

1-1-2015

The Effectiveness of Patient-Centered Interdisciplinary Approach to Treating Chronic Pain in the Primary Care Setting

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Recommended Citation

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The Effectiveness of a Patient-Centered Interdisciplinary Approach to Treating
Chronic Pain in the Primary Care Setting

by

Corie Diane Houlbjerg

Presented to the Faculty of the
Graduate Department of Clinical Psychology
George Fox University
in partial fulfillment
of the requirements for the degree of
Doctor of Psychology
in Clinical Psychology

Newberg, Oregon

May, 2015

The Effectiveness of a Patient-Centered Interdisciplinary Approach to Treating Chronic
Pain in the Primary Care Setting: A Chart Review

by

Corie Diane Houbjerg, M.S.

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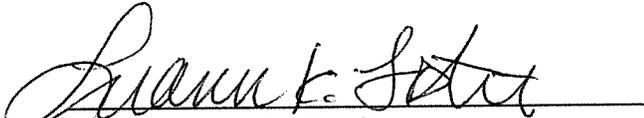
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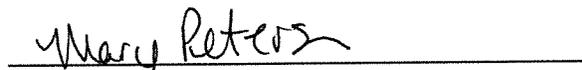
George Fox University

as a Dissertation for the PsyD Degree

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Dedication

I dedicate this work to my Great Uncle Bion D. Barger and my Great Aunt Patricia Barger. Thank you for teaching me the gift of education, the beauty of helping others, and the power of paying it forward. The support and encouragement you provided me throughout my training enabled me to pursue and achieve my goals with a clear mind and a peaceful heart. I eagerly await my opportunity to continue the legacy you have so generously established. I love you both.

Abstract

It is estimated that over half of the United States adult population experiences chronic pain, leading to high medical expenses and loss of productivity. Due to widespread impacts on daily living, chronic pain patients experience loss of function and depression. The most common traditional approach to treatment has been prescription opioid medication, which continues to be a controversial practice due to the high risk of addiction, misuse, and negative side effects. As the medical field moves toward a more holistic approach to treatment, a group of primary care clinics within a larger healthcare system in the Greater Portland, Oregon area established a patient-centered interdisciplinary approach to treating chronic pain patients. This study evaluated the effectiveness of this new approach through chart review. Specifically, this study examined opioid prescription dosages over time, patient utilization of medical services over time, and trends in provider utilization of standard pain program procedure during the early stages of development and implementation of the treatment program. The results helped to highlight the strengths and growing edges in the current implementation of the treatment program procedures. Results also conveyed that when the procedures are utilized, outcomes appear to be favorable to the patient sample and work toward achieving the goals set forth by the healthcare system, including improvement in patient outcomes, decrease in opioid dosages, and decline in overutilization of healthcare services. Future studies will be needed to ensure that these results are consistent when the sample size increases.

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Chapter 1

Introduction

Chronic Pain

The International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Merskey & Bogduk, 1994, p. 210). While acute pain lasts no longer than six months and resolves when the source of the pain has healed, chronic pain is defined as pain that persists for longer than six months (IASP, 1986). The development of chronic pain can occur as a result of many factors, and the specific cause can be difficult to pinpoint. Chronic pain may result from a variety of diseases and illnesses, including but not limited to cancer, rheumatoid arthritis, and osteoarthritis (Nicholson, 2003). Other individuals may experience chronic low back pain, neck pain, or nerve pain following surgical procedures or physical injuries (Institute of Medicine, 2011).

Pain is reported more than any other physical symptom-based condition in the general population (Kroenke, 2003). It has been estimated that 57% of the United States adult population experiences chronic pain (Matthias et al., 2010). The annual economic cost of chronic pain is projected to be at least \$560-\$630 billion in medical expenses, disability, and loss of productivity, with 75% of the 23.5 million disabled individuals in the United States attributing their disability primarily to pain (Chilemsky et al., 2013; Institute

of Medicine, 2011; Loeser, 1999). Individuals with chronic pain are also more likely to develop other medical conditions, causing the financial burden to increase even higher (Jensen & Turk, 2014). The high prevalence and economic impact of chronic pain in society only begins to highlight the necessity of further research and effective care for this condition.

Biopsychosocial Impact

Decreased function. In addition to financial problems and physical discomfort, chronic pain patients often face a number of other difficulties as a result of this condition. These individuals will often report that their pain has resulted in significant impairment to various areas of their well-being and activities of daily living (ADLs), including occupation and employment, social and romantic relationships, and leisure activities (Otis & Hughes, 2010). Patient complaints include decreases in muscle strength and physical performance (Onder et al., 2006), limited mobility and ability to care for self at home (Achterberg et al., 2010; Soldato et al., 2007), and lower self-ratings of overall health status (Reyes-Gibby, Aday, & Cleeland, 2002).

Depression. Given the significant impact of chronic pain on ADLs and well-being, this population experiences higher levels of depression, with up to 46% of pain patients seen in the primary care setting presenting with depression comorbidity (Bair et al., 2008; Kroenke et al., 1994). A recent study found that chronic pain patients with comorbid depression may perceive more severe pain and greater disability (Bair, Robinson, Katon, & Kroenke, 2003). Patients who experience depression in addition to chronic pain conditions displayed more frequent use of health care services (Arnow et al., 2009; Beehler,

Rodrigues, Mercurio-Riley, & Dunn, 2013; Ritzwoller, Crouse, Shetterly, & Rublee, 2006) and often have poorer treatment outcomes than patients who solely experience either pain or depression alone (Bair et al., 2004; Poleschuck et al., 2009). Not only are these patients seeking health care services more frequently, but they are not seeing improvement in their health.

Current Treatment

The complexity of chronic pain etiology and presentation can make it a difficult condition to treat. Opioid medication has been utilized as the primary mode of treatment for moderate to severe pain, dating back thousands of years (Booth, 1986). It has been estimated that up to 90% of chronic pain patients have been prescribed opioids to manage their conditions (Rosenblum, Marsch, Joseph, & Portenoy, 2008). Common opioid drugs prescribed today to treat chronic pain include morphine, oxycodone, hydrocodone, transdermal fentanyl, and methadone (Nicholson, 2003).

There is pervasive controversy regarding the use of opioid medications to treat chronic pain conditions. While there is evidence that these drugs appear to be the most effective in providing relief of pain initially (Chou, 2013), research has indicated that the benefits of opioids declines in long-term use (Krashin, Sullivan, & Ballantyne, 2013). Deyo and colleagues (2011) found that prolonged use of opioids can result in increased mental health concerns and high utilization of medical services. There is also continued concern regarding the risk of misuse, addiction, and negative side effects (Rosenblum et al., 2008). As opioid medications increase in both dosage and prevalence, issues related to “opioid related deaths, diversion, misuse, and addiction” expand as well (Kahan, Mailis-Gagnon, &

Tunks, 2011; Matthias et al., 2010). Given the controversy, physicians may vary greatly in their approach to prescribing these drugs, and the ramifications can be steep. Research has discovered an increase in lawsuits against physicians for overtreatment, under treatment, or even murder regarding opioid medications (Reidenberg & Willis, 2007). Difficulties with “multiple unsanctioned dose escalations, episodes of lost or stolen prescriptions, and positive urine drug screenings for illicit substances” further complicate opioid-based treatment (Michna et al., 2004, p. 250). These concerns have lead legal agencies and medical organizations to closely monitor and regulate opioid prescription practices (Shurman, Koob, & Gutstein, 2010). The tension caused by these risks and the uncertainty of the benefits fuel the motivation to reevaluate this treatment approach.

Burden on the Primary Care System

High utilization. Pain is one of the most frequent patient complaints seen by primary care providers (PCPs) for treatment (Breuer, Cruciani, & Portenoy, 2010). One third of PCP visits are for chronic pain complaints (Chilemsky et al., 2013; Upshur, Luckmann, & Savageau, 2006). When this population seeks treatment at their PCP office, it typically is not just to address their pain. A recent study found that not only are chronic pain patients accessing services at their PCP office at higher frequencies than the general population, but they are also frequently seeking PCP services to address comorbidities, further increasing both the number of visits and the time spent in the appointments (Chilemsky et al., 2013).

Patient-provider interactions. The outcomes of the traditional approach to treating chronic pain have resulted in patients reporting dissatisfaction and negative

interactions with their PCPs, including feeling distrusted and accused of drug-seeking behaviors (Upshur, Bacigalupe, & Luckmann, 2010). Though the patient-provider relationship is important for positive health outcomes in treating chronic pain, interactions often are strained by expressed anger and deceptive behaviors (Matthias et al., 2010). Likewise, PCPs often describe working with pain patients as a “thankless job” and can become easily frustrated in working with this population (Matthias et al., 2010). These factors together contribute to an ongoing burden for both patients and PCPs.

Inadequate training. Both PCPs and their patients face significant challenges, as PCPs are under pressure to provide treatment for a condition they receive very little training on. In a recent study, 30% of PCPs indicated that they did not receive any training or education in pain management during medical school, residency, or continued medical education courses, while only 10% indicated that they received training in this area during each phase of their medical education (Green, Wheeler, Marchant, LaPorte, & Guerrero, 2001). Other research revealed that 81.5% of attending physicians found their training regarding chronic pain management in medical school to be inadequate (Upshur et al., 2006).

Workflow. Beyond lack of proper training, PCPs also face the logistical challenge of time constraints that hinder the appropriate assessment and treatment of complex conditions such as chronic pain (Bendtsen, Hensing, Ebeling, & Schedin, 1999). Full evaluation of a patient’s report of pain complaints requires extensive discussion of a variety of domains. PCPs must not only inquire information regarding the intensity, duration, and description of the patient’s pain, but also examine possible connections

between the pain and other conditions, such as disease, injury, and health behaviors (Duckworth, Iezzi, & Sewell, 2009). PCPs may give higher priority to other symptoms or life-threatening conditions and run out of time before allowing more attention to chronic pain complaints (Otis, Macdonald, & Dobscha, 2006).

Interdisciplinary Approach to Treating Chronic Pain

Scientific research has expanded the understanding of chronic pain mechanisms beyond a traditional biomedical perspective to the more comprehensive biopsychosocial model, attending to all aspects of the patients' presentations (Gatchel, Peng, Peters, Fuchs, & Turk, 2007; McDaniel & DeGruy, 2014). This offers broader options to consider new approaches that may help enhance traditional treatment methods and improve patient outcomes. Given the high rate of patients seeking treatment from their PCPs and the broad range of patient needs, primary care offices have begun to reestablish how they care for this population. Interdisciplinary teams consisting of physicians, nurses, pharmacists, case managers, and behaviorists can provide more thorough and integrative assessment and treatment of chronic pain patients (Gatchel, McGeary, McGeary, & Lippe, 2014; Otis, Reid, & Kerns, 2005). Restoring a positive working relationship between the patient and providers as well as addressing mental health needs may be just two of many important tasks for this team to focus on.

Patient-centered care. Interdisciplinary teams can align with a patient at a more individualized level to address their unique needs. These teams may utilize what is known as *patient-centered care* to enhance a good working relationship between the patient and their care team (Matthias et al., 2010) and to provide effective communication (Aita,

McIlvain, Backer, McVea, & Crabtree, 2005), both of which have shown to be particularly important in treating chronic pain conditions (Tait, 2008). Key components to a patient-centered care model include communicating empathy toward patients and empowering patients to view themselves as active and vital partners in their healthcare (Tait, 2008). Providers work to go beyond the standard assessment of a condition and spend time learning about the individual patient's experience of their condition (Fiscella et al., 2004). In other words, patient-centered care seeks to enhance what is known as *patient activation*. Patient activation is the patient's perception of their own knowledge, skills, and confidence regarding the management of their medical conditions (Hibbard, Stockard, Mahoney, & Tusler, 2004) and has been linked to health status, health-related behaviors, seeking information about healthcare, and the patient's readiness to make changes to manage their medical conditions (Fowles, Terry, Xi, Hibbard, Bloom & Harvey, 2009). Outcome research on patient-centered care has shown increased patient satisfaction, decreased patient concerns, increased emotional health, and decreased diagnostic tests and referrals (Matthias et al., 2010). Patient-centered care may be an answer to providing chronic pain patients with more positive experiences in the healthcare system and increased engagement in their own care.

Behavioral health integration. *Behavioral health integration* (BHI) is when mental health providers, typically psychologists, provide services directly in the primary care clinic as part of the healthcare team (Otis et al., 2005). BHI providers can be key players in fostering patient-centered care and the biopsychosocial model, as the field of psychology aligns with the principles of proactive prevention, collaborative interdisciplinary work, and

promoting patient activation (McDaniel & DeGruy, 2014). A BHI provider functions as an active member of the treatment team to provide a more thorough and detailed evaluation of the patient's limitations and needs regarding their medical condition, help develop a more individualized treatment plan (Duckworth et al., 2009), and check-in with the patient between PCP visits to evaluate progress and promote patient engagement (McDaniel & DeGruy, 2014). BHI providers are trained in techniques stemming from cognitive-behavioral therapy (CBT) and acceptance and commitment therapy (ACT), which have shown to be especially effective mental health interventions for treating chronic pain in addition to mental health concerns (Otis et al., 2005; Vowles, Witkiewitz, Sowden, & Ashworth, 2014). BHI providers can partner with clinic administration to aid in the evaluation of patient and program outcomes (Solberg et al., 2010) and serve as a consultant to problem solve changes that may need to be developed (McDaniel & DeGruy, 2014). Having a BHI provider as a member of the treatment team helps to alleviate the pressure placed on PCPs that can often be perceived as solely responsible for accomplishing these many demanding tasks, as well as offer more individualized and comprehensive treatment plans for patients.

A Patient-Centered Interdisciplinary Approach

A group of primary care clinics within a larger healthcare system in the Greater Portland, Oregon area established an interdisciplinary team consisting of PCPs, clinical pharmacists, case managers, and BHI providers to facilitate a new patient-centered care approach for chronic pain in three primary care clinics (Appendix A). Clinical pharmacists identified high-risk patients that were prescribed opioids at or above 120 mg morphine

equivalent dosage (MED). This list of high-risk patients was sent to PCPs at each clinic, who then met with patients for a Pain Review Appointment to develop individualized patient-centered care plans and offer appropriate referrals. PCPs were instructed to utilize a standardized pain visit template in the electronic medical chart documentation for reviewing the chronic pain history of their patients, including administering a small set of brief screeners (9-Item Patient Health Questionnaire, Pain Disability Index, and Patient Activation Measure). Case managers also contacted the patients to assist with identifying and arranging patient needs, such as accessing necessary referrals, arranging transportation, or connecting them to financial services.

The entire interdisciplinary team met monthly to discuss patient cases and collaborate in forming effective approaches to patient care. Providers from each discipline presented their impressions based on direct patient contact and chart reviews. Together, the team processed options for next steps for treatment and developed recommendations for referrals. Patients were often encouraged to attend chronic pain education courses offered through the larger healthcare organization to learn more about how pain is processed neurologically and discuss what alternative treatment options beyond medication were available. PCPs also referred patients to BHI providers working in the primary care clinics. Common behavioral interventions used by BHI providers included providing psychoeducation about pain and comorbidity with mental health concerns, CBT, ACT, relaxation training, mindfulness interventions, and motivational interviewing. BHI providers addressed both the chronic pain and co-occurring mental health concerns, including anxiety, depression, and insomnia.

Effectiveness of a New Approach

This study was designed to examine the effectiveness of a patient-centered interdisciplinary approach to caring for chronic pain patients within a primary care setting that offers integrated behavioral health services. Specifically, this study aimed to determine if this new approach to care impacted patient engagement in BHI services, patient utilization of medical services, and opioid prescription dosages. Additionally, trends of PCP utilization of standard pain program procedures were analyzed to evaluate the levels of implementation for this new approach.

The hypotheses for this study were as follows:

Hypothesis 1: The number of mental health diagnoses will be positively correlated with the number of PCP visits prior to the Pain Review Appointment.

Hypothesis 2: The number of mental health diagnoses will be positively correlated with a referral to BHI services.

Hypothesis 3: Chronic pain patients who utilize BHI services will display a decrease in PCP visits, other office visits, and other patient encounters over time.

Hypothesis 4: Patients who received a Pain Review Appointment will display a decrease in opioid medication dosage over time.

Additionally, the primary researcher evaluated PCP utilization of the standard procedures for providing patient-centered interdisciplinary care to chronic pain patients by identifying the following: (a) how many patients received a Pain Review Appointment with their PCP, (b) how many PCPs used the Standard Pain Review Template in chart documentation for the Pain Review Appointment, (c) how many Patients were

administered the standard screeners related to their care at the Pain Review Appointment (9-Item Patient Health Questionnaire, Pain Disability Index, and Patient Activation Measure), (d) how many patients were referred to BHI services at the Pain Review Appointment, (e) how often the reason for BHI referral was included in documentation, and (f) how often the BHI reason for referral mentioned pain.

Chapter 2

Methods

Participants

This study consisted of an examination data that was collected from the electronic medical record (EMR) of 106 patients who received care at one of three primary care clinics within a larger healthcare system in the Greater Portland, Oregon area. Subjects were patients identified by the clinic pharmacists through chart review who are prescribed opioid medication at or above 120 mg morphine MED for management of chronic pain conditions. Patients who were prescribed only non-opioid analgesics to manage their chronic pain conditions were excluded. Patients who were prescribed opioid medications to manage acute pain conditions (e.g., injuries or postoperative pain) were excluded. Patients who were deceased were excluded. Sixteen were identified as being deceased at the time of the chart review and were therefore eliminated from the study. Of the remaining 90 patients, the mean age of patients included in this study was 54.94 ($SD = 11.28$). The sample consisted of 75.6% ($n = 68$) women and 24.4% ($n = 22$) men (Table 1). The ethnicity breakdown for this sample was 90% European American ($n = 81$), 3.3% ($n = 3$) African American, 4.4% ($n = 4$) Other, and 2.2% ($n = 2$) Unknown. Insurance coverage for this sample was 35.6% ($n = 32$) with Oregon Health Plan (OHP) and 64.4% ($n = 58$) with other private insurance plans (Table 1).

Table 1

Demographic Information

Sex	<i>N</i>	Percentage
Female	68	75.6%
Male	22	24.4%
Ethnicity	<i>N</i>	Percentage
European American	81	90%
African American	3	3.3%
Other	4	4.4%
Unknown	2	2.2%
Insurance	<i>N</i>	Percentage
OHP	32	35.6%
Other Private Insurance	58	64.4%

Materials

Chart review. A BHI intern working in one of the clinics previously collected data for each of the identified patients by reviewing the EMR within the healthcare system. This data set consisted of information from specific sections of the EMR, including demographics, problem list, current medication list, medication history, encounter history, and progress notes from PCP visits. The primary researcher utilized this data set for this study.

Nine-Item Patient Health Questionnaire. It was anticipated that scores from a depression screening measure would be found in the archival data set. The 9-Item Patient

Health Questionnaire (PHQ-9) is a brief, self-report measure commonly used in the primary care setting to screen for major depression symptoms (Kroenke, Spitzer, & Williams, 2001; Appendix B). Symptoms evaluated by the PHQ-9 include anhedonia, depressed mood, sleep disturbance, fatigue, negative feelings about oneself, difficulty concentrating, psychomotor disturbance, and thoughts of suicide or self-harm. Instructions indicate to rate the frequency of each symptom over the past two weeks on a 3-point Likert Scale. Response options are 0 (*not at all*), 1 (*several days*), 2 (*more than half the days*), and 3 (*nearly every day*). The total possible score on this measure is 27. A provisional diagnostic impression may fall under one of the following categories depending on the total score: minimal depression symptoms (total score between five and nine); minor depression or dysthymia (total score between 10-14); major depression, moderately severe (total score between 15-19); major depression, severe (total score between 20-27). Instructions indicate to then determine the degree to which the symptoms endorsed interfere with ADLs. Selection options for this question include not difficult at all, somewhat difficult, very difficult, and extremely difficult. The PHQ-9 has displayed good psychometric qualities when used in the primary care population (Arroll et al., 2010).

Pain Disability Index. It was anticipated that scores from a pain disability screening measure would be found in the archival data set. The Pain Disability Index (PDI) is a brief, self-report measure of a patient's perception of interference in ADLs due to the experience of pain (Tait, Pollard, Margolis, Duckro, & Krause, 1987; Appendix C). Areas of functioning assessed by this measure include family/home responsibilities, recreation, social activities, occupation, sexual behavior, self-care, and life-support activities. The

seven items on the PDI are rated on an 11-point Likert Scale, ranging from 0 (*no disability*) to 10 (*worst disability*). The maximum score on this measure is 70, with higher scores indicating more disruption in ADLs due to the experience of pain. The PDI is the most commonly used measure to assess pain disability and has displayed good psychometric qualities (Turk & Melzack, 2011).

Patient Activation Measure. It was anticipated that the scores from a patient activation screening measure would be found in the archival data set. The Patient Activation Measure (PAM) is a brief, self-report measure of a patient's perception of their own knowledge, skills, and confidence regarding the management of their medical conditions (Hibbard et al., 2004; Appendix D). Areas evaluated on the PAM include medications, lifestyle changes, etiology of their medical condition, and treatment options. The 13 items on the PAM are rated on a 4-point Likert Scale, ranging from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*); all items include a not applicable option. Higher scores on this measure indicate higher levels of patient activation. The total score on the PAM will fall into one of the four following categories: Level 1 (*starting to take a role*), Level 2 (*building knowledge and confidence*), Level 3 (*taking action*), and Level 4 (*maintaining behaviors*). The PAM is widely used and has displayed good psychometric qualities (Hibbard et al., 2004).

Procedure

All data was previously gathered by a current BHI intern working within one of the primary care clinics through EMR chart review. The BHI intern utilized the list of identified patients from each clinic that was established by a clinic pharmacist at each of the three

primary care clinics. The BHI intern gathered all data in an Excel spreadsheet that was then uploaded into SPSS by the primary researcher for analysis. Approval from the George Fox Internal Review Board (IRB) was secured for the analysis of the data.

Demographics. The BHI intern collected demographic information through EMR chart view, including age, sex, ethnicity, primary care clinic, PCP, and insurance. Insurance was grouped into one of two categories: OHP or other private insurance.

Mental health diagnoses. The BHI intern accessed the problem list of each patient through EMR chart review to identify the frequencies of various mental health diagnoses in this sample. The presence of mental health diagnoses were recorded in condensed categories based on categories and diagnoses found in the EMR system as well as the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; American Psychiatric Association, 2013). The categories include: Depressive Disorders, Anxiety Disorders, Trauma- and Stressor-Related Disorders, Substance-Related and Addictive Disorders, Opioid Dependence, Bipolar and Related Disorders, Schizophrenia Spectrum and Other Psychotic Disorders, Sleep-Wake Disorders, Attention-Deficit/Hyperactivity Disorder (ADHD), Memory Disorders, and Other Mental Health Disorders. Other Mental Health Disorders include cognitive disorder, premenstrual dysphoric disorder, stress, altered mental status, and obsessive-compulsive disorder. Opioid Dependence was coded separately from Substance-Related and Addictive Disorders due to the chronic pain population in this study.

Pain diagnoses. The BHI intern accessed the problem list of each patient through EMR chart review to identify the frequencies of various pain diagnoses in this sample. Up

to three high priority pain diagnoses were recorded and then condensed into the following categories: chronic pain, back pain, degenerative disc disease (DDD), fibromyalgia and other neuromuscular pain, rheumatoid arthritis, carpal tunnel, osteoarthritis, neuropathy, spinal-related pain, migraine/headache, and other specific localized pain.

Pain review appointment. The BHI intern accessed the progress notes from PCP office visits for each patient through EMR chart review to determine whether or not the patient received a Pain Review Appointment. When the Pain Review Appointment did occur, the progress note from this visit indicated if the Standard Pain Review Template was utilized in chart documentation.

Standard screeners. The BHI intern accessed the progress note through EMR chart review for patient that received a Pain Review Appointment to indicate if the standard screeners (PHQ-9, PDI, and PAM) were administered during that visit. When the screeners were administered, the documented scores were collected. Due to underutilization of these screeners at follow-up PCP visits after the Pain Review Appointment, the primary researcher was unable to analyze data regarding screener scores at follow-up visits.

Behavioral health integration. The BHI intern accessed the history of patient encounters through EMR chart review for each patient in the entire sample to determine if they had ever seen a BHI provider, regardless of whether or not they received a Pain Review Appointment. For patients who had seen a BHI provider, the total number of BHI visits was recorded. For patients who received a Pain Review Appointment, the PCP progress note from that visit indicated if the PCP referred the patient to BHI services during that visit. When there was a BHI services referral at this visit, the PCP

documentation indicated if a reason for BHI referral was included. When a reason for BHI referral was included, the documentation indicated if pain was mentioned. All of these indications were collected by the BHI intern and included in the data set.

Utilization of medical services. The BHI intern accessed the history of patient encounters through EMR chart review for each patient who received a Pain Review Appointment to identify the total number of PCP visits, other office visits, and other patient encounters six months prior to the Pain Review Appointment and six months following the Pain Review Appointment. Other office visits included appointments with other clinic providers besides the PCP, care coordination appointments, visits in the immediate care department, lab appointments, and ED visits. Other office visits did not include BHI appointments, as that data was tracked separately and BHI utilization was being promoted as part of the pain treatment protocol. Other patient encounters included patient telephone calls, patient emails, and documentation related to patient care. Medication refills were excluded from other patient encounters, as they are a routine monthly procedure for prescribing opioid medications long-term.

Opioid dosage. The BHI intern accessed the medication history through EMR chart review for each patient who received a Pain Review Appointment to evaluate the MED at the time of the Pain Review Appointment and any changes in MED over time. The BHI intern reviewed the medication history to identify the MED every two months for one year after the Pain Review Appointment (e.g., MED two months after the Pain Review Appointment, MED four months after the Pain Review Appointment, MED six months after

the Pain Review Appointment, and so on). The BHI intern utilized the opioid dose calculator built within the EMR to determine the MED for each time period.

Chapter 3

Results

The EMRs of 106 primary care patients were reviewed. Sixteen were identified as deceased at the time of the review and were therefore eliminated from the study. Of the 90 remaining patients, the sample consisted of 68 women and 22 men with a mean age of 54.94 ($SD = 11.28$). Table 2 displays the prevalence of mental health diagnoses found on the problem lists for this sample. The mean number of mental health diagnoses on the problem list was 2.38 ($SD = 1.61$) with 87.8% of the sample having at least one mental health diagnosis ($n = 79$).

Table 3 displays the prevalence of chronic pain diagnoses based on up to three top priority chronic pain diagnoses. The mean number of pain diagnoses on the problem list was 4.22 ($SD = 2.49$), based on total number of pain diagnoses on the chart, regardless of priority status.

Hypothesis 1

The number of mental health diagnoses will be positively correlated with the number of PCP visits prior to the Pain Review Appointment. Data was collected for the 48 patients who received a Pain Review Appointment regarding the total number of mental health diagnoses on the problem list and the total number of PCP visits prior to the Pain Review Appointment. A Pearson product-moment correlation was conducted to determine the

Table 2

Prevalence of Mental Health Diagnoses

Mental Health Diagnosis	Frequency	Percentage
Depressive Disorders	54	60%
Anxiety Disorders	48	53.3%
Substance-Related and Addictive Disorders	30	33.3%
Sleep-Wake Disorders	27	30%
Opioid Dependence	14	15.6%
Memory Disorders	8	8.9%
Bipolar and Related Disorders	7	7.8%
Trauma- and Stressor-Related Disorders	7	7.8%
Other Mental Health Disorders	6	6.7%
ADHD	3	3.3%
Schizophrenia Spectrum and Other Psychotic Disorders	2	2.2%

relationship between the number of mental health diagnoses and the number of PCP visits before the Pain Review Appointment. Results displayed a moderate positive correlation between the number of mental health diagnoses and the number of PCP visits before the Pain Review Appointment ($r(46) = 0.36, p = .011$). As the number of mental health diagnoses on the problem list increased, the number of PCP visits prior to the Pain Review Appointment increased.

Table 3

Prevalence of Chronic Pain Diagnoses

Chronic Pain Diagnosis	Frequency	Percentage
Back Pain	44	48.9%
Other Specific Localized Pain	41	45.6%
Chronic Pain	38	42.2%
Migraine/Headache	19	21.1%
Fibromyalgia and other neuromuscular pain	18	20%
Osteoarthritis	17	18.9%
Degenerative disc disease	14	15.6%
Spinal-related pain	9	10%
Neuropathy	8	8.9%
Rheumatoid arthritis	6	6.7%
Carpal tunnel	4	4.4%

Additionally, point-biserial correlations were conducted to determine the relationship between the two most common mental health diagnoses in this population (depression and anxiety) and the number of PCP visits prior to the Pain Review Appointment. Results indicated moderate positive correlations between the diagnoses of depression ($r_{pb} = 0.35, p = .016$) and anxiety ($r_{pb} = 0.34, p = .017$) and the number of PCP visits before the Pain Review Appointment. More PCP visits prior to the Pain Review

Appointment were moderately correlated with the presence of the diagnoses of depression and anxiety.

Hypothesis 2

The number of mental health diagnoses will be positively correlated with a referral to BHI services. Data was collected for the 48 patients who received a Pain Review Appointment regarding the number of mental health diagnoses on the problem list and whether or not they were referred to BHI services during their Pain Review Appointment with their PCP. A point-biserial correlation was conducted to determine the relationship between the number of mental health diagnoses and the presence of a BHI services referral during the Pain Review Appointment. Results displayed no correlation between the number of mental health diagnoses and the presence of a BHI referral during the Pain Review Appointment ($r_{pb} = 0.02, p = .90$). The number of mental health diagnoses was not correlated with the presence of a BHI services referral during the Pain Review Appointment.

Additionally, point-biserial correlations were conducted to determine the relationship between the two most common mental health diagnoses in this sample and the presence of a BHI services referral during the Pain Review Appointment. Results indicated no correlation between depression and the presence of a BHI services referral ($r_{pb} = -0.03, p = .854$) and a small positive correlation between anxiety and the presence of a BHI services referral ($r_{pb} = 0.18, p = .202$). There was no relationship between a depression diagnosis and referral to BHI services. Patients with a diagnosis of anxiety were more likely to be referred to BHI services.

Point-biserial correlations were conducted to determine the relationship between the five most common pain diagnoses in this population (back pain, other specific localized pain, chronic pain, migraine/headache, and fibromyalgia and other neuromuscular pain) and the presence of a BHI services referral at the Pain Review Appointment. Results displayed a moderate positive correlation between migraine/headache and BHI services referral ($r_{pb} = 0.33, p = .022$), small correlations between chronic pain ($r_{pb} = 0.21, p = .155$) and other specific localized pain ($r_{pb} = 0.12, p = .390$) and BHI services referral, and small negative correlations between back pain ($r_{pb} = -0.27, p = .065$) and fibromyalgia and other neuromuscular pain ($r_{pb} = -0.16, p = .275$) and BHI services referral. Patients with diagnoses of migraine/headache, chronic pain, and other specific localized pain were more likely to be referred to BHI services at the Pain Review Appointment. Patients with diagnoses of back pain and fibromyalgia and other neuromuscular pain were less likely to be referred to BHI services at the Pain Review Appointment.

For the 48 patients who obtained a Pain Review Appointment, data was collected regarding the number of PCP visits, number of other office visits, and number of other patient encounters (e.g., telephone calls, emails, other chart documentation) six months prior to the Pain Review Appointment. Point-biserial correlations were conducted to determine the relationship between patient utilization of primary care clinic services prior to the Pain Review Appointment and the presence of a BHI services referral at the Pain Review Appointment. Results indicated a moderate correlation between the number of PCP visits and a BHI services referral ($r_{pb} = 0.33, p = .023$), a small to moderate correlation between the number of other patient encounters and a BHI services referral ($r_{pb} = 0.29, p =$

.046), and no correlation between other office visits and a BHI services referral ($r_{pb} = -0.03$, $p = .816$). Patients with more PCP visits and more other patient encounters prior to the Pain Review Appointment were more likely to be referred to BHI services. There was no relationship between the number of other office visits and the presence of a BHI referral.

Hypothesis 3

Chronic pain patients who utilize BHI services will display a decrease in PCP visits, other office visits, and other patient encounters over time. For the 48 patients who had a Pain Review Appointment, the patients who were both referred to BHI services and utilized BHI services were identified and grouped, and patients who were not referred to BHI services were grouped. The BHI intern recorded the total number of BHI appointments for all patients in both groups. In the entire sample of 90 patients, 19 patients (21.1%) saw a BHI provider at least once, with 8 patients receiving a referral during the Pain Review Appointment and 11 patients accessing BHI services through another referral source. For the patients who were referred at the Pain Review Appointment, the mean number of BHI appointments was 3.88 ($SD = 3.80$), while the mean number of BHI appointments for the patients who accessed BHI services through another referral source was 4.27 ($SD = 3.74$). Patients who were referred at the Pain Review Appointment but did not utilize BHI services were excluded from this comparison ($n = 2$). The BHI intern recorded the number of PCP visits both six months prior to the Pain Review Appointment and six months following the Pain Review Appointment for both groups. A repeated-measures ANOVA was conducted to determine differences between the two groups regarding the number of PCP visits six months before and after the pain review appointment. Results showed a

significant main effect of time on number of PCP visits ($F(1, 44) = 7.71, p = .01$), a significant main effect of BHI referral and utilization on number of PCP visits ($F(1, 44) = 5.60, p = .02$), and no interaction of time and BHI referral and utilization on number of PCP visits ($F(1, 44) = 0.59, p = .45$); means are displayed in Figure 1. Both groups displayed significantly more PCP visits six months prior to the Pain Review Appointment in comparison to six months after the Pain Review Appointment. Patients who were referred to and utilized BHI services displayed significantly more PCP visits in comparison to those who were not referred to BHI services. Both groups displayed a statistically similar decline in PCP visits over time.

Independent samples *t*-tests were conducted to determine the difference between the number of PCP visits six months prior to the Pain Review Appointment and six months after the Pain Review Appointment for both groups. Results indicated that patients who were referred to and utilized BHI services displayed a significantly higher number of PCP visits prior to the Pain Review Appointment than patients who were not referred to BHI services ($t(44) = -2.41, p = .02$), but no significant difference between the two groups for the number of PCP visits six months after the Pain Review appointment ($t(44) = -1.59, p = .119$). Paired samples *t*-tests were conducted to determine the change in number of PCP visits over time for each group. Results displayed a significant decline in the number of PCP visits over time for patients who were not referred to BHI services ($t(37) = 2.85, p = .007$), and a decline that is not deemed statistically significant for patients who were referred to and utilized BHI services ($t(9) = 1.79, p = .11$). Although results showed a decline for those who were referred to and utilized BHI services from a significantly higher

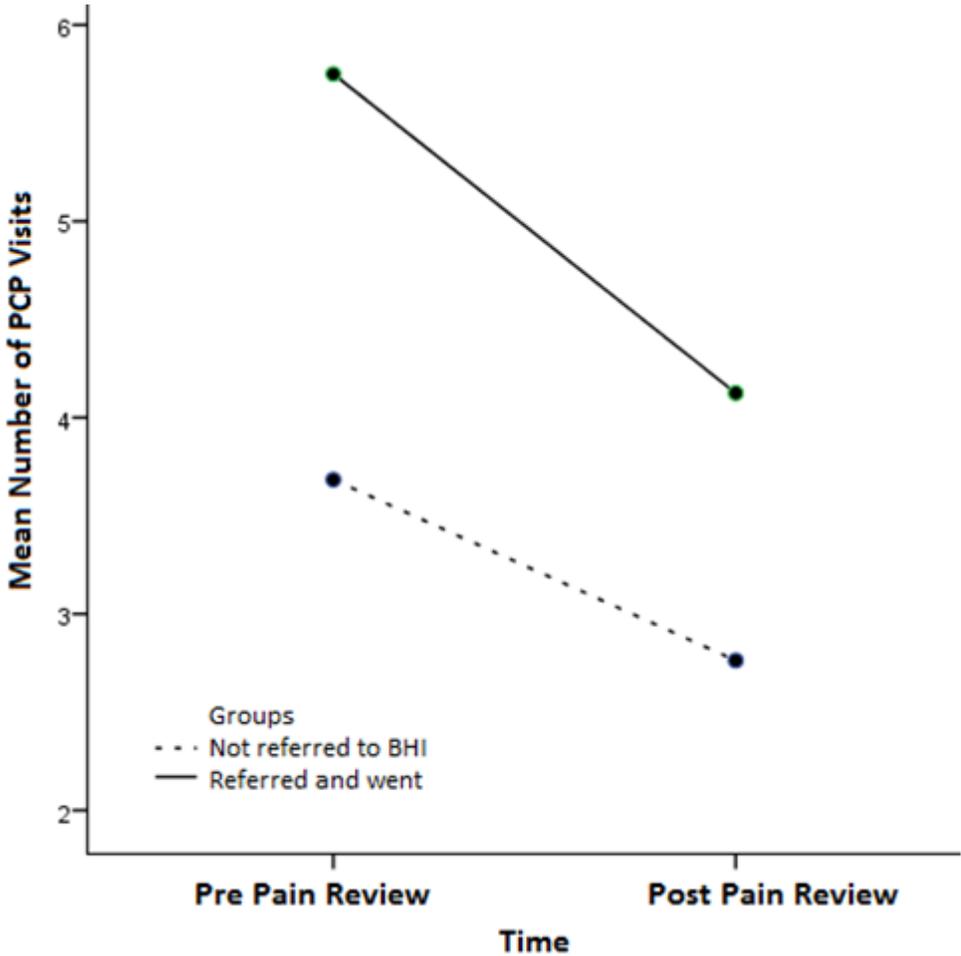


Figure 1: The mean number of PCP visits, six months before and six months after a Pain Review Appointment for patients who were and were not referred to BHI services.

frequency of PCP visits six months before the Pain Review Appointment to a much lower frequency of PCP visits six months after the Pain Review Appointment that is not statistically different from those who were not referred to BHI services, the number of patients referred to BHI services is so small that it is not a statistically significant decline.

The BHI intern collected data regarding the number of other office visits six months prior to and six months after the Pain Review Appointment for both groups. A repeated-

measures ANOVA was conducted to determine differences between the two groups regarding the number of other office visits six months before and after the Pain Review Appointment. Results indicated no main effect of time on the number of other office visits ($F(1, 44) = 0.05, p = .82$), no main effect of BHI referral and utilization on number of office visits ($F(1, 44) = 0.25, p = .62$), and no interaction of time and BHI referral and utilization on number of other office visits ($F(1, 44) = 0.02, p = .45$). There were no significant changes in the number of other office visits over time for both groups and no significant differences in the number of other office visits between the two groups before or after the Pain Review Appointment.

The BHI intern collected data regarding the number of other patient encounters (e.g. telephone calls, emails, other chart documentation) six months prior to and six months after the Pain Review Appointment for both groups. A repeated-measures ANOVA was conducted to determine differences between the two groups regarding the number of other patient encounters six months before and after the Pain Review Appointment. Results indicated no main effect of time on the number of other patient encounters ($F(1, 44) = 0.40, p = .53$), a significant main effect of BHI referral and utilization on number of other patient encounters ($F(1, 44) = 8.40, p = .01$), and no interaction of time and BHI referral and utilization on number of other patient encounters ($F(1, 44) = .003, p = .96$). This indicates that patients who were referred to and utilized BHI services displayed a higher number of other patient encounters six months prior to the Pain Review Appointment and six months after the Pain Review Appointment in comparison to patients who were not referred to BHI services.

Hypothesis 4

Patients who received a Pain Review Appointment will display a decrease in opioid medication dosage over time. For the 48 patients who received a Pain Review Appointment, data was collected regarding the MED at the time of the Pain Review Appointment. The MED was then recorded for one year following the Pain Review Appointment in two-month intervals (e.g., MED two months after the Pain Review Appointment, MED four months after the Pain Review Appointment, and so on). A repeated-measures ANOVA was conducted to determine changes in MED over time. Results indicated a main effect of time on MED ($F(1.61, 75.55) = 9.38, p = .001$; Figure 2). This indicates that patients who had the Pain Review Appointment displayed a significant decline in MED over the following year. Paired samples t -tests were conducted to determine if the mean difference in dosage between each two-month period is significant. Results displayed a significant decline in dosage between each two-month period until the change between the 8- and 10-month periods ($t(47) = 1.99, p = .053$), as well as no significant decline between the 10- and 12-month periods ($t(47) = -0.83, p = .413$); see Table 4. This indicates that there was a significant decline in MED for approximately 8 months following the Pain Review Appointment, at which point the MED appeared to plateau.

Figure 2: The mean morphine equivalent dosage (MED) over time, 12 months following the Pain Review Appointment.

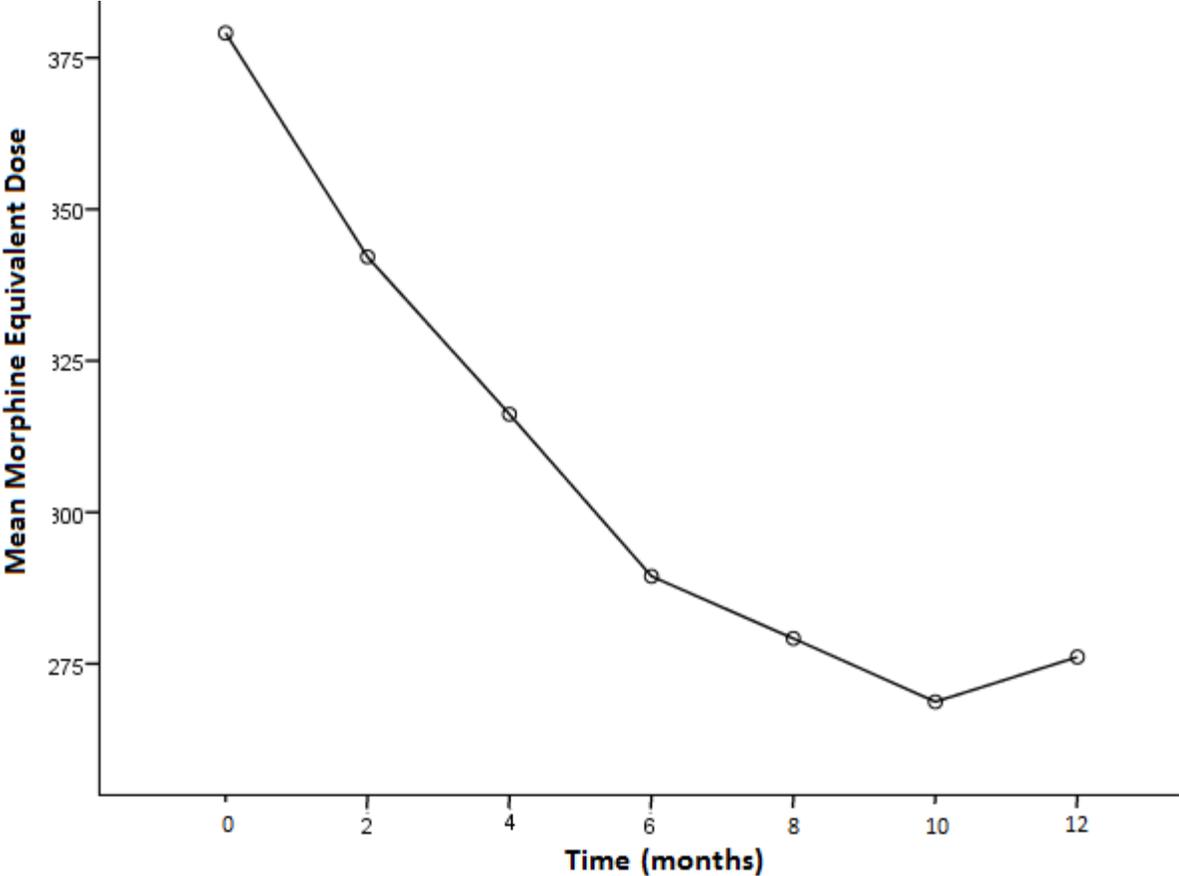


Table 4

Changes In Morphine Equivalent Dosage Over Time

Time Period Comparison	<i>df</i>	<i>t</i>	<i>p</i>
Time 0 – 2 months	47	2.30	.026
2 months – 4 months	47	2.13	.038
4 months – 6 months	47	2.24	.030
6 months – 8 months	47	3.13	.003
8 months – 10 months	47	1.99	.053
10 months – 12 months	47	-0.83	.413

PCP Utilization of Standard Procedures

Data was collected to evaluate the PCP utilization of the standard procedures defined by the healthcare organization for providing patient-centered interdisciplinary care to chronic pain patients. Of the 90 patients eligible for a Pain Review Appointment, 53.3% ($n = 48$) received a Pain Review Appointment. Incidence rates for PCP utilization of standard pain program procedures and BHI services referrals are displayed in Table 4. The results indicate low to moderate utilization of established treatment program procedures.

Table 5

PCP Utilization of Standard Pain Program Procedures

Procedure	Frequency	Percentage
Had Pain Review Appointment	48	53.3%
Used Standard Pain Visit Template	26	54.2%
Administered PHQ-9	22	45.8%
Administered PDI	25	52.1%
Administered PAM	0	0%
Referred to BHI services	10	20.8%
Included reason for BHI services referral	4	40%
BHI services reason for referral mentioned pain	3	75%

Chapter 4

Discussion

Implications

A main purpose of this study was to examine the effectiveness of a patient-centered interdisciplinary approach to treating chronic pain within a primary care setting by exploring trends in patient utilization of medical services, opioid prescription dosages, and PCP utilization of established treatment program procedures. The central aim is to be able to use the results of this study to provide formative feedback that may enhance further development of this treatment program, and ultimately improve patient care, outcomes, and quality of life. Results from this study indicate that the Pain Review Appointment was associated with several patient outcomes, including a significant decline in the number of PCP visits over time. While patients who were referred to and attended BHI services had a greater number of PCP visits prior to the Pain Review Appointment than those who were not referred to BHI services, both groups displayed a notable reduction in number of PCP visits following the Pain Review Appointment. These results indicate that the Pain Review Appointment, whether the patient is enrolled with BHI or not, is an effective intervention in decreasing PCP visits for high utilization rates within the chronic pain population. Additionally, results displayed a significant decrease in opioid dosage over time for approximately eight months following the Pain Review Appointment before leveling off. While the average opioid dosage did not meet the goal of reaching below 120 mg MED, the

decline in dosage was statistically significant. When the PCP meets with the patient to outline a treatment plan at this visit, it appears that patient outcomes begin to improve and overutilization begins to decline as the PCP and the patient work together to initiate an individualized plan to begin tapering opioid medications down to a safer dosage. This offers an excellent opportunity for other treatment team members, such as care coordinators and BHI providers, to provide additional support for the purpose of continuing to work toward the medication tapering goals while also being mindful of patient needs as they make this adjustment.

This study offered insight into how PCPs utilized the standard procedures developed for this treatment approach. Use of the standard procedures was moderate in the number of patients who received a Pain Review Appointment and utilization of templates, as well as some of the standard screeners. However, use of standard procedures was low to absent in other measures, such as making BHI referrals and administering the PAM. However, it appears that when the procedures were put into action, the results aligned with the goals of the program; patient outcomes began to improve and overutilization began to decline. These prospects may enhance motivation in PCPs and the healthcare system as a whole for increased application of the standard procedures.

Although the number of BHI services referrals was low, this study began to highlight which factors were correlated with a BHI services referral. While patients struggling with depression were not referred to BHI consistently, patients with anxiety were more frequently referred. Further, pain diagnoses of migraine/headache, chronic pain, and other specific localized pain were correlated with more frequent BHI referral rates. Additionally,

system burden seemed to be a determining factor for BHI referral with both greater frequency of patient encounters, as well as patient telephone calls and emails. Results from this study indicate that chronic pain patients with mental health comorbidity, especially those with depression and anxiety, tend to display greater utilization of medical services. Gaining a better understanding of which patients are currently being referred to BHI services may highlight blind spots as to patient presentations that appear to be overlooked for the opportunity to enhance their treatment with BHI services. This may in turn lead to greater intentionality in increasing BHI services referrals as part of the treatment plans.

Limitations

A primary limitation from this study that covers widespread factors revolves around variable engagement and utilization. Given that about half of the sample did not receive a Pain Review Appointment, two of the standard screeners were only moderately used, one standard screener was never used, only a small amount of patients were referred to BHI services, and an even smaller amount ever saw a BHI provider, many possible outcomes could either not be examined at all or the results could not be deemed significant. The study was unable to assess changes in screener scores over time or the influence of patient engagement in BHI services. Assessing data of patients from three different clinics and 19 different PCPs provides additional difficulty generalizing results, as at this time it does not appear that all clinics and providers are following a standardized treatment procedure.

Other limitations of this study concern the design of the research. As this was an outcome study of a preexisting treatment program rather than a study including a controlled intervention, many factors were beyond the control of the primary researcher,

including which patients received a Pain Review Appointment or which patients were referred to BHI services. This study did not control for extraneous variables that may have contributed to patient outcomes, such as involvement in other chronic pain treatment (e.g., support groups, physical therapy, naturopathy, other mental health treatment, etc.).

Because the Pain Review Appointment was considered to be the beginning of enrollment in the pain program and thus was the starting data point for many variables, many data points were not collected for patients who did not receive the Pain Review Appointment, resulting in the inability to make comparisons between patients who had the Pain Review Appointment and patients who did not on factors such as changes in opioid dosage over time and patient utilization of medical services over time.

Directions for Future Research

Subsequent studies on this treatment program may offer useful conclusions following increased utilization of program procedures and patient engagement in BHI services. In the meantime, further research may focus on missing data points in the current sample. Gathering data for patients who did not receive a Pain Review Appointment on factors such as opioid dosage over time and patient utilization of medical services over time would allow for comparisons between groups and enhance the ability to make more accurate conclusions regarding the significance of the results from this study. Clinical case analyses of the current sample could offer greater depth in understanding the factors that contribute to the effectiveness of this treatment program and the barriers that prevent engagement and utilization. Closely examining EMR documentation in other patient encounters such as patient telephone calls and emails may offer insight as to why patients

who appear actively engaged in the treatment program continue to display high volume of these encounters over time.

Conclusion

This study offered an examination of a patient-centered interdisciplinary approach to chronic pain treatment in the primary care setting, specifically during the early stages of development and implementation of the treatment program. The results helped to highlight the strengths and growing edges in the current implementation of the treatment program procedures. Results also conveyed that when the procedures are utilized, outcomes appear to be favorable to the patient sample and work toward achieving the goals set forth by the healthcare system. Future studies will be needed to ensure that these results are consistent when the sample size increases.

References

- Achterberg, W., Gambassi, G., Finne-Soveri, H., Liperoti, R., Noro, A., Frijters, D., & Ribbe, M. (2010). Pain in European long-term care facilities: cross-national study in Finland, Italy and The Netherlands. *Pain, 148*(1), 70-74. doi:10.1016/j.pain.2009.10.008
- Aita, V., McIlvain, H., Backer, E., McVea, K., & Crabtree, B. (2005). Patient-centered care and communication in primary care practice: What is involved?. *Patient Education & Counseling, 58*(3), 296-304. doi:10.1016/j.pec.2004.12.008
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Publishing.
- Arnow, B. A., Blasey, C. M., Lee, J., Fireman, B., Hunkeler, E. M., Dea, R., & Hayward, C. (2009). Relationships among depression, chronic pain, chronic disabling pain, and medical costs. *Psychiatric Services, 60*(3), 344-350. doi:10.1176/appi.ps.60.3.344
- Arroll, B., Goodyear-Smith, F., Crengle, S., Gunn, J., Kerse, N., Fishman, T., & Hatcher, S. (2010). Validation of PHQ-2 and PHQ-9 to Screen for Major Depression in the Primary Care Population. *Annals of Family Medicine, 8*(4), 348-353. doi:10.1370/afm.1139
- Bair, M., Robinson, R., Eckert, G., Stang, P., Croghan, T., & Kroenke, K. (2004). Impact of pain on depression treatment response in primary care. *Psychosomatic Medicine, 66*(1), 17-22.
- Bair, M. J., Robinson, R. L., Katon, W., & Kroenke, K. (2003). Depression and Pain Comorbidity: A Literature Review. *Archives of Internal Medicine, 163*(20), 2433.

- Bair, M., Wu, J., Damush, T., Sutherl, J. M., & Kroenke, K. (2008). Association of depression and anxiety alone and in combination with chronic musculoskeletal pain in primary care patients. *Psychosomatic Medicine, 70*(8), 890-897.
- Beehler, G. P., Rodrigues, A. E., Mercurio-Riley, D., & Dunn, A. S. (2013). Primary care utilization among veterans with chronic musculoskeletal pain: A retrospective chart review. *Pain Medicine, 14*(7), 1021-1031.
- Bendtsen, P., Hensing, G., Ebeling, C., & Schedin, A. (1999). What are the qualities of dilemmas experienced when prescribing opioids in general practice? *Pain, 82*(1), 89-96.
- Booth, M. (1986). *Opium: A history*. New York, NY: St. Martin's Press.
- Breuer, B., Cruciani, R., & Portenoy, R. K. (2010). Pain management by primary care physicians, pain physicians, chiropractors, and acupuncturists: A national survey. *Southern Medical Journal, 103*(8), 738-747.
- Chelimsky, T., Fischer, R., Levin, J., Cheren, M., Marsh, S., & Janata, J. (2013). The primary practice physician program for chronic pain (© 4PCP): Outcomes of a primary physician-pain specialist collaboration for community-based training and support. *Clinical Journal of Pain, 29*(12), 1036-1043. doi:10.1097/AJP.0b013e3182851584
- Chou, R. (2013). Steering patients to relief from chronic low back pain: Opioids' role. *Journal of Family Practice, 62*(3), S8-S13.
- Deyo, R., Smith, D., Johnson, E., Donovan, M., Tillotson, C., Yang, X., . . . Dobscha, S. (2011). Opioids for back pain patients: Primary care prescribing patterns and use of services. *Journal of the American Board of Family Medicine, 24*(6), 717-727.

- Duckworth, M. P., Iezzi, T., & Sewell, M. (2009). Assessing and managing chronic pain in the primary care setting. In L. C. James, W. T. O'Donohue (Eds.), *The primary care toolkit: Practical resources for the integrated behavioral care provider* (pp. 183-197). New York, NY: Springer.
- Fiscella, K., Meldrum, S., Franks, P., Shields, C. G., Duberstein, P., McDaniel, S. H., & Epstein, R. M. (2004). Patient trust: Is it related to patient-centered behavior of primary care physicians? *Medical Care*, *42*(11), 1049-1055. doi:10.1097/00005650-200411000-00003
- Fowles, J., Terry, P., Xi, M., Hibbard, J., Bloom, C., & Harvey, L. (2009). Measuring self-management of patients' and employees' health: further validation of the Patient Activation Measure (PAM) based on its relation to employee characteristics. *Patient Education & Counseling*, *77*(1), 116-122. doi:10.1016/j.pec.2009.02.018
- Gatchel, R. J., McGeary, D. D., McGeary, C. A., & Lippe, B. (2014). Interdisciplinary chronic pain management: Past, present, and future. *The American Psychologist*, *69*(2), 119-30.
- Gatchel, R. J., Peng, Y., Fuchs, P. N., Peters, M. L., & Turk, D. C. (2007). The biopsychosocial approach to chronic pain: Scientific advances and future directions. *Psychological Bulletin*, *133*(4), 581.
- Green, C. R., Wheeler, J. C., Marchant, B., LaPorte, F., & Guerrero, E. (2001). Analysis of the physician variable in pain management. *Pain Medicine*, *2*(4), 317-327.
- Hibbard, J. H., Stockard, J., Mahoney, E. R., & Tusler, M. (2004). Development of the Patient Activation Measure (PAM): Conceptualizing and measuring activation in patients

and consumers. *Health Services Research*, 39(4p1), 1005-1026. doi:10.1111/j.1475-6773.2004.00269.x

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

International Association for the Study of Chronic Pain (1986). Classification of chronic pain. *Pain*, 3(Suppl. 3), 1-226.

Jensen, M., & Turk, D. (2014). Contributions of psychology to the understanding and treatment of people with chronic pain: Why it matters to all psychologists. *The American Psychologist*, 69(2), 105-18.

Kahan, M., Mailis-Gagnon, A., & Tunks, E. (2011). Canadian guideline for safe and effective use of opioids for chronic non-cancer pain: implications for pain physicians. *Pain Research & Management: The Journal of the Canadian Pain Society = Journal De La Société Canadienne Pour Le Traitement De La Douleur*, 16(3), 157-158.

Krashin, D., Sullivan, M., & Ballantyne, J. (2013). What are we treating with chronic opioid therapy? *Current Rheumatology Reports*, 15(3), Current Rheumatology Reports, 2013 Mar, Vol.15(3).

Kroenke, K. (2003). Patients presenting with somatic complaints: epidemiology, psychiatric co-morbidity and management. *International Journal of Methods in Psychiatric Research*, 12(1), 34.

- Kroenke, K., Spitzer, R. L., & Williams, J. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606-613.
doi:10.1046/j.1525-1497.2001.016009606.x
- Kroenke, K., Spitzer, R., Williams, J., Linzer, M., Hahn, S., deGruy, F., & Brody, D. (1994). Physical symptoms in primary care. Predictors of psychiatric disorders and functional impairment. *Archives of Family Medicine, 3*(9), 774-779.
- Loeser, J. D. (1999). Economic implications of pain management. *Acta Anaesthesiologica Scandinavica, 43*(9), 957-959. doi:10.1034/j.1399-6576.1999.430914.x
- Matthias, M. S., Parpart, A. L., Nyland, K. A., Huffman, M. A., Stubbs, D. L., Sargent, C., & Bair, M. J. (2010). The patient-provider relationship in chronic pain care: Providers' perspectives. *Pain Medicine, 11*(11), 1688-1697. doi:10.1111/j.1526-4637.2010.00980.x
- McDaniel, S., & DeGruy, F. (2014). An Introduction to primary care and psychology. *American Psychologist, 69*(4), 325-331.
- Merskey, H., & Bogduk, N. (1994). *Classification of chronic pain: Descriptions of chronic pain syndromes and definitions of pain terms*. Seattle, WA: IASP Press.
- Michna, E., Ross, E. L., Hynes, W. L., Nedeljkovic, S. S., Soumekh, S., Janfaza, D., & Jamison, R. N. (2004). Predicting aberrant drug behavior in patients treated for chronic pain: Importance of abuse history. *Journal of Pain and Symptom Management, 28*(3), 250-258. doi:10.1016/j.jpainsymman.2004.04.007
- Nicholson, B. B. (2003). Responsible prescribing of opioids for the management of chronic pain. *Drugs, 63*(1), 17-32.

- Onder, G., Cesari, M., Russo, A., Zamboni, V., Bernabei, R., & Landi, F. (2006). Association between daily pain and physical function among old-old adults living in the community: Results from the ilSIRENTE study. *Pain (03043959)*, *121*(1/2), 53-59. doi:10.1016/j.pain.2005.12.003
- Otis, J. D., & Hughes, D. H. (2010). Psychiatry and chronic pain: Integration and coordination with primary care. *Psychiatric Times*, *27*(12), 24-27.
- Otis, J. D., Macdonald, A., & Dobscha, S. K. (2006). Integration and coordination of pain management in primary care. *Journal of Clinical Psychology*, *62*(11), 1333-1343. doi:10.1002/jclp.20313
- Otis, J. D., Reid, M., & Kerns, R. D. (2005). Multidisciplinary approaches to pain management in primary care settings. In L. C. James & R. A. Folen (Eds.), *The primary care consultant: The next frontier for psychologists in hospitals and clinics* (pp. 41-59). Washington DC: American Psychological Association. doi:10.1037/10962-003
- Poleshuck, E. L., Talbot, N. L., Su, H., Tu, X., Chaudron, L., Gamble, S., & Giles, D. E. (2009). Pain as a predictor of depression treatment outcomes in women with childhood sexual abuse. *Comprehensive Psychiatry*, *50*(3), 215-220. doi:10.1016/j.comppsy.2008.08.001
- Reidenberg, M., & Willis, O. (2007). Prosecution of physicians for prescribing opioids to patients. *Clinical Pharmacology and Therapeutics*, *81*(6), 903-906.
- Reyes-Gibby, C. C., Aday, L., & Cleeland, C. (2002). Impact of pain on self-rated health in the community-dwelling older adults. *Pain*, *95*(1/2), 75.

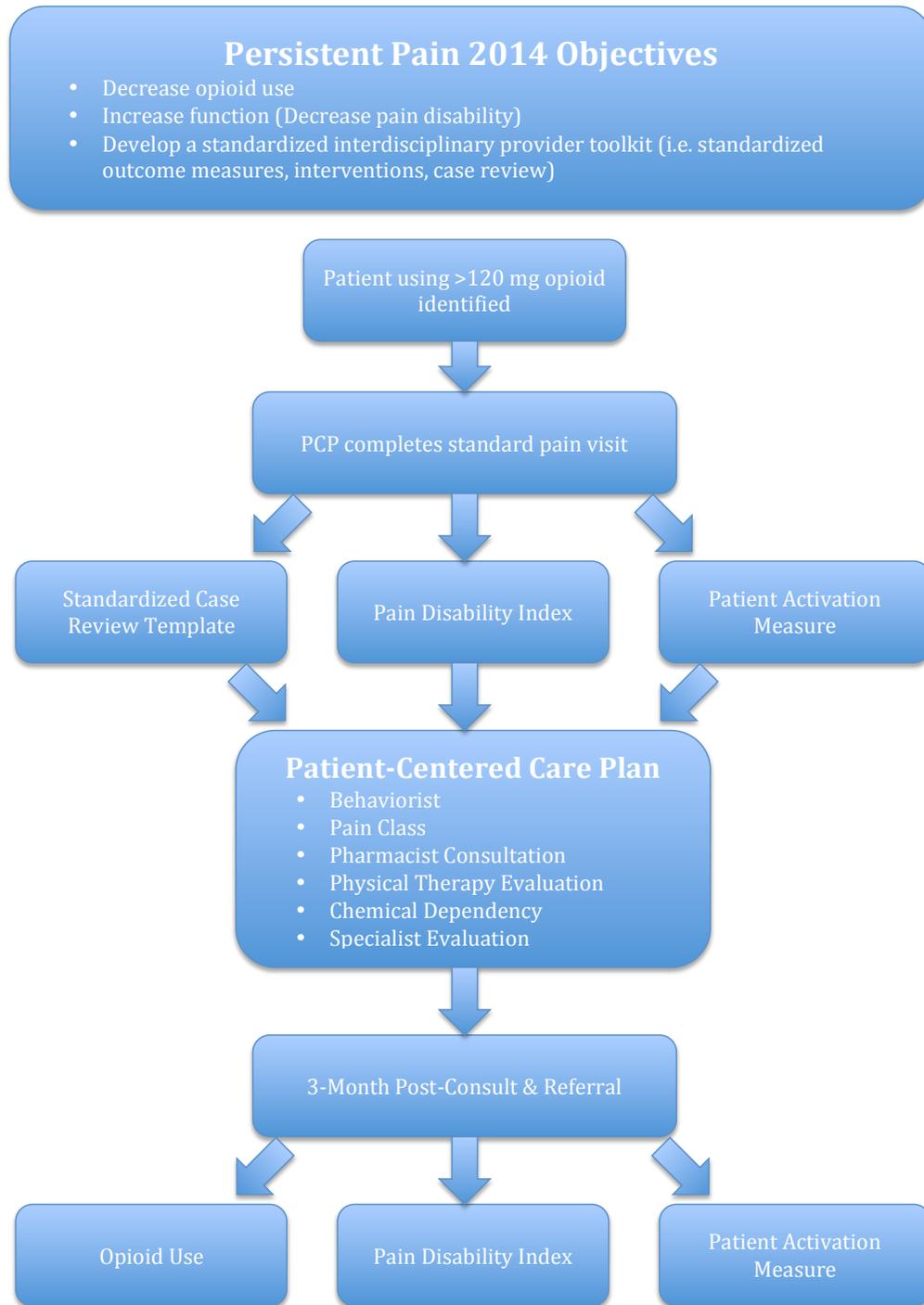
- Ritzwoller, D. P., Crouse, L., Shetterly, S., & Rublee, D. (2006). The association of comorbidities, utilization and costs for patients identified with low back pain. *BMC Musculoskeletal Disorders*, 772-10. doi:10.1186/1471-2474-7-72
- Rosenblum, A., Marsch, L. A., Joseph, H., & Portenoy, R. K. (2008). Opioids and the treatment of chronic pain: Controversies, current status, and future directions. *Experimental and Clinical Psychopharmacology*, 16(5), 405-416. doi:10.1037/a0013628
- Shurman, J., Koob, G., & Gutstein, H. (2010). Opioids, pain, the brain, and hyperkatifeia: a framework for the rational use of opioids for pain. *Pain Medicine (Malden, Mass.)*, 11(7), 1092-1098. doi:10.1111/j.1526-4637.2010.00881.x
- Solberg, L., Glasgow, R., Unutzer, J., Jaeckels, N., Oftedahl, G., Beck, A., . . . Unuetzer, L. (2010). Partnership research - a practical trial design for evaluation of a natural experiment to improve depression care. *Medical Care*, 48(7), 576-582.
- Soldato, M., Liperoti, R., Landi, F., Finne-Sovery, H., Carpenter, I., Fialova, D., & Onder, G. (2007). Non malignant daily pain and risk of disability among older adults in home care in Europe. *Pain*, 129(3), 304-310.
- Tait, R. C. (2008). Empathy: Necessary for effective pain management? *Current Pain and Headache Reports*, 12, 108-112.
- Tait, R., Pollard, C., Margolis, R., Duckro, P., & Krause, S. (1987). The Pain Disability Index: psychometric and validity data. *Archives of Physical Medicine and Rehabilitation*, 68(7), 438-441.
- Turk, D. C., & Melzack, R. (2011). *Handbook of pain assessment (3rd ed.)*. New York, NY: Guilford Press.

Upshur, C. C., Bacigalupe, G., & Luckmann, R. (2010). 'They don't want anything to do with you': Patient views of primary care management of chronic pain. *Pain Medicine*, 11(12), 1791-1798. doi:10.1111/j.1526-4637.2010.00960.x

Upshur, C. C., Luckmann, R. S., & Savageau, J. A. (2006). Primary care provider concerns about management of chronic pain in community clinic populations. *JGIM: Journal of General Internal Medicine*, 21(6), 652-655. doi:10.1111/j.1525-1497.2006.00412.x

Vowles, K. E., Witkiewitz, K., Sowden, G., & Ashworth, J. (2014). Acceptance and commitment therapy for chronic pain: Evidence of mediation and clinically significant change following an abbreviated interdisciplinary program of rehabilitation. *The Journal of Pain*, 15(1), 101-113. doi:10.1016/j.jpain.2013.10.002

Appendix A



Appendix B

Patient Health Questionnaire (PHQ-9) *(page 1 of 1)*

Today's Date: _____ Patient's Name: _____ Date of Birth: _____

Are you currently: on medication for depression not on medication for depression not sure? in counseling

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling/staying asleep, sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself, — or that you're a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed, or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
Total each column				

How difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

A. Not difficult at all Somewhat difficult Very difficult Extremely difficult

B. **In the past 2 years**, have you felt depressed or sad most days, even if you felt okay sometimes?

YES NO

Comments:

For Office Use Only:

Symptom score (total # of answers in shaded areas): _____

Severity score (total all points from all questions): _____

Appendix C

Pain Disability Index

Name _____ Date _____

Pain disability index: The rating scales below are designed to measure the degree to which aspects of your life are disrupted by chronic pain. In other words, we would like to know how much your pain is preventing you from doing what you would normally do or from doing it as well as you normally would. Respond to each category by indicating the overall impact of pain in your life, not just when the pain is at its worst.

For each of the 7 categories of life activity listed, please circle the number on the scale that describes the level of disability you typically experience. **A score of 0 means no disability at all, and a score of 10 signifies that all of the activities in which you would normally be involved have been totally disrupted or prevented by your pain.**

Family/Home Responsibilities: This category refers to activities of the home or family. It includes chores or duties performed around the house (eg, yard work) and errands or favors for other family members (eg, driving the children to school).

No disability 0 1 2 3 4 5 6 7 8 9 10 Worst disability

Recreation: This category includes hobbies, sports, and other similar leisure time activities.

No disability 0 1 2 3 4 5 6 7 8 9 10 Worst disability

Social Activity: This category refers to activities that involve participation with friends and acquaintances other than family members. It includes parties, theater, concerts, dining out, and other social functions.

No disability 0 1 2 3 4 5 6 7 8 9 10 Worst disability

Occupation: This category refers to activities that are a part of or directly related to one's job. This includes nonpaying jobs as well, such as that of a housewife or volunteer worker.

No disability 0 1 2 3 4 5 6 7 8 9 10 Worst disability

Sexual Behavior: This category refers to the frequency and quality of one's sex life.

No disability 0 1 2 3 4 5 6 7 8 9 10 Worst disability

Self-Care: this category includes activities that involve personal maintenance and independent daily living (eg, taking a shower, driving, getting dressed, etc.)

No disability 0 1 2 3 4 5 6 7 8 9 10 Worst disability

Life-Support Activity: This category refers to basic life-supporting behaviors such as eating, sleeping, and breathing.

No disability 0 1 2 3 4 5 6 7 8 9 10 Worst disability

Appendix D



Behavioral Health Integration

Patient Activation Measure		Rating Scale				
		Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
1	When all is said and done, I am the person who is responsible for taking care of my health.					
2	Taking an active role in my own health care is the most important thing that affects my health.					
3	I am confident I can help prevent or reduce problems associated with my health.					
4	I know what each of my prescribed medications do.					
5	I am confident that I can tell whether I need to go to the doctor or whether I can take care of a health problem myself.					
6	I am confident that I can tell a doctor concerns even when he or she does not ask.					
7	I am confident that I can follow through on medical treatments I may need to do at home.					
8	I understand my health problems and what causes them.					
9	I know what treatments are available for my health problems.					
10	I have been able to maintain (Keep up with) lifestyle changes, like eating right or exercising.					
11	I know how to prevent problems with my health.					
12	I am confident I can figure out solutions when new problems arise with my health.					
13	I am confident that I can maintain lifestyle changes, like eating right and exercising, even during times of stress					

Appendix E

Corie Diane Houlbjerg**CURRICULUM VITAE**

EDUCATION

Doctor of Psychology, Clinical Psychology	August 2016
George Fox University – <i>Newberg, OR</i> Graduate Department of Clinical Psychology: APA Accredited Area of Emphasis: Health Psychology Doctoral Dissertation – Defended May 2015, Full Pass	
Master of Arts, Clinical Psychology	May 2013
George Fox University – <i>Newberg, OR</i> Graduate Department of Clinical Psychology: APA Accredited	
Bachelor of Science, Psychology	May 2008
Washington State University – <i>Pullman, WA</i>	
Associate in Arts	June 2006
Green River Community College – <i>Auburn, WA</i> Washington State Running Start College Program for High School Students	

HONORS AND AWARDS

Special Commendation	May 2013
Awarded by the Graduate Department of Clinical Psychology to less than 5% of students for leadership contribution to the community George Fox University – <i>Newberg, OR</i> Graduate Department of Clinical Psychology	
Research Award for Competency in Professionalism and Relationship	May 2013
Awarded by the Oregon Psychological Association	
Magna Cum Laude	May 2008
Washington State University – <i>Pullman, WA</i>	
Induction into Psi Chi International Honor Society in Psychology	April 2007
Washington State University – <i>Pullman, WA</i>	

CHRONIC PAIN IN PRIMARY CARE	51
Honor Roll Washington State University – <i>Pullman, WA</i>	2006 – 2008
University Academic Achievement Award – <i>Academic Scholarship</i> Washington State University – <i>Pullman, WA</i>	2006 – 2008
Graduate with Honors Distinction Green River Community College – <i>Auburn, WA</i>	June 2006
Honor Roll Green River Community College – <i>Auburn, WA</i>	2004 – 2006

SUPERVISED CLINICAL EXPERIENCE

PRE-DOCTORAL INTERNSHIP:

Louis Stokes VA Medical Center (APA Accredited) – <i>Cleveland, OH</i> <u>Title:</u> Predoctoral Health Psychology Intern	August 2015 – August 2016
<u>First Rotation:</u> Pain Management Center <u>Supervisor:</u> Cynthia Van Keuren, Psy.D.	August 2015 – December 2015
<u>Experiences:</u> <ul style="list-style-type: none"> • Conducted biopsychosocial evaluations for comprehensive treatment recommendations, identified contraindications for opioid analgesics, and assessed candidacy for spinal cord stimulators <ul style="list-style-type: none"> ○ Participated in same-day dual assessment appointments and staffed cases to pain medicine providers • Co-facilitated CBT for Chronic Pain group within Pain Management Intensive Outpatient Program (CARF-Accredited) • Provided individual psychotherapy with individuals with chronic pain disorders <ul style="list-style-type: none"> ○ CBT-CP protocol, relaxation training, biofeedback, ACT • Provided individual psychotherapy via Telehealth services for veterans in distant locations • Observed procedures (epidural steroid injections, spinal cord stimulation, and other implantable devices) • Participated in Pain Specialty Care Access Network meetings (Project SCAN ECHO) <ul style="list-style-type: none"> ○ Interdisciplinary presentations and case discussions aimed at educating primary care physicians, psychologists, and other medical and mental health providers who work with individuals with chronic pain disorders in rural settings • Attended monthly Pain Medicine Grand Rounds meetings • Attended leadership meetings for pain medicine in VISN 10 	

Second Rotation: Oncology and Hospice

December 2015 –

Supervisor: Susan Berman, Ph.D.

April 2016

Experiences:

- Collaborated with an interdisciplinary oncology treatment team to ensure that psychosocial needs of the individual and/or family are addressed along with his/her medical needs
 - Individuals were followed in outpatient clinic, outpatient and/or inpatient infusion centers, and inpatient medical units
- Conducted distress screenings to determine appropriate interventions
- Conducted psychological evaluations for bone marrow transplant candidacy and capacity evaluations for medical decision-making
- Provided individual and family psychotherapy with individuals with oncology diagnoses
 - Behavioral modalities, mindfulness, relaxation training, stress management, CBT to facilitate the adaptation and adjustment to new roles within the system and process the grief that is inherent in losses associated with a major medical diagnosis
- Participated in weekly interdisciplinary tumor boards to discuss evidence-based treatment
- Participated as a member an interdisciplinary palliative care team

Third Rotation: Inpatient Psychiatry

April 2016 –

Supervisor: Rachel Slepecky, Ph.D.

August 2016

Experiences:

- Conducted comprehensive psychological assessments, including clinical interview, psychodiagnostic testing (including MMPI-2-RF, PCL-5, TSI, MCMI-III, and Rorschach), and integrated report
- Co-facilitated inpatient psychotherapy groups
- Created and facilitated a 1-2 session, recovery-focused group
- Attended and participated in interdisciplinary treatment team rounds
- Conducted individual interventions with individuals on the unit as needed
- Observed supplementary experiences, including ECT administration, psychiatric ER, Day Hospital groups, PR RTP, PRRC, inpatient probate hearings, and family meetings
- Attended seminars with psychiatry medical students and residents to increase familiarity with psychiatric issues related to inpatient psychiatry
- Created and conducted a lecture on a psychological topic applicable to inpatient psychiatry and present to medical and pharmacological residents
- Engaged in direct discussion with PharmDs and psychiatrist regarding medications, attend PharmD lectures, and observe PharmD groups

PRACTICUM EXPERIENCES:**Providence Medical Group Sherwood – Sherwood, OR**

March 2013 –

Title: Behavioral Health Intern

May 2015

Description: A two-year practicum position working within an integrated behavioral health primary care setting and within an interdisciplinary team

comprised of physicians and medical personnel to provide holistic health care treatment for patients with mental illness, chronic pain, and health issues.

Population: Entire lifespan, pediatrics through geriatrics

Duties:

- Provided short-term, solution-focused CBT and interpersonal therapy for individuals, couples, and families of varying age, sexual orientation, ethnicity, and socioeconomic status, including those with Medicaid/Medicare and the uninsured.
- Provided psychodiagnostic test administration and screening, including ADHD screenings, dementia screenings, learning disability evaluations, neuropsychological evaluations, personality assessments, and comprehensive psychological assessments.
- Provided consultation services for medical personnel, including psychodiagnostic clarity, referrals for long-term therapy, suggestions for behavioral interventions, training in motivational interviewing, crisis consultation, and risk evaluations.
- Participated as the point behaviorist for the Persistent Pain Interdisciplinary Care Team consisting of medical doctors, patient care coordinators, pharmacists, physician assistants, and nurses.

Supervisors: Marie-Christine Goodworth, PhD, Mary Peterson, PhD, ABPP, & Jeri Terguson, PsyD

Behavioral Health Crisis Consultation Team – Yamhill County, OR

March 2013 –
April 2015

Title: Behavioral Health Intern, QMHP

Description: A two-year on-call position providing crisis consultation, assessment, and intervention for two major medical centers (emergency department, intensive care unit, labor and delivery unit, and medical/surgical unit), law enforcement, and mental health agencies within Yamhill County.

Population: Children, adolescents, and adults often with severe mental health issues such as schizophrenia, bipolar disorder, severe depression, and dementia. Most patients typically attempted suicide or harming others, came close to attempting suicide or harming others, or were experiencing psychosis or delirium.

Duties:

- Completed hospital risk-assessments, cognitive evaluations, and other assessments of patients of varying age, gender, sexual orientation, ethnicity, and socioeconomic status.
- Provided consultation for medical personnel pertaining to psychodiagnostic clarity, mental status, and level of risk.
- Provided phone consultation for law enforcement personnel who were in the field trying to diffuse or manage someone who was mentally ill and a danger to self or others.
- Collaborated with medical personnel and Yamhill County staff to develop appropriate discharge plans for patients, and determine appropriate placement for at-risk individuals while working within the broader medical systems and county services.
- Implemented psychiatric hospitalization, respite care, subacute

psychiatric placement, or alternative intervention placements for high-risk, suicidal, or cognitively decompensated patients under supervision of a licensed psychologist.

Supervisors: Mary Peterson, PhD, ABPP, William Buhrow, PsyD, & Joel Gregor, PsyD

Warner Pacific College Counseling Center – Portland, OR

August 2012 –
May 2013

Title: Graduate Counseling Intern

Description: A one-year position at the counseling center of an urban undergraduate and adult degree program college campus.

Population: Undergraduate and adult degree program students. Most students were first generation college students, ethnic minorities, and low socioeconomic status.

Duties:

- Provided weekly individual psychotherapy to students of varying age, gender, sexual orientation, and ethnicity in a college counseling setting, utilizing person-centered, interpersonal, and cognitive behavioral techniques.
- Conducted diagnostic intake interviews, developed treatment plans, and wrote formal intake and progress reports.
- Administered cognitive assessments, achievement tests, personality assessments, and diagnostic batteries and wrote integrated reports.
- Provided group therapy, community outreach, crisis intervention, and mentoring high-risk students on academic probation.

Supervisor: Denise Lopez-Haugen, PsyD

RESEARCH EXPERIENCE AND PROFESSIONAL PRESENTATIONS

Doctoral Dissertation Research

August 2011 –
May 2015

George Fox University Graduate Department of Clinical Psychology – Newberg, OR

- Topic: *The Effectiveness of a Patient-Centered Interdisciplinary Approach to Treating Chronic Pain in the Primary Care Setting*
- Full Pass. Defended May 22, 2015
- Dissertation Chairs: Marie-Christine Goodworth, PhD and Luann Foster, PsyD
- Committee Members: Mary Peterson, PhD, ABPP and Kathleen Gathercoal, PhD

Research Vertical Team

February 2012 –
May 2015

George Fox University Graduate Department of Clinical Psychology – Newberg, OR

- Description: A research team focused on health psychology consisting of graduate students from each year of the program led by a faculty member.
- Supervisors: Marie-Christine Goodworth, PhD and Luann Foster, PsyD
- Duties:
 - Worked on personal dissertation, assisted peers with various aspects of their dissertations, such as proofreading chapters and entering data, and developed supplemental research projects.

Infant Temperament Laboratory

Washington State University Department of Psychology – Pullman, WA

August 2007 –
December 2008

Title: Undergraduate Research Assistant

Duties:

- Received coding training and coded videotaped experimental sessions consisting of various tasks aimed to analyze infant temperament and reactivity.
- Attended weekly supervision meetings and trainings.
- Reviewed and presented scholarly journals on temperament weekly.

Supervisor: Marsha Gartstein, PhD

Anxiety Disorders Laboratory

Washington State University Department of Psychology – Pullman, WA

October 2006 –
May 2008

Title: Undergraduate Research Assistant

Duties:

- Recruited research participants, conducted study pre-screening sessions and experiments as lead proctor and support proctor, and entered data into Excel and SPSS and analyzed data.
- Attended monthly supervision meetings and trainings and trained new research assistants.

Supervisor: Dr. Michiyo Hirai, PhD

GRADUATE RESEARCH

Houlbjerg, C., Goodworth, M., Foster, L., Peterson, M., & Gathercoal, K. (May, 2015). *The effectiveness of a patient-centered interdisciplinary approach to treating chronic pain in the primary care setting*. Doctoral dissertation, defended May 22, 2015 at George Fox University. Newberg, OR.

Houlbjerg, C., Goins, N., Malone, M., & Goodworth, M. (May, 2014). *Persistent pain in primary care: A patient-centered interdisciplinary approach*. Poster presented at the annual conference of the Oregon Psychological Association. Portland, OR.

Goodworth, M., Zarb, D., **Houlbjerg, C.,** Blake, A., Parker, T., & Foster, L. (August, 2013). *Development of a palliative care consultation service*. Poster presented at the 120th annual convention of the American Psychological Association. Honolulu, HI.

Zarb, D., **Houlbjerg, C.,** Blake, A., Parker, T., Goodworth, M., & Foster, L. (May, 2013). *Psychology in palliative care: A literature review*. Poster presented at the annual conference of the Oregon Psychological Association. Eugene, OR.

PROFESSIONAL PRESENTATIONS AND CONSULTATION**ACT in Behavioral Medicine Independent Study**January 2015 –
April 2015

Description: Collaborated with licensed psychologists well-versed in primary care and ACT to create a training video demonstrating a simulated session using ACT interventions to treat chronic pain. Created treatment manuals for behaviorists working in integrated primary care featuring treatment protocols for chronic pain, insomnia, and anxiety featuring ACT interventions.

Palliative Care Consultation TeamAugust 2013 –
May 2014

Description: Provided professional consultation to a new team of behavioral health providers as they developed a new palliative care consultation service.
Duties: Researched literature and provided psychoeducational materials, evaluated consultee needs and goals, and developed a training manual for new team members.

Motivational Interviewing in Primary Care Workshop

October 2013

Presented to: Physicians and medical staff at Providence Medical Group
Description: Presented evidence-based practices for implementing motivational interviewing within a medical setting.

PROFESSIONAL AFFILIATIONS

Clinical Health Psychology Network

2014 – Present

*Student Member***George Fox PsyD Military Interest Group**

2014 – 2015

*Student Member***APA: Division 38, Health Psychology**

2013 – Present

*Student Affiliate***Association for Contextual Behavioral Science**

2013 – Present

*Student Member***American Psychology Association**

2011 – Present

*Graduate Student Affiliate***Psi Chi International Honor Society in Psychology**

2007 – Present

Student Member

TEACHING EXPERIENCE

Lead Teaching Assistant for Cognitive Assessment

August 2014 –

George Fox University Graduate Department of Clinical Psychology – Newberg, OR December 2014Faculty: Celeste Flachsbart, PsyD, ABPPDuties:

- Provided oversight and leadership to three other teaching assistants and organization of teaching assistant responsibilities.
- Provided guest lecture on the WIAT-III and learning disabilities.
- Provided weekly lab demonstrations and instruction of various cognitive assessment instruments.
- Evaluated graduate students' progress as they learned to administer, score, and interpret cognitive assessment instruments by reviewing video tapes, protocols, and written assessment reports.
- Met weekly with other TAs and faculty to discuss student progress and course requirements.
- Met individually with students as needed to provide further instruction and support.

Teaching Assistant for Health Psychology

January 2014 –

George Fox University Graduate Department of Clinical Psychology – Newberg, OR

May 2014

Faculty: Marie-Christine Goodworth, PhDDuties:

- Provided guest lecture on interdisciplinary communication and psychological evaluation screeners in the primary care setting.
- Provided guest lecture on psychological approaches to treating chronic pain in the primary care setting.
- Was responsible for creating answer key for exams, grading exams, and developing criteria for course projects.

Teaching Assistant for Cognitive Assessment

August 2013 –

George Fox University Graduate Department of Clinical Psychology – Newberg, OR

December 2013

Faculty: Wayne Adams, PhD, ABPPDuties:

- Provided weekly lab demonstrations and instruction of various cognitive assessment instruments.
- Evaluated graduate students' progress as they learned to administer, score, and interpret cognitive assessment instruments by reviewing video tapes, protocols, and written assessment reports.
- Met weekly with other TAs and faculty to discuss student progress and course requirements.
- Met individually with students as needed to provide further instruction and support.

Teaching Assistant for Psychopathology*Washington State University Department of Psychology – Pullman, WA*

January 2008 –

May 2008

Faculty: Masha Gartstein, PhDDuties:

- Attended undergraduate course twice per week to facilitate small group discussion activities and assist with classroom needs.
- Facilitated exam study sessions, proctored exams, graded exams and assignments.
- Met individually with students as need to provide further instruction and support.

ACADEMIC SERVICE AND LEADERSHIP

Secretary of the Student Council

2014 – 2015

George Fox University Graduate Department of Clinical Psychology

- Recorded minutes at bi-weekly meetings, participated in planning and organization of student events, conducted yearly elections of new members, and facilitated communication between student body and faculty.

Student Council Cohort Representative

2013 – 2015

George Fox University Graduate Department of Clinical Psychology

- Served the graduate student community by addressing community concerns, assisting with event planning, and serving as a liaison between students and faculty.

New Student Orientation Facilitator

2012 – 2015

George Fox University Graduate Department of Clinical Psychology

- Assisted incoming graduate students during their transition into the program by planning and preparing orientation days and organizing and facilitating mentor matching and activities.

Peer Mentor

2012 – 2015

George Fox University Graduate Department of Clinical Psychology

- Assisted incoming graduate students in transitioning to the program by providing personal and professional mentorship during their entire first year.

Admissions Committee Student Member

2011 – 2015

George Fox University Graduate Department of Clinical Psychology

- Participated in the admission of new students by assisting in reviewing and rating prospective student applications, attending weekly meeting to discuss applicants, helping facilitate interview days, interview applicants, and take prospective students on a tour

of Portland, Oregon. Met with campus visitors throughout the year.

Psychology Club Member

2006 – 2008

Washington State University

- Attended monthly meetings, planned community outreach events, planned club social events, and helped recruit new members.

Psi Chi International Honor Society in Psychology Chapter Member

2006 – 2008

Washington State University

- Attended monthly meetings, planned psychoeducational community outreach events, and helped recruit and induct new members.

RELEVANT EMPLOYMENT HISTORY

Overlake Hospital Outpatient Psychiatry – Bellevue, WA

September 2010 –

Title: Patient Access Coordinator

July 2011

Population: children, adolescents, and adults

Duties:

- Pre-screened new patients, prepared and processed paperwork, scheduled appointments, collected co-payments, and communicated critical information to psychiatrists.

Supervisor: Carlos Miranda

Lindmoor-Bell Learning Processes – Bellevue, WA

June 2010 –

Title: Clinician – Summer Seasonal Position

August 2010

Population: children and adults with learning disabilities

Duties:

- Provided individual instruction to children and adults with learning disabilities using research-validated instructional programs that teach them to read, spell, comprehend, think critically, and express language.
- Was frequently assigned by supervisors to work with cases requiring behavioral management interventions.

Supervisor: Meagan Norlin

Gentiva Rehab Without Walls Behavior Management – Lynnwood, WA

April 2010 –

Title: Behavioral Rehabilitation Specialist

August 2010

Population: children and adolescents with severe behavioral disturbances

Duties:

- Worked primarily with a non-verbal student diagnosed with autism at his mainstream middle school.
- Implemented behavior intervention plans, modeled skills for his teachers, collected data and conferred with a behavioral analyst, provided crisis intervention, and collaborated with teachers and parents.

Supervisor: Samantha Mowry

Overlake Hospital Behavioral Health Specialty School – Bellevue, WA

August 2008 –
April 2010

Title: Instructional Assistant in Elementary EBD Classroom

Population: children and adolescents with severe mental illness and behavior disturbances

Duties:

- Developed and implemented behavior intervention plans, provided crisis intervention, developed and implemented individualized education plans, led life skills lessons, led art lessons, assisted students on daily outings and field trips in the community, provided daily classroom preparation and management, and founded and edited the school newspaper.

Supervisor: Adam Wallas

Christie Care Multnomah Children’s Receiving Center – Portland, OR

May 2008 –
September 2008

Title: Child and Youth Care Coordinator

Population: children and adolescents with severe mental illness and behavior disturbances

Duties:

- Provided daily care and crisis intervention to children and adolescents in an interim residential treatment facility. The center was for children who were removed from their homes by social services due to abuse, neglect, or illegal activity in the home.

Supervisor: Kelly Blixhavn

VOLUNTEER EXPERIENCE

Through The Roof Ministry Launch Team Member

June 2010 –
August 2011

EastLake Community Church – Bothell, WA

Description: Helped launch a new ministry to serve children with physical, behavioral, and developmental disabilities and their families. Goal was to integrate the children into the mainstream Sunday school classrooms, allowing the parents to attend church carefree in the adult auditorium. Altered Biblical curriculum to meet needs of individual children, developed intervention plans, and led training on crisis intervention.

Alternatives to Violence & Crime Victim Service Center – Pullman, WA

October 2007 –
May 2008

Title: Crisis Hotline Advocate

Population: adolescents and adults

Duties:

- Provided advocacy and crisis intervention via hotline for victims of sexual assault and domestic violence in Whitman County, WA and Latah County, ID.
- Conducted suicide risk assessments, provided referrals for services, and attended monthly supervision meetings and trainings.

Supervisor: Tiffany Wigen