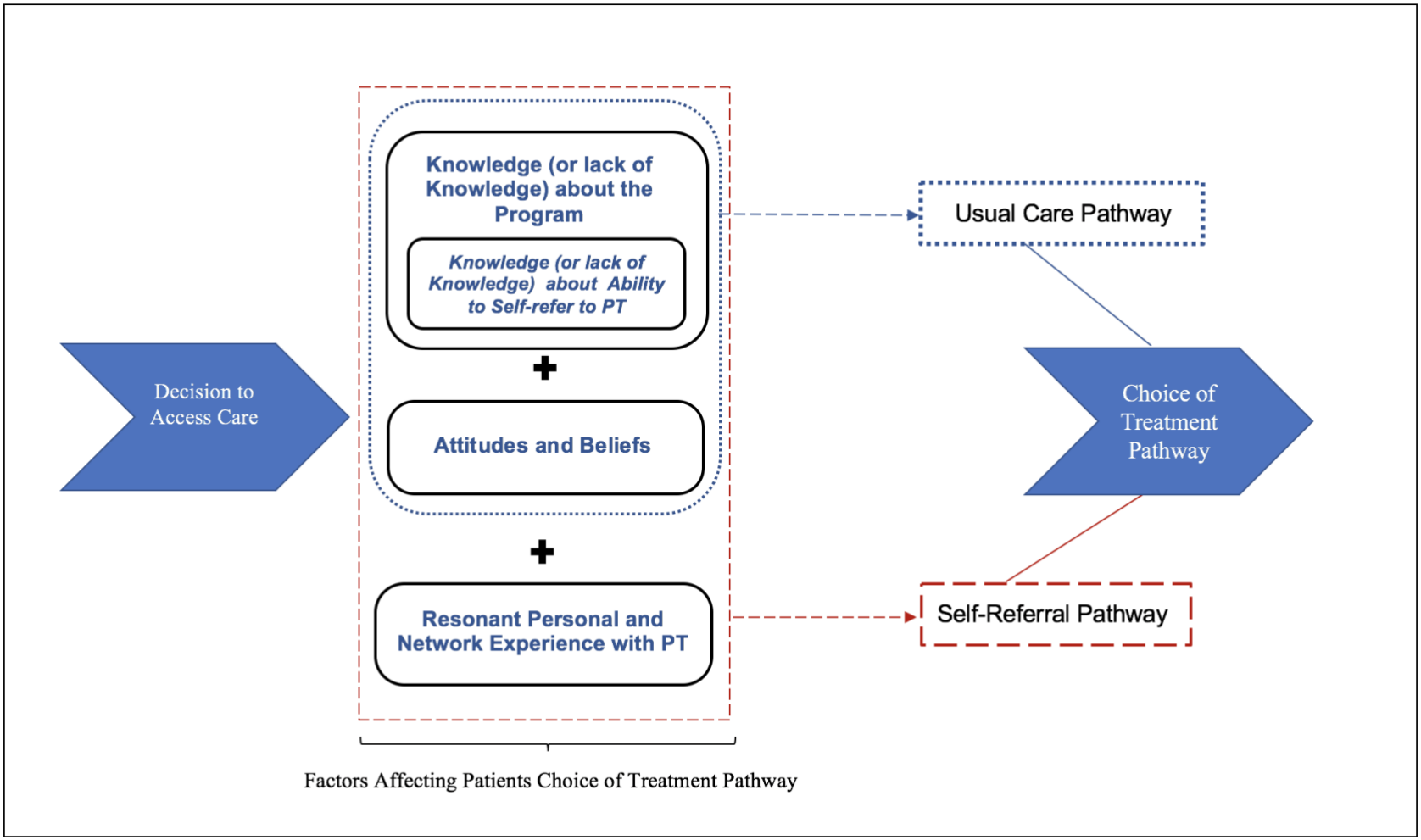

Figure 5. 1 Conceptual model of patient choice of treatment pathway

There was a sense of uncertainty surrounding the features of the program, patients had perceived that physician referral was important for insurance purposes as well as to access PT. Interestingly, referral requirement misconceptions continued untapped even after being a participant in the program; patients were not informed of their ability to go straight to PT for any musculoskeletal pain they may develop in the future yet it did provide patients with information regarding number of visits allowed under the MSK program, the cost per visit, and the fact that the program is exclusively offered to employees. Although such information is necessary to encourage patient enrollment in the program, lack of knowledge about the patient's ability to self-refer to PT - a fundamental element of the program- prevents patients from accessing PT directly upon developing a musculoskeletal complaint in the future and perhaps changing how patients access care.

Interestingly, this study has also found that being a former participant of the MSK program, did not clear patient misconceptions about referral requirements, yet it did provide patients with information regarding number of visits allowed under the MSK program, the cost per visit, and the fact that the program is exclusively offered to employees. Although such information is necessary to encourage patient's enrollment in the program upon accessing PT, lack of knowledge about patient's ability to self-refer to PT – a fundamental element of the program – prevents him/her from accessing PT directly if he/she developed a musculoskeletal complaint in the future. While this explains why those who were former participants of the MSK program continued to access care through traditional channels, it sheds light on the fact that patient knowledge about the program does not necessarily mean knowledge of their ability to self-refer to PT. Of major concern to the program should be why patients who used the MSK program still lacked awareness

regarding the ability to self-refer even after being a participant in the program. While this research did not investigate why this is the case, it points to the need to investigate whose responsibility it is to clearly communicate to patients their ability to self-refer to PT. Also, if one of the program objectives is to increase patients' uptake, particularly through the self-referral pathway, it is important that physical therapists inform patients about their ability to come straight to PT for any musculoskeletal complaints and perhaps, to educate patients on why this route is ultimately superior. It is important to note that, this study had observed that relative to specialist physicians (i.e. orthopedics), primary care physicians tend to order diagnostic imaging more frequently and advise patients on the use of medications as a first line treatment approach over advising them on PT care as a first line approach. While this is in line with current evidence-based recommendations [81], it is concerning given that delaying initiation of physical therapy treatment may have implications on healthcare utilization and cost [82]. Patients are then referred to PT when the condition fails to progress with medications or when the patient requests an alternative approach. In some cases, patients receive a referral to a specialist rather than to a PT. This raises several questions on whether physicians are well aware of the role and scope of practice of PT in treating MSDs as an alternative approach to medications; whether they are aware of the availability of the program to health care system employees at a low cost; and whether there is a lack of a financial incentive that averts them from informing and directing patient toward PT care. Since these questions were beyond the scope of this study further understanding is warranted.

Nevertheless, a further important finding was that patients' knowledge about the program did not imply its usage, some patients clearly had forgotten about the program

when they started experiencing pain and for that, they opted for the traditional route of care. This indicates that for patients to use the program they have to remember it when they experience pain. It is important, therefore, that program marketing efforts implement strategies that frequently remind the patients of the existence of the program so patients who become affected by a musculoskeletal complaint consider PT care. In addition, analysis showed that usual care pathway patients seemed to lack a general understanding of the internal workings of the program or how it worked. Although it might seem unnecessary, highlighting "what's in the program for patients" including informing patients that physician consultation would be conducted on their behalf when desired outcomes are not achieved via PT is critical, particularly among patients who feel that their complaint is not improving and still cast doubts weather PT is the best course of treatment. Marketing efforts should therefore be modified to clearly address what the program encompasses in terms of access (i.e. a patient ability to self-refer), content (i.e. body areas the program or PT can help with, and what can a patient expect from participating in the program and receiving PT care) as well as to address any concerns patients might have concerning insurance coverage for PT treatment. However, knowledge about the program in itself did not solely influence patients' choice of treatment pathway, patients' prior experience with PT was a significant determinant in influencing choice, particularly among the self-referral pathway patients. It is important to point out that knowledge about the program, among the usual care pathway patients, did not solely influence patients' choice of treatment pathway, patients' attitudes toward treatment prevailed, and dictated the choice of treatment pathway.

Relative to other studies that demonstrated how observable socioeconomic and clinical characteristics have an influence on patients' choice of the self-referral pathway. This study found that less overtly observable determinants such as knowledge about the program, resonant prior experience with PT, and patients' attitudes and beliefs were important in determining how patients sought care. More specifically, prior studies pinpoint that highly-educated, young males use physical therapy as an initial approach toward solving their pain [46,48,55,61,63]. However, this study has found that females were more likely than men to use the self-referral pathway and that both levels of education and age were not found to be predictors of the use of the self-referral pathway among this population. Moreover, in contrast to other studies [41,55,61] no association was found between patient clinical characteristics, specifically the duration of symptoms and how patient sought care. Interestingly, how patients reported to clinicians when their symptoms actually started was different than how they reported it during the interview. Duration of pain to initial medical evaluation, as obtained from patient's medical records, showed that the majority of patients in both groups had their symptoms for less than ≤ 90 days (acute condition). However, from analyzing the transcribed interview data of this study, the majority of the self-referral and the usual care pathway patients complained of a pain that is either chronic or recurrent. In general, patients with chronic pain suffer from pain for at least half of the days within a 1-year period in a single or in multiple episodes[83]. Patients with recurrent pain, however, suffer from pain for less than half of the days within a 1-year period in multiple episodes over the year. The reason for this variability in patients reporting of when their symptoms actually started is unknown, it could be that these patients only reflected on their current episode or that their symptoms have been worse at

the time they got in PT, which made it seem acute. It could also be that the probing nature of the interview might have allowed patients to think more deeply about their holistic pain episode whereas the short duration of PT visits prompted patients to only reflect on an individualized episode. However, as this study did not intend to tease out such differences and because patients only used general terms such as "off and on pain" and "discontinuous pain" to refer to their pain as recurrent without specifying the number of days they experienced pain within a single year and the frequency of having an episode, the percentage of patients complaining from chronic or recurrent pain, according to the definitions, could not be stratified. Thus, it could not be identified whether or not having a recurrent or chronic pain might have an impact on how patients choose their treatment pathway.

In line with other studies [61,63] patient prior PT experience was shown to be a strong predictor of choice among the self-referral pathway patients. Noticeably, these patients cited their previous experience(s) with PT as a significant factor that induced them to access PT directly upon developing their current musculoskeletal pain. It was evident that patients prior experience has not only exposed them to physical therapy care but has also taught them that PT has the sufficient clinical expertise to diagnose and treat their pain More importantly their past experience with PT appeared to resonate enough for them to think about for their current musculoskeletal complaint. A resonant PT experience had the potential to shape patients' belief that PT is an optimal treatment of choice for a musculoskeletal complaint. For example, few of the self-referral patients had been re-accessing PT for several times for the same complaint despite not achieving desired outcomes. This persistence of seeking care from PT came from a strong belief that PT

would help, which stemmed from having a positive PT experience in the past for a different complaint, and which resonated enough with the patient to think about for any musculoskeletal complaint he/she may experience. Interestingly, their past PT experience also made them aware that the success of a PT treatment plan is a result of a combined effort from both the physical therapists and the patient. And that unattainable PT results or having a recurrent pain is not a consequences of PT care but rather to poor adherence to home exercises. Taken together, this indicates that patients' prior medical experience considerably shapes how they access and utilize healthcare services. Additionally, co-workers' experience with PT seemed to provide a window on the efficacy of PT in treating musculoskeletal related pain, specifically, for patients who have no previous encounter with PT. Hearing co-workers positive experience with PT allowed patients to relate to others experience with PT and have a belief that PT would work for them as well. However, despite that the majority of the usual care pathway patients had a previous encounter with PT, yet they still chose to access care via the usual care pathway, while perhaps lack of knowledge of the program played a role, their attitudes toward treatment prevailed and dictated how they selected a treatment pathway. Patients' attitudes toward treatment was a strong determinant not only across the usual care pathway patients but also across the self-referral patients.

Interestingly, patients attitudes and beliefs have been found as an important determinative of choice of mode of access in the literature [55], this qualitative study, however, was able to reveal additional and deeper non-observable attitudes than what had been presented in the literature and, of which have a significant influence on how patients sought care. Patients' attitudes and beliefs differed between the two groups: for the usual

care pathway patients, the need for a physician reassurance, preference for pharmacological treatments, and disbelief in PT as an effective treatment approach were important determinants of patients' choice of the usual care pathway. Whereas patients' expectations of physician treatment recommendations as well as personal beliefs about medications were imperative predictors of patients' choice of the self-referral pathway. This study analysis has shown that patients who sought the usual care pathway tend to relinquish treatment responsibility to physicians because of the need for a physician reassurance. Patients' uncertainty surrounding their complaint and/or treatment as well as trust in physicians were two contributing aspects that drove patients to seek reassurance. Patients held different assumptions about their condition including concerns about having a specific disease (e.g. arthritis), a serious injury, or expectations about needed treatment (e.g. surgery). For that, they did not reflect on their past PT experience as relevant to their current health issue and rather consulted a physician to gain reassurance and remove accompanied doubts and fears. This finding confirms to other findings that show that more than 60% of patients presenting to primary care settings have concerns about the possibility of having an underlying serious illness [84]. It could also be that these patients lacked confidence in identifying "what's wrong" and therefore preferred consulting a physician first, without considering how a prior similar complaint was medically addressed. Patients' trust in physicians was a further reason that drove patients to seek physician reassurance. It was evident that these patients trusted physicians more than physical therapists, which might reflect patients' belief that physical therapists do not have the sufficient clinical expertise to handle their health problem or had a lack of trust in physical therapists' diagnosis and evaluation despite having a previous encounter with them. It is important to note that the

need for reassurance was not a theme discussed by the self-referral patients, and that does not necessarily signify that they did not need such reassurance, but rather it could be because physician care was sought previously during seeking treatment for their condition at one point in the past. It's highly likely that such consultations served as means to reassure patients about the state of their condition and have possibly contributed to patients' self-referral to PT at a later time when the patient was reassured that the complaint was musculoskeletal related. A further reason of why the usual care pathway patients tend to relinquish treatment responsibility to a physician is having a certain mindset of approaching physicians for any concerning health issue they may encounter. Interestingly, it was found that PT care was not a viable treatment option among the usual care pathway patients, basically these patients did not believe that PT would be helpful in treating their pain, for that they only considered going to PT after being advised to do so. While it's interesting that these patients despite having an encounter with PT in the past, working in a healthcare setting with the majority being a healthcare practitioner still favored consulting a physician first, it could be that these patients' past PT experience did not resonate enough for them to think about it for their current musculoskeletal complaint. Further, although it would have been assumed that healthcare workers would be more likely than the general population to self-refer to PT given having knowledge of physical therapy scope of practice (which primarily stems from having a previous encounter with PT and/or being a healthcare worker) it was not shown to impact their choice of treatment pathway, specifically, the decision to self-refer to PT. While this indicates that knowledge about the role of PT alone does not contribute to patients' choice of treatment pathway and disagrees with Webster et al. [55] suggestion that knowledge about the profession of physical therapy is vital to

encourage patients' self-referral, it suggests that patients probably have to know more than just about the program or the role of PT, they have to believe that PT would be helpful or be activated in some way that it will work. There is a need to figure out what marketing strategies can get healthcare workers who are probably more educated and has higher income than the average population to adopt self-referral and then tweak that again to motivate a general population. Indeed, these strategies should be aimed at reshaping beliefs about PT to move people toward accessing PT directly.

Nevertheless, analysis has also shown that self-referral patients tend to display an autonomous behavior, as suggested by other studies [48,55] and to drive their own care. These patients assuredly expected that PT would likely be recommended by a physician, as a course of action – a non-observed behavior among their counterparts – for that reason it was more sensible and convenient to access PT directly. There was also a strong sense that these patients had the confidence to recognize "what's wrong" or that their pain is musculoskeletal related and identifying that PT would be a potential solution for their complaint. Although only one patient talked about her ability to self-diagnose and determine the nature of the complaint given that it was not a result of an accident or an injury, thus was capable of making a confident choice regarding skipping physician care, it highlights the importance of educating patients on the practicability of self-diagnosing musculoskeletal complaints, in the absence of "something serious" before seeking care from a physician. However, with that being said, it has to be accepted that some patients would be unable to recognize or identify the cause of their complaints, and what could help in alleviating the complaints, particularly when it's neuromuscular in nature. In that case, the usual care pathway would be undoubtedly the pathway of choice.

Moreover, patients' attitudes and beliefs regarding the use of medications were widely divergent among the usual care and the self-referral pathway patients. Patients who consulted a physician first, had a strong preference for pharmacological treatments, as a first line approach, which they believed would provide them with a spontaneous solution for controlling pain compared to receiving care from PT whose effectiveness on pain resolution might take longer. However, the self-referral patients showed an alternative and contrasting attitude: a strong aversion to the use of pharmacological treatments which was shaped by prior experience associated with the use of medications to treat the same or similar condition along with the knowledge about the potential short-term and long-term side effects related to medications use. These findings are consistent with Sharma et al. [85] study that found that patients' attitudes toward prescription medicine predicts patients choice of self-referral to medical and chiropractic physicians. It was evident that patients' beliefs concerning medications utilization was an impetus to adopt an active role toward treatment; treating the root cause of the condition rather than alleviating the symptoms. Adopting an active role toward treatment was materialized differently across the self-referral patients while some only opted for PT, others before accessing PT, experimented with a variety of therapy interventions (e.g. chiropractor care and massage therapy) and engaged in a trial and error approach to see what works, the ineffectiveness of these therapies then led these patients to seek PT care. Taken together, these findings do not only reflect variation in treatment preferences across patients but also shows how beliefs surrounding pharmacological treatments as a pain solution shape a patient decision of treatment choice. Nonetheless, concern over the cost of care was especially notable among the self-referral patients, although there were no significant association between household

income and how patients' choice of treatment. Self-referral patients seemed to consider the extra costs associated with consulting a physician first, for them it was more sensible to self-refer to PT and avoid unnecessary costs. This signifies that financial cost can, to an extent, incentivize patients to make rational choices when utilizing healthcare services.

Nonetheless, patients' choice of one care pathway over the other is not always deliberate. This study has found that few of the self-referral patients had unique circumstances that resulted in self-referral to PT. Lack of accessibility to physician care on particular days or during annual holidays coupled with high pain intensity required patients to explore an alternative immediate care that can potentially relieve pain. Because this population, unlike the general population, has unique work network connections with healthcare providers as a result of their interaction on a regular basis, patients have the opportunity to informally consult them, on the best course of action, when their complaint becomes a concern. Therefore, self-referral followed receiving an advice on the opportunity of seeking PT care as an immediate solution. These findings indicate that patients' access or use of certain healthcare services is not always a consequence of choice but in some instances, patients are forced to take a certain course of treatment because of inaccessibility to an often-sought treatment pathway, it also indicates how unlike the general population, this population has work networks from which they can receive advice on possible treatment options, and which in turn can influence their choice of care pathway. In addition, it has also been found that several usual care pathway patients indirectly sought care for their musculoskeletal condition, meaning they did not seek direct medical care for their complaint but rather discussed it during consulting for another pressing condition, which resulted in receiving a referral to PT. This is not surprising given other studies that

showed that only a subgroup of patients with musculoskeletal-related complaints do seek care [86,87] and that care seeking is not a matter of course following experiencing pain [88]. Although patients had different narratives for not actively seeking early care, it is important to enhance patients understanding on the prominence of seeking early care and raise awareness that treatments are more effective when a musculoskeletal complaint is combated early [82,89].

Implications and Conclusions

This study aimed at elucidating the underlying factors that influenced patients' choice of treatment pathway into physical therapy among patients who were incentivized, through lower copays, to access PT care directly. This study has found that knowledge of the program, patients' attitudes and beliefs toward treatment, and resonant past PT experience were important in determining how patients sought care. More specifically, patients' use of the usual care pathway is influenced by patients' lack knowledge of the MSK program and most importantly patients' attitudes and beliefs toward treatment and/or illness.

Despite the health system efforts in implementing various strategies to advertise for the program, the majority of patients, who accessed care via traditional channels, demonstrated lack of awareness regarding both the availability of the program and the ability to self-refer to PT. Few patients, however, knew about the program, yet accessed PT via the usual care pathway mainly because they a) had misconceptions about how the program worked or b) lacked awareness of ability to self-refer awareness of ability to self-refer or c) their knowledge about the program did not coincide with having pain. It is important therefore that marketing and outreach strategies aim at would help and what

knowledge problems can be corrected. There is a need to reorient advertising efforts, clear up misconceptions, and frequently remind patients of the existence of the program. Providing employees with details about the program including highlighting "what's in the program for them" and "what patients can expect from the program and receiving PT care" is equally important. Although knowledge about the program is important patients' choice of the usual care pathway was less about patients' knowledge about the program and more about patients' attitudes and beliefs toward treatment and illness. Patients who used the usual care pathway as means to seek treatment for their musculoskeletal complaints did so because of having a disbelief that PT would be effective in treating their pain; or had a strong preference for pharmacological treatments which they believed would provide them with an immediate solution to controlling pain; or needed physician reassurances because they trust them more than physical therapist or to validate personal assumptions surrounding their illness or required treatment. This suggest that patients probably have to know more than just about the program, they have to have the attitudes to accept PT care, believe that PT would be helpful, or be activated in some way that it will work. Interventions aimed at reshaping attitudes and beliefs to move people toward accessing PT directly is therefore necessary.

On the other hand, patients' decision to access the self-referral pathway have been found to be dependent, and in some cases and interplay of three key factors: patient knowledge of the program and their ability to self-refer to PT , resonant prior personal or network experience with PT, and patients attitudes toward treatment, together these components compels patients' to forgo physician care and self-refer to PT. Beside patients' knowledge about the ability to self-refer to PT, self-referral patients demonstrated openness

in experimenting alternative treatment interventions including massage therapy and chiropractor care as means to address their complaints and relieve pain. This preference for an active role toward treating pain arises from their strong aversion to pharmacological treatments. Moreover, a resonant prior personal or network experience with PT significantly shaped patients' beliefs about the efficacy of PT in treating musculoskeletal pain, and considerably contributed to patients' decision in self-referring to PT.

Strength, Limitations, and Implications for Future Research

The data obtained was from different employees attending different physical therapy practices in different locations within the Greenville metropolitan area. This to an extent allowed for a comprehensive understanding of how patients knew about and accessed the MSK program. Another study strength was that qualitative data provided a detailed information about patients' journey with musculoskeletal complaints that quantitative data cannot capture.

This study has limitations that should be taken into account, this study was conducted in a state that offers direct access with some provisions, the results, therefore, may not be applicable to states with limited access or no access restrictions. Also, recruitment was based on voluntary participation, thus, it could be that patients who chose not to participate had different reasons underlying their choice of pathway than the interviewed population. All of the participants were health care workers, and so the findings might be different if people were from the general population. The interviews conducted in this study reflects the perspective of employees of one health system in one metropolitan area within the southeastern U.S, which may limit the generalizability to other settings. For instance, in this study, employees were covered under a health plan that

allowed self-referral at a low patient liability; this is likely to differ across different health system and health plans.

Future qualitative studies may benefit from studying other regions within the U.S and with the general population. By design qualitative research, examines small samples of the population more deeply looking for the themes that exist. This means findings are not broadly generalizable and specific hypotheses are not tested. Future studies should focus on the use of quantitative research as means to support this study's finding before suggesting generalizability by exploring other populations where a similar program was implemented. Also, the ability or confidence of knowing what is wrong was an observed behavior among self-referral patients, yet it warrants further research into why it is an important determinant among the self-referral pathway as it could inform how interventions should be designed to shape patient behavior toward using the program. Finally, since this study witnessed that physicians recommend PT after medications failure in offering pain relief, more study is needed to understand physicians' perception about the role of PT in treating musculoskeletal complaints and the factors that impacted suggesting PT treatment at a later point in time.

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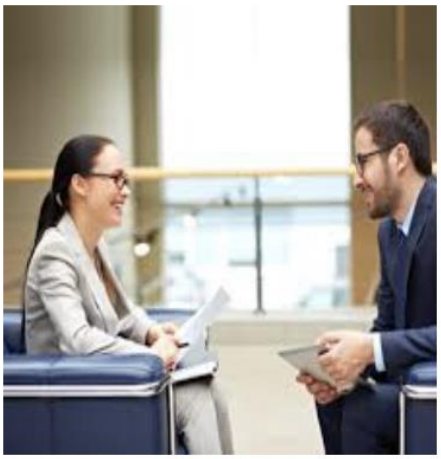
APPENDIX A-PATIENT RECRUITMENT FLYER

Are you an Employee in the Musculoskeletal Program?
We'll reward you for talking with us!

We are seeking GHS employees with spine, shoulder or knee pain to participate in one 40-minute interview.
We want to learn more about:

- Your experience with your pain
- Why did you choose to receive care from a physical therapist?
- What factors influence your treatment pathway into the program?
- How your work environment impacted your decision to seek care.
- **You will receive a $30.00 gift card for your participation**



When can I interview?
Select a day that works best for you on **Monday, Tuesday, Wednesday, Thursday, or Friday**.
Then, pick a time from **10am to 7pm**.
Study runs **through March 1st**.

Study Details

- Interview can be held at one of the following sites: Patewood Memorial Campus, GHS Memorial Campus (Grove Road), and ATI Physical therapy Located in Greer (S.Suber Road).

Who is a candidate?

- Participant in the Musculoskeletal (MSK) program.
- Patients experiencing pain in Back, Neck, Shoulder, Knee, or Hip.
- Patients are an employee in the Greenville Health system.

If I decide to do the interview, can I change my mind?

- You may change your mind at any time and discontinue your participation in this study. By not participating, or changing your mind to participate, you will not be penalized and your healthcare services and benefits will not change in any way.

How to Sign up:
Please call or email Helen Truesdale at **864.454.7368** or **helen.truesdale@cerortho.com** to sign up for a session.

If you have any further questions about this research please contact Noor Alshareef at noora@email.sc.edu

APPENDIX B-INTERVIEW GUIDE FOR THE USUAL CARE PATHWAY PATIENTS

Thank you for taking part in this study, today, we will discuss the pain you had a year ago in your knee, shoulder or spine and how you dealt with it in the workplace. I am trying to understand how work factors impacted the way you sought care. I may ask things that are basic to you, but I want to understand how work factors influence care seeking decisions among employees. I hope this will be an open discussion, and I want you to feel free to say what's on your mind. If you felt uncomfortable with any question, then you don't have to answer it. You can stop your participation at any time.

1. What do you do here at GHS?
2. How long have you been here?

Now I want to talk about the pain you have been experiencing:

3. Can you tell me about your pain?
    a. How did it start?
    b. How long have you had it?
    c. How did it impact your daily activities? (hobbies recreation that kind of stuff)
    d. How does it impact your work?
        a. If so, how?
    e. How did you deal with the pain?
        a. How did you go about treatment?
4. How many times did you see your physician for this same condition?
        a. What did you do then?
            i. Length of time between seeing the physician to going to PT
        b. Treatment wise, what did your physician do?
5. Why did you believe that going to that physician first would be better for you?
6. Were you aware that you could go to a physical therapist without seeing the physician?
7. Have you told anyone about your pain? Co-workers, family, friends?
    a. What did your they say/ do, advise you to do?
    b. How supportive were they?
    c. Do you believe that their support would have made/did make a difference on the way you chose to go about treatment?
8. What do you expect to happen over the course of your treatment?

APPENDIX C-INTERVIEW GUIDE FOR THE SELF-REFERRAL PATHWAY PATIENTS

Thank you for taking part in this study, today, we will discuss the pain you had a year ago in your knee, shoulder or spine and how you dealt with it in the workplace. I am trying to understand how work factors impacted the way you sought care. I may ask things that are basic to you, but I want to understand how work factors influence care seeking decisions among employees. I hope this will be an open discussion, and I want you to feel free to say what's on your mind. If you felt uncomfortable with any question, then you don't have to answer it. You can stop your participation at any time.

1- What do you do here at GHS?
2- How long have you been here?

Now I want to talk about the pain you have been experiencing:

3- Can you tell me about your pain?
    a. How did it start?
    b. How long have you had it?
    c. How did it impact your daily activities? (hobbies recreation that kind of stuff)
    d. How does it impact your work?
        a. If so, how?
    e. How did you deal with the pain?
    f. How did you go about treatment?
4- Why did you decide on going to PT directly?
    a. Where did you go to get help?
    b. What Did you know about physical therapists before you started?
    c. Who, if any, influenced your choice to go to PT? tell me how did they influence you?
5- Why did you believe that going to PT first would be better for you?
6- Have you told anyone about your pain? (Co-workers, family, friends)
    a. What did they say/ do/ advise you to do?
    b. How supportive were they?
    c. Do you believe that their support would have made /did make a difference on the way you chose to go about treatment?
7- What do you expect to happen over the course of your treatment?

APPENDIX D-PATIENT SOCIODEMOGRAPHIC QUESTIONNAIRE

Basic Information About You

Thank you for completing this questionnaire. Please put a check mark (√) in the box next to your response. All of your answers will be confidential.

What is the Highest Level of Education Completed?

- ☐ Completed some high school
- ☐ High school Graduate
- ☐ Associate degree
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Professional degree
- ☐ Doctorate degree

Please specify your ethnicity:

- ☐ White
- ☐ Hispanic or Latino
- ☐ Black or African or American
- ☐ Native American or American Indian
- ☐ Asian/ Pacific Islander
- ☐ Other

What's your household income?

- ☐ Less than $24,999
- ☐ $25,000 to $49,999
- ☐ $50,000 to $99,999
- ☐ $100,000 or more.