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Impact of a Cognitive Behavioral Pain Management Group on Depression, Anxiety, Pain Severity, and Opioid Use in an Inpatient Population

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Impact of a Cognitive Behavioral Pain Management Group on Depression, Anxiety, Pain
Severity, and Opioid Use in an Inpatient Population

by

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Impact of a Cognitive Behavioral Pain Management Group on Depression, Anxiety, Pain
Severity, and Opioid Use in an Inpatient Population

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by the

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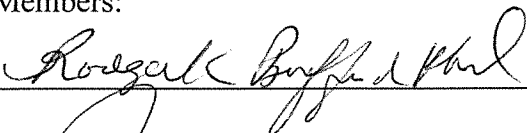
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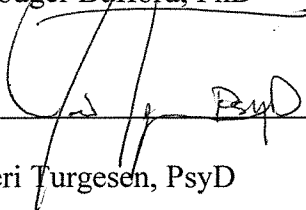


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Abstract

Chronic pain has significant, multifaceted effects on both the health care system and the individual. The total cost of pain to the U.S. healthcare system is estimated to be over \$600 billion annually (Skinner, Wilson, & Turk, 2012). People with chronic pain may frequent multiple providers, often dominating the time and resources of healthcare professionals (Skinner et al., 2012). The approximately 100 million people with chronic pain miss work, experience financial distress, and strained relationships, which leads to comorbid psychological diagnoses (Birnie, McGrath, & Chambers, 2012). Pain treatment strategies have largely followed a biomedical framework, seeking to identify the source of pain and eliminate it; or failing that, using opioids as a primary treatment of chronic pain (Turk, Swanson, & Tunks, 2008). Opioids decline in impact over time and are known to have detrimental side effects (Birnie et al., 2012). Medical treatments alone are insufficient to treat chronic pain and its comorbid psychological distress. Previous research suggests that a multidisciplinary approach focused on regaining functioning and reducing disability is effective (Turk et al., 2008). This study extends current

research by exploring the relationship between multidisciplinary treatment in an inpatient setting, combined with opioid reduction, on the experience of pain and symptoms of depression and anxiety. Results showed patients experienced a reduction in pain intensity and psychiatric symptoms, and an increase in quality of life, even with a significant reduction of opioid medication.

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Chapter 1

Introduction

Pain: Cost to Systems

The Institute of Medicine (2011) estimates that the cumulative cost of chronic pain in the United States, including treatment, disability payments, lost work days, and tax revenue, may exceed \$600 billion per year (Skinner, Wilson, & Turk, 2012). Chronic pain requires treatment, complicates the treatment of other illnesses, and limits people's ability to work and function within society (Gaskin & Richard, 2012). According to the task force of the International Association for the Study of Pain, pain is an unpleasant sensory *and* emotional experience that is associated with actual or potential tissue damage or described in such terms (Gebhart, 2000). The experience or perception of pain is a symptom reported at 50-70% of primary care visits (Vallerand, Pieper, Crawly, Nordstrom, & Dinardo, 2013) and is the one of the most common reasons people seek medical treatment (Schappert & Burt, 2006). Chronic, nonmalignant pain is estimated to affect 30% of adults in Western countries (over 100 million American adults) (Skinner et al., 2012). Due to the difficulty in consistently and effectively treating chronic pain, it has become a significant concern to the U.S. health care system. Many patients seek care from multiple providers, which taxes the resources of the health care profession. There is a need for efficacious treatment of those with chronic pain to ensure the patients are getting what they need and that the healthcare system is not spending time, money, and resources on treatments that are only partially effective (McCracken & Turk, 2002).

Pain: Cost to the Individual

In addition to the economic cost of chronic pain to society, chronic pain has a significant cost for the individual. People with chronic pain experience anxiety and depression at higher rates than the general population (Orenius et al., 2013). In most cases of chronic pain, the symptoms are initially triggered by biomedical factors, which promote the patient to seek treatment. Over time, psychological and behavioral factors contribute to the maintenance and increase in severity of pain, decreasing the adjustment and adaptability of the individual, resulting in increased levels of disability. Many people with chronic pain discontinue treatment plans prematurely and turn to their own ways of dealing with their pain, which frequently includes maladaptive strategies like inactivity, medication, or alcohol and other substances of abuse. It is common for people to become disempowered and begin relying excessively on family members and healthcare professionals to support them and provide all of their necessary care (Skinner et al., 2012).

Traditional Treatment Approach

Prescription pain medication is frequently used in treatment of people with chronic pain. Sales of opioid medication, currently the most common class of drug prescribed in the United States, have increased by 176% from 1997-2006 (Turk, Wilson, & Cahana, 2011). In spite of significant increase in use, opioids remain controversial both with respect to efficacy and adverse physical effects. While they can be effective at reducing pain, they also come with detrimental long-term side effects (Birnie et al., 2012). According to a meta-analysis by Papaleontiou et al. (2010) among opioid-treated patients, the most commonly reported adverse events were

constipation (median frequency of occurrence 30%, range 12-52%), nausea (28%, 12-61%), dizziness (22%, 10-37%), and somnolence (21%, 10-39%).

In a meta-analysis evaluating effectiveness of opioids for the treatment of various forms of chronic non-cancer pain, it was concluded that on average opioids resulted in only a small amount of improvement in pain severity and functional improvement compared with placebo (Turk et al., 2011). Additionally, opioids showed similar effectiveness in pain reduction but less functional improvement than analgesic drugs. As a result of a systematic review of the literature, Neush, Rutjes, Husni, Welch, & Juni (2009) have concluded that opioids should not be routinely used in the treatment of chronic pain. Guidelines from the Neuropathic Pain Special Interest Group of the International Association for the Study of Pain (2010) and the European Federation of Neurological Societies Task Force (2010) recommend opioids as second or third treatment options, considered for first choice treatment only in specific clinical circumstances, such as during episodic exacerbation of severe neuropathic pain.

Traditional medical treatments have attempted to relieve pain and target, when possible, known causes. When elimination of the cause of pain is not possible, treatments are designed to soothe pain symptoms by using pharmacological or physical interventions that interrupt the transmission of pain signals. These treatments focus primarily on the anatomy, physiology, or biochemistry associated with the perception of pain. Despite many important advances in understanding the neurophysiology of pain, the increasing availability of advanced diagnostic procedures, and the application of efficacious therapeutic treatment approaches, resolution of pain continues to be rare. As a result, people with chronic pain most commonly continue to live with some level of pain regardless of the treatment they receive (Turk et al., 2011).

The perception of pain is influenced by a number of factors in addition to the root physiological cause. Pain and all related responses of the person in pain are impacted by genetic and personal history, current health and physiologic state, and the broader social, emotional, and cultural content and context. The longer pain persists without effective intervention, the more distress increases, and environmental factors take an increasingly significant role in increasing and maintaining pain and the development of disability. The mean duration of pain reported by patients treated at pain clinics exceeds seven years (Flor, Fydrich, & Turk, 1992).

Research suggests that no single treatment, no matter how powerful, will eliminate all the problems acquired by patients over the course of their disease (McCracken & Turk, 2002). Pain is a complex problem that requires a complex, multidisciplinary approach for treatment.

Biopsychosocial Treatment Approach

It is clear from the research and scale of impact on society and the individual, that chronic pain is not simply a medical problem. The findings of physical testing and imaging are not strong predictors of the symptoms or functioning of the patient (Turk et al., 2008). Most healthcare providers agree that chronic pain is more than a physiological condition, which has led providers to adopt a biopsychosocial model to understand chronic pain. A traditional biomedical model does not adequately explain or treat chronic; therefore, healthcare providers have broadened their understanding of treatment strategies to focus on goals such as restoration of function, reducing the use of non-beneficial health care services, and pain self-management (Turk et al., 2008).

Due to the fact that some level of pain persists in most people with chronic health conditions regardless of the treatment they have receive (Turk et al., 2008), the understanding of

treatment has shifted from pain resolution to the management of chronic pain. As such, self-management and the development of coping strategies has emerged as a necessary addition to the traditional biomedical approaches to treatment. Research has shown that psychological interventions are effective in helping patients adapt to and manage chronic pain. The most common psychological interventions include insight-oriented therapies, behavioral treatments, and cognitive-behavioral therapy. Additionally, several other techniques derived from these theories have been found efficacious in the treatment of pain; those include motivational interviewing, biofeedback, relaxation, guided imagery, hypnosis, and meditation. All of these techniques have been found efficacious in some degree when used either independently or as a part of a larger treatment program (Turk et al., 2008).

Multi-disciplinary models of treatment which incorporate biomedical, as well as psychological and social factors, demonstrate the greatest efficacy in the treatment of chronic pain. Research shows that multidisciplinary treatment including behavioral therapy and cognitive behavioral therapy are successful in reducing pain reports, restoring lost function including work, and reducing reliance on medical care (Wong, Rietzschel, Mulherin, & David, 2009). Furthermore, results show that multidisciplinary treatments achieve success in treatment with substantially reduced cost when compared with standard biomedical treatments (McCracken & Turk, 2002).

Psychological Interventions

Cognitive behavioral therapy is based on the premise that thoughts influence feelings, behavior, and physiological responses; therefore, if thoughts and behavior can be changed, physiological responses will also be changed (Thorn & Kuhajda, 2006). For people who suffer

from chronic pain, pain severity is only a portion of their disability. Cohen, Vowles, and Eccleston (2010) found that anxiety and depression also contributed to disability for adults who suffer from chronic pain. Additionally, anxiety symptoms explained a significant amount of the variance in functioning in a sample of adolescents with chronic pain. The relationship between pain and depression is well established, although very complex. Chronic pain can result in depression and conversely, people who are depressed when being treated for pain are more likely to develop chronic symptoms. As such, many people suffering from chronic pain require treatment for the co-occurring mental health problems. Given the significant role of anxiety and depression in the maintenance of chronic pain, it is not surprising that the treatment of chronic pain has expanded to include cognitive-behavioral strategies, which have a proven track record in reducing symptoms of both anxiety and depression.

Cognitive-behavioral therapy (CBT) has become an important component in the treatment of chronic pain due to its emphasis on acquiring coping skills and identifying and modifying distorted thoughts that contribute to their chronic pain or pain behavior (Heapy, Stroud, Higgins, & Sellinger, 2006). CBT has consistently produced positive outcomes in both improvement in mood and overall functioning for people with chronic pain. Treatment that results in increases in perceived control over pain and decreased catastrophizing show a corresponding decrease in pain severity and functional disability (Burns, Kubilus, & Bruehl, 2003). In a meta-analysis conducted by Flor et al. (1992), it was found that 68% of people with chronic pain who were treated with CBT returned to work as opposed to 32% who were not so treated. Perception of pain was reduced by 37% in treated patients as compared with 4% in control patients. Other notable outcomes include a 63% reduction in medication use and 53%

improvement in activity for treated patients, as compared with 21% and 13%, respectively, for control patients.

Cutler, Fishbain, and Rosomoff (1994) also conducted a meta-analysis of multidisciplinary treatment of chronic pain. The primary outcome measure was return to work. They found that there was a mean of 56% greater employment for those who were treated fully as compared to those who dropped out. It was also found that there was 40% greater employment for those who were treated when compared with those who did not qualify for the study due to insurance reasons. Studies of multidisciplinary treatment, including Behavior Therapy (BT) and/or CBT, show these treatments are successful in reducing pain reports, restoring lost functioning including return to work, and reducing reliance on medical care, as compared with uni-modal or standard medical treatment (Cutler et al, 1994).

Although CBT's effectiveness in treating chronic pain has been supported by research, patients frequently doubt its effectiveness in treating what they believe to be an exclusively physical illness. As a result, patients may discontinue treatment early, which reduces the positive results of the treatment (Skinner et al., 2012). As mentioned earlier, the relationship between chronic pain and mood disorders is complex; and the research suggests that the bi-directional relationship may be as salient during treatment as it was during the development of the co-occurring conditions (Skinner et al., 2012).

Due to the number of patients with chronic pain, their needs and the needs of the healthcare community, group therapy has become the most common method of treating chronic pain with CBT. When considering the patient to practitioner ratio, group therapy is more cost effective and has little variation in outcomes when compared with individual therapy (Olason,

2004). In addition to its cost effectiveness, the group dynamics and interactions among group members seem to be a very important therapeutic component. Group interactions are useful in modeling appropriate responses to pain behaviors and associated negative effects. The variety of experiences shared by the group members can add to the clients feeling like their concern is legitimate and that they are not alone in their suffering (Thorn & Kuhajda, 2006).

Factors Predicting Treatment Outcome

The research cited above has shown that a biopsychosocial approach to the treatment of chronic pain has been more successful than mono-treatment using opioid medication. However, there are several patient-factors that influence treatment success. Patients who had an internal locus of control, which occurs when patients perceive they have the ability to influence their pain, had better treatment outcomes than patients who did not. Additionally, patients' cognitive style influenced outcome; patients who engaged in less catastrophizing and other forms of negative thinking in response to their pain had a more positive treatment outcome than other patients (Martel, Trost, & Sullivan, 2012). Patients with a history of childhood physical and sexual abuse experienced more clinically significant psychological disturbances and showed worse outcomes at a 1-year follow-up than those with no abuse history (McCracken & Turk, 2002). People who had a pessimistic cognitive style, including low expectations for returning to previous activities were less likely to participate in treatment and had worse outcomes than patients with positive expectancy. Additionally, those who focused more on their pain, had greater perceived pain and disability and had more difficulty with program compliance were more likely to be prematurely discharged from a multidisciplinary rehabilitation program (McCracken & Turk, 2002).

Not surprisingly, a patient's level of depression also predicted treatment outcome, with higher depression scores leading to poorer outcomes for patients participating in a multidisciplinary treatment program (Dworkin, Richlin, and Hanlin, 1986). Patients experiencing depression may lack motivation, have feelings of hopelessness and worthlessness that negatively impact engagement in exercise or other interventions included in pain rehabilitation.

In contrast to the salience of cognitive style, abuse history and mood, research has failed to find any predictive utility in patients' demographic information. Research has shown that variables such as age, gender, education, marital status, and duration of pain have no reliable relation to treatment outcome (McCracken & Turk, 2002).

Summary

Chronic pain is a complex condition with biological, psychological, and social implications. While pain is generally thought of as a biomedical problem, traditional medical treatments have not adequately treated the condition and some pharmacological treatment can lead to adverse consequences. Specifically, the iatrogenic effects of opioids are concerning because they can cause a variety of physical ailments and tolerance and dependency are unescapable. Psychological interventions have made an important contribution to the treatment of chronic pain. Cognitive behavioral therapies may lead to improved functioning with the potential of limiting the amount and/or duration of opioid intervention.

Research Goal

The setting for this study is an inpatient hospital that incorporates multidisciplinary treatment of pain, including medication management and daily visits with nursing staff and physicians, with a primary method of treatment through the use of CBT in a group format. The

treatment manual utilized is *Managing Chronic Pain: A Cognitive- Behavioral Therapy Approach* (Otis, 2007). The specific question asked in this research study was *Is a CBT program delivered in an in-patient setting for patients with co-occurring pain and mood disorders associated with a reduction in depression, anxiety, pain severity, and a decrease in the usage of pain specific drugs?*

It was hypothesized there would be a significant decrease in depression, anxiety, pain severity, and opioid treatment from time of intake to time of discharge.

Chapter 2

Method

Participants

Participants in this study were 34 patients treated for chronic pain and co-occurring mental health problems in an inpatient psychiatric treatment facility. All patients who were admitted to the facility with the diagnosis of chronic pain were given the opportunity to engage in group chronic pain treatment. All of those who participated in the group who were able to give consent were given the opportunity to participate in this research. Each was given an informed consent before beginning the treatment program, which was approved by George Fox University Human Subjects Research Committee as well as the Internal Review Board of the treatment facility. The form indicated (a) the information being gathered was to help understand the results of the treatment program, including group intervention, (b) participation in the study was not required, and (c) they could withdraw from participation at any time.

Instruments

Patients completed a demographic questionnaire at admission (See Appendices A and B), as well as several self-report measures that assessed symptoms of depression (See Appendix C), anxiety (See Appendix D), and patient's levels of pain. These measures included:

- **Zung Depression Rating Scale:** The Zung depression rating scale (Zung, 1965) is a 20-item self-report rating scale that measures symptoms of major depression on which patients rate their symptoms on a scale from 1-4 where 1 indicates *none or a little of the time*, 2 indicates *some of the time*, 3 indicates *most of the time*, and 4 indicates *all of the time*. The Zung Self-

Rating Depression Scale has fairly good reliability. Zung has reported a split-half reliability of 0.73. An alpha coefficient of 0.68 was obtained by DeForge and Sobal (1988), however 0.82 was reported by DeJonghe and Baneke (1989). Additionally, in a study of 41 people being treated outpatient for depression there was a correlation of .68-.76 between the Zung SDS and the Hamilton Rating Scale for Depression (Ham-D). Results suggest that the Zung SDS can sufficiently discriminate depressed people from people who are not depressed (Biggs, Wylie, & Ziegler, 1978).

- **Generalized Anxiety Disorder Scale.** The Generalized Anxiety Disorder Scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006) is a 7-item self-report questionnaire designed to screen for symptoms of generalized anxiety disorder on which patients rate their symptoms on a scale from 0-3 where 0 indicates *not at all*, 1 indicates *several days*, 2 indicates *most days*, and 3 indicates *nearly every day*. The GAD-7 has good reliability and good criterion, construct, factorial, and procedural validity. The internal consistency of the measure was the same across subgroups ($\alpha = .89$). When compared with the PHQ-2 and the Rosenberg Self-Esteem Scale the correlations were $r = 0.64$ and $r = -0.43$, respectively. Women tend to have higher scores on the GAD-7 than do men and therefore normative data has been generated for both genders and different age levels.
- **Brief Pain Inventory** (Cleeland & Ryan, 1994). The Brief Pain Inventory is a measure allows patients to rate their pain on four 10-point scales assessing (a) how severe their pain was at its worst in the past week (b) how severe their pain was at the best point in the past week (c) the average pain severity in the past week and (d) what is their pain severity

currently. Additionally, the patients were asked to indicate where on the body they experience their pain and the type of pain they experience (i.e., blunt, burning, stabbing, etc.).

- Opioid reduction was an additional dependent measure.

Procedures

Patients participated in three daily 1-hour group therapy sessions led by a licensed therapist, following the workbook *Managing Chronic Pain: A Cognitive Behavioral Approach* (Otis, 2007), as well as daily meetings with nursing staff and psychiatrists for medication management, daily 1-hour community meetings with other patients, and 1 hour of recreation therapy per day where patients could choose between physical exercise, musical therapy or arts and crafts.

Patients were also given the opportunity to participate in complimentary and alternative pain treatments including massage, acupuncture, and yoga. Participation in these activities was not mandated or monitored by this study.

Patients came in on a variety of opiate medications that were converted to opiate equivalent quotients which were manually run through a medication calculator.

Chapter 3

Results

Description of Sample

A sample of 34 patients (17 female, 16 male, one identified as other) in an inpatient hospital were included in this study based on participation in a chronic pain group as part of their treatment. All patients who were enrolled in the chronic pain group had the option of participating in this study. All participants had co-occurring mental and medical health diagnoses and chronic pain. Table 1 describes the demographic information gathered and Table 2 medical characteristics of the patients screened.

<i>Demographic information</i>				
	<i>N</i>	<i>Range</i>	<i>Mean</i>	<i>SD</i>
Age	34	22-68	45.76	11.92
Highest level of Education (in years)	34	10-16	13	1.78
# of previous marriages	34	0-4	1.0	.953
# of Children	34	0-4	1.56	1.16
Daily cigarette consumption	34	0-40	8.26	11.13
Number of medical conditions	32	1-6	2.72	1.44
Days in Treatment	34	2-34	12.74	5.98

Table 2

Mental Health Diagnoses and Medical Information

Diagnosis	Percent of sample
Chronic pain	91
Mood disorder	72
Anxiety Disorder	63
Cardiovascular disease	38
Respiratory disease	22
Borderline PD	13
ADHD	6.3
Chronic fatigue	3
Obesity	3
Hepatitis C	3
HIV	3

Pre-Post Test of Dependent Variables

It was hypothesized that through the course of inpatient treatment which included a group pain management treatment, symptoms of depression, anxiety, perception of pain severity, and opioid use would decrease. See table 3 for summary of results for paired samples *t*-test.

A paired samples *t*-test was conducted to compare depression as measured by the Zung self-report depression scale at intake and discharge. Results showed a significant decrease in depression scores from intake ($M = 50.70, SD = 10.68$) to discharge ($M = 42.67, SD = 12.62; t_{(32)} = 4.64, p = <.001; d = .80$)

A paired samples *t*-test was conducted to compare anxiety as measured by the GAD-7 at intake and discharge. There was significant decrease in the scores for anxiety from intake ($M = 13.09, SD = 5.69$) to discharge ($M = 9.42, SD = 6.03; t_{(32)} = 4.33, p = <.001; d = .70$).

A paired samples *t*-test was conducted to compare perceived pain severity (measured at four different times for: current pain, average pain, worst pain in the last week, and least pain in the last week) as measured by the brief pain inventory at intake and discharge. There were significant reductions in the scores for current perceived pain from intake ($M = 5.91, SD = 2.66$) to discharge ($M = 4.41, SD = 2.84; t_{(31)} = 3.31, p = .002; d = .52$) There was also significant decrease in the report of worst pain in the past week from intake ($M = 7.94, SD = 1.73$) to discharge ($M = 6.82, SD = 2.44; t_{(32)} = 2.55, p = .016; d = .52$). However, there was no significant difference between average pain at intake ($M = 5.73, SD = 1.94$) and average pain at discharge ($M = 5.18, SD = 2.13$) or least pain in the past week at intake ($M = 4.15, SD = 2.62$) and least pain in the past week at discharge ($M = 3.58, SD = 2.15$).

A paired samples *t*-test conducted to compare opiate consumption as measured by morphine equivalents and comparing milligrams consumed at intake versus discharge. There was a significant reduction in opiate consumption from intake ($M = 243.88, SD = 606.87$) to discharge ($M = 8.71, SD = 20.75; t_{(32)} = 2.27, p = <.034; d = .81$).

It is notable that 82.4% of people were no longer using opiates at the time of discharge.

Table 3

Paired Samples t-tests

	Pre Mean	Pre <i>SD</i>	Post Mean	Post <i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
Zung	50.70	10.68	42.67	12.63	4.64	>.001	.80
GAD7	13.09	5.69	9.42	6.03	4.33	>.001	.70
Pain Severity Worst	7.94	1.73	6.82	2.44	2.55	.016	.52
Pain Severity Current	5.91	2.66	4.41	2.84	3.31	.002	.52
Pain Severity Least	4.15	2.62	3.58	2.15	1.75	.089	.29
Pain Severity Avg.	5.73	1.94	5.18	2.13	2.00	.054	.21
Morphine Equivalent	243.88	606.87	8.71	20.75	2.27	.034	.81

Chapter 4

Discussion

This study explored four hypotheses including a reduction in (a) depressive symptoms as measured by the Zung self-rating depression scale, (b) anxiety symptoms as measured by the General Anxiety Disorder 7-Item Scale, (c) perceived pain severity at four different instances including worst pain in the week, least pain in the week, average pain in the week, and current pain as measured by the Brief Pain Inventory, and (d) opioid dose used at intake versus discharge as measured by morphine equivalent conversion. All hypotheses were supported with the exception of the reported average of perceived pain and report of least pain in the week, which showed no significant decrease despite the significant decrease in opioid medication. The outcome of this study was largely consistent with current research on the use of multidisciplinary approach and cognitive behavioral therapy for the treatment of chronic pain. In summary, significant reductions were reported in depression and anxiety, self-reported worst pain of the week and current pain, along with opioid use; average pain and least pain in the week remained unchanged.

The aim of this study was to explore the impact of an inpatient, multidisciplinary treatment program with an embedded standardized Cognitive Behavioral Treatment (CBT) group protocol, for patients diagnosed with both chronic pain and a co-occurring mental health condition. This study revealed a significant decrease in symptoms of anxiety and depression, perceived pain severity (current pain and worst pain), and opioid use in during the patients' stay.

Research by Orenius et al. (2013) indicated that people with chronic pain experience anxiety and depression at higher rates than the general population. Other research has shown a complex relationship among depression, anxiety, and chronic pain. Chronic pain can result in depression and conversely, people who are depressed when being treated for pain are more likely to develop chronic symptoms. As such, many people suffering from chronic pain require treatment for the co-occurring mental health problems (Turk et al., 2011). Given these findings, treatment of co-occurring mood disorders is likely pivotal in increasing engagement and empowerment, reducing recidivism, and improving functioning. This study showed significant improvement in both conditions. Additionally, this study explored whether multi-disciplinary treatment would have a similar impact for patients with more severe mood disorders; those requiring inpatient treatment, as for patients in an out-patient setting. Perhaps the most compelling finding was a simultaneous decrease in opiate use and perceived pain severity. Although this finding may seem counter-intuitive to the assumption that opioids reduce pain, it supports previous research that indicates opiates are not effective in the long-term treatment of pain.

Researchers have found little efficacy of opiates in the treatment of chronic pain. For example, Nuesch et al. (2009) concluded that opioids should not be routinely used for the treatment of chronic pain. Similarly, Turk et al. (2011) found that opiates have little impact on chronic pain perception and functional improvement. The Interest Group of the International Association for the Study of Pain (2010) and the European Federation of Neurological Societies Task Force (2010) recommend opioids as second or third treatment options, considered for first choice treatment only in specific clinical circumstances, such as during episodic exacerbation of severe neuropathic pain. The present study shows that both perceptions of pain and use of

opioids can be reduced through CBT. This finding supports the limited effectiveness of opiates in the treatment of chronic pain and indicates the skills learned during group psychological treatment may be more useful in the treatment of pain than opiates.

Due to the fact that some level of pain persists in most people with chronic pain regardless of the treatment they have received (Turk et al., 2008), the understanding of treatment has shifted from pain resolution to the management of chronic pain. This new understanding of the treatment of pain has emphasized a multidisciplinary treatment approach for chronic pain with focus on psychological, social, and physical interventions for pain management. The current study used a multidisciplinary approach combining a CBT manualized group treatment for chronic pain with biomedical treatments, complementary and alternative medical treatments, with a consideration for social and historical factors. This study saw significant reduction in symptomatology across the biological and psychological areas; assessed; these results are convergent with research by Wong et al. (2009) that showed that multidisciplinary treatment including behavioral therapy and cognitive behavioral therapy are successful in reducing pain reports, restoring lost function including work, and reducing reliance on medical care in an (setting). The treatment team focused on self-management and the development of coping strategies in addition to the traditional biomedical approaches of treatment which was consistent with research demonstrated by Turk et al. (2008) which found that psychological interventions are effective in helping patients adapt to and manage chronic pain. The current study supports the effectiveness of a multidisciplinary approach to the treatment of chronic pain by demonstrating significant outcomes across both psychological and biological outcome measures resulting from a multidisciplinary approach to pain management.

Contributions

This study demonstrated the effectiveness of multidisciplinary treatment including a group CBT intervention to treat chronic pain in patients experiencing co-occurring mental and physical illnesses. Most notable, these results were achieved with a simultaneous reduction in opioids. This study also found clinically and statistically significant reduction in depressive symptoms which based on current literature (Burns et al., 2003) could likely potentiate the treatment of chronic pain. Due to the wide-spread and pervasive impact of chronic pain, there are not enough providers to treat chronic pain in an individual setting. Group therapy as a component of a pain treatment program has been identified as a possible means of meeting the needs of those with chronic pain given the limited number of providers specializing in this area. This study demonstrated the potential relevance of including group therapy in the treatment of chronic pain.

Limitations

While this study has significant clinical utility, it also has several limitations including: (a) inability to ensure fidelity to manualized treatment model, or the ability to isolate the differential impact of the group on treatment outcome (b) limited generalizability of opiate reduction due to the inpatient setting (c) the use of a nonprobability, purposive sample, and (d) lack of randomization for intervention. Due to the limitations in the design, the findings in this study should only be generalized to samples similar to the one in this study. Causal effects are not established. Future studies exploring the treatment of chronic pain in individuals with co-occurring mental health diagnoses should use a wait list control group or utilize a matched pair or quasi-experimental study to establish efficacy and use a more representative sample to

increase the generalizability of the findings. In addition, further investigation of long term effect of treatment and impact of treatment on functioning could increase clinical utility of the findings.

Summary

This significance of this study is two-fold; it suggests that multi-disciplinary, inpatient treatment for patients with co-occurring disorders may result in a reduction in both mood and pain perception and support reduced use of opioid medications. In addition, this study supports previous research suggesting opioid dose has limited impact on perception of pain, specifically current and worst pain in the last week. The present results support the hypothesis that group CBT therapy can reduce depression and anxiety, diminish experiences of severe pain and current pain, even with the reduced use of opioid medications.

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Appendix A**Patient Demographic Questionnaire**

Note: This information will not go into your medical record. It is for program outcome research only. You will not be identifiable. If you have questions, please ask your program therapist.

Age: _____

Gender (please circle one):

1. Male
2. Female
3. Transgendered
4. Other (please identify): _____

Ethnicity (please circle one - your primary identification):

1. White/Caucasian
2. Asian Origin
3. African Origin
4. Middle Eastern/Arab Origin
5. Native American/Native Alaskan
6. Latino(a)/Hispanic

Marital Status (please circle one):

1. Single
2. Married
3. Divorced
4. Legally Separated
5. Widowed

Highest level of education (in years): _____

Highest degree earned:

1. No Degree Earned
2. High School Diploma (HSD)
3. Associate's Degree (A.A.)
4. Bachelor's Degree (B.A.)
5. Master's Degree (M.A., M.S., MBA etc)
6. Doctorate (PhD, MD, PsyD etc)

Previous marriages (if applicable): _____

Children (if applicable): _____

Custody Arrangement (please circle one):

1. Sole Custody
2. Joint Custody (Married)
3. Joint Custody (Divorced)
4. No Custody/No Contact
5. Other (please identify): _____

Do you use Tobacco Products? (circle one) Yes / No

How much do you smoke? (packs per day – write 0 if not applicable): _____

How much do you chew? (cans per day - write 0 if not applicable): _____

Appendix B

Internal Research Form

Internal Research Documentation: Pain Program Outcome Assessment

4 Digit Chart/Patient Identifier: _____

Researcher Name completing this document (for questions): _____

Axis I Diagnosis:

(indicate diagnosis of psychiatrist (MD) or psychiatric nurse practitioner (PMHNP) – not intake assessment diagnosis.)

If chemical dependency/alcohol diagnosis, what substance(s):

Axis II Diagnosis:

(indicate diagnosis of psychiatrist (MD) or psychiatric nurse practitioner (PMHNP) – not intake assessment diagnosis.)

Axis III Diagnosis (all medical issues documented in chart):

Total days in treatment (post date-intake date): _____

All Medications (AT INTAKE):

Pain/Pain Related Medication	Doseage (mg/dose)	Frequency (how many administrations per day)	Assigned Medication Class/Identifier

All Medications (AT DISCHARGE)

Appendix C

Zung Self-Rating Depression Scale (SDS)

Patient Name: _____ **Date:** _____

For each item below, please place a check mark (✓) in the column which best describes how often you felt or behaved this way during the past several days

Place check mark (✓) in correct column.	None or a little of the time	Some of the time	A good part of the time	Most of the time
1. I feel down-hearted and blue.				
2. Morning is when I feel the best. *				
3. I have crying spells or feel like it.				
4. I have trouble sleeping at night.				
5. I eat as much as I used to. *				
6. I still enjoy sex. *				
7. I notice that I am losing weight.				
8. I have trouble with constipation.				
9. My heart beats faster than usual.				
10. I get tired for no reason.				
11. My mind is as clear as it used to be. *				
12. I find it easy to do the things I used to. *				
13. I am restless and can't keep still.				
14. I feel hopeful about the future. *				
15. I am more irritable than usual.				
16. I find it easy to make decisions. *				
17. I feel that I am useful and needed. *				
18. My life is pretty full. *				
19. I feel that others would be better off if I were dead.				
20. I still enjoy the things I used to do. *				

Scoring

Items are structured in terms of positive and negative statements. Responses are scored 1,2,3 or 4 according to the severity of the symptom. Items marked with an (*) are reverse scored (i.e., 4,3,2,1). The items are totaled to give an overall score.

Scores range from 25-100

- 25-49 – Normal Range
- 50-59 – Mildly Depressed
- 60-69 – Moderately Depressed
- 70 and above – Severely Depressed

Please Note: Any response on question #19 other than none or a little of the time should be reported to a doctor immediately.

The Zung Self-Rating Depression Scale should not take the place of a comprehensive clinical interview for confirming a diagnosis of depression. Please print and take to your physician or psychologist for further evaluation.


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www.meersinc.com

Zung WW. (1965). A self-rating depression scale. Archives of General Psychiatry 12: 63-70.

Appendix D

Generalized Anxiety Disorder 7-Item Scale

The GAD-7 Anxiety Scale

Please answer each of the seven questions with one of four responses:

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

Overall, 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?

- Not difficult at all ____
- Somewhat difficult ____
- Very difficult ____
- Extremely difficult ____

Appendix E

Curriculum Vitae Breanna Barr

4231 Exeter St.
West Linn, OR 97068
503-347-2047
bbarr06@georgefox.edu

EDUCATION

- Psy.D., Clinical Psychology** *Expected May 2016*
George Fox University, Newberg, OR
- GPA 3.85 on a 4.0 scale
 - APA Accredited
 - Doctorate expected May 2016
- MA, Clinical Psychology** May 2013
George Fox University, Newberg, OR
 Graduate Department of Psychology: APA Accredited
- Bachelor of Arts, Psychology** May 2010
George Fox University, Newberg, OR
- GPA 3.56 on a 4.0 scale
 - Graduated Cum Laude May 2010

SUPERVISED CLINICAL EXPERIENCE

- 4/2013 – Present **Practicum II and III – Behavioral Health Intern**
Providence Medical Group Newberg – Newberg, OR
- Description: A two-year position working within an integrated behavioral health primary care setting and within a multidisciplinary team comprised of medical doctors and personnel to provide holistic health care treatment for patients suffering from mental illness, chronic pain, and health issues.
- Population: Entire lifespan, pediatrics through geriatrics
- Duties:
- Provide short-term, solution-focused CBT and interpersonal therapy for individuals, couples, and families ranging from pediatrics through geriatrics.
 - Provide psychodiagnostic test administration and screening, including ADHD screenings, dementia screenings, learning disability evaluations,

neuropsychological evaluations, personality assessment, and comprehensive psychological assessment.

- Provide 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.
- Participate as the point behaviorist for the Persistent Pain Multidisciplinary Care Team consisting of medical doctors, patient care coordinators, pharmacists, physician assistants, and nurses.

Supervisors: Mary Peterson, Ph.D., Jeri Terguson, Psy.D., Vanessa Casillas, Psy.D, ABPP, Marie-Christine Goodworth, Ph.D., Carlos Taloyo, Ph.D.

Intervention Hours: 529.5

4/2013 – Present

**Supplemental Practicum – Behavioral Health Consultant
Behavioral Health Consultation Team, Serving:**

- **Providence Newberg Medical Center--** *Newberg, OR*
- **Willamette Valley Medical Center –** *McMinnville, OR*
- **Yamhill County Mental Health and Police –** *Yamhill County, OR*

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 med-surg 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, or dementia. Most patients have typically attempted or come close to attempting suicide or harming others, or are experiencing psychosis or delirium.

Duties:

- Complete hospital risk-assessments for self-harm or harm to others as well as ability to care for self.
- Provide consultation for medical personnel pertaining to psychodiagnostic clarity, mental status, and level of risk.
- Provide phone consultation for law enforcement personnel who are in the field trying to diffuse or manage someone who is mentally ill and a danger to self or others.
- Work collaboratively with medical personnel and Yamhill County staff to develop appropriate discharge plans for patients, or work collaboratively to find appropriate placement for at-risk individuals while working within the broader Providence and Willamette Valley medical systems and county services.
- Implement 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, Ph.D., ABPP, William Buhrow, Psy.D., Joel Gregor, Psy.D.

Intervention Hours: 121

8/2013 – Present **Supplemental Practicum – Palliative Care Health Consultant
Behavioral Health Consultation Team Member
Providence Medical Group Newberg- *Newberg, OR***

Description: 1.5 year position developing and implementing a collaborative program which provides consultation, assessment, and intervention for the Intensive Care unit at PMG Newberg.

Population: Children, adults, and geriatrics who have a terminal illness and are making the decision to implement palliative care in their treatment and those who have a recent diagnosis of chronic illness and need assistance in adjusting to and learning to manage their illness.

Duties:

- Provide consultation to medical personnel regarding palliative services available to and appropriate for the patient
- Provide psychoeducation and intervention to patient as appropriate
- Develop protocol for consultation and intervention

Supervisors: Marie-Christine Goodworth, Ph.D. and Jeri Turgesen, Psy.D.

Program Development hours: 25

09/ 2012 – 06/2013 **School Based Behavioral Health, Psychology Intern Serving:**

- **Yamhill-Carlton High School- *Yamhill, OR***
- **Yamhill-Carlton High School- *Yamhill, OR***

Description: One year position working within a multidisciplinary school system providing weekly counseling, test administration and interpretation for Individualized Education Plans (IEP), and feedback to parents and faculty in IEP meetings.

Population: Adolescents ages 12-18 with a wide variety of mental health complaints. This school system is underserved and in a rural area.

Duties:

- Provided weekly individual therapy for high school student struggling with academic, emotional, or social issues.
- Conducted intake interviews, consultation, and treatment planning.
- Administered testing required for IEP
- Participated in multidisciplinary meetings to design Individualized Education Plans and Behavioral Support Plans.
- Sessions with students were reviewed in individual and group supervision

Supervisor: Elizabeth Hamilton, Ph.D.

Intervention Hours: 279

01/ 2012 – 05/ 2012 **Pre-Practicum II, George Fox University- *Newberg, OR***

- Provided individual psychotherapy services for volunteer undergraduate students.

- Services included intake interviews, treatment planning, progress notes, and diagnosis.
- Tasks included report writing, case presentations, consultation with supervisor and clinical team members.
- Conducted personality assessments and wrote evaluations.

Supervisor: Mary Peterson, Ph.D., and Laura Heyne, M.A.

Intervention Hours: 15

08/ 2011 – 12/ 2011 **Pre-Practicum I, George Fox University- Newberg, OR**

- Learned basic person-centered therapy skills with group members.
- Tasks included: intake interviews and treatment planning.
- All sessions were taped and reviewed during supervision.
- Supervisors: Mary Peterson, Ph.D., and Laura Heyne, M.A.

10/ 2011 – 12/ 2011 **Celebrate Depression Recovery Group Leader
Hosted by Providence Health System-- Newberg, OR**

Description: 8 week commitment to facilitate weekly discussion group for members of the community suffering from depression.

Population: Adolescents, adults, and geriatrics suffering from depression.

Duties:

- Lead one hour weekly process/ discussion group following video presentation of skill to help reduce depression.
- Check in on progress through the program and provide support when necessary

Supervisor: Tammy Rogers, MD., Mary Peterson, Ph.D., and Joel Simons, M.A.

Intervention Hours: 20

RELEVANT EXPERIENCE & UNIVERSITY INVOLVEMENT

10/ 2013 – Present

Reflex Clinic

Tigard, OR

Consultant

- Conducted research-based diagnostics of workplace and performance issues.
- Recommended system changes to improve employee review and hiring processes.
- Continued monitoring of system improvements and processes.

08/2014– Present

George Fox Graduate Department of Clinical Psychology

Newberg, OR

Graduate Teacher Assistant for Biological Basis of Behavior

- Write quizzes
- Graded writing assignments, tests, and quizzes and input grades.
- Provided assistance and guidance to students.
- Supervisor: Celeste Flachsbart, Psy.D

3/2014-7/2014 **Training Mentor for Hospital Consultation Team**

8/12-5/13 **Peer Mentor for First Year Student** *Newberg, OR*

- Help orient student to the program
- Bi-weekly meetings to provide support

09/ 2010 - 07 2011 **Albertina Kerr Subacute Psychiatric Technician --Gresham, OR**

- Lead group skills and process groups
- Performed intake interviews
- Safety planning for children who were at risk for harming themselves
- Maintained daily progress notes

PROFESSIONAL AFFILIATIONS

2014 – Present Oregon Psychological Association (Student Affiliate)

2011 – Present American Psychological Association (Student Affiliate)

RESEARCH EXPERIENCE & PRESENTATIONS

02/ 2011 – present **Graduate Department of Clinical Psychology**

Research Vertical Team Member

Newberg, OR

Emphasis: Health Psychology

- Participate in bi-weekly meetings to discuss, collaborate on and evaluate the design, methodology, and progress of research projects.
- Presented personal dissertation research and progress. Collaborated on group research projects, and discussed research ideas for future projects
- Faculty Advisor: Mary Peterson, Ph.D.

Doctoral Dissertation: *Impact of a Cognitive Behavioral Pain Management Group on Depression, Anxiety, Pain Severity, and Opioid Use in an Inpatient Population*

Dissertation Chair: Mary Peterson, Ph.D.

- Committee Members: Rodger Bufford, Ph.D. and Jeri Turgesen, Psy.D.
- Preliminary defense completed: 3/19/14

03/2009 **Recipient of grant from Richter Scholar Program**

- Awarded an independent research grant from a national grant fund to conduct research investigating the impact of perceived father absence on depression and anxiety in late adolescents
 - Current status: Completed

Poster Presentations:

Engle, N. W., **Barr, B.**, Galuza, T. (2014, May). *Organizational psychology for medical clinic culture*. Poster presented at annual meeting of the Oregon Psychological Association, Portland, OR

Koch, C. and **Barr, B.** *Can task demand override connectedness?* Poster presented at the 51st annual meeting of the Psychonomic Society, St. Louis, MO

Community Presentations:

06/2012 and 06/ 2013 **Bullying Awareness and Prevention** *Portland, Oregon*
 Poster presentation
 Providence Health and Fitness Day

PROFESSIONAL TRAINING AND WORKSHOPS

- March 12, 2014 **Evidenced Based Treatment for PTSD in Veteran Populations:
 Clinical and Integrative Perspectives**
 Dr. David Beil-Adaskin, Psy.D.
- Jan 15, 2014 **DSM V, Essential Changes in Form and Function**
 Jeri Turgesen, Psy.D., and Mary Peterson, Ph.D., ABPP
- Sept. 25, 2013 **Integrated Primary Care**
 Brian Sandoval, Psy.D., and Juliette Cutts, Psy.D.
- May 31, 2013 **Psychological Assessment Conference: Using Tests of Effort in
 Psychological Assessment**
 Paul Green, Ph.D.
- May 31, 2013 **Assessing Mild Cognitive Impairment and Dementia**
 Mark Bondi, Ph.D., ABPP
- March 6, 2013 **The Person of the Therapist**
 Brooke Kuhnhausen, Ph.D.
- Jan. 30, 2013 **African American History, Culture and Addictions and Mental
 Health Treatment**
 Danette C. Haynes, LCSW, and Marcus Sharpe, Psy.D.
- Nov. 14, 2012 **Sexual Identity**
 Erica Tan, Psy.D.
- Oct. 10, 2012 **Treating Gender Variant Clients: Christian Integration**
 Erica Tan, Psy.D.

- June 8, 2012 **Psychological Assessment Conference: Assessment and Treatment of Anger, Aggression, & Bullying in Children and Adults; and The Mini-Mental State Examination – 2nd Edition**
Dr. Ray DiGiuseppe, Ph.D., and Dr. Joel Gregor, Psy.D.
- March 21, 2012 **Strengthening your Internship Applications**
Elizabeth Goy, PhD and David Indest, Psy.D.
- March 7, 2012 **Mindfulness and Christian Integration**
Erica Tan, Psy.D.

REFERENCES

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