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Comparative Look at the Depression Treatment Modalities of Cognitive

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A Scholarly Project

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by

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A COMPARATIVE LOOK AT THE DEPRESSION TREATMENT MODALITIES COGNITIVE BEHAVIORAL THERAPY AND PHARMACOTHERAPY: AN INTEGRATIVE REVIEW

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Abstract

This integrative review provides a comparative view of cognitive behavioral therapy (CBT) and pharmacotherapy (PCT) as treatment modalities for adult depression. The foci of this integrative review are to examine research articles on CBT and PCT to determine which therapy, monotherapy or combination therapy, provide a higher level of therapy for depression. The metrics utilized are depression symptom remission, response to therapy, recovery from depression, and quality of life. Individual preference and response to treatment vary. This makes the reader more aware that specific populations may be more receptive to one therapy instead of the other.

Keywords: Cognitive behavior therapy, pharmacotherapy, and comparative, best treatment modality, depression in adults

A COMPARATIVE LOOK AT THE DEPRESSION TREATMENT MODALITIES OF COGNITIVE BEHAVIOAL THERAPY AND PHARMACOTHERAPY: AN INTEGRATIVE REVIEW

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List of Tables

List of Figures

Table of Contents

Comparative look at the Depression Treatment Modalities of Cognitive Behavioral Therapy and Pharmacotherapy

Depression is a major public health concern with a sobering economic impact of billions of dollars per year (CDC, 2015). The increase in incidence continues to climb, adding more stress to the national health care budget. Supported by the research of Angstman, Rasmussen, Herman, and Sobolik (2011), the likelihood of a person being the victim of depression in a lifetime have a prevalence rate of about 17 percent. According to the National Institute of Mental Health there are an estimated 15.7 million adults, 18 or older, who suffer at least one major episode of depression a year (NIMH, 2009). This alarming number of depression diagnoses continues to climb. Not only is depression a mental health concern it also impairs physical function. Depression, anxiety, and substance abuse are often comorbid conditions with a diagnosis of chronic depression. These have a high correlation with medical illness, social, and interpersonal relationship problems. Depression often leads to maladaptive cognitive processing which can cause decreased job performance exhibited by absenteeism, decreased performance, and poor productivity (Angstman et al., 2011).

Alarming facts on how depression impacts health care economy and patient care outcomes fuel the desire for more effective depression therapies. The treatment modalities of pharmacotherapy (PCT) and cognitive behavior therapy (CBT) are the two most commonly utilized treatment modalities for adult depression. The person that feels sad, lonely, and hopeless can be offered depression treatment modalities by their primary care provider (PCP). Consistency in medical management and collaborative care has shown to decrease long term health care costs. However, short term costs have shown an

increase due to more collaborative integration of PCPs, psychiatrists, and health care managers (Angstman, et al., 2011). The health care arena of today focuses more on health wellness and promotion than tertiary treatment. Research shows that medical management of chronic health problems, such as depression, will decrease health care costs and improve patient care outcomes (Angstman, et al., 2011; Kilbourne, Williams, Bauer, & Arean, 2012; NICE, 2015).

Depression is one of the most underdiagnosed mental health illness in primary care (USPSTF, 2016), and exhibits a distinctive phenomenology, due to the changes in neurobiological, physiological, psychological, and social dynamics. The significance of mental health is a principal concern for PCPs and is echoed by the Commission on Mental Health. Gaps in treatment and the importance on mental health are addressed in the statement "the implementation gap prevents our nation from reaping the benefit of billions of United States tax dollars spent on research and, more important, prolongs the suffering of millions of Americans who live with mental disorders" (Kilbourne et al., 2012, p.1).

The World Health Organization (WHO) ranks depression as the fourth leading cause of global burden of disease and it is expected to be the second cause of global burden of disease by 2020 (Gyani, Pumphrey, Parker, Shafran, & Rose, 2012). Despite attempts at depression treatment strategies, patient inconsistency, and nonadherence to treatment impede success. Successful depression treatment is evidenced by restoration of functioning and quality of life, not just symptom management (Lam & Kennedy, 2015).

Depression is a broad spectrum diagnosis and exhibits many behavioral changes. The economic burden of the uninsured, and society's negative association of a depression, diagnoses, steer many depressed people away from seeking treatment. Depression is marked by changes in mood and declining participation in pleasurable activities. Diagnosis is determined by the gross screening of the following two questions: (a) During the past month have you often been bothered by feeling down, depressed, or hopeless? (b) During the past month have you experienced little interest or pleasure in doing things? (NICE, 2015). The National Institute for Health and Care Excellence (NICE, 2015) provide algorithms, pathways, and frameworks to increase knowledge and guidance, for PCPs, in depression management.

There are three levels of depression; mild, moderate, and severe. The majority, 70 percent, of depression is categorized as mild. According to NICE in 2007 the estimated incidence of depression ranged from three to six percent of the nation's population. The spectrum of treatment therapy ranged from CBT to hospitalization for management of depression. People requiring treatment for depression are predicted to increase by 17 percent, 1.45 million people, by 2026 (NICE, 2015). Standards of care for the depressed population are described by NICE as high quality and cost-effective collaborative care that improves the safety and effectiveness of treatment (NICE, 2015).

Guidelines for depression, provided by NICE, do not specify which treatment modality, CBT or PCT, offer the best results for complete remission and restoration of functioning and quality of life. In this integrative review on CBT and PCT, existing research studies were analyzed for comparisons in the treatment of symptoms, obtaining

remission, and the restoration in quality of life. Indecision remains, among PCPs, as to which is the most effective depression treatment modality, CBT or PCT (Lam & Kennedy, 2015; Sinyor, Schaffer & Levitt, 2010).

Cognitive behavioral therapy and PCT, for the treatment of adult depression, vary by many techniques. The most significant variation is the ability to keep the person in remission and maintain functioning and improved quality of life. The Sequenced Treatment Alternative to Relieve Depression Trial (STAR*D) was a large scale trial funded by the United States. National Institute of Mental Health (Sinyor et al., 2010). This trial examined treatment options for patients refractory to antidepressant therapy. This trial had four levels: consisting of (a) monotherapy of an antidepressant medication; (b) medication switching to another medication or CBT; (c) medications augmented with CBT; and (d) medication changing with other medications. The trial allowed a collaborative decision to be made in determining which treatment option the patient received. The four level trial was designed to mimic real-life situations. In real-life situations the patient is the center of therapy and has a choice in their therapy modality.

Limitations of this trial was allowing the multiple treatment modalities to impede sample size. This produced groups too small for meaningful and clinical differences between treatments (Lam & Kennedy, 2015). One error in the trial was that CBT was never tested alone. The advantage of CBT was fewer side effects and patients remained in remission longer than with PCT (Sinyor et al., 2010). This trial did bring into question if different treatment modalities would work better or more effectively in particular patient populations?

Pharmacotherapy was shown to be more effective initially in moderate to severe depression. Pharmacotherapy alone can help with symptom reduction. However, remission and return to a productive, quality life is less likely in the patient with severe, multiple depressive episodes (Sinyor et al., 2010). Combination therapy was recognized as effective in some patient populations. Pharmacotherapy helped the depressive symptoms to subside earlier and CBT helped the patient obtain and stay in remission which allowed the patient to regain productivity and improved quality of life. Evaluation measurements were obtained with the utilization of the Hamilton Depression Rating Scale (HDRS) and the Quick Inventory of Depression Symptomology- Self-Report (Lam & Kennedy, 2015). Measurement-based care provided the tools needed to help evaluate and augment the effectiveness of the depression treatment modality being utilize.

Supporting Framework

Consumer- centered collaborative care of depression was utilized for patient care management. The primary purpose of this project was to evaluate CBT and PCT for best adherence, symptom management, symptom remission and restoration of a quality life. The Consumer-Centered Collaborative Care of Depression (McCusker, Yaffe, Sussman, Kates, Mulvale, Jayabarathan…….Haggerty, 2012) was the framework that provided guidance for the project. This framework considers the patient to be the center of care and focuses on meeting health care needs while collaboratively working with the patient and family.

Morgan & Yoder (2012) considered the defining attributes of the Person-Centered- Care concept to (a) maintain a holistic approach, (b) individualize care, (c) at

all times be respectful, and (d) empower the patient to own and manage self-depression, with supporting resources. The single and most impacting influence of this framework was "the philosophy of putting the relationship before the task when planning care" (Morgan & Yoder, 2012, p.10). McCusker et al. (2012) devised and prioritized a list of eight attributes that were the most important for a cohesive working arrangement among the primary care provider, family and patient. These attributes, in order, are (1) respectfulness; (2) involvement of consumer in treatment decisions; (3) accessibility; (4) provision of information; (5) system coordination; (6) whole-person care; (7) responsiveness to changing needs; and (8) comprehensiveness.

Problem Statement

Depression is the number one mental health disorder and is often undiagnosed. The vast majority of depression is treated in primary care. Treatment for depression requires consistency and a sound evidenced based foundation (Gyani, et al., 2012). Statistical data to support the significance of a succinct depression treatment protocol can be seen in all age ranges as reported by the Center for Disease Control (CDC, 2015). The Guide to Clinical Preventive Services offer recommendations by the United States Preventive Services Task Force (USPSTF, 2016) for primary care settings. The most prominent recommendation, for depression treatment, is to utilize depression screening tools in conjunction with preventive services (CDC, 2015). The United States Preventive Services Task Force acknowledges most health care providers are the gatekeepers to interventions and recommendations.

The United States Preventive Services Task Force and Clinical Guide provide three recommendations for all providers. These recommendations include (a) reinforcement of health care provider's advisement; (b) identify of the most effective community-based and health–care programs that will offer education and other supportive interventions; and (c) identification of supportive services for the patient population (CDC, 2015). These guidelines should be utilized in the management and treatment of one of the top ten chronic diseases, depression. Cognitive behavioral therapy and PCT are listed as the two top depression treatment and management modalities. The phenomenon of uncertainty between these two depression treatment modalities needs further evaluation.

Depression is not limited to any single age and is seen throughout all aspects of socioeconomics (CDC, 2015). The CDC found from 2007 to 2010, in any two week period, eight percent of persons, 12 years of age and older, were diagnosed with depression (CDC, 2015). Eight million patients were seen nationwide with the diagnosis of depression from 2009-2010. These patients were seen in hospitals, outpatient clinics, physician offices, and emergency rooms. This number continues to escalate as depression remains the number one mental illness. Major depressive disorders were seen as first-line diagnosis in hospital discharges from 2009-2010. The discharge diagnose of depression alone were estimated to be around 395,000 (CDC, 2015).

Health care costs continue to escalate while there remains limited mental health services to the high risk population (USPSTF, 2016). The average length of hospital time for a major depression episode is six and one half days. Often the high risk population

are uninsured or lack mental health coverage. This equals lost hospital revenue and compounds health care issues (CDC, 2015). Mental health is crucial to overall health. Often outpatient clinics, counseling services, support groups, or primary care services are unavailable or unsuccessful with depression management (CDC, 2015). This only adds to an already overwhelmed health care system.

Purpose of the Project

The purpose of this integrative review was to review current literature on the difference between CBT and PCT treatment modalities of depression in the adult population. Differences that were looked at were symptom management, remission and quality of life (QOL). Follow up care was seen as a vital part, for patient management, after referral or during current treatment. Patients can get lost in the system thus impacting quality and continuity of care. The prudent practitioner maintains close follow-up parameters to stay in touch with the patient and monitor treatment progress (Zaccagnini, & White, 2014). Additional resources for continuity of care utilize best practice standards, as well as ongoing educational programs and management of chronic diseases (NICE, 2015).

The overall consideration of this integrative review was a systematic evaluation to help determine which is more effective, CBT or PCT, in achieving remission and improvement in QOL? The population focused on is the 18 to 65 year old, depressed aggregate. The two depression treatment and management modalities focused on were CBT and PCT, these are supported by NICE guidelines for depression treatment as the most frequently recommended and utilized (Clark, 2011).

Research Goals and Objectives

This integrative review specifically addressed clinical outcomes of the depressed adult population as result of treatment with CBT or PCT.

The goals of this project:

1. To provide a systematic review of research comparing the depression treatment modalities of CBT and PCT
2. To provide a review of research that will present evidence as to which treatment modality, CBT or PCT, help the depressed person reach symptom remission.
3. To provide a review of research that will present evidence as to which treatment modality, CBT or PCT, help the depressed person improve QOL.

The initial literature review was completed utilizing the support of Harris Copper's (1982) *Scientific Guidelines for Conduction Integrative Research Reviews.* This conceptual framework allowed for a systematic organized manner to process data. Three research strategies where utilized in obtaining specific primary data on CBT and PCT.

Methods

Study Design

The underpinning of literature reduction was obtained by categorizing and coding by specific criteria. Types of studies were reduced to meta-analysis, meta-analysis and systematic reviews of randomized controlled trials, clinical guidelines based on systematic reviews, randomized controlled trials, and non-randomized control trial Prior to this step particular topics were reduced to searchable themes.. The phenomena reviewed were depression treatment modalities of CBT and PCT which were coded as

such. The literature search was on the population of depressed adults, 18 to 65 years old, and restricted any co-morbid conditions. This was the preliminary criteria for data collection. Whittemore and Knafl's (2005) rational for data reduction followed this statement; "succinct organization of the literature facilitates the ability to systematically compare primary sources on specific issues, variable, or sample characteristics" (p. 550).

Data was extracted from primary sources and displayed in a matrix table (se Appendix A for the literature matrix). This was in alphabetical order according to the author's name. This process enhanced visualization and maintained an organized chart. Patterns and relationship of literature were displayed to assist in carefully analyzing the data. The matrix provided an organized manner to systematically categorize each research journal article utilized in this integrative review. A graph containing all data on utilized articles provided a second means of validation (see Figure 1 for the table of evidence).

The data comparison stage further examined and compared the themes, categories, similarities, differences, key components and grouping. A concept map revealed the main idea of depression treatment modality and surrounding variables. The data presentation matrix allowed for visualization of accurate and meaningful comparisons, relevant theme, similarities, patterns, and differences.

The depression treatment modalities of CBT and PCT focused on symptom relief, remission, and quality of life. Findings became apparent from analyzing 23 research studies which treatment modality offered the best patient outcomes. Trials favoring treatment with CBT alone contained one hundred fifty-five trials and had better symptom

relief, remission, improved quality of life, and had enduring effects from the therapy. One hundred thirty-one trials showed equal patient treatment response with pharmacotherapy alone or with CBT alone. One hundred thirty trials responded more favorably to the treatment of combination therapy. Two trials presented results that showed PCT providing better patient outcomes in the depressed adult population without depression relapses. (see Appendix A for the literature matrix).

Four meta-analysis contained 155 trials revealing data that CBT had a higher depression remission rate than combination therapy or PCT alone. Two random control trials represented data confirming CBT to be the superior treatment modality for depression. Combination therapy was supported by three meta-analysis containing 106 trials that showed remission of depression symptoms, 36 trials addressed quality of life (QOL) and one control trial addressed remission and recovery

Equal treatment outcomes with cognitive behavioral therapy alone or PCT alone. was supported by 131 trials. In these trial there were six meta-analysis that consisted of 128 trials, 56 trials with data to support remission alone, and 72 trials showing response and remission to treatment. This project revealed two random control trials supporting PCT as the superior treatment. One trial showed response and remission and the other trial only addressed remission.

Problem Formulation

An integrative review demands rigor and high standards. To maintain this rigorous standard, extensive training was completed with the Collaborative Institutional Training Initiative ([CITI], see Appendix C CITI training certificate). This integrative

review was driven by the need to disclose the best treatment modality for the adult depressed population. The mental health population deserves the least invasive, cost conscious, effective treatment for depression. This integrative review utilized the robust methodology of Cooper (1998) and Whittemore and Knafl (2005). Following this methodology maintained rigor and decreased bias. Following procedure, an application was presented to the institutional review board (IRB). There were no human subjects or contact with medical records in this paper. However, for sake of rigor and experience, this process was followed.

Data Collection

Data collection and literature review were held to stringent analysis. This procedure helped maintain proper coverage of the phenomena of depression and treatment modalities of CBT and PCT Cooper (1982) and Whittemore & Knafl (2005) both agree there are two goals for data collection: (a)"findings that pertain to all previous research on the problem, and (b) findings that allow for generalization to the unit of analysis that interests the topic area" (Cooper, 1982, p. 294-295). A comprehensive review of literature was performed on the CBT and PCT. Inclusion and exclusion criteria contained the age limit of 18-65, only English full text peer review journal articles, and date restriction of 2009-2016 (see Table 1 for the inclusion and exclusion criteria).

Data were retrieved from seven databases and multiple data retrieval techniques were utilized A comprehensive search strategy included a computer-assisted search of the Cochrane Library, Pub Med, Medline, National Guideline Clearinghouse, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Researchgate and Elton B.

Stephens Co. host. (EBSCO) Data retrieval was restriction by the inclusion and exclusion criteria. A review of the literature was analyzed for topic specific data. Key words and phrases that were used for search included: cognitive behavior therapy, pharmacotherapy, comparative, best treatment modality, depression, and adults. Research articles were obtained and placed in topic specific reservoirs. Further exclusion criteria included age, comorbid conditions, and limited to full text articles written in English. The compilation of data was examined and placed in the matrix (see Appendix A for the literature matrix). There were two key areas to consider when assessing validity.

The retrieved studies were obtained and assessed utilizing the inclusion and exclusion criteria. Reviews were examined for differences and similarities. The realization that all the reviews did not contain all pertinent topics of interest were a factor in data collection. To protect validity and minimize biased research, as many sources as possible were reviewed. Acknowledging the possibility of missed or overrepresented samples are mentioned as a possible impact on the findings (Cooper, 1998). The population of focus was adults with the primary diagnosis of depression and without comorbid conditions. Cognitive behavioral therapy and PCT were looked at individually and comparatively, and assessed for management of depression symptoms, remission rates and QOL.

Levels of evidence were established utilizing the valid tool Melnyk Pyramid (2011). Melnyk Pyramid has seven levels of evidence, each one with specific criteria. Level one has the highest level and maintains strict adherence to “systematic review and

meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analysis" (Melnyk & Fineout-Overholt, 2011, p.1). Melnyk Pyramid (2011) provided an algorithm to assist in identifying each level of evidence. These validated levels added rigor and authenticity to this study. In this integrative review the levels of evidence according to Melnyk ranged from level one to level three. Level one had 13 articles, level two had nine articles, and level three had one article

Data Evaluation

Data evaluation is a critical part of relevant research. Points were assigned to specific research data criteria. Studies were reviewed with these points in mind. Data with too many irrelevant factors were excluded. Evaluating data for this integrated review was complex especially since this process utilized qualitative, quantitative and governmental standards as metrics. The quality of these resources were evaluated for authenticity, quality, informal value, and methodology. The mixed-method methodology provided diversity making this integrative review unique with a broad spectrum view to assess new approaches to the phenomena of depression treatment (Whittemore & Knafl, 2005).

Cooper (1982) and Whittemore & Knafl (2005) models were utilized as the conceptual frameworks for format organization of this integrative review. Cooper's (1982) conceptualized model for an integrative review contained five stages: (a) problem formulation; (b) data collection; (c) evaluation of data points; (d) data analysis and interpretation; and (e) presentation of results. Whittemore & Knafl (2005) provided a similar format to Cooper (1982). However, the data analysis stage was more elaborate

and further delineated the differences in data reduction, data display, data comparison, conclusion drawing and verification. These additional steps enhanced the rigor of this process.

Instructions to guide an integrative review were provided in an articles by Whittemore & Knafl (2005) An integrative review was defined by Whittemore & Knafl (2005) as "a specific review method that summarizes past empirical or theoretical literature to provide a more comprehensive understanding of a particular phenomenon or health care problem" (p. 546). An integrative review involves interdisciplinary collaboration to bring to light a new paradigm of a phenomena in original research. The systematic rigorous method of research, collection, analysis, and presenting outcomes, added to the scholarly standard of the original research (Cooper, 1982; Moran et al., 2014; Whittemore & Knafl, 2005). Moran et al. (2014) support the scholarly approach to an integrative review as "a serious, discipline work that seeks to interpret, draw together, and bring new insight to bare on original research" (p. 64).

The PRISMA checklist provided established guidelines to follow for evaluation of qualitative and quantitative data. Both, Cooper (1982) and PRISMA defined criteria of an integrative review to:

> Identify an appropriate topic or issue for the review, justify why a literature review is an appropriate means of addressing the topic or problem, search and retrieve the appropriate literature, analyze and critique the literature, and create new understanding of the topic through one or more forms of synthesis. (Torraco, 2005, p. 356-357)

These models added rigor and provided guidance throughout this integrative review. The step by step sequencing provided details for data collection and additional resources provided guidelines for critiquing (Coughlin & Cronin, 2007; Ryan, 2009). An important step in problem formation was to identify the conceptual and operational variables. PRISMA and Cooper (1982) share an intricate design that was mimicked and specific parameters were maintained. These parameters utilized the five stages of structure to provide further rigor. The PRISMA model added further structure to the review. and the step by step instructions of PRIMSA provided the specifications needed to ensure the precision of this scholarly prepared project.

Variable inclusion and exclusion pertain to the significance of data being too narrow or too broad (Whittemore & Knafl, 2005). This procedure helped define which variables were relevant and which were irrelevant. The significance of the foundational work impacted the reviews validity. "Narrow concepts might make review conclusions less definitive and robust. Superficial operational details might obscure interacting variables" (Cooper, 1982, p. 293). Cooper (1998) stated primary research begins with specific well defined parameters and integrative reviews begin with an idea or loose comparisons and become well defined as EBP research prevails. This integrative review followed this idea for project formulation.

Data Analysis

The data analysis of this integrative review used specific word codes for inclusion and exclusion of literature (see Table 1 for inclusion and exclusion criteria). Cooper (1982) inferred that integrative reviews were not obligated to apply the typical standard

analysis, therefore a coding system was introduced to provide rigor to this review. Whittemore & Knafl (2005) recommended the use of codes, categories, summarization of integrated conclusions about the research. Research and literature were categorized into types of studies for this review. Inclusion and exclusion tables provided a concrete means of evaluating variables. Methods that were utilized to analyze data for this review were supported by Whittemore & Knafl (2005). "A constant comparison method is one overarching approach used in a broad array of qualitative design that converts extracted data into systematic categories, facilitating the distinction of patterns, themes, variations, and relationships" (Whittemore & Knafl, 2005, p. 530). This method assisted in the synchronization of data for this review.

Levels of evidence were supported with the utilization of the Melnyk Pyramid (2011), which has seven levels of evidence, each one with specific criteria. Level one had the highest level and maintains strict adherence to "systematic review and meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analysis" (2011, p.1). Melnyk Pyramid (2011) further assisted the reviewer, with an algorithm for each level of evidence. These validated levels added rigor and authenticity to this study. In this review validation ranged from level one the level three, eleven level one, and twelve level two, and one level three study.

Data reduction. The underpinning of literature reduction was obtained by categorizing and coding specific criteria. Types of studies were reduced to meta-analysis, systematic reviews of randomized controlled trials, clinical guidelines based on systematic reviews, randomized controlled trials, and non-randomized control trial. Prior

to this step, particular topics were reduced to searchable themes. Depression was the phenomena reviewed with the treatment modalities of CBT and PCT. The search criteria reduced the number of articles for review to 23. Additional filtering criteria was population of depression to adults 18 to 65 years old and restricted any co-morbid conditions. Whittemore and Knafl's (2005) rational for data reduction followed this statement; "succinct organization of the literature facilitates the ability to systematically compare primary sources on specific issues, variable, or sample characteristics" (p. 550).

Data display. Data was extracted from primary sources and displayed in a matrix table (see Appendix A for the literature matrix) and displayed in alphabetical order according to the author's last name. This process enhanced visualization and maintained organization. Patterns and relationship of literature were displayed to assist in carefully analyzing data. The matrix provided an organized manner to systematically categorize each research journal article in this integrative review. A graph containing all the data provided a second means of verification (see Figure 1 for the table of evidence).

Data comparison. The data comparison stage further examined and compared the themes, categories, similarities, differences, and identified key components and groups. A concept map revealed the main idea of depression treatment modality and surrounding variables. The data presentation matrix allowed visualization of accurate and meaningful comparison patterns. These comparisons revealed themes, similarities and differences that made this integrative review a valid source of informative on the depression treatment modalities of CBT and PCT

Conclusion drawing and verification. Caution was exercised in this area to avoid biased conclusions of data analysis. Whittemore & Knafl (2005) pointed out the importance of avoiding premature closing options that can conclude research:

> Explicit care needs to be undertake during this process to avoid premature analytic closure (being locked into a particular pattern) or exclusion of pertinent evidence. Addressing conflicting evidence is a considerable challenge, particularly when results are equally compelling and from high quality reports. (p.551)

Subgroups were categorized into four groups; CBT alone, PCT alone, combination, and no difference in treatment. Trials were separated by categories of 13 meta-analysis, nine randomized control trials, and one control trial. This integrative review consisted of 51,068 subjects and 418 trials. Patient response to CBT, PCT, combination and no difference in treatment outcomes were assessed by specific criteria. The evaluation criteria revealed symptom responses in 10 studies, 16 studies with remission, two studies with recovery, and three studies revealed the patient QOL was impacted. The results of trial numbers and participation response are as follows: CBT was represented by 155 trials, no difference was represented by 131 trials, combination therapy had 130 supportive trials, and PCT had two supportive trials.

Presentation

This integrated review maintained rigor and an extensive research of the topic. Careful attention was devoted to data collection, assessment, and analysis to not omit or

embellish data. The methodology was clear and concise, each step could easily be reproduced to capture the same information presented in the original integrative review. The PRISMA model provided an evidenced based set of items, in the forms of a flow diagram and checklist. These tools assisted in maintaining rigor and validity. These tools provided transparency to the data collection and display.

Tables and flow charts provided fluency in the data presentation and offered reproducible methodology. Presentation of data in this format provided transparency and instilled a trustworthy aspect to the review data. Data presented with as much detail as possible, in a format that was easily interpreted, decreased the chances of unintentional bias of data (see Appendix A for the literature matrix and Figure 1 for the table of evidence).

This integrative review allowed unconventional data presentation and therefore, afforded the research community the opportunity to fashion additional concepts previously not considered. Utilizing this method may help bridge the gap in areas otherwise thought to be closed. Whittemore and Knafl (2005) and Cooper (1982) gave caution to combining dissimilar data due to the complexity of assimilation. However, Whittemore & Knafl (2005) encouraged methodology whereas mixed method literature and qualitative research had potential to decrease bias and error. Maximum effort was extended to present unbiased material. This integrative review contained qualitative as well as quantitative research studies. Levels of evidence utilized Melnyk Pyramid (2011), which has seven levels of evidence, each one with specific criteria. Each journal

article was subjected to the rigor of this pyramid and assigned levels of evidence. All the articles had high levels of accuracy and validity.

Evaluation Methods

This integrative review received on-going evaluation, by the researcher, to maintain rigor and a non-biased evaluation of the existing literature on depression treatment modalities of CBT and PCT. The topics of CBT, PCT, depression treatment, adult depression, opposition treatment, were searched through specific research data bases These databases were utilized in the literature search for this integrative review: computer-assisted search of the Cochrane Library, Pub Med, Medline, National Guideline Clearinghouse, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Researchgate and Elton B. Stephens Co. (EBSCO) from 2009 to 2016.

A comprehensive research yielded 76,504 articles and an additional 20 from references of other research studies. Resources were screened for duplicates, and inclusion and exclusion criteria. Research studies remaining that met eligibility criteria were 127. After further evaluation of these articles for comparisons within the age range and without comorbidities, the remaining studies left for data collections were 23 peer review articles. These 23 articles were placed in a matrix for transparency and organization. The matrix was alphabetized by the journal author's name. Included in the matrix was type of study, number of subjects, number of trials, and the metrics of response, remission, recovery, and QOL. Each article was categorized by supporting treatment; CBT, PCT, combination, and no difference. Depression tools utilized for

obtaining metrics were the Hamilton Rating Scale for Depression (HRSD) and Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV).

The final 23articles were further sorted by levels of evidence utilizing the Melnyk model. Once these were sorted, each article was analyzed for research design. These yielded an overall total design of 13 meta-analysis, one control trial, and nine randomized control trials. These 23 articles presented with significantly high levels of evidence. Melnyk Pyramid of Levels of Evidence followed strict guidelines for leveling evidence. The following three levels were represented in this integrative review: 12 level one, nine level two, and one level three study. The Melnyk Model defined the levels as follows: Level one is a systematic review & meta-analysis of randomized controlled trial; clinical guidelines based on systematic reviews or meta-analysis, Level two represented one or more randomized controlled trials, and level 3 represents controlled trial (non-randomized), (Melnyk & Fineout-Overfelt, 2011).

Articles were selected and thoroughly evaluated by the PRISMA model, to meet all the specific and limited criteria. The articles were categorized by supporting topics which were CBT, PCT, combination and no difference. The metrics utilized were symptom remission, response, recovery, and quality of life. Included in this review were 51,068 patients, and 418 trials. Methods of reliability relied on the reputation and validity of the PRISMA model and Melnyk levels of evidence.

Results

This integrative review added to the existing body of knowledge on depression treatment modalities of CBT and PCT, in the adult population. The research categories

that were utilized for consistent treatment therapy and matrix grouping were CBT alone, PCT alone, combination therapy, and, no difference between the therapies. A thorough evaluation of literature is represented in this review

Cognitive Behavioral Therapy. Cognitive behavioral therapy proved to be the best treatment option found in this integrative review. Out of the original 23 articles five articles found CBT superior to treatment as usual (TAU) which consist of PCT. One hundred fifty-five trials consisting of four meta-analysis and one randomized control trial supplied data to support CBT for depression is more effective than PCT (Bockting et al., 2015; Cuijpers et al., 2014; Cuijpers et al., 2013; Karyotaki et al., 2016; Linde et al., 2015).

The 14,958 subjects in these trials showed significant treatment outcomes utilizing CBT. The subjects presented with symptom relief, and showed enduring effects with longer periods of time between depression episodes. Cognitive behavioral therapy proved to have lasting effects even if the sessions were only during the acute phase of depression. Individual biological and neurological make-up affect each person's response to treatment. Therefore, a closer look at personalized therapy development which could impact patient cost and depression outcomes (Bockting et al., 2015; Cuijpers, et al., 2012; Cuijpers, et al., 2013; Driessen, et al., 2016; Hegerl et al., IsHak et al., 2011; 2010; Karyotaki et al., 2016; Quilty et al., 2014; Roshanaei-Moghaddam et al., 2011; Sinyor et al., 2010; & Weitz et al., 2015).

Cognitive behavioral therapy offers two benefits not found with PCT. Research showed that increased episodes of depression presents with resistance against the effects

of medication or PCT (Bockting et al., 2015). Therefore, it is not an option to continue to increase and change PCT. However, this is what is often seen in current practice. Another factor that impacts patient compliance and response to therapy is attitudes toward antidepressant medications. There are patient populations that prefer nonpharmacological options to treat depression (Linde et al., 2015). CBT is a viable, cost effective alternative.

Metrics that were consistent throughout all the studies, to assess depression and responses, were DSM-IV and the Hamilton Rating Scale for Depression (HRSD). Additional metric tools utilized in some of the studies were Beck Depression Inventory-Fast Screen (BDI-FS), Dysfunctional Attitude Scale (DAS), Montgomery Asburg Depression Rating Scale (MADRS), Trimbo's/IMTA Self Report Questionnaire for Costs Associated with Psychiatric Illness (TIC-P), and Structured Clinical Interview for DMS-IV, DAS).

No Difference. A selective groups of research articles were analyzed to gather evidenced based research (EBR) on the most effective depression treatment modality between CBT and PCT. Cognitive behavioral therapy and PCT were the two top depression treatment therapies recognized by the National Institute for Health and Care Excellence (NICE, 2015). Selected research was analyzed revealing 131trials that showed CBT alone or PCT alone provided the same patient treatment outcomes (Cuijpers et al., 2012; Cuijpers et al., 2015; Cuijpers et al., 2013; Cuijpers et al., 2010; Gartlehner et al., 2016; Hegerl et al., 2010; Henkel et al., 2010; Roshanaei-Moghaddam et al., 2011; Quilty et al., 2014, Weitz et al, 2015).

Cognitive behavioral therapy and PCT have specific individualized characteristics. When treating adult depression, therapies needed to be assessed for personalized therapy (Bockting et al., 2015; Cuijpers, et al., 2012; Cuijpers, et al., 2013; Driessen, et al., 2016; Hegerl et al., IsHak et al., 2011; 2010; Karyotaki et al., 2016; Quilty et al., 2014; Roshanaei-Moghaddam et al., 2011; Sinyor et al., 2010; Weitz et al., 2015). Pharmacological therapy proved to be more effective in dysthymia patients, at least in short-term treatment. In older adults, these two treatment modalities revealed no difference in treatment. Special attention should always be paid to the benefits of individual assessment when prescribing treatment as usual ([TAU], Cuijpers et al., 2012).

There was a discrepancy in study outcomes with blinded and non-blinded control trials. Cuijpers et al. (2015) discovered that in non-blinded trials PCT was superior in depression treatment and in blinded trials there was no significant difference between treatment with CBT or PCT. The difference in the outcomes of these two forms of trials brought to the forefront the importance of awareness in trial procedures and outcomes.

Depression treatments that showed no difference in patient outcomes had several mechanisms of action. Negative cognitive structure changed more rapidly with CBT and cognitive processing and depression severity changed more quickly with PCT. Both treatment modalities impacted patient depression outcomes equally but utilized different mechanisms of action (Quilty et al. 2014).

One of the most significant difference that CBT offers and PCT does not offer, is the long-acting effect on patient remission. In multiple trials CBT presented with lower relapse rates and prolonged effects regardless of number of sessions. Remission and

QOL were a major emphasis on depression management (Bockting et al., 2015; Cuijpers et al., 2013; Cuijpers et al., 2014; Karyotaki et al., 2016; Lam & Kennedy, 2015; Linde et al., 2015; Sinyor, Schaffer & Levitt, 2010).

Assessment tools utilized in all categories of this integrative review were the DSM-IV and HDRS. Additional tools utilized in the trials that showed no difference in treatment were: BDI, Inventory for Symptomology Score (IDSS), Psychological Distance Scaling Task (PDST), Research Diagnostic Criteria (RDC), Redundancy Card Sorting Task (RCST), Self-referent Encoding Task (SRET), and Well Being Index (WBI) and QOL.

Combination. Combination therapy with CBT and PCT, was the treatment modality with the third highest study numbers, 130 trials. Since CBT was the most researched psychological therapy, this type of behavioral therapy was utilized in all categories of this integrative review. Pharmacological therapy varied and presented no specific medication to utilize in this review.

Most combination trials looked at CBT and PCT separately and then in combination. Each of the 130 trials in this category researched CBT alone and PCT alone and assisted in identifying which therapy provided the best treatment outcomes. Cognitive behavioral therapy and PCT were then compared to combination therapy. Combination therapy was superior over monotherapy. Even though monotherapy subjects showed improvement the level and speed of improvement increase with the combination of CBT and PCT. Improvement in patient status impacted cost, effectiveness and patient well-being. Often the depressed population is out of work or

produce poorer work outcomes. Some may even be hospitalized. All scenarios impact the depressed person's ability to function in a productive manner and QOL. One particular pattern continued to present in all the categories of this integrative review. Long-term effects, remission, and increased time between relapses, presented in all trials in which CBT was a factor (Cuijpers et al., 2013; Cuijpers et al., 2012; Cuijpers et al., 2010; Hollon et al., 2014; IsHak et al., 2011; Wiles et al., 2013; Sinyor et al., 2010).

The combination therapy trials utilized both therapies in different sequences. Some of the patterns initiated PCT first, and then added CBT. Pharmacotherapy and CBT were combined at the same time, or PCT was discontinued, and BCT continued with sessions approximately every month. These were some of the sequenced patterns that were utilized. However, PCT and CBT were used in combination for a significant time to gather the specific data needed to adequately evaluate treatment pattern results. All the articles analyzed in this integrative review utilized the DSM-IV and HDRS to measure depression, response, remission, recovery and QOL. Evidence from the combination therapy study, revealed one trial response from combination therapy, five trials exhibited remission, one trial presented with recovery, and three trials revealed QOL impact.

Additional tools were utilized to obtain further detailed data. The additional universal depression measurement validation tools were: BDI, Berlin Quality of Life Profile **(**BQOLP**),** and Clinical Global Impression-Severity Scale (CGI-SS), Dysfunctional Attitude Scale (DAS), DMS-IV, MADRS, 36 Item Short Form Health Survey (SF-36), EuroQol EQ-5D Scale (Q-ES-Q/Q-LES-Q-SF), Quality of Life in

Depression Scale (QLDS), Social Adjustment Scale-Self-Report (SAS-SR), +Quality of Wellbeing (QWB), and World Health Organization Quality of Life Assessment Instrument (WHOQOL-100 & WHO-QOL-BREF).

The trials evaluating combination research had high reliability based on the Melnyk levels of evidence pyramid (2011). There were three level one studies, three level two studies, and one level three. These studies contain 130 trials with 8116 subjects. This category made particular reference to, CBT and PCT monotherapy effectiveness. However, the overall research revealed that combination therapy was better than the monotherapy and impacted QOL, whereas the other categories had very little impact on QOL. (Cuijpers et al., 2013;Cuijpers et al., 2012; Cuijpers et al., 2010; Hollon et al,, 2014; IsHak et al,, 2011; Kohler et al., 2013; Wiles et al. , 2013; & Sinyor et al., 2010).

Pharmacotherapy. Pharmacotherapy had the fewest response therapy outcomes in this integrative review. Pharmacotherapy offered a faster treatment response than CBT. Kocsis et al. (2012) go as far as to make reference that first line monotherapy with PCT, is contradicted by the national guidelines set by NICE (2015). Currently, NICE (2015) recommends sociological management and CBT as first line therapy for depression.

Antidepressant medications have a broad spectrum of therapies; anti-anxiolytics to antipsychotics. Pharmacotherapy options may appear to be a quick fix and easier to manage than some of the other therapies within the CBT family. Medication can be obtained on sliding scale income fees at some clinics and pharmacies. Some drug companies will offer free medication if finances are preventing the patient from obtaining

the drug. Once PCT treatment begins an assessment of symptoms and medication adjustment takes place every three to four weeks. Medication can be increased or titrated down, as the patient's condition warrants. This allows the patient some control over the treatment regimen. There are times when this may impact the patient's treatment response by giving the patient a sense of control. (Parker et al., 2013; Kocsis et al., 2009).

No medication is without side effects. Changes and titrations, in medications, may be made to help achieve the correct medication and dose. Patients presenting with first-time depression generally remain on medication for one year after symptom remission. Patients presenting with a second depression episode warrants two years on medication after symptom remission. Patients presenting with a third episode of depression or never achieving remission will remain on medication for life (Alexopoulos et al., 2001).

For continuity in metrics the same two depression assessment tools are represented in all the research articles. Some the articles have additional assessment tools but the two tools that were in all the studies were DSM-IV and HDRS. The PCT category contained two trials, 20,645 subjects, and one trial provided data for symptom response with PCT, and in two trials the subjects reached remission. Note, that each trial may have achieved more than one measurement of validity.

Discussion

During the data review of scholarly articles on CBT and PCT for adult depression, four key categories became apparent. This integrative review began by looking only at the comparison between CBT alone and PCT alone. However, it became apparent that

there were other options present in a large portion of research on this topic. Taking this into account, an extensive data search and analysis was performed. This integrative review expanded the original depression treatment option comparison to include: CBT alone, PCT alone, no difference in treatment with CBT verses PCT, and treatment with combination of CBT and PCT.

From the literature utilized in this review, the largest number of research trials showed CBT demonstrated the best therapeutic patient outcomes, remission, and enduring effects for long term efficacy. The second largest display of trials revealed no difference in treatment with CBT or PCT. These therapies presented with response and remission of depression. The third largest presentation of trials revealed that combination therapy with CBT and PCT presented the best treatment results. The fourth and final category of depression treatment was PCT, which contained two trials.

At the conclusion of the research for this integrative review an analysis of research presented a gap. There did not appear to be any literature that categorized adult depression treatments into the four categories as seen in this integrative review. Recent research literature was presenting evidence that specific patient populations may respond better to one therapy verse the other. Personalized therapy is a therapy that is now becoming a topic of research. There were multiple research articles in this integrative review that made reference to individualized medicine (Bockting et al., 2015; Cuijpers, et al., 2012; Cuijpers, et al., 2013; Driessen, et al., 2016; Hegerl et al., IsHak et al., 2011; 2010; Karyotaki et al., 2016; Quilty et al., 2014; Roshanaei-Moghaddam et al., 2011; Sinyor et al., 2010; Weitz et al., 2015).

More research is needed to determine if patient demographics or characteristics play an important role in individual response to different depression treatment modalities. Exploration of individualized medicine would prevent the trial and error approach to treatment. Individualized medicine could be cost effective and more therapeutic in assisting patients in symptom remission and QOL improvement. This integrative review has limitations including limited studies, and unequal study numbers for each treatment modality, only one reviewer, and limited treatment modalities.

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Table 1

Inclusion and Exclusion Criteria

Inclusion	Exclusion
Publication from 2009-2016	Publication prior 2009
Depression patients	Comorbid conditions
Age 18-65	Outside age range
No comorbid conditions	
Cognitive behavioral therapy	Other forms of
Pharmacotherapy	depression treatment
US Journal in English	Foreign journals

Appendix A

Literature Matrix

Cognitive Behavioral Therapy Depression Treatment

Focus of Article, Author/year	Level of Evidence	Elements and Core Concepts of CBT; Goals: Remission or Quality of Life	Outcomes, Conclusions, And Recommendations
Description of 10 year follow up on recurrent depression with CBT, (Bockting et al., 2015)	II	• CBT stopped after depressive episode & this showed long term effects • DSM-IV criteria • HRSD,TIC-P,SCID-I, DAS • Randomized control trial • 172 patients • Remission • Personalized medical approach	• CBT has long-term preventive effects on reoccurrences • At 10 years the group with CBT that had multiple depression episodes was still better than the group with PCT • Increased episodes of depression increased

		• Long term effects with CBT	resistance against the effects of PCT
Description of CBT on enduring effects superiority over PCT (Cuijpers et al., 2013)	I	• 9 studies with 506 patients • HAMD • Definitions in article p.2 • Remission • Enduring effects continue after treatment with CBT	• No difference acute care CBT and pharm continuation on remission • CBT superior when compared to acute care CBT and acute PCT and stopped post discharge
Description of CBT on depression remission, recovery, and improvement, (Cuijpers, 2014)	I	• 92 studies, 6937 patients • DBI, BDI-II, HAM-D • Remission	• CBT superior in symptom treatment and Remission • Offers long term effects

Description of CBT in combination and monotherapy long term effects, (Karyotaki et al., 2016)	I	• 23 randomized control trials • 2184 patients • Recovery > 26 consecutive weeks without relapse • Depression rating scales by American Psychiatric Association (p.146)	• In acute phase CBT is superior to combined therapy • In long term CBT is as effective as combination • Has long-term effects
Description of CBT effectiveness in MDD, (Linde et al., 2015)	I	• Compared to PCT and placebo • CBT is effective • Less resource intensive • More eclectic rather than dogmatic • 30 studies • 5,159 patients • Remission	• CBT of less resources may have similar effects as more intensive treatment • 50% decrease on depression score • Depression measurement tools: HRSD, BDI-FS, MADRS

			• Offers options for patients wishing to pursue non-pharmalogical treatment

Note: BDI-FS= Beck Depression Inventory Fast Screen, CBT= Cognitive Behavior Therapy, DAS= Dysfunctional Attitude Scale, DSM-IV criteria, HRSD= Hamilton Rating Scale for Depression, MADRS= Montgomery Asburg Depression Rating Scale, MDD= Major Depressive Disorder, PCT=Pharmacotherapy, TIC-P= Trimbo's /IMTA Self Report Questionnaire for Costs Associated with Psychiatric Illness, SCID-I= Structural Clinical Interview for DMS-IV, DAS,

Metrics: Patient participation=15,299, Trials=111, Remission=6, Recovery=1

Pharmacotherapy Depression Treatment

Focus of Article, Author/year	Level of Evidence	Elements and Core Concepts of CBT; Goals: Remission or Quality of Life	Outcomes, Conclusions, And Recommendations
Description of PCT superiority to CBT in 12 week blind randomized study (Parker et al., 2013)	II	• .Randomized • . 29 participants • .HAM-D, HES • .Measured respond and remission • Low NNT shows superiority over CBT	• 18 participants received antidepressants • 11 received CBT • At 4 weeks antidepressant group had significant improvement,
Description of augmentation of CBT and PCT to nonresponse chronic depression,	II	• . The REVAMP trial • .Randomized trial with three phases • .808 patients • . HDRS, DSM-IV • .Response and remission	• Compare PCT to pharm with long-term and acute CBT and compared to pharm and short-term CBT

(Kocsis et al., 2009)			• Findings revealed no significant improvement with the addition of CBT to PCT

Note: CBT=Cognitive Behavior Therapy, HAM-D= Hamilton Rating Scale for Depression, HES= Hamilton Exogenous Subscale, NNT=Numbers needed to treat, PCT= Pharmacotherapy

Metrics: Patients=837, Trials=2, Remission=2

Combination Depression Treatment; Pharmacotherapy and Cognitive Behavioral Therapy

Focus of Article, Author/year	Level of Evidence	Elements and Core Concepts of CBT; Goals: Remission or Quality of Life	Outcomes, Conclusions, And Recommendations
Description of comparative therapy in depression, (Cuijpers et al., 2013)	I	• Meta-analysis • 20 studies (compare CBT to PCT show no difference in treatment) • (115 overall studies, show combination best) • HDRS, BDI • Response and remission	• Study indicated no significant difference in treatment between these 2 type of treatment • But in Combined treatment is significantly more effective • Measures 2 of the groups looked at in this 1 study
Description of combination PCT and CBT, Separate,	I	• Systematic review • 54 studies combined • 4734 participants	• 29 studies comparing PCT and combined

and personalized depression treatment (Cuijpers et al., 2012)		• Combined therapy is best for depressed out patients and older people • 20 characteristics were examined • Measure of remission	• 14 comparisons between CBT and combined • No significant difference between treatment with CBT or PCT • In outpatient combined therapy significantly more effective
Description of comparative look at combination and PCT for adult depression, (Cuijpers et al., 2010)	I	• Meta-analysis, randomized controlled trials • 16 studies, 852 patients • HAMD, BDI, • Response, Remission	• No significant was found between CBT and PCT • 413 patients CBT and pharm combination • 439 patients combination CBT and placebo • No findings to support that PCT was any more effective than CBT in

			more sever baseline depression
Description of combined CBT and pharm verses PCT alone (Hollon et al., 2014)	II	• Randomized clinical trial • 452 adult patients • 3 University Clinics involved • HRSD, DMS-IV, LI • Remission	• Combined Enhanced rate of recovery • Fewer dropouts • Fewer adverse events • Experienced less time in the MDD episode • CBT: 50 minute sessions Twice weekly for 2 weeks, then weekly after acute • Then at least monthly during continuation
Description of combination, PCT, or CBT(& psychotherapies) on QOL with depression patients, (IsHak et al., 2011)	I	• Review • Screening scales SF-36, WHOQOL-100, WHOQOL-BREF, EQ-5D, Q-ES-Q/Q-LES-Q-SF, QLDS, QWB, BQOLP,	• All treatments showed some improvement but most significant is combined therapy • Combined showed greater reduction in

		CGI-SS, MADRS, SAS-SR, HRSD • 36 studies • 14,669 patients • 7 studies psychotherapy alone (608 pts) • 23 studies PCT alone (12,225 pts) • 7 studies combined therapy (1836 pts) • Remission & improved QOL	symptoms and improved QOL • Health focus is changing from life preserving to increased quality post intervention

Description of combination CBT and PCT effectiveness (Kohler et al., 2013)	III	• Controlled Trial • 206 patients • Screening tools: BDI, HAMD, DAS, CGI-SS, DSM-IV, ICD-10 • Response, recovery & remission	• .Preformed under naturalistic conditions • Response to Treatment with PCT and CBT in-patient only (HAMD: 19.86, BDI: 11.36) • Treatment with PCT and CBT & additional CBT post discharged from hospital (HAMD: 22.21, BDI: 14.99) • Remission: Inpatient CBT and PCT (HAMD: 51%, BDI: 43.1%) • Remission: Inpatient CBT in addition to post discharge CBT and PCT (HAMD: 72%, BDI: 58.8%)

Description of combination in treatment resistant depression: CoBalt trial, (Wiles et al., 2013)	II	• Randomized control trial • Screening tools: BDI, ICD-10, • 469 patients • 73 practices in UK • Response: 50% reduction in depressive symptoms within 6 months (BDI)	• Trial study on PCT, or PCT and CBT • Follow-up for 12 months • Robust findings that CBT and PCT are effective at reducing depressive symptoms • At end of study 46% improved with PCT and CBT

		• Response & improved QOL	• 22% improved with PCT alone
Description of combination depression treatment, STAR*D, (Sinyor et al., 2010)	II	• Largest randomized trial done on CBT and PCT • 6 years study • Cost US $35 million • Remission, QOL • 2876 pts	• 4 levels; 1=PCT alone, 2= augmentation to pharm, 3=equipoise-stratified randomized (pt choice), 4=randomized 2 PCT • Not a true test between PCT and CBT because pt was always on PCT even with CBT was introduced • CBT and PCT showed significant improvement than PCT alone

Note: BDI= Beck Depression Inventory, BQOLP= Berlin Quality of Life Profile, CBT= Cognitive Behavioral Therapy, CGI-SS= Clinical Global Impression- Severity Scale, DAS=Dysfunctional Attitude Scale, DMS-IV= Diagnostic and Statistical Manual of

Mental Disorders 4th edition, HRSD= Hamilton Rate Scale for Depression, MADRS=Montgomery Asberg Depression Rating Scale, MDD= Major Depression Disorder, pts= Patients, PCT=Pharmacotherapy, SF-36= 36 Item Short Form Health Survey, Q-ES-Q/Q-LES-Q-SF=EuroQol EQ-5D Scale, QLDS= quality of Life in Depression Scale, QOL= Quality of Life, SAS-SR= Social Adjustment Scale-Self-Report, QWB= Quality of Wellbeing, WHOQOL-100 & WHO-QOL-BREF= World Health Organization Quality of Life Assessment Instrument, UK=United Kingdom, Metrics: Patients=23,406, Trials=209, Remission=2, Response+remission=1, Remission+QOL=1, Response+recovery+remission=1, Response+QOL=1, Remission+QOL=1

No Significant difference between Two Depression Treatment Modalities; Pharmacotherapy or Cognitive Behavioral Therapy

Focus of Article, Author/year	Level of Evidence	Elements and Core Concepts of CBT; Goals: Remission or Quality of Life	Outcomes, Conclusions, And Recommendations
Description of combination PCT and CBT, Separate, and personalized depression treatment (Cuijpers et al., 2012)	I	• Systematic review • 54 studies combined • 4734 participants • Combined therapy is best for depressed out patients and older people • 20 characteristics were examined • Measure of remission	• 29 studies comparing PCT and combined • 14 comparisons between CBT and combined • No significant difference between treatment with CBT or PCT • In outpatient combined therapy significantly more effective

Description of PCT to CBT in blinded study, (Cuijpers et al., 2015)	1	• 35 randomized trials • 3721patients • HAM-D-17 • Remission	• PCT superior to CBT in non-blinded study • No significant difference between CBT and PCT in blinded study-best indication
Description of comparative therapy in depression, (Cuijpers et al., 2013)	I	• Meta-analysis • 20 studies (compare CBT to pharm show no difference in treatment) • (115 overall studies, show combination best) • HDRS, BDI • Response and remission	• Study indicated no significant difference in treatment between these 2 type of treatment • But in Combined treatment is significantly more effective

			• Measures 2 of the groups looked at in this 1 study
Description of comparative look at combination and PCT for adult depression, (Cuijpers et al., 2010)	I	• Meta-analysis, randomized controlled trials • 16 studies, 852 patients • HAMD, BDI, • Response, Remission	• No significant was found between CBT and PCT • 413 patients CBT and PCT combination • 439 patients combination CBT and placebo • No findings to support that PCT was any more effective than CBT in more sever baseline depression
Description of comparative harms and benefits of	I	• An Evidence Report for	• Moderate strength evidence

PCT, CBT, complementary and exercise therapy in depression, (Gartlehner et al., 2016)		Clinical Practice Guideline • Response and remission screening tools • 20 RCT in 22 .publications with 3000 patients • Screening tools: HAM-D, BDI, HDRS, RDC	• PCT and CBT led similar rates in response and remission • Guidelines from American College of Physicians • Similar response rates 8-16 weeks of treatment with CBT & PCT (CBT=44%, pharm 46%) • Similar Remission rates (41%CBT to 48%PCT) • 2 trials showed CBT had lower relapse rates

Description of comparison PCT and CBT including patient's arm, (Hegerl et al., 2010)	II	• 368 patients • Randomized, placebo-controlled, single-center • HDRS, IDSS, WHO-5, DSM-IV, QOL • Response	• Reduction in HDRS virtually identical; PCT 6.8, CBT 6.7 • Scores show significant improvement in QOL • Patient Arm for choice decision did not impact outcome
Description of comparison of PCT and CBT in atypical depression, (Henkel et al., 2010)	II	• 95 patients • HAMD • Post-hoc analysis • Response	• Double blind and single blind study • 10 week treatment period • Did not reveal any difference between CBT and PCT
Description of combination /comparison of CBT and PCT in	I	• Meta-analysis, randomized control • 21 studies	• Similar effects with both treatments • Similar effects in groups with and

treatment of anxiety and depression, (Roshanaei-Moghaddam et al., 2011)		• 2027 patients: 1095 PCT, 932 CBT • HDRS • Response	without placebo controls
Description of cognitive structure and processing during CBT vs. PCT, (Quilty et al., 2014)	II	• Randomized trial • 104 patients • HAM-D, BDI-II, PDST, RCST, SRET • Symptom response	• PCT showed earlier treatment response with lower depression severity by week 4 • CBT showed earlier negative interpersonal content distance (in week 8) • Cognitive structure and processing are both impacted by CBT and PCT

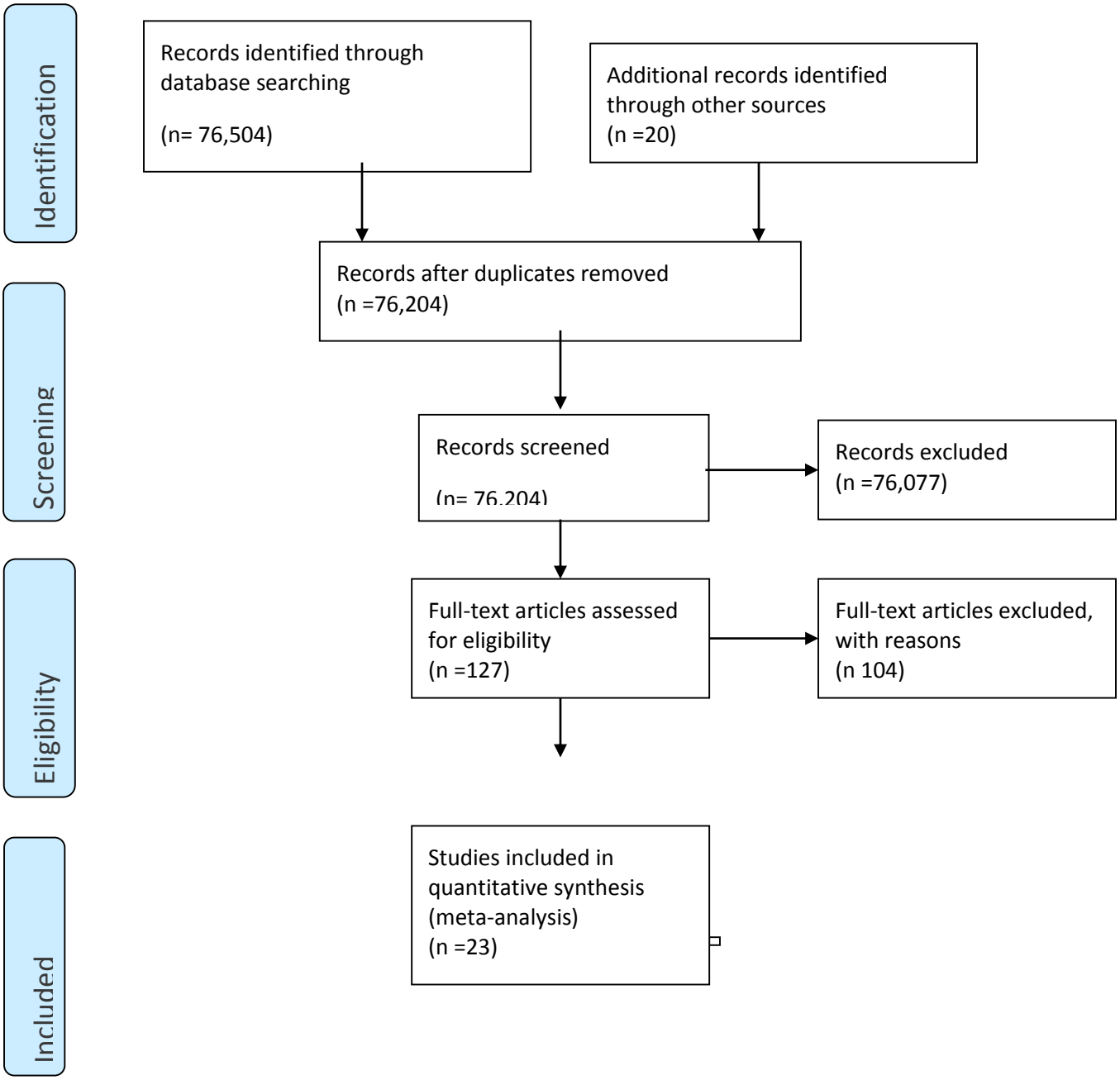
Description of baseline depression outcomes between CBT and PCT (Weitz et al., 2015)	I	• Randomized clinical trials • DSM,HAM-D, BDI • 16 trial • 1700 out pts • Response and remission	• 794=CBT • 906=PCT • CBT and PCT are equal in response and remission of baseline depression

Note: BDI-II=Beck Depression Inventory, IDSS=Inventory for Symptomology Score, RCT= Random Control Trials, HDRS/HAM-D=Hamilton Depression Rating Scale, PCT=Pharmacotherapy, PDST=Psychological Distance Scaling Task, RDC= Research Diagnostic Criteria, RCST=Redundancy Card Sorting Task, SRET=Self-referent Encoding Task, WHO-5=Well-being Index, QOL=Quality of Life

Metrics: Patients=11,867, Trials=116, Remission=1, Response=4, Response +remission

PRISMA 2009 Flow Diagram

Appendix B



Welch V, Petticrew M, Tugwell P, Moher D, O'Neill J, & Waters, E. (2012) PRISMA-Equity 2012 Extension: Reporting Guidelines for Systematic Reviews with a Focus on Health Equity. PLoS Med 9(10): e1001333. doi:10.1371/journal.pmed.1001333

Table of Evidence

Figure 1

Author/Year	Meta	CT	RCT	*n*= pts	*n* = trial	Res	Rem	Rec	QOL	Findings
Bockting et al. (2015)			1	172	1		1			CBT
Cuijpers et al. (2013)	1			506	9		1			CBT
Cuijpers et al. (2014)	1			6937	92		1			CBT
Karyotaki et al. (2016)	1			2184	23			1 w/o relapse		CBT
Linde et al. (2015)	1			5159	30		1			CBT
	4	0	1	14,958	155	0	4	1	0	CBT Totals
Cuijpers et al. (2015)	1			3721	35		1			0 Diff
Cuijpers et al. (2013)	1				20	1	1			0 Diff
Cuijpers et al. (2010)	1			852	16	1	1			0 Diff

Gartlehner et al. (2016)	1			3000	20	1	1			0 Diff
Hegerl et al. (2010)			1	368	1	1				0 Diff
Henkel et al. (2010)			1	95	1	1				0 Diff
Roshanaei-Moghaddam et al. (2011)	1			2027	21	1				0 Diff
Quilty et al. (2014)			1	104	1	1				0 Diff
Weitz et al. (2015)	1			1700	16	1	1			0 Diff
	6	0	3	11,867	131	8	5	0	0	0 Diff Total
Cuijpers et al. (2010)	1			852	16	1	1			Combine
Cuijpers et al. (2013)	1				20					Combine
Cuijpers et al. (2012)	1			4734	54		1			Combine
Hollon et al. (2014)			1	425	1		1			Combine

IsHak et al. (2011)	1			14669	36		1		1	Combine
Kohler et al. (2013)		1		206	1		1	1		Combine
Wiles et al. (2013)			1	469	1	1			1	Combine
Sinyor et al. (2010)			1	2876	1		1		1	Combine
	3	1	3	8116	130	1	5	1	3	Combine Total
Parker et al. (2013)			1	29	1		1			PCT
Kocsis et al. (2009)			1	20,616	1	1	1			PCT
	0	0	2	20,645	2	1	2	0	0	PCT Total
TOTALS	13	1	9	51,068	418	11	16	2	3	

Note: Meta= mate-analysis, CT=Control trial, RCT= Randomized control trial, Pts= patients, Res = Response, Rem = Remission, Rec =Recovery, QOL= Quality of life, CBT=Cognitive behavioral therapy, PCT= Pharmacotherapy, Combine= Combination, 0 Diff= No difference

Figure 2

IRB Email of Approval

Good Evening Terri,

Based on the federal regulations (45 CFR 46.102(f)), your study is not considered human subjects research, so an approval letter is not warranted. I met with the Department of Nursing on March 9, and they are aware of this aspect of the regulations and the possibility of their students receiving non-human subjects research letters from the IRB.

Best,

G. Michele Baker, MA, CIP

Administrative Chair of Institutional Research
The Graduate School

(434) 592-5530

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Appendix C

CITI Training

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COURSEWORK REQUIREMENTS REPORT*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Teresa Page (ID: 4542847)
- **Email:** tpage@liberty.edu
- **Institution Affiliation:** Liberty University (ID: 2446)
- **Institution Unit:** nursing

- **Curriculum Group:** Human subject - Basic
- **Course Learner Group:** Nursing
- **Stage:** Stage 1 - Basic Course
- **Description:** This course is appropriate for students doing class projects that qualify as "No More Than Minimal Risk" human subjects research.

- **Report ID:** 14709872
- **Completion Date:** 09/08/2015
- **Expiration Date:** 09/07/2018
- **Minimum Passing:** 80
- **Reported Score*:** 93

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Data Management (RCR-Basic) (ID: 16600)	12/04/14	5/5 (100%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	12/04/14	5/5 (100%)
Liberty University (ID: 15111)	12/04/14	No Quiz
Belmont Report and CITI Course Introduction (ID: 1127)	12/04/14	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	12/04/14	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	12/04/14	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	12/04/14	5/5 (100%)
Assessing Risk - SBE (ID: 503)	12/04/14	5/5 (100%)
Informed Consent - SBE (ID: 504)	12/04/14	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	12/06/14	5/5 (100%)
Records-Based Research (ID: 5)	09/08/15	3/3 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	09/08/15	3/5 (60%)
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	09/08/15	4/4 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9)	09/08/15	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	09/08/15	3/3 (100%)
Research and HIPAA Privacy Protections (ID: 14)	09/08/15	4/5 (80%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	09/08/15	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	09/08/15	3/5 (60%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

CITI Program
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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COURSEWORK TRANSCRIPT REPORT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Teresa Page (ID: 4542847)
- **Email:** tpage@liberty.edu
- **Institution Affiliation:** Liberty University (ID: 2446)
- **Institution Unit:** nursing

- **Curriculum Group:** Human subject - Basic
- **Course Learner Group:** Nursing
- **Stage:** Stage 1 - Basic Course
- **Description:** This course is appropriate for students doing class projects that qualify as "No More Than Minimal Risk" human subjects research.

- **Report ID:** 14709872
- **Report Date:** 09/08/2015
- **Current Score**:** 93

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Liberty University (ID: 15111)	12/04/14	No Quiz
History and Ethical Principles - SBE (ID: 490)	12/04/14	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	12/04/14	5/5 (100%)
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Privacy and Confidentiality - SBE (ID: 505)	12/06/14	5/5 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	09/08/15	3/3 (100%)
Research and HIPAA Privacy Protections (ID: 14)	09/08/15	4/5 (80%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	09/08/15	4/4 (100%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	12/04/14	5/5 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	09/08/15	3/5 (60%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	09/08/15	3/5 (60%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

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