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The Attitudes, Level of Interest, and Knowledge Held by Physicians and Psychologists Toward Integrated Healthcare Practices and the Patient-Centered Medical Home Model

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THE ATTITUDES, LEVEL OF INTEREST, AND KNOWLEDGE HELD BY PHYSICIANS AND PSYCHOLOGISTS TOWARD INTEGRATED HEALTHCARE PRACTICES AND THE PATIENT-CENTERED MEDICAL HOME MODEL

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Dissertation Approval

This is to certify that the thesis presented to us by Mark Cassano

on the 4th day of May, 2017, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

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Abstract

As the healthcare system continues to evolve, issues related to cost and access to care continue to persist. In response to this concern, integrated models of healthcare, like the Patient-Centered Medical Home (PCMH), have been developed to work toward reducing cost for both patients and providers, increasing patient access to quality care, and improving patients' overall satisfaction with the care that they are provided. However, despite the overwhelming evidence found in the literature supporting the efficacy and benefit of these treatment models, it is unclear why more providers do not choose to practice in and support collaborative forms of healthcare provision. In order to understand how providers view and understand this approach to providing care, this study was developed to examine the current attitudes, levels of interest and knowledge that licensed practicing physicians and psychologists have toward integrated healthcare practices and the PCMH model. Participants completed an online questionnaire that was developed for this study to help illuminate a provider's understanding and perceptions about integrated forms of care based on three primary constructs: attitudes, interest, and knowledge. Multivariate Analyses of Variance and a Pearson's Correlation were used to analyze the data. The first independent variable had three levels that described whether the participant was a licensed and practicing psychologist, Doctor of Medicine, or Doctor of Osteopathy. The second independent variable had two levels that included the years of post-licensure experience time frames of fewer than 1 to 10 years, and more than 10 years of clinical practice in an integrated healthcare environment. The third independent variable had two levels: experience versus no experience in working or having worked in an integrated care setting. The three dependent variables were the attitudes, levels of

interest and knowledge that a provider holds about integrated healthcare models. Findings suggested that psychologists held more positive attitudes, and a higher level of interest and knowledge about integrated models of healthcare than did physicians. Additionally, a provider's amount of post-licensure experience did not significantly impact his or her rating on the dependent variables. It was also shown that a positive relationship exists between the three dependent variables. Finally, providers who had previous experience working in an integrated healthcare environment held more positive attitudes toward, more interest in, and more knowledge about integrated healthcare practices and PCMH model than those who had no prior experience.

Keywords: attitudes, interest, knowledge, physicians, psychologists, integrated healthcare, patient-centered medical home

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Chapter 1

Introduction

Statement of the problem.

Integrated healthcare is defined as the care that results from a multidisciplinary team of primary care and behavioral health clinicians who work together to provide patient-centered treatment for patients and families (Peek, 2013). In the past decade, research has identified the fact that integrated healthcare systems are a clinically effective and cost-effective approach to improving health outcomes in primary care settings (Blount et al., 2007; Bryan, Morrow, & Appolonio, 2009; Goodie, Isler, Hunger, & Peterson, 2009).

The need for integrating evidenced–based behavioral health care into primary care settings has been steadily increasing as more healthcare professionals recognize the benefits that patient-centered, team-based practice has on health outcomes and overall financial considerations (Blount, 1998/2003; Robinson & Reiter, 2007). In regard to patient well-being and satisfaction outcomes associated with patient involvement in integrated healthcare systems, overall satisfaction ratings are higher in individuals treated by a transdisciplinary team of healthcare providers (Heyworth et al., 2014).

In an effort to incorporate integrated practice into the healthcare system, the Patient-Centered Medical Home (PCMH) has become one of the primary models utilized to accomplish the basic goals of patient-centered team-based care. As the landscape of healthcare reform continues to evolve, the PCMH has emerged as an alternate model of practice that aims to coordinate care, utilize health information technology (i.e.,

electronic medical records), reduce costs, and achieve improved health outcomes for patients (Klein, Laugesen, & Liu, 2013).

The Affordable Care Act defines the PCMH model as a healthcare delivery practice that comprises teams of providers representing a diverse array of human service disciplines that provide patient-centered treatment through the use of empirically supported interventions (United States Congress, 2010). In addition, the PCMH model incorporates the appropriate utilization of health information technology, expands patients' access to care, and engages in continuous quality improvements to ensure the provision of a holistic approach to care that aims to improve patient health outcomes. The Agency for Healthcare Research and Quality identified five primary attributes that define and accurately depict the components of a PCMH as a healthcare system that follows a patient-centered orientation, provides coordinated and comprehensive team-based care, allows for access to care, and adheres to a systems-based approach to achieving both quality and safety of care (Steglitz, Buscemi, & Spring, 2012). By adhering to these basic tenets, sites that follow the PCMH model report significant decreases in emergency department and inpatient hospital admissions, reduced costs for both patients and treatment facilities, improved patient satisfaction, and care that is equal to or better than traditional forms of healthcare (Dorr, Wilcox, Brunker, Burdon, & Donnelly, 2008; Gilfillan et al., 2010; McCarthy, Nuzum, Mika, Wrenn, & Wakefield, 2008).

Not every PCMH integrates behavioral health and primary care services. Many sites use a team-based approach to care, but the care that is provided is focused around issues pertaining to a patient's physical health. However, when behavioral health

services are introduced, sites have been shown to experience an increase in access to mental health services for patients seen in the primary care environment, reductions in stigma toward receiving behavioral health services and patients who have mental health concerns, and significantly positive, cost-effective outcomes for both the patients and the overall healthcare system (Collins, Heuson, Munger, & Wade, 2010; Ivbijaro & Funk, 2008). Because behavioral health providers in primary care settings treat patients, many treatment interfering behaviors are addressed, resulting in significant increases in treatment adherence, patient satisfaction, and reductions physical health service usage by patients (Drus et al., 2009; Kilbourne, 2011; Mertens, Flisher, Satre, & Weisner, 2008).

Despite the available literature pointing to the effectiveness of integrated team-based patient-centered care, the PCMH model remains in its infancy. Research examining the PCMH model described the system as both an innovative and comprehensive approach to care; however, much about how the systems work and operate still needs to be understood (Barr, 2008; Berenson, 2008; Hoff, 2010). Until recently, many existing PCMHs were still in their initial implementation stages, and, as such, they were not adequately equipped or organized to evaluate their effectiveness (Bitton, Martin, & Landon, 2010). In addition, as integrated healthcare teams began to emerge, many existing healthcare systems expressed resistance toward adopting the changes imposed upon them by the model (Baldwin Jr., 2007). This resistance may be due to professional and discipline territoriality because many of the healthcare providers who were used to working independently did not want to sacrifice their clinical time for interdisciplinary team meetings or to have diminished control over their patients' needs (Baldwin Jr., 2007). In response to this concern, interprofessional educational programs

were developed to educate providers on how to function in integrated healthcare systems, to reinforce the benefits of engaging with integrated team-based practices, and to develop the necessary communication skills needed in a multidisciplinary working environment, (Carpenter & Dickinson, 2014). However, despite the efforts made in interprofessional education initiatives and the evidence in the literature pointing to the benefits of integrated healthcare treatment approaches, there continues to be some resistance on the part of providers to adopt or support these treatment models.

In an attempt to better understand the factors that inhibit provider involvement in interdisciplinary team-based healthcare system, the present study aimed to examine provider attitudes, level of interest, and knowledge about integrated healthcare practices and the PCMH model. For the purposes of this study, it is assumed that the terms *integrated healthcare* and *Patient-Centered Medical Home* are synonymous with one another, and that when the PCMH model is discussed, it is being referred to and viewed as one of the premier examples of what integrated healthcare encompasses in practice. It is also assumed that when integrated healthcare practices and the PCMH model are discussed, it involves the integration of behavioral health services into the primary care environment, unless otherwise specified.

At the present time, there are limited data available that examines the reasons why a healthcare provider may or may not choose to participate in a PCMH or integrated healthcare system. More specifically, there is limited research that discusses provider attitudes toward integrated healthcare practices and the PCMH model. Similarly, there is limited research that explores the level interest and knowledge that providers have about integrated healthcare and the PCMH model. Despite this, historical evidence offered by

organizations that have adopted considerable changes to their infrastructure indicated that employees are a vital component for attaining successful implementation of any change to an established system (Jimmieson, Peach, & White, 2008; Kotter, 1995; Oreg, 2006; Wanberg & Banas, 2000). Taken further, a study examining the effect of system change on provider attitudes toward the changes themselves has indicated that poor change management leads to reductions in trust, job satisfaction, openness to the change, and contributes to higher levels of cynicism and turnover rates (Bordia, Restubog, Jimmieson, & Irmer, 2011). By exploring these areas of a provider's experience with the increasing adoption of integrated approaches to care across the country, it is anticipated that this study will provide greater insight into how the current healthcare system can eliminate the barriers that prevent providers from practicing as a part of an interdisciplinary team that treats patients from a whole person, patient-centered perspective. This was accomplished initially by examining how providers view and understand these approaches to treatment, and whether or not differing opinions about these factors exist between providers.

Purpose of the study.

The purpose of this study was to understand the current attitudes, level of interest, and knowledge held by physicians and psychologists toward integrated healthcare practices and the PCMH model. By providing insight into how present day physicians and psychologists view and understand this approach to care, any deficits that exist among providers would hopefully be identified. In so doing, future research and educational institutions could then focus their efforts on how to improve upon future providers' attitudes, interest and knowledge about this form of healthcare provision. This

study also examined the effect that number of years of experience has on a provider's attitudes, level of interest, and knowledge toward integrated healthcare practices and the PCMH model, as well as on the relationships between the constructs in order to observe if a deficit in one area of perception and understanding was associated another. By doing so, future efforts to improve upon how healthcare professionals are trained can take these interactions into consideration as they develop their educational models. The goal of this study was to expand upon the existing body of literature by illuminating how providers currently view and understand integrated models of care so that future work can help facilitate more provider involvement in healthcare systems that utilize integrated healthcare practices.

Literature Review

United States healthcare system.

When examining the condition of the United States healthcare system, it is almost unanimously believed that in order for a true reformation of healthcare services to occur, there needs to be a robust system of primary care at its foundation (Ginsburg, 2008). Over the past three decades, a substantial amount of evidence has been accumulating that reveals that the United States healthcare system, as it is currently structured, is unsustainable in light of the current cost of healthcare, the poor outcomes associated with this cost, the underutilization of healthcare professionals, the impending shortages in many healthcare professions, the lack of access to quality care, and the growing demand of consumers that want choice, convenience, affordability, quality, and personalized care (Kreitzer, Kligler, & Meeker, 2009). Throughout the developed world, other healthcare systems are based on a foundation of strong primary care services that deliver equal or

higher quality of care at an average of half the per capita costs of the United States healthcare system (American College of Physicians, 2008; Kreitzer, Kligler, & Meeker, 2009; U.S. House of Representatives Committee on Ways and Means, 1992). Meanwhile, the United States utilizes a specialist-dominated approach that uses, in excess, expensive procedures and services that have marginal health benefits for the patients (McGlynn, 2003).

In recognition of these concerns, many health administrations and organizations are beginning to adopt Complimentary or Alternative Medical (CAM) practices that aid in improving upon the existing healthcare framework. Many of these systems utilize and integrate a multitude of healthcare disciplines in their effort to alter the current approach to care delivery (Bahall, & Edwards, 2015; Romeyke, & Stummer, 2015; Stares, 2014). However, some concern has been raised regarding CAM approaches to care because there is little empirical support for their efficacy (Coulter & Willis, 2004). Because Western science and the scientific method are typically accepted as the primary foundations for healthcare, with evidenced-based practice being the predominant paradigm followed in the healthcare field, CAM approaches to care are not highly regarded by physicians (Coulter & Willis, 2004). Nonetheless, many patients are reported to utilize CAM services, and report experiencing benefits from the procedures they undergo. For example, one study examining the frequency with which patients use CAM treatments found that 42% of participants (N = 3027) in Australia reported using CAM services to help treat their health concerns (Bensoussan, 1999). It was also observed in the year 2000, that Australian patients spent an average of $2.3 billion dollars per year on alternative therapies, which is a 62% increase from 1993 (MacLennan,

Wilson, & Taylor, 1996/2002). Similar findings were also reported in the United States and Great Britain (Eisenberg, Davis, & Ettner, 1998; Murray & Shepherd, 1993). As a result of the growing body of literature that demonstrates the financial and patient satisfaction benefits that CAM approaches bring to a practice, more sites are beginning to integrate CAMs, and their multidisciplinary approach to care, into existing primary care environments (Coulter & Willis, 2004). Thereby, practices are beginning to take on the principles and spirit of fully integrated team-based patient-centered approaches to wellness.

Despite the prevalence of the term CAM being applied in the literature, the term *healthcare* may be more appropriate in describing the care being provided in a system that strives to integrate healthcare practices (Boon, 2004). This is done to illuminate the narrow focus that terms like CAM have on medicine, and shifts the focus toward a more highly integrative term that encompasses a wider range of healthcare disciplines. When reviewing available literature, there are many terms that describe the aggregation of CAM and conventional medical care, namely: integrative medicine, integrated medicine, integrated primary care, and integrated healthcare (Martin, White, Hodgson, Lamson, & Irons, 2014). In review of these terms, and their nuanced meaning, the term *integrated* implies that the effort on the part of providers has already occurred, and is therefore, complete. In an effort to acknowledge the ever evolving and growing state of integrating healthcare treatments and approaches, the term *integrative* is sometimes used to communicate the newly emerging nature of this healthcare delivery system (Boon, 2004). However, the term *integrative* is also applied when one practitioner is trained in how to apply both conventional and complementary modes of care in his or her practice

(Alschuler, 2015). In so doing, his or her practice could become an integrative practice because there is a centralized mode of healthcare delivery. The term *integrated* is applied when there is a combination of different practitioners in a single practice (Alschuler, 2015). Generally, the term *integrated* is rarely used when describing one individual, but rather describes the blending and collaboration between the members of a diverse group of healthcare providers. Therefore, for the purposes of this study, the term *integrated healthcare* will be used when describing all practices that utilize multiple healthcare disciplines to provide comprehensive patient-centered care.

Integrated healthcare delivery system.

Although numerous efforts to provide integrated forms of healthcare are developing across the country, there continues to be a lack of consistency both in definition and in conceptualization of integrated healthcare practices. This inconsistency provides a challenge to both healthcare organizations and accrediting bodies because it is difficult to assess when integrated healthcare delivery is actually occurring (Bell, Caspi, & Schwartz, 2002). By establishing a working definition that can be applied to existing and future systems of integrated healthcare, practitioners and scholars can begin to compare different models of care that are developing and evolving around the world.

An integrated team of colleagues at the University of Toronto reviewed the available literature discussing integrated healthcare practices in an attempt to develop a comprehensive working definition for the term, *integrated healthcare*. The result of their effort provided the following four-part definition:

> Integrated Healthcare 1) seeks, through a partnership of patient and practitioner, to treat the whole person, to assist the innate healing properties of each person,

> and to promote health and wellness as well as the prevention of disease (philosophy and/or values); 2) is an interdisciplinary, non-hierarchical blending of both conventional medicine and complementary and alternative healthcare that provides a seamless continuum of decision-making and patient-centered care and support (structure); 3) employs a collaborative team approach guided by consensus building, mutual respect, and a shared vision of healthcare that permits each practitioner and the patient to contribute their particular knowledge and skills within the context of a shared, synergistically charged plan of care (process); and 4) results in more effective and cost effective care by synergistically combining therapies and services in a manner that exceeds the collective effect of the individual practices (outcomes). (Boon, Verhoef, O'Hara, Findlay, & Majid, 2004, p. 55)

This definition is supplemented by the characteristics developed by The Bravewell Collaborative (2008), which added that integrated healthcare should 1) be patient-centered in nature with a focus on healing the whole person (i.e., mind, body, spirit), 2) strive to empower and educate patients to be active participants in their own healthcare and also take responsibility for their own health and wellness, 3) integrate the highest quality of Western medicine and incorporate a broader understanding of the illness, the healing process, and the patient's oval wellness, 4) utilize all appropriate evidenced-based practices to achieve optimal health outcomes and healing, 5) foster a partnership between the providers and their patients that supports individualized care, and 6) establish a culture of wellness.

Despite its basis in literature, these definitions present less as definitions of a delivery system of care, and more as a mission statement for how true, integrated healthcare practices should be delivered. Furthermore, these definitions represent a construction of an ideal type of integrated healthcare. It should be noted that ideal types of care do not necessarily depict any specific delivery system of healthcare, but rather serve as a theoretical construct that can be used to compare and differentiate between delivery systems of care that are consistent along relevant theoretical categories (Weber, 1949). It is from this perspective that this study examines this approach to wellness, accepting the versatility of the system, and relying upon a structured framework through which other approaches to care can be compared.

Levels of integration.

The way in which integrated healthcare teams are composed, organized, and function vary widely across institutions, specialties, and the services that are provided. In general, the healthcare team is viewed along a continuum of collaboration that involves three distinct team presentations: multidisciplinary, interdisciplinary, and transdisciplinary (Ellingson, 2003). Multidisciplinary teams are defined by Jones (1997, p. 11), as "a multimethod, channel type process of communication that can be verbal, written, two-way, or multiway involving healthcare providers, patients, and families in planning, problem solving, and coordination for common patient goals. Typically, members of a multidisciplinary team function largely independently, relying on formal channels to inform each other on assessments and treatments, but work toward common goals for the patient (Palmer, Martling, Cedermark, & Holm, 2011; Satin, 1994).

Further along the continuum lie interdisciplinary teams, which are composed of providers who work interdependently in the same setting, and interact through formal and informal channels in order to coordinate and integrate their services and assessments to a significant degree (Nancarrow et al., 2013; Wieland, Kramer, Waite, & Rubenstein, 1996). Some role shifting may occur within interdisciplinary teams, and it is common for them to evolve over time into transdisciplinary teams (Wieland, Kramer, Waite, & Rubenstein, 1996). Members of transdisciplinary teams develop mutual trust and confidence in their scopes of practice as a means to engage in learning and teaching across the boundaries of each healthcare discipline (Gordon et al., 2014; Wieland, Kramer, Waite, & Rubenstein, 1996). These teams utilize the cross-pollination of skills sets to work toward common patient goals, and provide comprehensive, patient-centered care (King et al., 2009). Although there are many systems in which these approaches to team-based care can be observed, the PCMH is perhaps the most prominent and well established example of an integrated healthcare system that utilizes team-based approaches to care.

It should be noted, however, that not all integrated healthcare teams include a behavioral health provider. Many teams discussed in the literature are composed of individuals who are trained to treat the physical health concerns associated with a given patient (e.g., physicians, physician assistants, nurses, pharmacists, dieticians). For the purposes of this study, teams that have behavioral health providers (e.g., psychologists, master's level therapists, social workers) incorporated into the integrated team structure were examined. Therefore, it should be assumed that for the purposes of this study, any mention of integrated healthcare practices offered in this review of available literature

does include behavioral health services in the team design being discussed, unless otherwise stated.

Patient-centered medical home model.

In an attempt to rebuild the United Stated primary care system, the PCMH model has become the policy shorthand that is used to reshape the future of healthcare, worldwide (Landon, Gill, Antonelli, & Rich, 2010). The PCMH is transforming primary care, shifting away from a focus on symptoms to that of the patient and his or her individualized needs. The Affordable Care Act defines the PCMH as a mode of care that involves personal primary care providers, who provide coordinated and integrated care with a whole person orientation (Affordable Care Act, 2010). This model of care utilizes evidenced informed practices, the appropriate use of health information technology, expanded access to care, continuous quality improvements, and a payment system that recognizes the added value of additional components found in patient-centered care. Other definitions describe the PCMH as a primary care site that utilizes a diverse team of healthcare providers that aim to personalize and integrate the care they provide to members of their community so they may improve the health of the patients, their families, and the community in which they live (Klein, Laugesen, & Liu, 2013; Peek, 2013; Pourat, Lavarreda, & Snyder, 2013; Stange, 2010). For the purposes of this study, it is assumed that the term *Patient-Centered Medical Home* is synonymous with the term *integrated healthcare* because the PCMH model is regarded as one of the premier examples of integrated team-based approaches to providing care.

History of the PCMH model.

In 1967, the American Academy of Pediatrics (AAP) introduced the term *medical home* to describe a single source of medical information (Sia, Tonniges, Osterhus, & Taba, 2004). Within a decade of its implementation, the concept of the medical home was AAP policy (American Academy of Pediatrics, 1977). As the concept grew, it gradually became a partnership approach to providing primary care to families in coordinated, family-centered, comprehensive, compassionate, continuous, and culturally effective ways. It was not until 2002 that the AAP added operational definitions for the medical home concept, containing 37 specific activities that should occur within this form of a healthcare delivery system (Medical Home Initiatives for Children With Special Needs Project Advisory Committee, 2002). These additions provided a guidepost for future institutions to refine and adapt the model into the integrated healthcare system that is seen today.

Prior to this addition made by the AAP, the World Health Organization (WHO) met at the International Conference on Primary Health Care (PHC) in 1978 to develop the basic tenets of the medical home, as well as the role that primary care would have in its provision (World Health Organization [WHO], 1978). The Alma Ata declaration that resulted from this conference states that primary care "is the key" to achieving "adequate health" (WHO, 1978, p. 428-430). The term *adequate health* is further defined as "a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity, is a fundamental human right, and that the attainment of the highest possible level of health is a most important world-wide social goal" (WHO, 1978, p. 428-430). The WHO also set the foundation for descriptive language used to depict the

present-day Patient-Centered Medical Home concept. Such themes include providing comprehensive healthcare for all individuals in the community, and giving priority to those who are most in need, promoting community and individual participation in the acquisition and progress of healthcare services, and evolving from the sociocultural and economic conditions observed in the country in order to apply relevant and current biopsychosocial health research to the treatment provided (Center for Policy Studies in Family Medicine and Primary Care, 2007). The term *patient-centered* was not officially coined until 1988 when the Picker/Commonwealth Program sought to illuminate how clinicians, staff, and health care systems had a tendency to focus on disease and not on the individual patients and their families (Gerteis, Edgman-Levitan, Daley, Delbanco, 1993).

The Institute of Medicine embraced the precepts laid down by the WHO, and influenced the specialty of family medicine to incorporate the term *medical home* into its literature in the 1900s (Institute of Medicine [U.S.] & Donaldson M. Primary Care, 1996). In 2002, an effort was made to renew and transform the discipline of family medicine so that it met the needs of patients in the evolving healthcare environment (Center, 2007). As a result of their efforts, the Future of Family Medicine Project was created, stating that all Americans should have a Personal Medical Home. This Personal Medical Home would serve as a hub for all individuals to receive acute, chronic, and preventive healthcare services, regardless of their age, sex, race, or socioeconomic status.

In 2003, the National Committee for Quality Assurance (NCQA) launched a PCMH precursor program called Physician Practice Connections (National Committee for Quality Assurance [NCQA], 2014). This program recognized and used systematic

processes and health IT to utilize and know patient history and to manage their patient populations by using evidenced-based care. In addition, the system followed-up with patients and providers to ensure continuity of care, and employed the use of electronic tools to avoid and prevent medical errors. It was not until 2007 that the leading primary care associations of the time developed and released the Joint Principles so that consistency of care could be established in all future PCMH sites (Waldren, Arora, Brown, Pan, & Carter, 2011). The Joint Principles emphasize team-based care, the whole person orientation, an ongoing relationship with a patient's personal physician, and the coordination and integration of care (American Academy of Family Physicians [AAFP], American Academy of Pediatrics [AAP], American College of Physicians [ACP], & American Osteopathic Association [AOA], 2007). The model also focuses on the safety of patients, the quality of care provided, and the enhanced access for patients to receive the care they need. Following the release of the Joint PCMH Principles, the NCQA launched the first program to recognize PCMHs in 2008 (Patient-Centered Primary Care Collaborative, 2014).

Since the initial launch of the first PCMH and the Joint Principles, the NCQA has updated their PCMH criteria twice, first in 2011, and then again in 2014. In 2011, the criteria explicitly incorporated the health information technology, Meaningful Use criteria, and added the ability for practices that participated in the Consumer Assessment of Healthcare Providers and Systems PCMH survey to be distinguished, at their own request, and to submit their data to the NCQA. In addition, the NCQA added examples and content for behavioral healthcare and pediatric practices as they pertain to parental decision-making, teen privacy, age-appropriate immunizations, and other pressing issues

(NCQA, 2014). In 2014, the NCQA made considerable progress toward incorporating behavioral healthcare standards within the PCMH criteria, and placed an increased emphasis on team-based care. The new criteria also focused on care management for super-utilizers in the community, and aligned with health information technology, Meaningful Use Stage 2. Presently, the NCQA's Patient-Centered Medical Home program is the largest of its kind, incorporating 6,800 sites and over 34,600 physicians; currently they represent10% of all primary care clinicians (National Committee for Quality Assurance, 2014).

The NCQA criteria also encouraged patients and families to be more highly involved in quality improvement activities that were more closely aligned with the Triple Aim. The Institute of Healthcare Improvement put forth a framework that described an approach to optimizing the performance of healthcare systems called the *Triple Aim* (Beasley, 2009). By focusing on three critical objectives simultaneously, healthcare systems can work toward enhancing the existing frameworks of care utilized in most primary care facilities. The three tenets of the Triple Aim are: 1) improving the patients' individual experiences of care, 2) improving the overall health of the patient population, and 3) reducing the per capita costs of health care (Berwick, Nolan, & Whittington, 2008; Institute of Healthcare Improvement, 2015).

Criteria and tenets of the PCMH model.

Among the many guidelines used to evaluate and improve primary care systems, the NCQA Patient-Centered Medical Home model is regarded as the premier healthcare reforming approach (Stange et al., 2010). In 2014, the NCQA released a series of documents that provide information to interested organizations that wish to be recognized

as a PCMH. Within these documents, the NCQA outlines 6 standards that align with the core components observed in primary care. The standards are as follows: Patient-Centered Access, Team-Based Care, Population Health Management, Care Management and Support, Care Coordination and Care Transitions, and Performance Measurement and Quality Improvement (NCQA, 2014). These six standards provide a foundation upon which all PCMHs exist, and offer guidance as they work to meet the six must-pass elements needed to be approved on the 3-point level system developed by NCQA.

The criteria set forth in the NCQA's Patient-Centered Medical Home guidelines state that in order for a site to be recognized as a PCMH, it must meet the six must-pass elements (NCQA, 2014). These elements are considered to be essential to the PCMH, and are thus required for sites at any recognition level. The six must-pass elements are as follows: Patient-Centered Appointment Access, The Practice Team, Use Data for Population Management, Care Planning and Self-Care Support, Referral Tracking and Follow-Up, Implement Continuous Quality Improvement.

Beyond the must-pass criteria, the NCQA developed a recognition level program that scores practices on a point system that rates them; rating is based on the degree to which their practice reflects the requirements set forth in the standards of the PCMH model. There are three levels, each containing its own point range and set of requirements. For a site to be considered a Level 1 PCMH, it must have scored within the range of 35-59 points and meet the six must-pass elements. For a site to be considered a Level 2 PCMH, it must have scored within the range of 60-84 points and meet the six must-pass elements. For a site to be considered a Level 3 PCMH, it must have scored within the range of 85-100 points and meet the six must-pass elements.

Impact of behavioral health inclusion in PCMHs.

It is widely agreed by the Patient-Centered Primary Care Collaborative, an organization that represents a diverse group of stakeholders who promote the PCMH model, that patients need the incorporation of behavioral health services into their primary care systems (Nielsen, 2014). Considerable research has been conducted that illuminates the importance and benefit of incorporating behavioral health into primary care. Some of the primary factors that have been identified include the interconnection between physical and mental health needs, increased access for patients to receive mental health services, reductions in stigma toward the field of psychology and towards patients who receive mental health services, and the cost-effective positive outcomes that result from treating physical and mental health concerns in a collaborative primary care setting (Collins, Heuson, Munger, & Wade, 2010; DiTomasso, Golden, & Morris, 2010; Ivbijaro & Funk, 2008). In addition, the improved access to behavioral health services in primary care settings has led to observed increases in medication and treatment adherence, and improvements both in cost of care and in health outcomes (Drus et al., 2009; Kilbourne, 2011; Mertens, Flisher, Satre, & Weisner, 2008; Rost, Pyne, Dickinson, & LoSasso, 2005).

Available research points to improvements in both patient and provider satisfaction as it pertains to their experience with their healthcare treatment approach when being treated in an integrated healthcare system. One study that examined primary care providers' who work in a university student health center, and their experience with integrated care and available mental health services, found that providers were better able to recognize their own diagnostic and treatment limitations for mental health concerns as

a result of their interprofessional collaboration with mental health providers (Pratt, DeBerard, Davis, & Wheeler, 2012). In addition, the participating providers' responses indicated that they sincerely valued the ability to collaborate with integrated mental health providers in their setting. Another study that examined patient and provider satisfaction with having integrated behavioral health services in a university health center found that both providers (N=15) and patients (N=79) reported significantly higher levels of satisfaction with the services provided at the site as compared to the control group (Funderburk, Fielder, DeMartini, & Flynn, 2012). In addition, the findings suggested that the integration of the services led to increased support for regular screenings for behavioral health concerns, and increased provider and patient access to mental health treatment.

In regard to clinical practice, notable improvements in remission rates and patient adherence to treatment recommendations have also been observed. In a study that aimed to utilize a multifaceted intervention approach to improve the treatment of depression in primary care settings found that patients (N=153) with current clinical depression experienced an improvement in remission rates from 42% to 71% (Katon et al., 1996). Other studies have observed significant improvements in patients' abilities to engage in self-managed skills for chronic conditions (Kahana, Drotar, & Frazier, 2008; Kalichman et al., 2011) and in higher levels of adherence and retention of treatment recommendations in patients who were treated in an integrated setting that had an embedded behavioral health provider in the clinic (Kahana, Drotar, & Frazier, 2008; Myers et al., 1991; Mynors-Wallace et al., 2000). This model also offers other benefits.

Financial and admission implications.

The PCMH model has been shown to produce significant improvements in cost outcomes for patients and for facilities utilizing an integrated delivery system. In a review analyzing the evidence taken from evaluation studies of sites that utilize PCMH interventions, the authors discuss how incorporating integrated healthcare delivery systems into primary care practices has led to significant decreases in costs for the patients and the facilities that serve them (Grumbach & Grundy, 2010). Additionally, the practices reported a reduction in the percentage of hospital visits observed in patients, post-integrated care intervention. Several integrated healthcare delivery systems that use different forms of financial sponsorship are reviewed in the following paragraphs, and the resulting impact observed on cost outcomes and hospital admissions for each payment reimbursement approach is discussed in detail.

Integrated delivery system using the PCMH model.

In an evaluation of the Group Health Cooperative of Puget Sound, a consumer owned integrated delivery system that is reported to serve 7,018 patients, a 16% reduction in hospital admissions ($p < .001$) and a 29% reduction in emergency department visits ($p < .001$) was found (Reid et al., 2010). The same facility saw a $14 reduction in inpatient hospital costs Per Member Per Month (PMPM), relative to controls. In addition, they saw a $4 reduction in emergency department costs PMPM, relative to controls. Overall, the site experienced a $10 reduction PMPM in total costs. At the Geisenger Health System Proven Health Navigator PCMH Model program, a large integrated delivery system serving 8,634 patients, an 18% reduction in total hospital

admissions, and a 7% decrease in total costs PMPM was observed in comparison with controls (Gilfillan et al., 2010).

Further evaluation of health organizations utilizing integrated healthcare delivery systems using the PCMH model illuminated the Veterans Health Administration and the VA Midwest Healthcare Network, Veterans Integrated Service Network 23, a site that is reported to treat over 350,000 enrollees. This system experienced a 39% reduction in emergency department visits, and a 24% reduction in total hospital admissions when compared with individuals who received a traditional form of care (Reid et al., 2009). The same site observed an 8% decrease in healthcare costs for their enrollees in a state where the average healthcare costs were significantly below the national average. The Intermountain Healthcare Medical Group Care Management Plus PCMH model, serving 1,144 patients, found at a 2-year follow-up that patients seen in their PCMH were significantly less likely to be hospitalized as compared with a control group, with only 31.8% patients being admitted at least once (Vijayaraghavan, & Hwang, 2010). In addition, the average reduction in total costs observed at this site was $640 per patient during every year that they were treated by this healthcare group, with high-risk patients saving an average of $1,650 per year.

Private payer sponsored PCMH initiatives.

Regarding private payor PCMH initiatives, the BlueCross Blueshield of North Carolina-Palmetto Primary Care Physicians group indicated that their PCMH patients (N = 809) experienced a 10.4% reduction in days spent in the inpatient hospital, which was 36.3% lower among patients seen in the PCMH versus those in the control group (N = 6,558) (Dorr, Wilcox, Brunker, Burdon, & Donnelly, 2008). In addition, this site had a

12.4% reduction in emergency department visits in PCMH patients, with a 32.2% reduction in emergency department visits in the PCMH patients, as compared with the control group. The total medical and pharmacy costs were reduced by 6.5% PMPM in the PCMH group, as compared with the control group.

The BlueCross BlueShield of North Dakota-Merit Care Health System found that patients seen in a PCMH experienced a 6% decrease in hospital admission, and a 24% decrease in emergency department visits from 2003 to 2005 (McCarthy, Nuzum, Mika, Wrenn, & Wakefield, 2008). The control group saw a 45% and 3% increase respectively over the same time period. Although the total expenditures per PCMH patient increased from $5,561 in 2003 to $7,433 in 2005, the control group experienced an increase from $5,868 to $10,108 over the same time period. Similar results were observed in the Metropolitan Health Networks-Humana in Florida, with a 4.6% decrease in hospital days in the PCMH group versus a 36% increase in the control group (Metropolitan Health Networks Incorporated, 2013). This site also saw hospital admissions drop by 3%, with re-admissions falling 6% below Medicare benchmarks. In regard to their expenses, the emergency room costs rose 4.5% for individuals in the PCMH group, with a 17.4% increase in those in the control group. The diagnostic imaging expenses increased by 9.8% in the PCMH group and increase by 10.7% in the control group. Additionally, the PCMH group saw a 6.5% increase in pharmacy expense, with a 14.5% increase in the control group. These metrics have also been examined in Medicaid programs.

Medicaid sponsored PCMH initiatives.

The Community Care of North Carolina healthcare system that serves over 970,000 patients in their PCMH program reported a total savings over a six-year period

(2003-2008) to be $974.5 million in patient expenses (Community Care of North Carolina, 2007). They also observed a 40% decrease in hospitalizations for patients treated for asthma, and a 16% reduction in overall emergency department visits. The Colorado Medicaid and State Children's Health Insurance Program that serves over 150,000 children reported the median annual costs for children seen in their PCMH was $785, with the control group costing $1000 (Colorado Department of Health Care Policy and Financing, 2009). The reduction in cost was shown to be the result of reductions in emergency room visits and in hospitalizations.

Quality outcomes.

The PCMH model has also been shown to have significant implications for quality of service outcomes for individuals who undergo treatment at facilities that utilize a primary care behavioral health integration approach to providing healthcare. The available research points to several areas that have been identified as having been positively affected by the utilization of the PCMH model, most notably of which are patient experience and satisfaction, patient activation and engagement levels in their treatment, prevention, disease management, and staff burn out (Dean, 2013; Grumbach & Grundy, 2010; Hoff, Weller, & DePuccio, 2012).

A systematic review of available literature conducted by Wen and Schulman (2014) examined the effect that team-based care has on patient satisfaction. An initial literature search yielded 319 citations, which was further paired down to 27 articles that met all inclusionary criteria. Although not every article that was utilized examined the effect of primary care behavioral health integration, many included therapists, social workers, or psychologists in their integrated team compositions. The responses provided

by a total of 15,526 participants across 26 trails were examined, and the findings suggested team-based care does have a positive effect on patient satisfaction, as compared with traditional care ($p < 0.05$) when pooling from dichotomous data. When the results were obtained from combined continuous data, the findings suggested team-based care was as effective as traditional care ($p < 0.05$). In summation, the findings from this study suggest team-based care is better than or equal to traditional care at improving patient satisfaction.

Another study conducted an exploratory analysis to determine the effect that the Shared Medical Appointment (SMA) model has on the patient-centered care experience and overall patient satisfaction across all domains of the PCMH model (Heyworth et al., 2014). An SMA is a form of integrated team-based care that can be categorized as a heterogeneous cluster of encounters that occur between groups of healthcare providers and patients (Sikon & Bronson, 2010). The SMA is further defined as a series of sequential individual office visits for a group of patients who present with a variety of biopsychosocial concerns (Noffsinger, 2009). These individual visits took place in a supportive group environment where all patients could learn, listen, and interact. Over the period from 2008 to 2010, 368 SMA patients and 286 usual care patients provided responses to a mailed questionnaire that measured patient satisfaction levels and other patient-centered care indicators. The results suggested that SMA patients rated their overall satisfaction as *very good* at a rate significantly higher than those individuals who received traditional forms of care ($p < 0.05$). In an analysis of PCMH elements, SMA patients rated their care as being more sensitive to their needs and more accessible. Taken together, it appears that SMA patients are more satisfied with their care as

compared with patients who receive a more traditional form of care. In addition, SMAs may have a profound impact on patients' access to care, and that the care provided to them is sensitive to their individualized needs (Sikon & Bronson, 2010). Although patients were said to experience increased access to their physicians and to education about their conditions, physicians were also shown to experience a similar increase in productivity and in access to their patients without increasing their hours of work (Bronson & Maxwell, 2004).

A study examined 164 clinics in the United States using the Patient Aligned Care Team (PACT) model, a variation of the PCMH model adopted by the Veteran's Health Administration; researchers found that in addition to improvements in patient satisfaction, quality of care provided, and health care service utilization, a significant reduction in staff burnout was noted for providers who worked as a part of a PACT team (Nelson et al., 2014). Similarly, the Group Health Cooperative PCMH pilot, which is a consumer owned system for integrated care delivery that served 7,018 patients at the time of the study, demonstrated marked improvements in provider burnout (Reid et al., 2010). Another study aimed to determine if the perception of PCMH characteristics in a given clinic setting was associated with improvements in staff morale, job satisfaction, and burnout. The study examined 773 providers and clinical staff members across 65 clinics in 5 different states, and found that providers who perceived that there were more PCMH characteristics in their clinics were more likely to experience improvements in job satisfaction, higher morale, and freedom from burnout (Lewis et al., 2012). The improvements in job satisfaction and reduction in burnout found in these studies were

associated with increased shared patient treatment responsibility, coordinated treatment efforts, and reductions in non-clinical provider responsibilities.

Barriers to implementing the PCMH model.

Available research points to findings that demonstrate the effectiveness of the PCMH model, and the profound impact it has on patient satisfaction, reduced inpatient hospital stays and emergency department visits, and an overall reduction in healthcare costs for the patient and for the provider. However, there continue to be barriers that prevent the PCMH model from being implemented on global scale. The following section identifies various barriers that healthcare systems face when attempting to adopt the PMCH model approach to care, and describes potential solutions to these barriers as they are outlined in the available literature.

Financial reimbursement methods.

One of the primary challenges that most healthcare systems face when beginning to switch to the medical home model to care is how they will manage their reimbursement method for providers who share the responsibilities and treatment of a single patient. (Korda & Eldridge, 2011). Economic theories indicate that as practices compete for patients, providing appropriate incentives through payment reform will result in the evolution of primary care practices over time toward medical home models of care (Landon, Gill, Antonelli, & Rich, 2010). However, there is considerable debate about which reimbursement system is best suited to encourage providers to embrace the medical home model.

There are two primary methods of reimbursement observed in the United States for primary care providers: fee-for-service and capitation payment systems. The fee-for-

service approach has been shown not to be an efficient method to reward comprehensive, coordinated and accountable care for the whole patient (Berenson & Rich, 2010). This is, in part, due to the increased need and effort required on the part of the provider to maintain the core principles of patient-centered integrated healthcare. Capitation, or fixed up-front payment, allows providers to receive a set fee for services that are provided to a patient. This method has been found to be problematic because the same cost is applied, regardless of the serviced provided. As a result, this method affords incentives for providers to stint on care (Berenson & Rich, 2010). In addition, capitation and other payment methods that bundle services present challenges for adjusting the level of payment for individual patients' illness burdens.

In an effort to mitigate the challenges faced in fee-for-service and capitation reimbursement methods, hybrid reimbursement models have been proposed. These models would incorporate the face-to-face encounter payment that is seen in fee-for-service reimbursement types and in a monthly payment system for medical home services (Berenson & Rich, 2010). Commonly, these models include incentive payments that are based on measures aimed to assess the quality of the patient care, the patient experience, and shared savings. Major primary care professional associations, such as the Patient-Centered Primary Care Collaborative, and the American College of Physicians, have endorsed hybrid payment models that incorporate these three components; these associations comprise the Triple Aim (American College of Physicians, 2010; Patient-Centered Primary Care Collaborative, 2010). In addition, the hybrid payment model has become the predominant reimbursement approach used in existing medical homes nationwide (Bitton, Martin, Landon, 2010).

Patient-centered nature of medical homes.

Another barrier faced in primary care transformation is achieving true *patient-centeredness* because it is not consistently addressed in most practice redesign demonstrations. This challenge may, in part, be due to a lack of general understanding of what being *patient-centered* means. The National Partnership for Woman and Families has made an effort to eliminate this problem by expanding the seven core Joint Principles of the PCMH model to include the necessity that the healthcare teams know their patients, and that the patient's life situation is fully understood and incorporated into the case conceptualization utilized by the treatment team (Patient-Centered Primary Care Collaborative, 2009). This includes taking the patient's family and caregiver circumstances, the home environment, the healthcare providers, healthcare system, the individual values and preferences for care, age, and culture into consideration (Epstein & Street, 2007; Epstein, Fiscella, Lesser, & Stange, 2010). By failing to acknowledge the patient-centered aspect of the medical home model, healthcare systems run the risk of creating a distance between the providers and patients, thus contributing to the reduction in patient satisfaction and treatment adherence observed in more traditional forms of care.

A true patient-centered system helps empower patients so that they can become active participants in the treatment they receive (Epstein & Street, 2007; Epstein & Street, 2011; Mead & Bower, 2000). The PCMH model emphasizes patient-centeredness, which places the patient at the center of the care provided by a multitude of healthcare professionals (Epstein, Fiscella, Lesser, Stange, 2010; Stewert, 2003). This approach differs greatly from the previous provider-dominated dialogues that used to occur. By enlisting the patient as a member of the healthcare team, providers are taught

to be more mindful, empathic, and informative toward their patients (Epstein & Street, 2011). In so doing, their role transforms from one characterized as an authority figure, to one that fosters partnership and collaboration in promoting wellness and healthy behavior change.

Role inflexibility among providers.

Successful implementation of the PCMH model can also be adversely impacted by issues related to role inflexibility among providers, territoriality, a lack of interprofessional trust, and difficulty coordinating team efforts (O'Malley, Gourevitch, Draper, Bond, & Tirodkar, 2014). The paradigm shift that accompanies team-based care transforms the practice of care from an *I* approach to a *We* approach; some providers find that it is difficult to begin sharing the care that is provided to their patients (Ghorob, & Bodenheimer, 2015). Some providers continue to ascribe to a model of care in which a single clinician assumes all of the responsibility for the patient, and delegates tasks for other team members to complete (Ghorob, & Bodenheimer, 2012). Sharing the care that is provided requires that all practitioners on a given case re-allocate wellness responsibilities in a way that allows all team members to contribute meaningfully to the care provided to their patient. This shift in culture and approach is not always easy, as demonstrated by the interdisciplinary teams observed in the Veterans Health Administration. Commonly, these teams fail to distribute the patient care responsibilities to non-physician members of the care team (Hysong, Weller, & DePuccio, 2014). In addition, team members who are more skilled are typically more reluctant to delegate to teammates who are lesser trained because they do not trust that they are skilled enough to complete the tasks at hand adequately (Solimeo, Ono, Lampman, Paez, & Stewart, 2015).

Structure of integrated teams.

The way in which an integrated team of healthcare providers functions is dependent upon that way in which it is structured. Poor team structure and coordination has been shown to lead to a poorer practice climate and reductions in job satisfaction among providers (Rodriguez, Meredith, Hamilton, Yano, & Rubenstein, 2014). Factors that include creating a safe environment at team meetings, and in-person team communications, appear to have a profound impact on the effectiveness of interdisciplinary teams (Salas & Frush, 2013). Available research suggests that effective communication and trust between providers is a primary pre-requisite for continuity of care observed between patients and clinicians (Rodriguez, Rogers, Marshall, & Safran, 2007). If the structure and functionality of an interdisciplinary team of healthcare providers is not clearly established, providers may not experience the benefits they may otherwise receive because the manner in which the team interacts and provides treatment may interfere with their experiences of positive outcomes.

Constructs of interest.

This study examined three primary constructs: attitudes, interest, and knowledge. Each of these constructs was examined as they relate to providers views on integrated healthcare practices and the PCMH model. These constructs were chosen because it is believed that they would provide the investigator with a comprehensive depiction of how healthcare professionals view and understand integrated approaches to care. Additionally, each construct may influence the others and may contribute to the current perceptions and experiences held by providers. At the present time there appears to be

limited research that discusses the nature of these constructs as they relate to providers and their perceptions of integrated healthcare practices and the PCMH model.

Attitude.

The term *attitude* can be operationally defined as a favorable or unfavorable evaluation of particular events, objects, people, or ideas (Eagly & Chaiken, 1998; Petty & Wegener, 1998). Limited research has been conducted that examines practicing healthcare professionals' attitudes toward integrated healthcare practices. However, there is some research that has been done on student perceptions of Inter-Professional Education (IPE). IPE is a method through which students/professionals from different healthcare disciplines can meet, interact, and learn together in order to improve the collaborative elements associated with interprofessional practice (Reeves et al., 2008). Traditionally, IPE may consist of blending scope of practice, learning skills and information associated with other healthcare disciplines, and enhancing skills in collaborative interviews and professional consultations (Carpenter & Dickinson, 2014).

A study that examined the curriculum of medical schools (N=35) to determine the extent to which IPE is being taught, included the attitudes that the deans of the schools have toward integrated team-based approaches to care; found that the deans support and have positive attitudes about IPE. The study found, however, that it is challenging to implement these practices into their school curriculum due to a variety of financial and time-based constraints (Lee, Celletti, Makino, Matsui, & Watanabe, 2012). Additionally, a study that also examined attitudes toward IPE and team-based approaches to care found that medical school faculty reported significantly more negative attitudes toward IPE than did nursing faculty ($p < 0.05$) (Curran, Sharpe, & Forristall, 2007). It should be noted,

however, that faculty members who had prior experience with IPE reported significantly higher mean scores in favor of IPE incorporation into the curriculum ($p < 0.05$).

Another study investigated the effect of IPE learning experiences on student attitudes toward IPE from students enrolled in either a clinical psychology, education, physical therapy, or social work program (N = 123) who had completed the Interdisciplinary Education Preparation Scale, the Readiness for Professional Learning Scale, and the Attitudes Toward Healthcare Teams Scales. The results indicated that following a six-hour well-structured IPE experience, significant increases in positive attitudes toward IPE were reported by students (Wellmon, Gilin, Knauss, & Linn 2012). Similar research that compared Physician Assistant (PA) students with counseling psychology, occupational therapy, and physical therapy students (N = 158) on their attitudes toward IPE found that PA students had significantly poorer scores than the students in the other disciplines on three of the four subscales on the RIPLS (Hertweck et al., 2012). These results suggest the PA students, for unclear reasons, may value IPE experiences less than other healthcare and human service disciplines. Nonetheless, the trend in available research examining attitudes toward IPE suggests that students and professionals who have prior exposure to interprofessional forms of care hold more favorable attitudes toward these practices.

Interest.

The definition of *interest* offered by Dewey (1913, p. 14) states that genuine interest is "the accompaniment of the identification, through action, of the self with some object or idea, because of the necessity of that object or idea for the maintenance of a self-initiated activity." Beyond the general definition of interest, there are two

distinctions that help expand upon the aforementioned definition: situational interest and individual/topic interest. Situational interest is elicited by the presence of a multitude of human-interest factors that contribute to the attractiveness of content, and by novelty or intensity of the content when it is presented (Krapp, Hidi, & Renninger, 1992; Krapp, 2002). Individual or topic interest refers to personal preferences for various topics, tasks, or contexts, and how these factors influence learning (Krapp, Hidi, & Renninger, 1992; Krapp, 2002). For example, undergraduate psychology students have generally held a long-term individual interest in psychology. Conversely, when a student focuses on a specific anecdote or salient demonstration shared by a professor, his or her interest was triggered by the situation. This distinction is noted because it is believed that both elements play a role in a provider's level of interest in integrated healthcare practices or the PCMH model. Research points to considerable evidence indicating that individuals have a tendency to learn more and work more intensely on tasks that are related to personal interests versus those tasks that hold no personal connection to the individual (Renninger, Hidi, & Krapp, 1992). More specifically, when a person is repeatedly exposed to experiences of situational interest, he or she is likely to develop individual interest in the subject (Dewey, 1913; Hidi & Renninger, 2006; Krapp, 2002; Mitchell, 1993). This gives reason to the notion that simply exposing the providers to the integrated healthcare practices may result in their developing more interest in this approach to care.

Knowledge.

The universal term *knowledge* can be subdivided into two different types of subject matter knowledge: topic knowledge and domain knowledge. *Topic knowledge*

refers to a person's prior familiarity with information content that is closely related to specific material that is covered in a particular context, whereas *domain knowledge* involves an individual's familiarity with general information about a specific topic area (Alexander, Kulikowich, & Schulze, 1993/1994; Alexander, Schallert, and Hare, 1991). Similar to interest, it is believed that both components of knowledge play a role in a provider's understanding of integrated healthcare practices and the PCMH model. Although there is limited research examining the amount of knowledge providers have toward the PCMH model, one study found that medical students (N = 359) have limited exposure to and knowledge of the model, with only 40.9% having ever heard of PCMHs, and even fewer knowing the core concepts and tenets of the PCMH model (Joo, Younge, Jones, Hove, Lin, & Burton, 2011).

Provider philosophies.

One the primary core tenets of the PCMH model is maintaining a whole-person orientation when approaching care (AAFP, AAP, ACP, & AOA, 2007). Therefore, it is imperative that all members of an integrated healthcare team recognize the biopsychosocial aspects of a patient's case presentation (Sminkey, 2015). When observing the differences in how healthcare professionals are trained, it appears that some professions may be more readily prone to embrace the principles of integrated healthcare models based on how they were taught to view and treat patients. In order to better understand how certain providers may respond to models of care like the PCMH, a review of provider philosophies is provided, as well as a brief discussion on how each philosophy aligns with the principles of the PCMH.

Doctors of Medicine.

Doctors of Medicine (MD) generally adhere to the allopathic philosophy of care, which holds a reductionist view on living things. Essentially, the allopathic physician believes that all living things can be explained in terms of their chemistry (Schmukler, 1996). The allopathic approach to care is primarily focused on the symptoms and signs of physical health concerns, and treats these manifestations of potentially chronic conditions through pharmacological or physical (i.e., surgery) methods (Shirazi, 2012). However, allopathic physicians (i.e., Doctors of Medicine) do not generally consider mental or emotional health concerns as a part of a patient's case conceptualization (American Association of Colleges of Osteopathic Medicine, 2015). Because mental and emotional concerns do not have a physical basis in the allopathic tradition, they may not typically be incorporated into the physician's understanding of the patient. Therefore, MDs may have a more difficult time embracing the tenets of integrated healthcare because psychological and social factors play a large role in understanding a patient from a whole person perspective.

Doctors of Osteopathy.

Doctors of Osteopathy (DO) adhere to the osteopathic philosophy which is described according to 4 basic tenets: 1) The person is a unit of mind, body, and spirit, 2) The body possess the capability to self-regulate, 3) The structure and function of the body are reciprocally interrelated, and 4) Rational treatment is based on an understanding of a unified body, the body's self-regulatory system, and the interrelationship of both structure and function (Special Committee on Osteopathic Principles and Osteopathic Technique, 1953; Ward, 1993). Taken beyond the core principles, osteopathic physicians

view the patient from the whole-person perspective, viewing the body in health as a connected oneness, in harmony as a unified interrelated whole (Paulus, 2013). Due to these factors, is it believed that DOs might be more likely to hold more interest, and more positive attitudes toward the PCMH model, as compared with allopathic physicians.

Psychologists.

Similar to osteopathic physicians, many psychologists, particularly clinical health psychologists, who are commonly located in the settings that utilize integrated approaches to care, adhere to the biopsychosocial model; they advocate a case conceptualization framework that utilizes a whole person perspective to comprehensively assess and treat patients (DiTomasso, Golden, & Morris, 2010; Hatala, 2012). The biopsychosocial model was first proposed in 1977 by an American psychiatrist named George Engel. This model was developed during a time when the practice of science was shifting from an exclusively analytic, reductionistic, and specialized nature, to a more contextualized and cross-disciplinary endeavor (Kiel & Elliot, 1996; Minuchin, Rosman, & Baker, 1978; von Bertanlaffy, 1975). The model offered a more holistic approach to healthcare than did the prevailing biomedical model that most industrialized societies had embraced since the mid-20th century (Engel, 1977). Engel acknowledged the advances that biomedical research offered to the medical profession; however, he criticized the narrow focus it maintained in guiding clinicians to regard patients as objects or a collection of symptoms (Borrell-Carrió, Suchman, & Epstein, 2004). His model resonated with clinicians who desired to bring empathy and compassion into the practice of healthcare, psychologists being one of the primary examples.

According the Engel, the biopsychosocial model is utilized to form a case conceptualization that acknowledges the dynamic interaction between pathophysiologic, psychological, and social variables (Engel, 1977). This model emphasizes the idea that the primary source of information is from the patient, and as such, the basis for good clinical practice lies at the person level as a part of the provider-patient relationship. When examining the tenets of the biopsychosocial model, there is a considerable amount of overlap with the osteopathic philosophy. Additionally, both approaches to viewing and understanding patients align with the core tenets of the PCMH model. Because of this connection it is believed that psychologists and DOs may generally have more interest in, and more positive attitudes toward integrated healthcare practices and the PCMH model, as compared to MDs.

However, despite the DO philosophy viewing patients as a blending of the mind, body and spirit, the basis of all physical health care follows a general biomedical framework. Therefore, it is believed that psychologists will hold more positive attitudes, and have a higher level of interest in integrated healthcare practices and the PCMH model than will physicians, in general. This is primarily due to the propensity for psychologists to take social factors into consideration when developing case conceptualizations and treatment plans. Psychologists are trained to utilize effective communication skills and rapport building techniques to help facilitate a strong and therapeutic alliance with their patients. This is done so that they may more effectively partner with their patient in their effort to make changes to their lives. Additionally, it is common for psychologists to consider the social and relational factors that contribute to how their patients and even to how they, themselves, function. In response to this, it is believed that psychologists will

be more likely to adopt and embrace the collaborative aspects of integrated models of care because they are more likely to consider how the methods by which patients are provided care influence how this care is received and then utilized.

Educational system.

As the healthcare system continues to evolve, and the methods by which future generations of providers are trained, and adjust to the changing healthcare climate, it has becoming increasingly more apparent that integrated models of care are more prevalent in academic environments (Laine & Davidoff, 1996). All across the country, academic institutions are integrating IPE initiatives into the curriculum of their existing healthcare service provider programs (Alinier, et al., 2014; Johnson & Freeman, 2014; Lee, Celletti, Makino, Matsui, & Watanabe, 2012). Interprofessional education has been defined as any form of education, training, teaching, or learning that involves two or more health and social care professions learning together in a simultaneous and interactive way (Reeves et al., 2008). The Cochrane Collaboration expanded on this definition by stating,

> an IPE intervention occurs when members of more than one health and/or social care profession learn interactively together, for the explicit purpose of improving interprofessional collaboration and/or the health/well-being of patients/clients. Interactive learning requires active learner participation and active exchange between learners from different professions. (Zwarenstein et al., 2000, p. 3).

Given the increasingly complex nature and delivery of healthcare, coupled with challenging patient factors that contribute to the need for a diverse array of healthcare disciplines to be involved in patient care, there are , understandably, reasons why strong interprofessional communication and collaboration could be helpful in coordinating

patient care in an effective manner. Interprofessional education is a method through which providers can learn how to communicate and collaborate on shared treatment goals, while learning more about the various healthcare disciplines with which they may interact in their professional capacity (Barnsteiner, Disch, Hall, Mayer, & Moore, 2007).

As the Joint Principles and NCQA Patient-Centered Medical Home criteria were developed within the past decade, the concepts and approaches to team-based care that these guidelines promote have only just begun to take shape in clinical and academic environments. Interprofessional education initiatives were developed in response to research emerging in the United States, suggesting that collaboration among healthcare providers leads to positive outcomes for patients, families, and providers (Bronstein, 2003; Knaus, Draper, Wagner, Zimmerman, 1986; Pape, Thiessen, Jakobsen, & Hansen, 2013). Over the past 25 years, many organizations have made a significant effort to support and advance IPE initiatives on a national and international level. Many of these organizations (e.g., The Pew Health Professions Commission, Collaborative Interdisciplinary Team Education, Achieving Competence Today, the Josiah Macy Jr. Foundation, Institute for Healthcare Improvement Health Professions Education Collaborative, and the Institute of Medicine) have worked to evaluate model educational experiences and implement IPE trainings throughout the world. As a result of these efforts, more schools and training opportunities across the globe are integrating IPE into their existing curricula.

These advancements will likely contribute to increased benefits for both patients and providers; however, the IPE movement remains to be in its infancy. It is therefore reasonable to suspect that providers who were trained in more recent years are more

likely to have been exposed to team-based collaborative models of care provision. Additionally, providers who were trained before IPE initiatives and integrated models of care were more prevalent may not share the level of understanding and perception that their younger colleagues hold. It is not uncommon for students to enter their healthcare provider programs with established stereotypes about their own professional identify, as well as perceptions and attitudes about other healthcare disciplines (Tunstall-Pedoe, Rink, & Hilton, 2003). What is perhaps most concerning involves the fact that the identities and perceptions that these learners adopt can be further shaped by the educators and mentors with whom they interact while progressing through their training (Gill & Ling, 1995; Parsell & Bligh, 1998; Waugaman, 1994). When a student is exposed to integrated models of care, or when a student is trained to be more independent in his/her practice, it is reasonable to expect them to be more resistant to adopting a form of healthcare provision that relies on team-based collaboration. These findings give support to the argument that providers who have attained their licenses more recently might hold most positive attitudes toward, more interest in, and knowledge about integrated healthcare practices and the PCMH model.

At the present time, there appears to be limited research examining the degree to which certain healthcare professions are taught about integrated models of care; however, based on the nature of the provider philosophies observed in this study, it is suspected that because psychologist and DO training typically incorporates many qualities that align closely with the PCMH model, these provider types may hold more knowledge about integrated models of care than do MDs. Taken further, because psychologist training includes considerably more time spent toward enhancing skills related to

interpersonal effectiveness, communication and rapport building, psychologists may hold more knowledge that aligns with the core tenets of the PCMH model than do physicians.

Summary.

The purpose of this study was to determine the current attitudes, level of interest, and knowledge held by physicians and psychologists toward integrated healthcare practices and the PCMH model. By understanding these factors, the investigator hoped to provide insight into how modern day physicians and psychologists view and understand integrated models of care. In so doing, this study aimed to illuminate any deficits that exist among providers, and determine a cause to pursue additional research into how providers can be better trained to value and enhance integrated models of care.

At the present time, there are a multitude of different healthcare professions that function in the PCMH and healthcare environments in general. Although each of these provider types has a role in providing effective and well-rounded care to patients, the investigator chose to focus only on the attitudes, levels of interest, and knowledge that *physicians* and *psychologists* have toward integrated healthcare practices and the PCMH model. This study focused only on these two provider types because physicians and psychologists represent the highest academic tier in their respective fields of physical health and behavioral health respectively. As such, it was decided that for this initial study, the investigator would begin by assessing these two types of providers before expanding the scope of this study to include the perspectives of other healthcare providers.

This study also examined the effect that the number of years of post-licensure experience has on a provider's attitudes, levels of interest, and knowledge toward

integrated healthcare practices and the PCMH. Additionally, it examined the relationships between the constructs to observe if a deficit in one area of perception and understanding impacts the others. Finally, the effect of experience versus no experience in integrated care settings was examined.

Chapter 2

Research Questions

What are the attitudes, level of interest, and knowledge that physicians and psychologists have toward integrated healthcare practices and the Patient-Centered Medical Home model?

Do psychologists have more positive attitudes toward, more interest in, and knowledge about integrated healthcare practices and the Patient-Centered Medical Home model than do physicians?

Do doctors of osteopathy have more positive attitudes toward, more interest in, and knowledge about integrated healthcare practices and the Patient-Centered Medical Home model than do doctors of medicine?

Do providers with fewer years of post-licensure experience have more positive attitudes toward, more interest in, and knowledge about integrated healthcare practices and the Patient-Centered Medical Home model?

Is there a positive correlation between a provider's attitudes, level of interest, and knowledge related to integrated healthcare practices and the Patient-Centered Medical Home model?

Do providers with experience in the integrated care model exhibit more positive attitudes toward, interest in, and knowledge about integrated healthcare practices and the PCMH model?

Hypotheses

Hypothesis 1.

H_1: Psychologists will demonstrate significantly more positive attitudes, and a higher level of interest in and knowledge about integrated healthcare practices and the PCMH model, as compared with physicians.

Hypothesis 2.

H_2: Doctors of osteopathy will demonstrate significantly more positive attitudes, and a higher level of interest and knowledge about integrated healthcare practices and the PCMH model, as compared with doctors of medicine.

Hypothesis 3.

H_3: Providers (i.e., Physicians and Psychologists) with fewer years of post-licensure clinical experience, with time frames of fewer than 1 to 10 years and more than 10 years, will report significantly more positive attitudes toward, more interest in, and knowledge about integrated healthcare practices and the PCMH model, as measured by the Attitudes, Interest, and Knowledge Scales that compose the questionnaire developed by the investigator. The years of experience time frame brackets were established, based on the release of the Joint Principles in 2007 and the implementation of the first PCMH model being close to 10 years ago (AAFP, AAP, ACP, & AOA, 2007; Patient-Centered Primary Care Collaborative, 2014).

Hypothesis 4.

H_4: There will be a positive correlation between the provider's attitude, level of interest in, and level of knowledge about integrated healthcare practices and the PCMH model.

Hypothesis 5.

H_5: Providers (i.e., Physicians and Psychologists) who have prior experience working in an integrated health environment as defined by Peek (2013) will report significantly more positive attitudes toward, more interest in, and knowledge about integrated healthcare practices and the PCMH model, as measured by the Attitudes, Interest, and Knowledge Scales that comprise???? the questionnaire developed by the investigator.

Chapter 3

Methodology

Design.

This study used a cross-sectional correlational and a between subjects survey design. The data were collected through an online survey format, which allowed for the standardization and control of information shared in the study, and provided a minimally intrusive method for collecting the desired information from practicing professionals

Recruitment of participants.

The participants were recruited through online ads dispersed from the investigator via online listservs for physicians and psychologists through various national, state, and local organizations, social media outlets, and professional connections. Primary recruitment resources used included emails through the American Psychological Association (APA) listservs, specifically Division 38 (Health Psychology) and Division 42 (Private Practice), the Philadelphia County Medical Society, several professional connections inside various healthcare systems located in Pennsylvania and Connecticut, the Philadelphia College of Osteopathic Medicine's PCOM Groups and Alumni Association email lists, and posting on Facebook and the American Osteopathic Association (AOA) social media page. The investigator attempted to recruit participants, using the American Medical Association, the AOA, and the APA Division 12 (Clinical Psychology) and Division 17 (Counseling Psychology) listservs, but these organizations were unable to distribute this study due to policy restrictions regarding the posting of research study recruitment ads.

Potential participants received a link to the online survey, as well as information describing the study and the qualification criteria required for an individual to be eligible for participation. Participation in this study was voluntary, but those who completed the survey had the choice to be entered into a raffle to win one of three available $100 Visa gift cards. The following recruitment message was posted to help in recruiting providers to participate in the study:

> Hello. My name is Mark Cassano and I am a 5th year student in the Doctor of Psychology in Clinical Psychology program at the Philadelphia College of Osteopathic Medicine. If you are a licensed practicing physician or psychologist, I invite you to participate in a study about your attitudes, interest and knowledge about integrated healthcare practices and the Patient-Centered Medical Home. Your participation will contribute to research that may help us to better understand team-based approaches to care. The information you provide will be reported in group form only, and therefore, no one will be able to identify you. Participation in this study is, then, anonymous and voluntary; you are free to exit the study at any time without consequence if you change your mind about participating. By answering questions, you may find out some things that you did not know previously, and it is possible that in some people it may cause very mild discomfort. Otherwise, there are no known risks to participating. The survey should take 15 minutes to complete. When you are finished, you will have the option to enter a confidential raffle, in appreciation for completing the survey. Three participants will win a $100.00 Visa Card. If you choose to enter the raffle by providing contact information, your contact information will remain

> confidential. Contact information will be stored separately from survey responses. This study has been approved by the Philadelphia College of Osteopathic Medicine's IRB (Protocol #H16-032X) under the supervision of Robert A. DiTomasso, PhD, ABPP, Professor and Chairman (robertd@pcom.edu), as Principal Investigator. To participate, please click the link provided here: https://www.surveymonkey.com/r/pcmh-aiks.

After a potential participant had clicked on the link, he or she was provided the following information again:

> As you know this study is about your attitudes, interest and knowledge about integrated healthcare practices and the Patient-Centered Medical Home. Your participation will contribute to research that may help us to better understand team-based approaches to care. The information you provide will be reported in group form only, and therefore, no one will be able to identify you. Participation in this study is, then, anonymous, voluntary, and you are free to exit the study at any time without consequence if you change your mind about participating. You are free to decide not to participate or to withdraw at any time. By answering questions you may find out some things that you did not know previously, and it is possible that in some people it may cause very mild discomfort. Otherwise, there are no known risks to participating. The survey should take 15 minutes to complete. When you are finished, you will have the option to enter a confidential raffle, in appreciation for completing the survey. Three participants will win a $100.00 Amazon Gift Card. If you choose to enter the raffle by providing contact

information, your contact information will remain confidential. Contact information will be stored separately from survey responses.

This study was anonymous and there was no way to connect the identity of a participant to his or her responses. As such, informed consent was not required. However, prospective subjects were provided the opportunity to decide whether or not to participate in the study after they had read the information included at the beginning of the questionnaire that described the study and participation eligibility. The prospective participants were informed that 1) this study was designed to understand their attitudes, interest and knowledge related to health-care delivery, and will contribute to understanding practitioners in medicine and psychology; 2) participation was anonymous and the results were to be reported in aggregate form; 3) participation was completely voluntary; 4) they may withdraw participation at any time without consequence; and 5) no major risks to participating were expected, although they may experience mild discomfort by completing questionnaires that may make them aware of their attitudes toward, level of interest in, and knowledge about the healthcare model being studied.

Inclusionary criteria.

In order to be eligible to participate in this study, providers must have been currently licensed as a psychologist, Doctor of Medicine, or Doctor of Osteopathy. In addition, providers must have been currently practicing in their professional capacity.

Exclusionary criteria.

The providers were disqualified from participating in this study if they were not currently licensed and were not practicing as a psychologist or as a physician.

Screening.

Prospective subjects were screened for eligibility by a pre-questionnaire that asked if the participant was currently licensed and working in his or her discipline. In addition, the email that was sent out to prospective subjects explicitly stated the qualification criteria.

The following demographic information was collected at the end of the questionnaire: gender, age, culture/ethnicity, degree, years of active clinical experience post-licensure, specialization, type of site at which the provider currently worked, how many years the provider had worked at that site, if the provider's graduate/medical school had provided information on integrated models of care and/or the PCMH model, and how many years of experience the provider had in working in an integrated healthcare setting. This information was used to compare groups of participants, but was not be used as qualifying criteria in determining potential participants. No identifying information was collected at any point in the questionnaire.

Measures.

The investigator created the measure that was used for this study. The measure was entitled the Patient-Centered Medical Home – Attitudes, Interest, and Knowledge Scale (PCMH-AIKS). The PCMH-AIKS contained multiple scales that assessed for a participant's attitudes, level of interest, and knowledge about integrated healthcare practices and the PCMH model. Standard psychometric procedures were used in designing this questionnaire. The PCMH-AIKS was placed on SurveyMonkey, and a link to the questionnaire was distributed to all interested participants. A copy of the questionnaire has been included in Appendix A.

Operational definitions of constructs.

The following operational definitions were developed and used for the purposes of developing the items included in the questionnaire. These definitions were developed, using information obtained from existing literature that described these constructs in detail. The construct of *attitudes* was defined as a favorable or unfavorable evaluation of integrated healthcare practices and the PCMH model, as measured by Likert scale ratings ranging from Strongly Disagree to Strongly Agree. The construct of *interest* was defined as the expressed interest of the participant in integrated healthcare practices and the PCMH model, as measured by Likert scale ratings ranging from Not At All to Extremely. The construct of *knowledge* was defined as the amount of information or understanding that a participant possesses about integrated healthcare practices and the PCMH model, as measured by the total score indicating the number of correct responses based on a True or False scale.

Procedure of developing the questionnaire.

It was important that the items used in the questionnaire accurately and adequately measured the constructs for which they were designed. To establish the content validity of these scales, the investigator used the established operational definitions of each construct to develop specific items for each domain. The principal and responsible investigators created an initial list of items based on the operational definitions created for each construct that included twice as many items than were ultimately needed. Items were drawn from the literature in this area, professional experience, theory, and/or the investigators' knowledge base. After this initial list of

potential items was developed, the list was given to an expert panel for independent review.

The panel consisted of doctoral level clinical psychologists (Barbara A. Golden, PsyD, ABPP, Scott Glassman, PsyD, and Anna Zacharcenko, PsyD), who are licensed, and who possess expertise and experience in integrated healthcare practices. First, the panel members were asked to review the operational definitions of the constructs carefully, to ensure that they understood the meanings of each definition. Second, the panel members were independently and blindly given a randomly ordered list containing all items on index cards, and asked to sort these items independently, based on the construct definitions, into one of three categories: attitudes, interest, and knowledge. Third, the panel was charged with assessing whether or not the items adequately represented the construct being measured. Fourth, the panel independently checked each item for grammar errors, understandability, and clarity. Finally, in completing this independent review process again, the panel was asked to decide whether or not each item should be rejected, revised, or accepted. The panel members were kept blind to the results yielded by their peer judges.

In order for an item to be retained, the criterion was set to 100% agreement by panel members that each item measured the construct in question, adequately represented a critical part of the content domain, and was grammatically correct, understandable and clear. Items for which there was 100% agreement were retained for the final version. Items for which there was 100% agreement on deletion were deleted. Items for which revisions were deemed necessary were revised and resubmitted for independent evaluation by the panel members. Only items on which 100% agreement was obtained

were retained. Items marked as needing to be revised were altered to better fit within the operational definition of the given construct. All revised items were re-submitted to the expert panel until which time that there was 100% agreement demonstrated. Once all items were accepted and returned, the investigators proceeded with compiling the finalized list into the questionnaire that was used in the study. Finally, a very brief pilot study was conducted with a small group of participants who were similar in nature to the potential study participants (n=5) to test the functionality of the questionnaire. These individuals were not used in the final sample, and were used only to identify problems, and to rectify these issues for the final version of the questionnaire.

Procedure.

Potential participants received an email stating the purpose of the study, the qualification criteria required to be eligible to participate, information regarding the format of the study, information on the chance to win a prize at the conclusion of the study, and a link to the questionnaire. If a participant met the inclusionary criteria, he or she was asked to agree to participate, and was then permitted to complete the questionnaire. Prior to filling out the online questionnaire, participants reviewed a document outlining the nature of the questionnaire. Each individual was informed that participation was voluntary, and that he or she was welcome to discontinue filling out the questionnaire at any point. Those who did not meet eligibility criteria were informed of such, and were sent to a page at the end of the questionnaire thanking them for offering to participate. Participants who completed the questionnaire were directed to another page where they could choose to submit their personal information for a chance to win one of three available prizes. This information was kept separate from the data acquired during

the completion of the questionnaire to ensure that anonymity was maintained. Once all data collection was complete, the data were scored and interpreted.

Chapter 4

Results

In this section, the results of the current investigation are presented. First, the demographic characteristics of the sample are described. Second, descriptive statistics for each of the major variables are reported. Third, the findings for each hypothesis tested are described. Finally, the results of an additional analysis are reported.

Demographic characteristics of the sample.

To investigate the attitudes, level of interest and knowledge that physicians and psychologists hold about integrated healthcare practices and the PCMH model, a sample of volunteer participants was collected using email listservs, social media websites, and professional connections throughout various healthcare systems in Pennsylvania and Connecticut. Phase 1 of the participant recruitment process occurred through social media (i.e., Facebook), email listservs for national and local organizations (i.e., APA, AOA, and the Philadelphia County Medical Society), and professional connections. This recruitment period lasted approximately two months. The second and final recruitment period utilized the Philadelphia College of Osteopathic Medicine's PCOM Groups and Alumni Association email listservs and lasted for approximately one month. A total of 175 participants completed the PCMH-AIKS. Results obtained from the survey items determining eligibility to participate in the study revealed that 175 participants (100%) were currently licensed to practice either as a physician or as a psychologist. Likewise, 175 participants (100%) reported that they were currently practicing as a physician or as a psychologist.

An analysis of demographic information for all individuals who completed the PCMH-AIKS was conducted and is shown in Table B1. If an individual withdrew from the study before completing all sections of the questionnaire, his or her information was not collected or included in the final results obtained from SurveyMonkey. When there was evidence of missing data or failure to meet the inclusion criteria, participants were omitted from the data analyses. Of the 175 participants who completed the entire questionnaire, the majority of the participants were female, with approximately a 2:1 ratio of female to males. With regard to age, the majority of the participants fell into the older than 50 years category. The remainder of the participants was close to being evenly distributed across the remaining two categories. The sample also represented a diverse group of participants with the overwhelming majority being Caucasian. Of the remaining groups, except for European Americans who composed about 10% of the sample, the percentage of participants who reported being African, African-American, Asian, Asian-American, European, Hispanic, Hispanic-American, and Native-American were similar and ranged between 0.6% and 2.3%. About 4.6% of the participants identified themselves as being from cultures and ethnicities not listed on the questionnaire.

An examination of the separation between provider types revealed that 88 respondents endorsed being physicians (50.3%), and 87 respondents endorsed being psychologists (49.7%); a relatively even dichotomy. With regard to the type of degree respondents held, the sample as a whole contained only 3 participants reporting to be MDs (1.7%) and 85 reported being DOs (48.6%). The percentage of providers who reported being Doctors of Psychology (PsyD) (27.4%), and who reported being Doctors of Philosophy in Psychology (PhD) (22.3%), was fairly evenly distributed. Participants

reported practicing in a variety of sub-specialties, but for the purposes of this study, they were broken down into two categories; 60 reported practicing in Primary Care (34.3%) and 115 practiced within a variety of other sub-specialties (65.7%). With regard to years of post-licensure experience, the percentage of the sample who reported having fewer than 1 to 10 years of experience (43.4%) was less than those who reported having 10 or more years of experience (56.6%).

In response to the question asking if participants' graduate/medical school training provided information on integrated models of care, or the PCMH model, the opposite occurred. About one-third (33.1%) endorsed having learned about these models of care during their training, but 66.9% indicated not being exposed to these models during their training. In response to the question asking how many years of experience each participant had working in an integrated healthcare environment, as operationally defined by Peek (2013), almost two-thirds (63.4%) of the participants reported having previous experience working in an integrated healthcare environment. Only slightly less than one-third (27.4%) of individuals reported no prior experience working in this type of setting. An overview of these data along with the data describing whether or not the participants were currently licensed and practicing in their respective fields is in outlined in Tables B2 and B3.

In summary, a review of the demographic data revealed that the sample contained a diverse set of participants from different cultures and ethnicities, but respondents predominantly identified as being Caucasian, with European-American being the second largest culture/ethnic group. Additionally, there were more female participants than there were males, and more DO providers than MD providers. Participation in this study was

voluntary and all participant information was kept anonymous. The only identifying information gathered through the questionnaire was the previously described demographic data. These data were not tied to any participant identifying information.

Descriptive statistics.

Participants responded to each item on the PCMH-AIKS on three different types of rating scales. The Attitudes and Interest Scales used a six-point Likert-type scale. For the Attitudes Scale, the Likert-type scale rating points included Strongly Disagree, Moderately Disagree, Mildly Disagree, Mildly Agree, Moderately Agree, and Strongly Agree. For the Interest Scale, the Likert-type scale rating points included Not At All, Slightly, Somewhat, Moderately, Very Much, and Extremely. For the Knowledge Scale, participants answered if they believed the item in question to be True or False. To examine the distribution of responses across the rating scale levels, frequency distributions for each item on each of the scales were conducted and visually inspected. These voluminous data are not reported here; however, the frequency distributions revealed variability across the rating points for all individual items within each scale. Although the proportion of participants who selected a rating (e.g., Strongly Disagree versus Strongly Agree) varied, each of the rating scale points was endorsed by different proportions of individuals.

Descriptive statistics including means and standard deviations for each of the Attitude Scale items and the Interest Scale items are reported in Tables B4 and B5. The descriptive statistics and proportion of respondents correctly answering each of the items on the Knowledge Scale are shown in Tables B6 and B7. Cronbach's Alpha for the Attitude, Interest and Knowledge Scales equaled .953, .978, and .839, respectively; all of

these are highly acceptable values in demonstrating the internal consistency of the PCMH-AIKS questionnaire.

Hypothesis 1.

The first hypothesis predicted that psychologists would display more positive attitudes, a higher level of interest in, and knowledge about integrated healthcare practices and the PCMH model than would physicians. To create an overall group of physicians and psychologists, the MD and DO participants were collapsed into one group, as were the PhD and PsyD participants. A one-way MANOVA using two levels of the independent variable of discipline (physicians versus psychologists) with three dependent variables (attitudes, interest, and knowledge) was conducted. In Table B8, the means and standard deviations of the physicians and psychologists for each of the dependent variables are displayed.

The assumption that the three dependent variables be significantly correlated was supported with a positive relationship between the Attitude and Interest Scales ($r(175)= .84$, $p= .001$), the Attitudes and Knowledge Scales ($r(175)= .68$, $p= .001$), and the Interest and Knowledge Scales ($r(175)= .61$, $p= .001$). The Box's Test of Equality of Covariance Matrices was equal to 21.73 and significant at the .002 level. This tests the null hypothesis that the covariance matrices of the dependent measures are equivalent across groups. According to Field (2013), if the matrices are found to be approximately the same, this test should be non-significant. In the present case, the Box's Test was significant but the groups being compared are extremely close to being equal (88 versus 87). Field (2013) notes that if the size of the samples is found to be equal, the Box's Test can be disregarded because the results can be viewed as unstable, and further, it can be

assumed that Hotelling's and Pillai's statistics are robust. However, there was a significant Levene's Test violation of the assumption of the equality of error variances across groups on the Attitude ($F(1, 173)= 7.573$, $p= .007$) and Knowledge Scales ($F(1,173)= 9.678$, $p= .002$). Results on these measures should therefore be interpreted with caution. There was no significant Levene's test on the Interest Scale ($F(1,173) = 2.385$, $p= .124$). The observations in this analysis were independent as required. The dependent variables were relatively normally distributed although MANOVA is robust to such violations.

The MANOVA results revealed a significant Hotelling's Trace = 42.929 ($F(3, 171)= 2446.92$, $p= .001$) and Pilai's Trace = .977 ($F(3, 171)= 2446.92$, $p= .001$), demonstrating that there is an overall significant difference between the groups on the dependent variables. To determine where the significant differences were evident, three ANOVA's were performed to compare physicians and psychologists on the three dependent measures. These findings revealed that in all three instances, psychologists and physicians differed significantly on Attitudes ($F (1, 173)= 45.603$, $p=.001$), Interest ($F (1,173)= 34.77$, $p= .001$) and Knowledge ($F (1,173)= 7.87$, $p= .006$). In each instance, the psychologists had significantly more positive attitudes, more interest, and possessed significantly higher knowledge.

Although the findings revealed significant differences between physicians and psychologists on the Attitudes, Interest and Knowledge Scales, there was a violation of the assumption of homogeneity of variance across these groups on these dependent variables. To test the effect of these violations on the findings, a comparison of group means was planned. However, given the significant Levene's Tests, equal variances

could not be assumed and the Welch-Satterthwaite T-Test, a special form of the t test, was conducted. With unequal variances across groups on a dependent measure, the variances could not justifiably be pooled, so an adjustment was made to the formula for the t test as well as the calculation of degrees of freedom through application of the Welch-Satterthwaite Test. This adjusted analysis revealed that the original findings were upheld because there was still a significant difference between these groups using the Welch-Satterthwaite formula, and even when a Bonferroni Correction was performed. These findings support the findings as originally reported.

Hypothesis 2.

The second hypothesis predicted that DO physicians would demonstrate significantly more positive attitudes and a significantly higher level of interest and knowledge about integrated healthcare practices and the PCMH model than would MD physicians. However, due to the fact that the proportion of DOs was markedly greater than MDs in the sample, this hypothesis could not be tested.

Hypothesis 3.

The third hypothesis predicted that those participants with fewer years of experience would have more positive attitudes, interest and knowledge, compared with those with more experience. For this analysis, a 2x2 MANOVA was conducted with two levels of each of the independent variables including discipline (physicians versus psychologists) and years of post-licensure experience (fewer than 1 to 10 years versus 10 or more years). The means and standard deviations for physicians versus psychologists for those with more or less than 10 years of experience are reported in Tables B9, B10 and B11.

As noted previously, the assumption that the three dependent variables be significantly correlated was supported with a positive relationship between the Attitude and Interest Scales ($r(175)= .84$, $p= .001$), the Attitudes and Knowledge Scales ($r(175)= .68$, $p= .001$), and the Interest and Knowledge Scales ($r(175) = .61$, $p= .001$). The Box's M Test of Equality of Covariance Matrices was equal to 54.004 and significant at the .001 level. This tests the null hypothesis that the covariance matrices of the dependent measures are equivalent across groups. According to Field (2013), if the matrices are found to be approximately the same, one would expect that this test should be non-significant. In the present case, the Box's Test was significant and the groups being compared are unequal (76 versus 99). Field (2013) notes that if the size of the samples are found to be equal, the Box's Test can be disregarded because the results can be viewed as unstable, and, further, it can be assumed that Hotelling's and Pillai's statistics are robust. However, in the present context one should beware in that the covariance matrices of the dependent variables are not equivalent. This was also supported by three significant Levene's Test violations of the assumption of the equality of error variances across groups on the Attitude ($F(3, 171)= 2.661$, $p= .05$, Interest ($F(3,171)= 2.962$, $p= .034$) and Knowledge Scales ($F(3,171)= 9.650$, $p= .001$). The findings for this analysis should therefore be interpreted with great caution. In terms of other assumptions, the observations in this analysis were independent as required. The dependent variables were relatively normally distributed although MANOVA is robust to such violations.

The MANOVA results revealed a significant Hotelling's Trace = .276 ($F(3, 169)= 15.563$, $p= .001$) and Pillai's trace = .216 ($F(3, 169)= 2446.92$, $p= .001$) demonstrating that there is an overall significant difference between the groups on the dependent

variables between the disciplines. There was, however, no significant multivariate effect for years of experience. The obtained significant multivariate effect for the interaction, however, between years of experience and discipline would prevent one from interpreting the observed difference between psychologists and physicians. The interaction reveals that such differences between these groups would depend on years of experience. To determine where the significant differences were evident, an ANOVA was performed on the three dependent measures. The original significant multivariate interaction effect justified a test of between subjects effects, using F to determine where an interaction may have occurred on the dependent variables. This analysis revealed that the interaction approached significance on the Attitude Scale ($F(1, 171) = 3.587$, $p = .06$) but on Interest ($F(1, 171) = .004$, $p = .95$) and Knowledge ($F(1, 171) = 2.464$, $p = .118$) there was no observed significance. Based on this 2x2 MANOVA, the original differences between disciplines were upheld, but no significant other effects were obtained. Because there were no observed significant differences between those with less versus more experience on these measures, the most conservative solution (to support the null hypothesis) was chosen and no further testing (Welch-Satterthwaite) was conducted to examine the impact of unequal variances on the outcome.

Hypothesis 4.

This fourth hypothesis predicted that there would be positive significant correlations between attitudes, interest and knowledge about integrated healthcare practices and the PCMH model. As shown in Table B12, this hypothesis was supported. For this analysis, a Pearson's Correlation was used and identified a significant correlation between attitudes and interest ($r(175) = .84$, $p = .001$) with 70.56% of the variability in

interest in integrated healthcare practices and the PCMH model being attributable to differences in attitudes. The significant positive correlation between attitude and knowledge (r (175)= .68, p= .001) supports that 46.10 % of the variability in knowledge of integrated healthcare practices and the PCMH model was attributable to differences in attitude. Finally, the observed significant correlation between interest and knowledge (r(175)= .61, p= .001) demonstrates that 37.21% of the variability in knowledge of integrated healthcare practices and the PCMH model is associated with differences in interest.

Hypothesis 5.

The original design of this study required only participants who had never had experience working in an integrated care setting. The investigator believed that providers with experience in such settings would have more positive attitudes, more interest, and more knowledge about integrated healthcare practices and the PCMH model. As a result of this original exclusionary criterion, (that is, including only those who had experience practicing in an integrated healthcare setting), a large number of individuals attempted to gain entry into the study, and as a result, a significant number of participants who had experience in such settings were excluded. In response to this, the recruitment criteria were amended and approved by the IRB to include those who had experience practicing in such settings. This change allowed for a comparison of the two groups. The investigator then added an additional hypothesis predicting that providers who have had experience in an integrated site would have more positive attitudes and a higher level of interest and knowledge than those without such experience.

This final analysis was a one-way MANOVA using experience in integrated healthcare environments (yes versus no) as the independent variable and the three previously identified dependent variables (attitudes, interest and knowledge). In B13, B14, and B15, the means and standard deviations of the levels of the independent variable for each of the dependent variables are displayed. The assumption that the three dependent variables be significantly correlated was supported with a positive relationship between the Attitude and Interest Scales ($r(175)= .84$, $p= .001$), the Attitudes and Knowledge Scales ($r(175)= .68$, $p= .001$), and the Interest and Knowledge Scales ($r(175)= .61$, $p= .001$). The Box's M Test of Equality of Covariance Matrices was equal to 18.944 and significant at the .005 level. Box's M tests the null hypothesis that the covariance matrices of the dependent measures are equivalent across groups. According to Field (2013), if the matrices are found to be approximately the equivalent, Box's M should be non-significant. In the present case, the Box's Test was significant but the groups being compared are unequal (111 versus 64). Field (2013) notes that if the size of the samples is found to be equal, the Box's Test can be disregarded because the results can be viewed as unstable and, further, it can be assumed that Hotelling's and Pillai's statistics are robust (Field, 2013). Unfortunately, this was not the case for this analysis.

The Levene's Test is a measure of the homogeneity of the variances across the groups on the dependent variables. There were significant Levene's Tests supporting a violation of violation of the assumption of the equality of error variances across groups on the Attitude ($F(1, 173)= 4.465$, $p= .036$) Interest ($F(1,173)= 9.909$, $p= .002$) and Knowledge Scales ($F(1,173)= 10.493$, $p= .001$). Results of the MANOVA should therefore be interpreted with caution. The observations in this analysis were independent

as required. The dependent variables were relatively normally distributed although MANOVA is robust to such violations.

The MANOVA results revealed a significant Hotelling's Trace = .205 ($F(3, 171)= 11.678$, $p = .001$) and Pillai's trace = .17 ($F(3, 171)= 11.678$, $p= .001$) demonstrating that there is an overall significant difference between the groups on the dependent variables. To determine where the significant differences were, three ANOVA's were performed to compare the two groups on the three dependent measures. These findings revealed that in all three instances, those with experience in integrated settings versus those without experience in integrated settings differed significantly on attitudes ($F (1, 173)= 17.297$, $p= .001$), interest ($F (1,173)= 34.092$, $p= .001$) and knowledge ($F (1,173)= 8.440$, $p= .004$). In each instance, those with experience in such settings had significantly more positive attitudes, more interest, and possessed a significantly higher level of knowledge about integrated healthcare practices and the PCMH model.

As noted previously, the final analysis was a one-way MANOVA using experience in integrated healthcare environments (yes versus no) as the independent variable and the three previously identified dependent variables (attitudes, interest and knowledge). There were significant Levene's Tests supporting a violation of violation of the assumption of the equality of error variances across groups on the Attitude ($F(1, 173)= 4.465$, $p= .036$), Interest ($F(1,173)= 9.909$, $p= .002$), and Knowledge Scales ($F(1,173)= 10.493$, $p= .001$). To test the effect of these violations on the findings, a comparison of group means was planned. However, based on the significant Levene's Tests' equal variances could not be assumed; therefore, the Welch-Satterthwaite T-Test, a special form of the t test, was conducted.

With unequal variances across groups on a dependent measure, the variances could not justifiably be pooled, so an adjustment was made to the formula for the t test as well as the calculation of degrees of freedom. This adjusted analysis revealed that the significant differences between those with experience versus those without experience in integrated healthcare environments was maintained, with experienced individuals having significantly more positive attitudes, more interest in, and more knowledge about integrated models of care, even with a Bonferroni Correction. The original findings were supported, thereby indicating that the unequal variances on the dependent measures between the comparison groups did not impact the findings.

Chapter 5

Discussion

In this chapter, the significance and implications of the findings are discussed. First, the demographic characteristics of the sample are addressed. Second, the outcomes from the hypothesis testing are reviewed in light of the literature in this area. Finally, the implications, limitations and recommendations for future studies are considered.

Demographic characteristics.

In interpreting the findings of this investigation, it is important to understand the demographic characteristics of the sample. The sample in this study comprised a diverse group of participants emanating from different cultures and ethnic backgrounds. However, the respondents were largely Caucasian, with a markedly lower proportion of participants being from non-Caucasian ethnicities. The unequal distribution of participants from different ethnic and cultural backgrounds could potentially be due to a number of different factors. One possible factor is that these outcomes are a reflection of the current degree of ethnic differences in the field. Recent United States census data illustrated that 83.6% of licensed and practicing psychologists were reported to be Caucasian (U.S. Census Bureau, 2013), whereas approximately 71.7% of physicians were reported to be Caucasian (U.S. Census Bureau, 2015). It is important to note that this study is based on a sample of participants who volunteered to participate, and no stratification of the sample characteristics was done. Additionally, the 2:1 ratio of female to male participants suggests that females may have possibly been overrepresented in the sample. This ratio is inconsistent with current state of the field for physicians because a 2014 census in the United States reported approximately 30.2% of actively licensed

physicians identified as being female (Young et al., 2015). The data from census were obtained from the Federation of State Medical Boards and encompassed provider information from both the state medical and osteopathic boards. However, a review of actively licensed psychologists in the United States taken from the U.S. Census Bureau reported that in 2013, over two-thirds (68.3%) of psychologists identified as being female (U.S. Census Bureau, 2013). This rating is consistent with the sample obtained in this study, but it should be noted that psychologists represented approximately half of the total sample, so these numbers do not align completely with the census data describing the sex of providers who are practicing in the United States.

The fact that participation was voluntary may suggest that people who had more interest in the topic of this study volunteered to participate. Although participation was voluntary, prospective participants were aware that this was a study about integrated healthcare. This could explain the reason why more providers who had prior experience working in integrated healthcare settings chose to participate in this study. Nonetheless, the fact that participant anonymity was guaranteed may have resulted in people honestly expressing their opinions, positive or negative, even if they currently work or have worked in a setting that utilized an integrated model of care.

Outcomes from questionnaire scales.

In this study, because there were no existing available measures, three measures were specifically created. The investigator followed a comprehensive, carefully conducted psychometric process to develop the items and the questionnaire. The items contained within each domain of the questionnaire were created by the principal and responsible investigators. These items were drawn from the literature in this area, as well

as from professional experience, theory, and the investigators' bases of knowledge. A panel of doctoral level licensed clinical psychologists who possessed experience and expertise regarding integrated models of care reviewed the list of items developed by the investigators. Following a thorough review, a final selection of the initial group of potential items was retained and formed into the three scales contained within the PCMH-AIKS; Attitudes Scale, Interest Scale, and Knowledge Scale.

Reliability analysis of the questionnaire supported the fact that each of these scales appeared to be measuring a homogeneous construct, specifically, attitudes, interest, and knowledge. This was supported by the high to very high Cronbach's Alpha, .953, .978, and .839 respectively. These values support the homogeneity of the content domains within each scale, the internal consistency of the items within each scale, and the justifiability of using a single score to measure the constructs of attitudes, interest, and knowledge.

Physicians versus psychologists.

Of the many different types of healthcare providers that can practice in an integrated healthcare environment, the investigator chose to focus this study on examining physician and psychologists. These two provider types represent the highest educational and training level of their respective fields (i.e., physical health and mental health). These two fields were chosen because, together, they can address patient concerns spanning the biological, psychological and social domains of holistic healthcare. As such, it was expected that understanding these two provider types would provide insight into the differences between the physical health and mental health domains that these two types of healthcare professionals represent. Prior to the present investigation, it

was unclear about the degree to which physicians and psychologists view and understand the nature of integrated healthcare practices or the PCMH model, and furthermore, how the theoretical basis of their training may impact their scores on the questionnaire developed for this study.

Because psychologists are trained in treating patients from a biopsychosocial perspective, it is expected that they would hold more positive attitudes toward, and more interest in integrated healthcare practices and the PCMH model. The biopsychosocial model emphasizes the treatment of patients from a whole person perspective (Hatala, 2012), whereas the biomedical model, which forms the basis of traditional physical health care, places a higher emphasis on physical processes and supports mind-body dualism (Engel, 1989). Explained differently, the biopsychosocial model takes into account how all aspects of a patient's life may be interacting to impact their health; the biomedical model, however, focuses on the biological variables associated with health, and disregards the role that psychosocial factors may play in the expression of conditions and disease states. Although not all psychologists ascribe to, or are trained in, the biopsychosocial model, building rapport and applying effective communication skills is a basic skill that all mental health providers are trained to utilize in their clinical practice. It was believed that these skills, paired with the emphasis on approaching care from a neutral and unbiased perspective, would lead psychologists to align more closely with the basic tenets of the PCMH model than would physicians.

Attitudes.

In this study, psychologists were found to have more positive attitudes toward integrated healthcare practices and the PCMH model than did physicians. This may be. in part, due to the type of education these two healthcare professionals received during their graduate training. Because psychologists are commonly trained to be more patient-centered by nature, they may be more likely to resonate with the basic tenets of the PCMH model, as well as other forms of integrated practice (Nash, Khatri, Cubic, & Baird, 2013; Robinson & Reiter, 2007). Additionally, as the field of psychology continues to face challenges with stigma for patients and for providers, it is possible that psychologists are more readily willing to participate as a part of a team that may help to reduce such stigma. Current literature has demonstrated that one of the primary benefits of incorporating behavioral health providers into a collaborative team-based care environment is reduced stigma toward mental health providers, towards patients who have mental health concerns, and towards receiving mental health treatment (Collins, Heuson, Munger, & Wade, 2010; Ivbijaro & Funk, 2008). However, it should be noted that the difference in means observed between physicians (M = 4.5585) and psychologists (M = 5.3471) on this scale, although significant, was notably small. This difference in means may be attributed to differences in how these two providers are trained, but considering that approximately 97% of the physician sample was composed of DO providers, the degree of separation between these means may have been different were MD provider to be adequately represented in the sample. Regardless, the findings demonstrated that the participants of this study, on average, reported having more favorable attitudes toward integrated models of care.

Interest.

Similarly, this study found that psychologists, over physicians, have more interest in integrated healthcare practices and the PCMH model. Physicians, who have for countless years maintained a leading status atop the existing healthcare hierarchy may have a more difficult time sharing responsibility when they have been trained, or have come to expect, a certain level of autonomy or independence in clinical practice (Baldwin Jr., 2007; O'Malley, Gourevitch, Draper, Bond, & Tirodkar, 2014). Transitioning to a more integrated form of care requires physicians to shift toward having a more collaborative and egalitarian approach to the care that they provide. As such, some physicians may find it difficult to change, which may reduce their interest in practicing within an integrated healthcare system (Ghorob, & Bodenheimer, 2012/2015). Again, it should be noted that the difference in means observed between physicians (M = 4.2562) and psychologists (M = 5.1931) on this scale, although significant, was notably small. Similar to the Attitudes Scale, the small degree of separation between the group means may be the result of the DO philosophy and psychological training aligning closely with the values and tenets of the PCMH model. Nonetheless, it is clear that the providers who completed the PCMH-AIKS, on average, rated more favorable levels of interest toward integrated models of care.

Knowledge.

Psychologists also scored higher than did physicians in knowledge about integrated healthcare practices and the PCMH model. In recent years, there has been a revolution in the training of healthcare professionals, with a great deal of focus being placed on integrated healthcare practices. As the models of integrated care practice have

continued to evolve, APA has made a concerted effort to promote awareness and increased education about the value and importance these approaches to care can offer. As recently as 2016, APA developed a short film series that highlighted some of the premier integrated sites across the country that demonstrate the various methods and approaches providers can take to provide patient-centered, team-based care to patients and families (American Psychological Association, 2016). Efforts such as this from psychological associations give support to the idea that the psychologists may hold more knowledge than do physicians about integrated healthcare practices and the PCMH model. As stated previously, the difference in means observed between physicians (M = 12.7045) and psychologists (M = 13.9885) on this scale, although significant, was notably small. This suggests that there remains to be some lack of knowledge on the part of providers to understand fully the integrated models of care. It should also be noted that only 10.3% of all participants received a score of 8 out of 16 or below, as noted in Table B7. This indicates that there are providers who lack a significant amount of knowledge about integrated healthcare practice. Additionally, only 16% of the sample of providers correctly answered all of the items on the Knowledge Scale. These results merit consideration in light of the fact that 63.4% of the sample reported having prior experience working in an integrated healthcare setting. It is unclear why these providers performed poorly on the Knowledge Scale, but it is possible that misperceptions or lack of training could have had an impact on participant scores. Further qualitative efforts would need to be conducted in order to fully understand the nature of each provider's responses.

Doctors of Medicine versus Doctors of Osteopathy.

To better understand how differences in how MDs and DOs are trained may impact how physicians view and understand integrated healthcare practices and the PCMH model, the investigator aimed to examine provider differences on the three domains contained within the PCMH-AIKS: attitudes, interest, and knowledge. Based on the nature of the osteopathic philosophy, it was believed that DO physicians would be more likely to hold more positive attitudes toward, and more interest in the PCMH model than would MDs. The osteopathic philosophy approaches healing from a mind, body, and spirit perspective, which aligns itself well with the whole person tenets of integrated healthcare practices, specifically the PCMH model (Klein, Laugesen, & Liu, 2013; Paulus, 2013). Therefore, it was assumed that DOs would be more likely to value the perspectives that other healthcare professionals may provide, and would have more positive attitudes toward, interest in, and knowledge about integrated healthcare practices and the PCMH model than would MDs. Unfortunately, the sample for MD providers was not sufficient enough to conduct a throughout and accurate analysis of their current scores in these three domains. Therefore, no meaningful information can be shared about the potential differences between these two provider types.

No meaningful interpretation can be offered with regard to the differences observed between MDs and Dos; however, the mean scores obtained on the three scales that comprise the PCMH-AIKS may provide insight into how the results might have been impacted were MDs to be adequately represented in the sample. As previously reviewed, it was suspected that DOs and psychologists would hold more positive attitudes toward, interest in, and knowledge about integrated healthcare practices because their training

philosophies and approaches to case conceptualization and treatment align more closely with the tenets of the PCMH model than does the MD philosophy. It is therefore unsurprising that the mean scores between the physician and psychologist samples, although significant, was not large. This is due possibly to the fact that the physician sample primarily comprised DO providers. If they DO versus MD hypothesis was able to be tested, the degree of separation between the providers types tested would possibly grow because the scores provided by MD providers might conceivably reduce the mean score for all physicians. It is also important to recognize that not all MD providers are uniform in orientation regarding their approach to practicing medicine. Such an argument would ignore individual differences among MD practitioners. Nonetheless, in the absence of data that describe MD provider attitudes toward, interest in, and knowledge about integrated healthcare practices, the investigator was unable to comment on the nature of the differences observed between these provider types.

Years of post-licensure experience.

Upon examining the evolution of the healthcare system, it is apparent that over time, concepts like integrated healthcare and the PCMH model are becoming more prevalent in academic and clinical environments (Laine & Davidoff, 1996). In response, the educational system is experiencing more IPE initiatives being incorporated into the curriculum of various healthcare service provider programs (Alinier, et al., 2014; Johnson & Freeman, 2014; Lee, Celletti, Makino, Matsui, & Watanabe, 2012). As a result of this increase in exposure to integrated healthcare practices, it was believed that more recent graduates would have had the opportunity to study current literature that demonstrates the efficacy and utility of integrated models of care. In addition, more recently educated

healthcare professionals would also have had the opportunity to practice within an integrated site during their training. It was therefore expected that providers who were more recently licensed, regardless of their professions, would be more likely to hold more positive attitudes about integrated healthcare practices and the PCMH model. Additionally, the added exposure would support the assumption that more recent graduates would have more interest in, and have more knowledge about, integrated healthcare practices and the PCMH model. For the purposes of this study, it was assumed that less experienced providers would have gone through graduate training more recently than would have more experienced providers.

The findings from this study demonstrated no significant difference between providers with more experience or less experience. However, the difference observed between those providers with more experience and those with less experience approached significance ($p = .06$) on the attitude domain of the PCMH-AIKS. This difference, although not significant, may again been due to current trends in healthcare training that places some focus on these models of care and the value that they hold. Although what truly influences a provider's attitude, interest and knowledge about these models of care is unclear, the findings from this study indicate that introducing these models during a provider's training does not seem to have an impact on a provider's view of them. Although such educational practices might conceivably lead to some individuals developing more positive attitudes toward these approaches to care in general, in this study, the impact was not potent enough to produce a true difference.

Relationship between the content domains.

The investigator chose to examine provider attitudes, interest and knowledge because it was believed that these three domains would offer a fairly comprehensive representation of how providers may view and understand integrated healthcare practices and the PCMH model. The way in which the PCMH-AIKS questionnaire was designed allowed each domain to be scored and interpreted separately. In so doing, the investigator was able to observe trends that may have occurred across the scales as healthcare professionals provided their individual responses to the survey items. The findings showed that the three domains were highly related, and as the scores on one scale increased, the scores on the other two scales were also likely to increase. For example, as a provider's attitudes toward integrated healthcare practices and the PCMH model increased, a positive increase was also observed in their interest in, and knowledge about, integrated models of care.

Providers with and without integrated healthcare experience.

The original design of this study excluded all providers who had prior experience working in an integrated healthcare environment, as defined by Peek (2013). The investigator initially wanted to examine only those without previous experience because it was assumed that providers with experience would have more favorable attitudes, interest, and more knowledge about the models because they had chosen to work in that type of healthcare setting. It was recognized that some providers might have been forced into working in a setting that utilized an integrated model of care provision due to systematic changes within their existing healthcare network; therefore, the investigators expected that they would likely have altered scores due to their exposure to the model in

practice, specifically in the knowledge domain. Additionally, it is also possible that once providers are exposed to such models, they may be likely to experience unintentional shifts in how they view and understand these models. Nonetheless, due to poor participation, the investigator changed the inclusionary criteria of the study through an IRB approved amendment to include healthcare professionals who had prior experience working in an integrated healthcare environment in order to increase the sample sufficiently enough to assess properly for differences among providers .

The findings from this study demonstrated that people who had prior experience working in integrated healthcare environments had more positive attitudes toward, more interest in, and more knowledge about integrated models of care. It should be noted that there is a relationship between having more experience and having more positive attitudes, interest and knowledge about integrated models of care; however, the average scores on the knowledge domain were still lower than were expected across all providers (Physician = 12.7045, Psychologist = 13.9885, out of a possible total score of 16). This suggests that there may still be some misconceptions about integrated healthcare practices, even by those who endorsed having prior experience providing care in integrated settings.

Implications of findings.

Current research about integrated models of care provides ample evidence to support the positive benefits of integrated models of care, which begs the question of how the educational, training, and existing healthcare system could begin to help future generations of providers develop more positive attitudes toward, interest in, and knowledge about these models? As the findings demonstrated a significant difference

between psychologist and physician scores across all domains of the questionnaire, it can be assumed that there are components of a psychologist's training that may lead to these differences. It is from this knowledge that institutions can then begin look into what these factors are, and the reasons why psychologists may be more receptive to these models of care. Similarly, there may also be factors that cause physicians to hold less favorable perspectives and lower levels of understanding about integrated healthcare practices and the PCMH model.

As a first step in exploring the impact that these factors may have on provider involvement in these models of care, the current healthcare educational and training institutions might begin to incorporate interprofessional education initiatives into their existing curricula. Although there are inherent challenges associated with this task, (e.g., scheduling in conflicts, cost burdens, faculty and administrator resistance to these models), the benefits of collaborative forms of care are profound and are worth considerable attention. It is acknowledged that not all providers will choose to work in an integrated environment, but the tenets of the PMCH model that promote whole person, patient-centered care are foundational skills that all providers, regardless of their discipline, could benefit from learning. Additionally, most providers engage in some cross-disciplinary interaction in the course of their work, and as such, may benefit from developing skills in how to collaborate effectively with other healthcare and human service professionals. It is the hope of this investigator that in addition to increases in IPE initiatives throughout the existing healthcare educational and training system, licensing boards may also begin to provide, and perhaps someday require, IPE continuing education credits for provider across all healthcare disciplines.

As observed in the findings of this study, providers with less experience across disciplines approached a significant difference on the attitudes domain. Although their scores were not significantly different from those with more experience, it may be worthwhile to consider the reason why providers with less experience demonstrated a more favorable but non-significant trend in their attitudes toward integrated models of care. It may be that there are factors in the current educational and training system that are fostering more positive attitudes in providers, but have not developed to a degree that significantly impacts trainees' perceptions of integrated models. These findings may help to facilitate a shift in how healthcare providers and training sites educate future generations of providers.

It was also found that providers with prior exposure to integrated models of care held more favorable attitudes, more interest in, and more knowledge about these models of care. This suggests that having prior exposure to the model might have led to these providers holding more favorable attitudes, interest and knowledge. This assertion is consistent with the literature suggesting that when people are repeatedly exposed to a particular experience or subject matter, they are likely to develop more positive attitudes and interest in that matter (Hidi & Renninger, 2006; Krapp, 2002; Wellmon, Gilin, Knauss, & Linn 2012). Additionally, this exposure would also support the claim that these providers would also hold some knowledge about the models as a result of this exposure.

Limitations.

There were several limitations observed in this study that should be noted. First, the method through which the sample for the study was obtained provided no guarantee

that an equal and comprehensive grouping of providers would be obtained. Because the study examined the attitudes, level of interest and knowledge held by physicians and psychologists, it was important that enough members of both provider groups participate in the study. A review of the demographic data demonstrated an adequate split between physicians and psychologists; however, because the sample for MD providers (n = 3) was not sufficient enough to allow for comparison between groups, the investigator was not able to examine the differences between types of physician in the analysis of the data.

Second, the data on physician attitudes, interest and knowledge may have been skewed in favor of the DO perspective and level of understanding because MDs were inadequately represented in the sample. Because it was expected that DOs would hold more positive attitudes toward, more interest in, and knowledge about integrated healthcare practices and the PCMH model as compared to MDs, the difference between provider types might have been different were an adequate sample of MD providers to be included in the obtained data set. Therefore, it would be inaccurate to assert that physicians in general have less favorable attitudes, lowered levels of interest and knowledge about integrated models of care as compared with psychologists because the MD perspective remains unknown.

Third, participants may hold misconceptions about the information contained on the Knowledge Scale, which may have negatively impacted participant scores. Additionally, providers' attitudes about integrated models of care could have negatively impacted their knowledge scores because they may not believe some of the positive attributes of these forms of care to be true or accurate. As such, the degree of separation between providers' attitudes, interest, and knowledge about integrated healthcare

practices and the PCMH model may be more or less significant, based on these possibilities.

Fourth, this study focused only on the attitudes, level of interest and knowledge that physicians and psychologists have toward integrated healthcare practices and the PCMH model. Although these two professions compose the highest academic tiers in their respective fields, there exist a multitude of other healthcare providers that serve a functional role in the care that is provided to patients treated in healthcare systems that utilize team-based approaches to care. Therefore, a truly in-depth perspective on how providers view and understand integrated models of care was not conducted in this study.

Fifth, there are some concerns regarding the generalizability of the results because the sample was made up primarily of Caucasian females. Additionally, the sample was relatively evenly spread across PhDs and PsyDs, but the sample of physicians was made up predominantly of DOs. Also, participants were not asked where they are currently practicing or where they were trained. Therefore, it is unclear if the geographic location of participants had an impact on the scores that they provided. While limited information was found in available literature recording the locations of existing PCMHs and IPE programs, records maintained by the Patient-Centered Primary Care Collaborative that provide the location of certified PCMHs in the United States indicated that the majority of existing PCMHs are found along the East Coast and neighboring states, with the second largest grouping being located on the West Coast (Patient-Centered Primary Care Collaborative, 2017). It could be that providers who were trained and/or practice in these locations may hold more favorable attitudes, interest and knowledge toward integrated

models of care because they may have had a greater chance of being exposed to this approach to care.

Sixth, providers who have had prior experience working in an integrated setting may also be experiencing some of the benefits associated with this type of work (i.e., reduced burn out due to collaborative care and reductions in non-clinically related tasks). Therefore, they may have been reporting more favorable attitudes and interest toward integrated model as a result of this direct experience. It is unclear whether or not the results obtained in this study represent the differences in quality of life among providers with and without prior integrated healthcare experience, or the genuine appreciation, view and level of understanding providers have toward the model itself.

Finally, a provider working in an integrated healthcare environment may not have endorsed items that demonstrated more negative views of integrated models, whether consciously or unconsciously, because that may call into question the reasons why the provider continues to work in such environments. Therefore, the results of the questionnaire may be more positive in nature.

Future studies.

Future research directions may involve expanding this study to include other types of healthcare providers. This study examined two of the most prominent types of healthcare professionals; however, there are many professions that have an active role in the treatment of patients seen in integrated healthcare environments. As IPE initiatives continue to advance throughout educational institutions across the nation and globe, efforts to understand how other healthcare professionals view and understand integrated

healthcare practices may be beneficial if educators hope to train future generations of healthcare providers to value integrated team-based models of care.

The findings of this study also provide a foundation for future research to explore and facilitate provider attitudes toward, interest in, and knowledge about integrated healthcare practices. Because this is an area of research that has not yet been thoroughly explored, there is great potential for future research projects to be pursued in order to expand further, the degree to which providers and students understand and view integrated models of care. By expanding upon this information in this way, a great deal can be done to help enhance the methods through which future generations of providers are trained and approach diagnosis and treatment.

One possible future direction is examining the current educational system, and specifically, how healthcare providers are trained. An in depth exploration of healthcare provider program curricula may reveal areas that are either lacking, or are inadequate in preparing future healthcare providers to understand, and know how to function within an integrated healthcare setting or a PCMH. In addition, studies could be conducted to observe the effect that implementing IPE initiatives within medical school curricula has on provider attitudes, level of interest and knowledge about integrated healthcare practices and the PCMH model, pre and post licensure.

Additional research might also examine any existing differences between psychologists who have a PhD versus PsyD degrees. Although this information is included in the data obtained from this study, this investigation did not aim to observe the differences between these provider types. The data also contained information describing the differences between providers who have had prior exposure to integrated models

during their training versus those who have not. Similarly, this was not an original objective of this study and was therefore not examined. However, in order to investigate these differences properly, additional participants may be required to test adequately for differences between the groups. As it currently stands, the groups in question are uneven in size, particularly with regard to providers who have had prior exposure to integrated models of care.

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Appendix A

The Patient-Centered Medical Home-Attitudes, Interest, and Knowledge Scale (PCMH-AIKS)

Developed By Mark D. Cassano, MS, and Robert A. DiTomasso, PhD, ABPP

Questionnaire Item List

Domain I: Attitudes

Please rate your response to each statement based on the provided scale below:

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

1. In today's healthcare arena, it is important to learn about integrated healthcare practices.
2. It is valuable for practitioners to learn about the Patient-Centered Medical Home.
3. Engaging in team meetings can be a waste of valuable time.
4. Meeting with my patients' other healthcare providers will limit my ability to effectively meet my work demands.
5. Engaging in team meetings will clearly limit my ability to effectively do my job.
6. The interdisciplinary approach to providing healthcare will make the delivery of services more difficult.
7. The interdisciplinary approach to providing healthcare will make the delivery of services unnecessarily complicated.
8. The interdisciplinary approach to providing healthcare will make the delivery of services unwieldy.
9. From my perspective, patients who receive team-based care are better prepared for discharge than are other patients treated in the traditional healthcare model.
10. I feel that working in an integrated setting helps providers increase patient access to needed services.
11. I feel that providers who work as a part of an interdisciplinary team are more responsive to patient's financial and emotional needs.
12. I feel that the cross-pollination of skills sets will allow me to better collaborate with other healthcare professionals.
13. I feel that the biopsychosocial model offers an important perspective on providing effective treatments.
14. I feel that working as a part of an integrated treatment team will lead to better treatment outcomes for my patients.
15. I perceive that working as a part of an integrated treatment team will lead to reduced staff burnout.
16. My sense is that working as a part of an integrated treatment team will increase my patients' satisfaction with their treatment.
17. I value the perspectives offered by other healthcare professionals about the needs of my patients.

18. I would feel reassured if my patients had a team of providers who are available if they need immediate care.
19. I am positively oriented to team-based care.
20. Working with other healthcare professionals keeps most providers interested and enthusiastic about their jobs.

Domain II: Interest

Please rate your response to each statement based on the provided scale below:

1	2	3	4	5	6
Not At All	Slightly	Somewhat	Moderately	Very Much	Extremely

1. I am interested in practicing within a Patient-Centered Medical Home.
2. I am motivated on my own to practice within an integrated healthcare environment.
3. I am interested in working as a part of an integrated team of healthcare professionals.
4. I am enthusiastic in learning how other healthcare providers treat patients.
5. I am positively inclined to learn about integrated behavioral healthcare.
6. I am interested in learning about the perspectives of other professionals related to my patients.
7. I have a clear interest in working collaboratively with other professionals.
8. I am interested in having regular, on-going contact with providers who are also treating my patient.
9. I am excited about the prospects of working together with other professionals in a team-based model.
10. Collaborative integrated care models fit my interests well.
11. I am positively oriented toward efforts that coordinate the treatment of my patients.
12. I enjoy creating comprehensive treatment plans that address the biopsychosocial needs of my patients.
13. I am positively inclined to learn new approaches to providing care from healthcare providers in a discipline different from my own.
14. I am interested in working in a healthcare environment that provides patients with a team of healthcare professionals who are available if they need immediate care.
15. I am positively inclined to engage in regular team meetings to discuss the needs of my patients with their other healthcare providers.
16. I would enjoy collaborating on comprehensive interdisciplinary treatment plans for my patients.
17. I am positively inclined to meet with my patients while other healthcare providers are present.
18. I am interested in using electronic medical records to help facilitate the ongoing care of my patients with their other healthcare providers.
19. I am interested in working in a healthcare environment that provides more access to care for my patients.

20. I have a clear interest in practicing in a model of healthcare service delivery that research has shown leads to enhanced quality of care and patient satisfaction ratings.

Domain III: Knowledge

Please answer each question below by selecting whether you think the statement in true or false:

1. Relative to traditional forms of care, integrated healthcare has not been demonstrated to be a useful treatment approach in promoting improved outcomes.
2. Integrated healthcare is a demonstrated cost effective approach to providing treatment for patients.
3. Integrated healthcare approaches to treatment do not lead to improvements in patient satisfaction.
4. The Patient-Centered Medical Home treatment model leads to improvements in patient satisfaction.
5. The Patient-Centered Medical Home treatment model is not a cost-effective approach to providing treatment for patients.
6. The Patient-Centered Medical Home treatment model leads to reductions in emergency department visits.
7. The Patient-Centered Medical Home treatment model leads to reductions in inpatient hospital admissions.
8. The Patient-Centered Medical Home treatment model does not lead to increased access to care.
9. The Patient-Centered Medical Home treatment model utilizes team-based care.
10. Patient-Centered Medical Homes always have a behavioral health specialist as a member of their interdisciplinary team.
11. Integrated healthcare reduces costs.
12. Integrated healthcare increases access.
13. Health outcomes of integrated care are equal to or better than traditional care.
14. Integrated care has not been shown to reduce provider burnout.
15. Patient-Centered Medical Homes offer patients a team of providers who are available to them if they need immediate care.
16. Patient-Centered Medical Homes engage in self-studies to measure outcomes and identify areas for growth.

Domain IV: Demographic Data

Please select the answer that best fits your response to the following questions:

1. Gender:

- Male
- Female

2. Age:

    - 35 years or less
    - 36 to 50 years
    - Older than 50 years

3. Culture/Ethnicity:

    - African
    - African-American
    - Asian
    - Asian-American
    - Caucasian
    - European
    - European-American
    - Hispanic
    - Hispanic-American
    - Native-American
    - Other, please specify: _____

4. Degree:

    - Doctor of Medicine
    - Doctor of Osteopathy
    - Doctor of Psychology
    - Doctor of Philosophy in Psychology

5. Number of post-licensure years of experience working in a healthcare environment:

    - Less than 1 to 10 years
    - 10 or more years

6. If you have a specialty, please identify it in the space provided:

    - Primary Care
    - Non-Primary Care: Please specify_____

7. Please identify the type of site at which you currently work: _____

8. How many years have you worked at that site: _____

9. My graduate/medical school training provided information on integrated models of care and/or the Patient-Centered Medical Home treatment model:

- Yes
- No

10. Please indicate the number of years of experience you currently have working in an integrated healthcare setting. Please report in numerical form. (Integrated healthcare is defined as the care that results from a multidisciplinary team of primary care and behavioral health clinicians who work together to provide patient-centered treatment for patients and families (Peek, 2013)):

- Number of years of experience (e.g., 0, 5, 15): _____

Appendix B

Table B1: *Demographic Characteristics of the Sample*

		Frequency	Percent
Sex	Male	62	35.4
	Female	113	64.6
	Total	175	100.0
Age	35 years or less	48	27.4
	36 to 50 years	55	31.4
	Older than 50 years	72	41.1
	Total	175	100.0
Culture/Ethnicity	African	1	0.6
	African-American	4	2.3
	Asian	2	1.1
	Asian-American	4	2.3
	Caucasian	129	73.7
	European	3	1.7
	European-American	17	9.7
	Hispanic	2	1.1
	Hispanic-American	4	2.3
	Native-American	1	0.6
	Other	8	4.6
	Total	175	100.0
Type of Provider	Physician	88	50.3
	Psychologist	87	49.7
Degree	Doctor of Medicine	3	1.7
	Doctor of Osteopathy	85	48.6
	Doctor of Psychology	48	27.4
	Doctor of Philosophy (in psychology)	39	22.3
	Total	175	100.0
Specialty	Primary Care	60	34.3
	Other	115	65.7
Post-Licensure Years of Experience	Less than 1 to 10 years	76	43.4
	10 or more years	99	56.6
	Total	175	100.0

Table B2: *Descriptive Participant Information*

Questions	Valid	Frequency	Percent
Are you currently licensed to practice as a physician or a psychologist?	Yes	175	100.0
	No	0	00.0
Are you currently practicing as a physician or a psychologist?	Yes	175	100.0
	No	0	00.0
Are you now or have you ever worked in an integrated healthcare environment?	Yes	111	63.4
	No	64	36.6
	Total	175	100.0
My graduate/medical school training provided information on integrated models of care and/or the Patient-Centered Medical Home treatment model.	Yes	58	33.1
	No	117	66.9
	Total	175	100.0

Table B3: *Number of Years of Experience Working in an Integrated Healthcare Setting*

Years	Frequency	Percent
0.00	48	27.4
1.00	16	9.1
2.00	12	6.9
3.00	14	8.0
4.00	8	4.6
5.00	11	6.3
6.00	10	5.7
7.00	4	2.3
8.00	1	0.6
9.00	3	1.7
10.00	7	4.0
11.00	1	0.6
12.00	2	1.1
13.00	2	1.1
15.00	6	3.4
16.00	2	1.1
18.00	1	0.6
20.00	2	1.1
21.00	3	1.7
25.00	5	2.9
26.00	1	0.6
27.00	1	0.6
30.00	3	1.7
32.00	1	0.6
33.00	2	1.1
38.00	1	0.6
Total	167	95.4
Missing System	8	4.6
Full Total	175	100.0

Table B4: *Descriptive Statistics of the Attitudes Scale*

Item	N	Mean	Standard Deviation
In today's healthcare arena, it is important to learn about integrated healthcare practices.	175	5.3200	1.28671
It is valuable for practitioners to learn about the Patient-Centered Medical Home.	175	5.1886	1.17144
Engaging in team meetings can be a waste of valuable time.	175	4.5429	1.34641
Meeting with my patients' other healthcare providers will limit my ability to effectively meet my work demands.	175	4.2514	1.59550
Engaging in team meetings will clearly limit my ability to effectively do my job.	175	4.7543	1.40695
The interdisciplinary approach to providing healthcare will make the delivery of services more difficult.	175	4.7486	1.35811
The interdisciplinary approach to providing healthcare will make the delivery of services unnecessarily complicated.	175	4.8343	1.33519

The interdisciplinary approach to providing healthcare will make the delivery of services unwieldy.	175	4.7600	1.26836
From my perspective, patients who receive team-based care are better prepared for discharge than are other patients treated in the traditional healthcare model.	175	5.0914	1.09476
I feel that working in an integrated setting helps providers increase patient access to needed services.	175	5.2171	1.03321
I feel that providers who work as a part of an interdisciplinary team are more responsive to patient's financial and emotional needs.	175	4.5714	1.31494
I feel that the cross-pollination of skills sets will allow me to better collaborate with other healthcare professionals.	175	5.1257	.98621
I feel that the biopsychosocial model offers an important perspective on providing effective treatments.	175	5.3086	.96293
I feel that working as a part of an integrated treatment team will lead to better treatment outcomes for my patients.	175	5.2629	1.04471

I perceive that working as a part of an integrated treatment team will lead to reduced staff burnout.	175	4.3029	1.29754
My sense is that working as a part of an integrated treatment team will increase my patients' satisfaction with their treatment.	175	4.9886	1.14465
I value the perspectives offered by other healthcare professionals about the needs of my patients.	175	5.5200	.77192
I would feel reassured if my patients had a team of providers who are available if they need immediate care.	175	5.3829	.86220
I am positively oriented to team-based care.	175	5.2343	1.07584
Working with other healthcare professionals keeps most providers interested and enthusiastic about their jobs.	175	4.6057	1.14920

Table B5: *Descriptive Statistics of the Interest Scale*

Item	N	Mean	Standard Deviation
I am interested in practicing within a Patient-Centered Medical Home.	175	4.0343	1.58983
I am motivated on my own to practice within an integrated healthcare environment.	175	4.2171	1.65701
I am interested in working as a part of an integrated team of healthcare professionals.	175	4.5257	1.50408
I am enthusiastic in learning how other healthcare providers treat patients.	175	4.8057	1.33777
I am positively inclined to learn about integrated behavioral healthcare.	175	4.6686	1.43994
I am interested in learning about the perspectives of other professionals related to my patients.	175	5.0000	1.21296
I have a clear interest in working collaboratively with other professionals.	175	5.0686	1.13263
I am interested in having regular, on-going contact with providers who are also treating my patient.	175	5.0114	1.17438

I am excited about the prospects of working together with other professionals in a team-based model.	175	4.7200	1.46075
Collaborative integrated care models fit my interests well.	175	4.6629	1.45647
I am positively oriented toward efforts that coordinate the treatment of my patients.	175	4.9943	1.18660
I enjoy creating comprehensive treatment plans that address the biopsychosocial needs of my patients.	175	4.7486	1.31511
I am positively inclined to learn new approaches to providing care from healthcare providers in a discipline different from my own.	175	4.9314	1.13759
I am interested in working in a healthcare environment that provides patients with a team of healthcare professionals who are available if they need immediate care.	175	4.8800	1.26509
I am positively inclined to engage in regular team meetings to discuss the needs of my patients with their other healthcare providers.	175	4.3600	1.52059

I would enjoy collaborating on comprehensive interdisciplinary treatment plans for my patients.	175	4.6800	1.38149
I am positively inclined to meet with my patients while other healthcare providers are present.	175	4.4857	1.39728
I am interested in using electronic medical records to help facilitate the ongoing care of my patients with their other healthcare providers.	175	4.5371	1.58206
I am interested in working in a healthcare environment that provides more access to care for my patients.	175	5.1143	1.13895
I have a clear interest in practicing in a model of healthcare service delivery that research has shown leads to enhanced quality of care and patient satisfaction ratings.	175	4.9943	1.24336

Table B6: *Descriptive Statistics of the Knowledge Scale*

Item	Response	Frequency	Percent
Relative to traditional forms of care, integrated healthcare has not been demonstrated to be a useful treatment approach in promoting improved outcomes.	True	149	85.1
	False	26	14.9
Integrated healthcare is a demonstrated cost effective approach to providing treatment for patients.	True	150	85.7
	False	25	14.3
Integrated healthcare approaches to treatment do not lead to improvements in patient satisfaction.	True	156	89.1
	False	19	10.9
The Patient-Centered Medical Home treatment model leads to improvements in patient satisfaction.	True	156	89.1
	False	19	10.9
The Patient-Centered Medical Home treatment model is not a cost-effective approach to providing treatment for patients.	True	144	82.3
	False	31	17.7
The Patient-Centered Medical Home treatment model leads to reductions in emergency department visits.	True	159	90.9
	False	16	9.1

The Patient-Centered Medical Home treatment model leads to reductions in inpatient hospital admissions.	True	154	88.0
	False	21	12.0
The Patient-Centered Medical Home treatment model does not lead to increased access to care.	True	146	83.4
	False	29	16.6
The Patient-Centered Medical Home treatment model utilizes team-based care.	True	172	98.3
	False	3	1.7
Patient-Centered Medical Homes always have a behavioral health specialist as a member of their interdisciplinary team.	True	85	48.6
	False	90	51.4
Integrated healthcare reduces costs.	True	138	78.9
	False	37	21.1
Integrated healthcare increases access.	True	143	81.7
	False	32	18.3
Health outcomes of integrated care are equal to or better than traditional care.	True	154	88.0
	False	21	12.0
Integrated care has not been shown to reduce provider burnout.	True	119	68.0
	False	56	32.0
Patient-Centered Medical Homes offer patients a team of providers who are available to them if they need immediate care.	True	150	85.7
	False	25	14.3
Patient-Centered Medical Homes engage in self-studies to measure outcomes and identify areas for growth.	True	160	91.4
	False	15	8.6

Table B7: *Frequency of Number of Correct Responses on the Knowledge Scale*

Number of Correct Items	Frequency	Percent	Cumulative Percent
1.00	0	0	0
2.00	1	.6	.6
3.00	2	1.1	1.7
4.00	1	.6	2.3
5.00	5	2.9	5.1
6.00	2	1.1	6.3
7.00	5	2.9	9.1
8.00	2	1.1	10.3
9.00	4	2.3	12.6
10.00	4	2.3	14.9
11.00	2	1.1	16.0
12.00	6	3.4	19.4
13.00	22	12.6	32.0
14.00	34	19.4	51.4
15.00	57	32.6	84.0
16.00	28	16.0	100.0
Total	175	100.0	100.0

Table B8: *Differences Between Physicians and Psychologists*

Scale	Discipline	Mean	Standard Deviation	N
Attitude	Physician	4.5585	.85646	88
	Psychologist	5.3471	.67683	87
	Total	4.9506	.86576	175
Interest	Physician	4.2562	1.06120	88
	Psychologist	5.1931	1.04033	87
	Total	4.7220	1.14833	175
Knowledge	Physician	12.7045	3.41787	88
	Psychologist	13.9885	2.57219	87
	Total	13.3429	3.08633	175

Participants responded to each item on the PCMH-AIKS using three different rating scales: a six-point Likert-type scale ranging from Strongly Disagree to Strongly Agree, a six-point Likert-type scale ranging from Not At All to Extremely, and True or False.

Table B9: *Provider Years of Experience on the Attitudes Scale*

Scale	Years of Experience	Discipline	Mean	Standard Deviation	N
Attitude	Less than 1 to 10 Years	Physician	4.7833	.75928	33
		Psychologist	5.3035	.71551	43
		Total	5.0776	.77461	76
	10 or more years	Physician	4.4236	.88923	55
		Psychologist	5.3898	.64218	44
		Total	4.8530	.92167	99
	Total	Physician	4.5585	.85646	88
		Psychologist	5.3471	.67683	87
		Total	4.9506	.86576	175

Participants responded to each item on the PCMH-AIKS using a six-point Likert-type scale ranging from Strongly Disagree to Strongly Agree.

Table B10: *Provider Years of Experience on the Interest Scale*

Scale	Years of Experience	Discipline	Mean	Standard Deviation	N
Interest	Less than 1 to 10 Years	Physician	4.4197	.89686	33
		Psychologist	5.3151	.94293	43
		Total	4.9263	1.02015	76
	10 or more years	Physician	4.1582	1.14523	55
		Psychologist	5.0739	1.12547	44
		Total	4.5652	1.21968	99
	Total	Physician	4.2563	1.06120	88
		Psychologist	5.1931	1.04033	87
		Total	4.7220	1.14833	175

Participants responded to each item on the PCMH-AIKS using a six-point Likert-type scale ranging from Not At All to Extremely.

Table B11: *Provider Years of Experience on the Knowledge Scale*

Scale	Years of Experience	Discipline	Mean	Standard Deviation	N
Knowledge	Less than 1 to 10 Years	Physician	13.8182	1.99146	33
		Psychologist	14.1628	2.34957	43
		Total	14.0132	2.19389	76
	10 or more years	Physician	12.0364	3.90614	55
		Psychologist	13.8182	2.78929	44
		Total	12.8283	3.55149	99
	Total	Physician	12.7045	3.41787	88
		Psychologist	13.9885	2.57219	87
		Total	13.3429	3.08633	175

Participants responded to each item on the PCMH-AIKS using a True or False rating scale.

Table B12: *Correlations Between Variables*

		Attitudes	Interest	Knowledge
Attitudes	Pearson Correlation	1	.840**	.679**
	Sig. (1 – Tailed)		.000	.000
	N	175	175	175
Interest	Pearson Correlation	.840**	1	.610**
	Sig. (1 – Tailed)	.000		.000
	N	175	175	175
Knowledge	Pearson Correlation	.679**	.610**	1
	Sig. (1 – Tailed)	.000	.000	
	N	175	175	175

Table B13: *Differences Between Providers With and Without Integrated Healthcare Experience on the Attitudes Scale*

Scale	Type of Experience	Mean	Standard Deviation	N
Attitude	Prior Experience	5.15	.76	111
	No Prior Experience	4.61	.93	64
	Total	4.95	.87	175

Participants responded to each item on the PCMH-AIKS using a six-point Likert-type scale ranging from Strongly Disagree to Strongly Agree.

Table B14: *Differences Between Providers With and Without Integrated Healthcare Experience on the Interest Scale*

Scale	Type of Experience	Mean	Standard Deviation	N
Interest	Prior Experience	5.07	.95	111
	No Prior Experience	4.11	1.22	64
	Total	4.72	1.15	175

Participants responded to each item on the PCMH-AIKS using a six-point Likert-type scale ranging from Not At All to Extremely

Table B15: *Differences Between Providers With and Without Integrated Healthcare Experience on the Knowledge Scale*

Scale	Type of Experience	Mean	Standard Deviation	N
Knowledge	Prior Experience	13.85	2.62	111
	No Prior Experience	12.47	3.62	64
	Total	13.34	3.09	175

Participants responded to each item on the PCMH-AIKS using a True or False rating scale.