UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

DOES PATIENT AGE MODERATE THE EFFECT OF BRIEF CBT ON CHANGE IN DEPRESSION AND ANXIETY? A SECONDARY ANALYSIS OF VA DATA

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

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Norman, Oklahoma
2021

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A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Acknowledgments

This manuscript acknowledges a long list of teachers, mentors, family, and friends whose unwavering support facilitated the path to successful completion of a doctoral degree and of this dissertation. Thanks to the faculty members who supported me at various points along the way, including Dr. Rockey Robbins, Dr. Mike Crowson, Dr. Benjamin Heddy, Dr. David McCleod, and most enduringly—Dr. Terry Pace. I extend great appreciation also to my longtime mentor from the Oklahoma City VA, Dr. Kristen Sorocco, who generously encouraged me to utilize the data from one of her published projects for this dissertation, as well as to Dr. Jeffrey Cully who was the principal investigator behind that dataset. Many thanks to my University of Oklahoma friends and now colleagues, Dr. LaVonya Bennett and Dr. Erika Warbinton, who paved the way, kept me laughing, and taught me so much. To the many other mentors I've had along the way, including Dr. Mary Hayes, Dr. Chad Lorenz, and Dr. Laura Meis for providing a pathway for higher learning and for seeing my potential. Thank you to the many friends who have shown up for me for so many years and most especially to Dr. Baily Dirth, my soul sister on this journey and biggest supporter. Much love to my family for your ongoing pride in who I am—thank you for instilling in me all the very best values and for loving so unconditionally. Finally, this dissertation is dedicated to my late friend, Dr. Blair John, whose Ph.D. was awarded posthumously. My dear friend during my masters training and Ph.D. comrade after, Dr. John was unable to see his bold and tenacious dreams come true due to racial violence. I will never forget you and I will never stop fighting for a safer and more just world. The many times I wanted to give up on this journey, I could hear your voice--in it your relentless commitment to achievement and to greatness. Thank you for your encouragement while you were present in this world and even after you departed it.

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Abstract

This paper addressed the problem that clinical research rarely utilizes quantitative analysis to consider age in determining efficacy of mental health treatments. More specifically, a secondary analysis extended published outcomes in a VA study of bCBT. By investigating age as a moderator of change in treatment outcomes, this study addressed the risk of over-generalizing expected treatment efficacy and outcome trajectory. Results of a latent growth curve analysis determined there was a general downward trajectory in anxiety and depression over the study period, and participants randomized to the bCBT group, those identified as female, and older individuals tended to score lower on a depression measure at baseline than those in the control group, persons identified as male, and persons who were younger. Since treatment emerged as a significant negative predictor in both models, we know predicted decreases in depression and anxiety over the entire study period were more pronounced for individuals in the bCBT group as compared to the control group. While none of the interaction terms were statistically significant in the anxiety model, the predicted decrease in depression over the study period was less pronounced for older participants.

*Keywords**:*** aging, older adults, lifespan, bCBT, CBT, latent curve analysis

Does Patient Age Moderate the Effect of Brief CBT on Change in Depression and Anxiety? A Secondary Analysis of VA Data

Chapter I: Introduction

A lifespan approach to clinical research is rarely applied to the full range of ages presenting for mental health treatment. The present study adds to existing research by re-assessing data collected by Cully et al. (2017) in a randomized control trial (RCT) of an evidence-based treatment in a VA primary care setting. A brief cognitive behavior therapy (bCBT) intervention was used to treat anxiety and depression for Veteran participants in the original study (N = 302). The current study reevaluated the published data, analyzing age to understand the trajectory of treatment efficacy, using these variables as covariates to determine the effect of age on treatment outcomes over time following a flexible format bCBT intervention. Gender was also considered in exploratory analysis.

The researcher's objectives were to analyze a secondary dataset using humanistic and lifespan perspectives, quantitatively assessing the generalizability of previous findings against a range of ages, and promoting a new standard for including lifespan assessment in clinical research and published outcomes. Contributions of this investigation are to further extend the extensive literature on CBT, improve research integrity by further delineating the generalizability of clinical research findings, and inject consciousness of identity-based factors into the design, analysis, and discussion of clinical treatments. The findings showed no evidence that age moderated the effects of treatment on initial status of anxiety or its change over the study period. For depression, an interaction between treatment and age emerged as a significant finding suggesting the predicted reduction in depression over the study period was less pronounced for older adults.

Background

The timing is right for new and inspired research which addresses the mental health concerns of older adults. In 2008, the American Association of Geriatric Psychiatry found approximately 20% of individuals age 55 or older reported a mental health problem, with anxiety and depression listed among the most prevalent concerns. In 2020, Koma et al.'s study of mental health prevalence rates found 24% of older adults endorsed depression or anxiety. They noted this rate was stable throughout the COVID-19 pandemic which began in March 2019, but significantly higher than was reported among older adults in 2018 (11%). Some studies have pointed to the decline of mental health concerns in older adults (Centers for Disease Control and Prevention and National Association of Chronic Disease Directors, 2008), and Koma et al.'s analysis found depression and anxiety among older adults were reported at a lower rate than among younger adults (24% vs. 40%). However, there is cause for hesitation in adopting these studies too affirmatively. Karel et al. (2012, p. 186) offer several reasons why the data is not conclusive on matters of prevalence, including how this information historically has been collected and how older adults have or have not acknowledged and pursued treatment for various mental health symptoms to date.

What we know about the way older adults utilize mental health services is likely to change as the number of aging individuals grows. The current cohort of older adults is unlike any other preceding group. While utilization of mental health treatment historically has been low, there is evidence to suggest older adults are now more accepting of these services (Karlin et al., 2008) and have specific preferences when it comes to their mental health treatment (Mohlman, 2012). A complicating factor in understanding mental health in older adults is that such concerns are too often conflated with bereavement; grief may serve as a temporary setback versus a

clinical depression. Another reason accurate mental health diagnosis is difficult in older adults is that depression can easily be mistaken for fatigue (Ellison & Verma, 2003).

DiNapoli et al. (2016) found younger adults were the most likely to use mental health services, followed by middle-aged adults and then older adults; age was found to be one of the greatest predictors of utilization of mental health services, with odds of use being threefold among younger adults compared with older adults. Research suggests older adults prefer non-pharmacological treatment options (Lee et al., 2012; Rokke & Scogin, 1995) and benefit from non-pharmacological treatments for depression (Apostolo et al., 2016), chronic pain (Park & Hughes, 2012), managing the behavioral and psychological symptoms of dementia (Brodaty & Arasaratnam, 2013), and more. Yet, the literature indicates older adults face more barriers in gaining access to such treatments (Wuthrich & Frei, 2015). For example, Barrera et al. (2017) found increased risk for anxiety and depression among older adults who are homebound and living in rural areas, where access to mental health services is often limited (p. 114), and face disparities in access to psychotherapy compared with their urban counterparts (Mott et al., 2015).

Research is scarce which examines predictors of treatment outcomes in older patients, but differences in outcomes have been observed (Hundt et al., 2014). Symptom severity and full engagement in treatment predicted treatment outcome in older adults receiving CBT for generalized anxiety (Hundt et al., 2014, p. 8). Lower effect sizes in older versus younger adults suggest patient variables are a factor in treatment response, although predictors of treatment outcomes in older adults rarely are examined (Hundt et al., 2014, p. 2). Reasons bCBT might not be effective at later stages of the lifespan include potential cognitive decline, treatment resistance, provider belief that older adults will not get better, and the summative, accumulative

nature of oppression and trauma derived from sociodemographic characteristics like race, sexual identity, and socioeconomic status.

Though psychology, as a discipline, has long viewed age as a determinant of human behavior, age has been less studied as a factor in treatment outcomes than other sociodemographic variables (e.g., race and gender). For these and other important reasons explored later in the chapter, it is crucial to consider age uniquely as a moderator of bCBT treatment outcomes.

Definition of Terms

For the purpose of this study, age refers to the continuous, numerical identifier referencing an individual's year of life. The term *older adult* often applies to individuals aged 65 and older, but the term is used less categorically here. For this research study, the terms *aging population* or *older adult* are more ambiguous and, unless otherwise specified, are referring to the continual arc of one's life toward later developmental stages. In some cases, additional clarification of age categories within the older adult demographic may be provided.

Gender refers to male or female sex identification based on previously collected data which labeled sex characteristics in a binary fashion. It should be acknowledged that a more accurate term for this classification would be *sex* (American Psychiatric Association, 2013, p. 829). Further, we know gender identity is neither fixed nor binary (Cretella et al., 2019) and future research is likely to use more nuanced language to reflect gender differences than are used here.

Finally, the term *flexible format* is used to describe the delivery of bCBT used in the original study. This is a term coined by the present author, not the study's original authors. It is not known whether the original trial of bCBT was designed to be implemented flexibly, or if this

was an unanticipated result of study design. Since the average number of bCBT sessions study participants completed was not the full dose of six sessions (3.9 sessions, SD=2.3) described in the Patient Workbook (Appendix A) or Provider Manual (Appendix B), and since participants were able to select, with their provider, the specific skills or modules they preferred to receive, the term *flexible format* is applied throughout this manuscript.

Statement of the Problem

Clinical quantitative research rarely considers lifespan factors in treatment fidelity or in establishing treatment efficacy, despite evidence that age carries fundamental psychological, biological/physiological, and social implications on an individual's perception of self and others, and on more general perceptions of human insight and behavior (Does et al., 2018, p. 639). The specific problem addressed by this study is that published outcomes in a VA study of bCBT as a mental health treatment for Veterans in primary care do not integrate lifespan factors into an analysis of study results. By not interrogating such factors, researchers risk generalizing expected treatment efficacy and outcome trajectory inappropriately. The following section delineates the research questions and hypotheses developed for this investigation.

Research Questions

- Do treatment and age predict change over the study period in anxiety and depression? If so, what is the nature of those effects on change?
- Does age moderate the effect of treatment on changes over time in anxiety and depression?

Hypotheses

The expectation in a study such as this is that there are meaningful differences between treatment groups, and that some of those differences are moderated by age and/or gender. The logical trajectory for depression and anxiety is that treatment will decrease symptoms, that the

decrease will bottom out during or immediately after a course of treatment, and that symptoms will rebound to a level lower than baseline but with some loss of gains from peak. In seeking to answer the research questions, the following hypotheses are established:

- Hypothesis 1: There will be differences in the trajectory of depression and anxiety outcomes between groups (treatment vs. control).
- Hypothesis 2: bCBT will be proven to be an effective intervention for older adults in treating anxiety and depression, but there will be meaningful differences in the trajectory of symptoms and treatment effects as participants age that will inform clinical application of bCBT. Negative relationships between treatment and outcomes (e.g., reduction of symptoms) are likely to be less stable across time points as participants age, or will remain stable but with different rates or types of change (e.g., differences in the shape of the trajectory). Gender is also considered in analysis for exploratory purposes, but is not expected to demonstrate a significant interaction.

Regardless of whether these hypotheses are proven, results of the inquiry will help researchers understand the shape of growth trajectories across the lifespan, explore differences in outcomes, and discern meaningful recommendations for treatment.

From a humanistic perspective (Rogers, 1965, 1985; Rank, 1996; Maslow, 1965, 1969), older individuals may be more receptive to a person-centered approach to mental health care versus a behavioral one. Cognitive functioning may be a factor contributing to treatment differences across the lifespan, with older age corresponding with reduced efficacy around the age at which cognitive decline is expected. Indeed, it may be that analysis reveals a cohort effect (APA, 2009). Additionally, physiological/biological changes and issue-related changes may be more present as we age.

Summary

This chapter has provided the context necessary to confirm the importance of psychological research that not only identifies, but applies lifespan factors in understanding the trajectory of treatment outcomes. Chapter I made a case for analyzing these often overlooked factors in assessing outcomes in clinical data and stated the specific problem this investigation addresses. Aging individuals today have a unique set of strengths, challenges, and characteristics with which providers of psychological treatment should be familiar. Because the study of age informs a lifespan approach to clinical study, this variable is treated uniquely as a moderator variable. This chapter posed specific research questions, presented study hypotheses, and stated the methodological approach used to answer the research questions.

Clinical quantitative research endeavors to leave nothing to chance, and the approach to this investigation proudly centers analysis of age as a variable rarely considered in related research, in hopes this study can contribute uniquely to the literature on CBT. A humanistic framework will evaluate how lifespan factors affect the mental health issues people have, their access to and utilization of mental health treatment, and the trajectories of treatment effects. The greater the knowledge base of these effects, the better able the field of psychology is to develop and administer effective care for older patients.

Layout of the Dissertation

The organization of the dissertation follows with Chapter II, which is a review of extant literature related to the components of study covered in Chapter I. Chapter III will describe the methods used in data collection and in developing, analyzing, and interpreting the clinical data. Results are reviewed in Chapter IV. Finally, Chapter V offers a discussion of the implications of this investigation, a review of study limitations, and recommendations for future research.

Chapter II: Literature Review

This chapter is a review of literature which stages an argument for analyzing the use of age as a key factor in interpreting clinical research outcomes. As stated in Chapter I, clinical quantitative research rarely considers lifespan factors in treatment fidelity or in establishing treatment efficacy, despite evidence that other social categories like race and gender have fundamental implications (Does et al., 2018, p. 639). More specifically, the present study revisits published outcomes of Cully et al.'s (2017) study of bCBT as a mental health treatment for Veterans in primary care settings, and further develops the analysis of published results. This chapter provides context for the concepts addressed in this investigation, underscores the importance of applying a lifespan approach to quantitative clinical data, and offers foundational understanding of the contributions of lifespan factors to treatment effects.

Ontology

This study is approached from a radical humanist perspective, a paradigm of both subjective and objective philosophical perspectives (Burrell & Morgan, 1979, p. 282), using a quantitative approach to secondary data analysis. Until recently, there has been a long-entrenched assumption that empirical research and social constructionism and humanism were in opposition to each other. Empiricists engaged in one-way observation, breaking out vital variables. Humanism was relegated primarily to race and gender cultural theories examining social tensions, but lacked the substantive components necessary to make conclusive assessments about the social constructions they challenged. Early humanistic psychologists (Rogers, 1965, 1985; Rank, 1996; Maslow, 1965, 1969) expressed frustrations with behaviorism and psychoanalysis, existential psychotherapists (May, 1953, 1958, 1961, 1977; May & Yalom, 2005; Tillich, 1961, 1962; Yalom, 1980) voiced concerns that the personhood of the patient was

alienated or distorted in the psychotherapeutic process, and feminist existentialism (de Beauvoir, 1970) sought to critique the marginalization of the aged and compared that status to that of being a woman living under the patriarchal constraints of society. de Beauvoir (1970) argued that old age can be a time of loneliness and feelings of meaningless and contended that unless old folks choose to engage in meaningful activities, they are likely to experience a "downward spiral," but that intentional action directed toward meaningful activity can give older folks a reason for living (pp. 402-403).

One way the present study adds to the published outcomes of a successful bCBT intervention might be helping clients to think about their anxiety and depression in the specific terms that radical humanism suggests: guilt, meaningfulness, and death. The contextualization of emotional struggles within these frameworks may help clients to further explore emotional and cognitive struggles and pave the way for intentional action that can provide more meaning in their lives. The core beliefs of CBT can get at a lot of anxiety and despair, but radical humanism may extend or supplement those beliefs in ways meaningful to work with older adults.

Over the past two decades, researchers have begun more readily incorporating organizing constructs into their work, bridging objectivity with informed subjectivity, in a movement toward social justice. Such an endeavor has not been without difficulties, as understanding how sociological influences interact with each other to affect primary variables is difficult to untangle. Still, statistical techniques have improved and humanist theories can facilitate epistemological, ontological cultural and social explanations.

If the goal of quantitative research is to leave nothing to chance, the goal of this investigation is to further leverage already collected data from a radical humanist perspective,

with the intent to learn even more about what constitutes and contributes to established outcomes. This research utilizes quantitative analysis to evaluate treatments and treatment outcomes while avoiding the predatory nature of modern science. Critical engagement with an existing dataset from an established researcher within a reputable institution of research and practice should not be interpreted as an attempt to dismantle or discredit such research. On the contrary, critical thought is applied with the sole intent of more specifically and accurately determining the degree to which key outcomes and interpretations should be generalized to various groups under more specified conditions.

Literature Review

Research literature relevant to this study is presented here utilizing a thematic approach. A forecast of reviewed literature includes research on various issues pertaining to aging, Veteran population characteristics, and the mental health and psychological care of Veterans. Finally, CBT/bCBT as an evidence-based treatment intervention is explored, setting the stage for the methodology for the present study laid out in Chapter III. This review of literature will identify the primary arguments of each theme and the gaps in each conversation. Further, the chapter establishes this study within the existing knowledge base and crafts the scholarly lineage of the research topic.

Developmental Theory

The second research question explores the interaction of age in the treatment outcomes in the collected data. There are several main developmental models across disciplines used to describe the process and functions of aging. The importance of reviewing developmental perspectives is to provide the reader with a framework for further interpretation of study results.

Developmentally speaking, specific anxieties of aging are identified in cross-disciplinary literature, including the anxiety of creativity (May, 1977), the anxiety of regret, the anxiety of guilt and condemnation, and the anxiety of death (Tillick, 1961). Erikson's (1958, 1963) model of aging suggests older adults are leaving the generativity versus stagnation stage, and entering the ego integrity versus despair stage; in the former, the primary virtue is care, while wisdom is the basic virtue of the latter. In Erikson's model, generativity versus stagnation is the seventh of eight developmental life stages, occurring between the ages of 40-65. In this stage, the goal of the individual is to create something bigger than themselves to signify a legacy. Failure to do so is referred to as stagnation, which typically results in feelings of disconnection, while success at this stage is generativity and results in a sense of accomplishment and usefulness. The ego integrity versus despair stage is the eighth and final stage in Erikson's model, and accounts for life at age 65 and beyond. Successful navigation of this stage means the individual feels a sense of satisfaction with their life and contribution to the world; their ego integrity means a life review is met with feelings of closure and a lack of fear of death. Distress at this stage is encountered when the individual feels a great deal of guilt, lack of productivity, or dissatisfaction with life. Despair usually appears in the form of depression or hopelessness.

Tillich (1961, 1962) and May (1961, 1977) argue that the greatest challenge for elderly people is to encounter and utilize the anxiety of emptiness and meaninglessness. They define the anxiety of emptiness and meaninglessness as an experience in contrast to fear. The anxiety they explore and that many elderly people face has no object. It is in the emptiness, lack of validation in their activities and in many cultures their opinions, that they experience a lack of intentionality and feelings of worth. This anxiety can impact elderly people in more than one way. On the one hand, older adults may succumb to this anxiety of meaninglessness and lose their natural vitality

and any reason to continue to live, as high suicide rates may indicate. On the other hand, the anxiety of meaninglessness may act as a motivator to find a more transcendent meaning for their life which moves beyond self-interestedness. In this state, the aging person may "create" new meanings for their lives.

Tillich (1961, 1962) further argues that the guilt and condemnation that most people have experienced since the middle of the twentieth century has not had to do with sinfulness, but rather a guilt that is more related to regret. In this state of anxiety, elderly people would condemn themselves for not having lived up to their potential. Or, for not having enjoyed the positive relationships they might have had with others. The anxiety of death is described as experiencing the possibility of the end of life which is likely to occur at a time when one least expects it (Tillich). Consequently, the anxiety emerges out of the possibility that one may not attain certain goals which they had hoped to accomplish before their end. It is the uncertainty due to accident or sudden illness that one cannot control that is the foundation for this anxiety. Heidegger (1962) refers not to death, but to an “end,” or a “being-towards-death.” Levenson (1977) discusses transitions through mid-life and beyond as “passages,” and emphasizes the differences between all people but does not rule out that there are some universal passages worth describing. He refers to the post-retirement years as the end of life.

Empirical studies suggest that many elderly people cope well with life transitions, such as retirement, widowhood, and health problems. Research suggests that elderly people's coping styles tend to remain intact. Old age is not necessarily an unhappy time, though many report a sense of loss of personal meaning. (Brim, Ryff, & Kessler, 2004) Baltes and Baltes (1990) noted that successful aging involves the psychological side of aging, which includes self-concept and social relationships and emphasized optimizing the individual’s capacity to compensate for

inevitable losses. The subjective experience of meaning has been shown to be closely related to the older adult's wellbeing, which is often directly related to their ability to shift their attention to inner dimensions of themselves (Ryff, 1989).

Relevant Issues in Aging

The intent of this section is to provide a comprehensive and contextual understanding of age in 2021. Context is valuable, and it is important to provide context to the main variable centered in this study. Similarly, we know gender differences commonly exist and relevant commentary on gender is included in this section where relevant. Described here are a set of unique considerations for those providing services to older adults today and in the near future. While the topics covered in this section are by no means exhaustive, effort was made to be as thoughtful and informative as possible. Thorough in breadth, but not depth, such relevant issues lay the groundwork for the importance, necessity, and potential impact of this research effort.

Cognitive Decline. Cognitive aging is gradual transition in cognitive capacity in relation to increasing age (Blazer & Wallace, 2016). While cognitive change is a normal (Harada et al., 2013) and widely-accepted risk factor for dementia, this is not an inevitable outcome of the aging process; in fact, the fundamental mechanisms of expected aging and pathological aging are likely to differ (Lin et al., 2017). Certain cognitive skills, like vocabulary and general knowledge, are largely unaffected by brain aging, and there is some evidence to suggest such crystallized abilities even improve with age; other skills, like conceptual reasoning, processing speed, and memory, are more fluid and decline gradually with age (Harada et al.). There is significant variability among aging people in the rate of decline in fluid skills (Wisdom et al. (2012).

Agesim. Defined as personal or institutional prejudice or discrimination, in any form, based on chronological age (Palmore, 1999), ageism can be diplomatically viewed as a general

lack of knowledge about aging, or the adherence to certain erroneous assumptions made about individuals in later life (Cherry et al., 2016). These assumptions may lead to both positive and negative biases about older adults (Davis & Friedrich, 2010; Cherry et al., 2016). Ageism typically is insidious and can be difficult to recognize. Barber and Tan (2018) offer the following anecdote:

> When older adults are told they 'don't look their age,' 'look good for their age,' or are 'young at heart,' it is typically perceived as a compliment. However, embedded in these remarks is the assumption that youth is inherently better than old age (p. 1).

Cherry et al. (2016) found that middle-aged individuals were more likely than younger individuals to display ageist behaviors in daily life, that females were more likely to report positive ageist behaviors as compared to their male counterparts, and that negative ageist behaviors and aging knowledge were inversely correlated. Barber and Tan (2018) studied the impact of ageism on future time perspective, or how individuals conceptualize the future. They found participants in the negative ageism stereotype condition perceived fewer opportunities in their future, and more limitations, than individuals in the positive stereotype condition (2018, p. 117).

Palumbo et al.'s (2017) research on age and gender stereotypes suggests individuals attribute greater warmth but lower competence to older adults, and note differences in gender stereotypes based on perceived attractiveness moderated by age (the perception of younger women as less competent was lessened with increased perceived attractiveness). A previous study by Cuddy et al. (2008) found similarly less favorable perceptions of low competence and higher warmth in older adults.

Discrimination is commonly experienced by aging individuals and is a likely contributor to functional decline over time (Shankar & Hinds, 2017). For all providers of mental health services, it is imperative to understand how prevalent ageism is, and to reflect on our own implicit and explicit biases about older adults. Levy and Macdonald (2016) studied progress on how research on ageism has progressed since its introduction as a social problem over 50 years ago by Butler (1969). Since that time, the older adult population has grown rapidly across the globe. Shifts noted by Levy and Macdonald include the study of both positive and negative forms of ageism, the focus on ageism as a lifespan process, and research of ageism alongside aging; there is also a notable trend toward the integration of cultural analysis, improved measures of ageism, and more diverse sampling in ageism studies. It would be interesting to understand any possible correlation between the experience of ageism and mental health symptoms.

Molinari (2012) suggests that ageism is prevalent enough in America that older adults as a cohort can be labeled a marginalized group. Thus, taking the time to assess and understand the unique aspects of aging and identity is critical for effective treatment planning and clinical care. While older adults can be considered disadvantaged, additional identity factors may further increase marginalization and discrimination.

More is discussed in the subsequent ethics section about how proper education and training can unveil and diminish ageism, increase provider competence, and convey the practical and ethical implications of working with the aging demographic. Additionally, Geronimus' (2001, 1992) weathering hypothesis suggests older adults' accumulation of stress explains unique patterns of health and functional status among racially and ethnically minoritized groups due to cumulative socioeconomic disadvantage.

Lin and Kelley-Moore (2017) considered the functional health trajectories in white, Black, and Hispanic older adults by looking at the weathering hypothesis, (Geronimus, 2001). Lin and Kelley-Moore found no differences between White individuals and Black and Hispanic individuals at the baseline age of 55-65, but that significant group differences in functional limitations developed over time, with Black and Hispanic individuals displaying substantially greater decline. This suggests there is evidence of a negative health impact for minoritized racial groups within the aging demographic.

Policy. The policy implications for an aging society are plentiful, and care should be given to systematically and thoroughly review existing legislation impacting older adults. Such policy examples include housing, health coverage, accessibility of services, transportation, adaptive technologies, and infrastructure upgrades to account for the restricted mobility of senior adults. The United States Congress enacted the Older Americans Act (OAA) in 1965 to promote and maintain the delivery of social services to older adults, with the goal of preserving the independence of aging individuals. This legislation has been updated regularly, with the most recent reauthorization bill signed into law in 2016. The Age Discrimination in Employment Act (ADEA) was passed in 1967, protecting employees and applicants from age-related discrimination for all employers with at least 20 employees. Congress passed the Elder Justice Act (EJA), along with the OAA, for the research and prevention of elder abuse. The EJA helped create and maintain protective guidelines for human subjects research, and created nationwide forensics centers for elder abuse. Appropriations for EJA funding ended in September of 2014.

The National Association of Area Agencies on Aging (n4a; 2018) indicates several other key policies protecting senior adults have expired. Money Follows the Person (MFP), an initiative which supports individuals transitioning from nursing facilities back to their

communities, expired in 2016 and has yet to be reauthorized. S. 2227/H.R. 5306, the EMPOWER Act, would reauthorize MFP for an additional five years. The Balancing Incentive Payment Program (BIP) provided states participating in the ACA's (introduce acronym and citation) rebalancing efforts increased flexibility and additional funding for long-term services and supports. This program expired in 2016, was up for reauthorization in 2018, but information gathered from Medicaid.gov (2018; https://www.medicaid.gov/medicaid/ltss/balancing/incentive/index.html) indicates BIP grants ended September 30, 2015.

According to its website (https://www.aging.senate.gov), the Senate Special Committee on Aging was established on a temporary basis in 1961, and gained permanent status in 1977. The committee serves to study aging-related issues, conduct program oversight, and investigate fraud. Currently being handled by the committee are the review of new Alzheimer's research and care models, exploration of the impact of rising drug pricing, composition of a bipartisan bill to protect individuals under the care of guardians, development of strategies to address the retirement savings gap, fortification of guardianship programs, and examination of innovative health care practices to reduce cost and improve outcomes. Grigoryeva's (2017) study of gender inequality in elder parent care offers considerations for U.S. social policy related to caregiving, specifically how caregiving could be subsidized similar to Scandinavian countries where generous social and public supports offer such subsidies.

Abuse. An estimated one in 10 older Americans experiences elder abuse, while significant discrepancies exist in the number of incidents reported (Roberto, 2016). A study of U.S. emergency department visits by individuals age 60 and over found the number of older adults receiving a diagnosis of elder abuse is a minimum of two orders of magnitude lower than

the general population prevalence and those conducting the study suggested efforts to improve the detection and diagnostic assessment of elder abuse are necessary (Evans et al., 2017). A systematic review by Dong (2015) found risk for elder abuse is particularly high among minority older adults, and further indicates no consistent mechanism exists for measuring elder abuse, creating a challenge for researchers attempting to understand the prevalence and risk factors for maltreatment. Jackson and Hafemeister (2011) delineate four prevalent types of elder abuse: financial exploitation, physical abuse, neglect, and hybrid financial exploitation (occurring concurrently with physical abuse and/or neglect), while Rzeszut (2017) advocates for an additional form of elder abuse to be recognized, that of elder abandonment. One could expect such abuse to directly impact mental health functioning.

Technology. Technological savvy historically has been associated with younger individuals, but as the aging demographic in America changes, providers can expect older adults to be more technology-efficient. Chopik's (2016) research found older adults have a generally positive attitude toward technology, and suggests use of social technology among older adults reduces loneliness and thereby improves physical and psychological health. Gell et al. (2015) conducted a study of technology use in adults age 65 and older found that 40% of participants utilize email or text messaging and 42.7% utilize the internet. They found younger age, male gender, white racial identification, higher education levels, and being married all were factors associated with higher prevalence of technology use, and lower prevalence was found in individuals with physical limitations or disability. Gell et al.'s study also makes a case for the internet, email, and text messaging as "viable mediums for health promotion and communication" (2015, p. 412). Levy et al. (2015) found a positive correlation between health literacy and internet use for obtaining health information, suggesting web-based interventions for

older adults "must address barriers to substantive use by individuals with low literacy, or risk exacerbating the digital divide" (p. 284). While these barriers must be dismantled, there is promising evidence for the efficacy of tech-based mediums for health service delivery for older adult patients.

Workforce. The U.S. Senate Special Committee on Aging's (2017) report (America's Aging Workforce: Opportunities and Challenges, December, 2017) states that, although projections estimate the general labor force will

> grow by an average of just 0.6 percent per year between 2016 and 2026, the number of workers ages 65 to 74 is projected to grow by 4.2 percent annually and the number of workers ages 75 and above by 6.7 percent annually. (pp. 3-4)

The same Senate report suggests age discrimination, insufficient opportunities for training, maintaining employment while managing a health condition, disability, and/or caregiving responsibilities, and financial planning are the primary challenges facing today's aging workforce (2017, p. 4). A survey of 2500 human resource managers identified advantages of aging workers as "having greater work experience, knowledge, and skills; greater maturity and professionalism; a stronger work ethic; being more reliable and loyal; and experiencing less turnover" (SHRM, 2002). Schulte et al. (2018) developed an evidence-based productive aging framework consisting of four elements: "1) life span perspective; 2) comprehensive and integrated approaches to occupational safety and health; 3) emphasis on positive outcomes for both workers and organizations; and 4) supportive work culture for multigenerational issues" (p. 440).

Monti et al. (2020) compiled data from Bureau of Labor Statistics reports from the past several decades. They found that female workers earned 63.5% of male earnings in 1979, 70% in

1989, 76.3% in 1999, and 81.8% in 2017. This suggests a closing gender wage gap, but also reflects a stabilization of gains in the pay gap, meaning progress on earning inequality has slowed in pace in recent years (Monti et al., 2020, p. 192). There is a gap in the literature related to the stability of these data over the lifespan, and it would be useful to know what changes occur in the wage gap between genders as individuals age. Some racial differences are observed in the sociological literature about workforce disparities, and we know workplace inequality and downward mobility are more pronounced for older African American workers than their white counterparts for both men and women (Wilson & Roscigno, 2018).

Family & Caregiver Factors. Age-related challenges are often sources of stress in the family system (Martin et al., 2015), and researchers suggest health and aging "cannot be uncoupled from the family system" (Utz et al., 2017, p. 129). A now outdated study by Van Amburg et al. (1996) analyzed both the family therapy literature and the annual conferences of the American Association of Marital and Family Therapy (AAMFT) during the years 1986-1993, and found an explicit focus on aging in just 2.3% of conference presentations and just 3.2% of published articles. An updated systematic review of family therapy literature examined 957 articles published in leading marriage and family therapy journals between 1997 and 2006, and found only 2.8% "mentioned aging or included older adults in their sample" (Lambert-Shute & Fruhauf, 2011, p. 27). It is already time for another similar review.

Indeed, as a result of the lack of literature published on the intersection of family and aging, research is lacking on the specific aging-related factors that result in family stress. We know caregiver burden is a stressor for the loved ones of older adults, with an aging population contributing to the prevalence of caregiver burden (Adelman et al., 2014). Fisher et al.'s (2011) study found dementia caregivers devote an estimated nine hours of time per day engaged in care,

with 44% of those caregivers displaying symptoms of depression; cognitive impairment, not dementia caregivers spend four hours per day providing care, with 26.5% exhibiting depressive symptoms. Intergenerational (e.g., older parent-adult child) strife is often another source of tension or ambivalence in the aging process (Fingerman, 1996; Willson, Shuey, & Elder, 2003), as is financial strain (Kahn & Pearlin, 2006). More research is needed on the inevitable impact of aging on the family system, and the specific factors that predict family health at this life stage.

Lack of social support is consistently linked to poorer mental health outcomes (Leigh-Hunt, 2017). Perissinotto et al. (2019): "To date, there has been no uniform way of evaluating and documenting loneliness and social isolation as a part of a review of a patient's social determinants of health."

Santini et al. (2015) noted that "future research is warranted to account for potential bias introduced by the use of subjective measures as compared to objective measures of received support and actual networks. Due to the heterogeneity between available studies on the measure of social relationships, the inclusion of comparable measures across studies would allow for more valid comparisons. In addition, well-designed prospective studies will provide more insight into causality. Future research should address how social support and networks interact and together affect risks for depression. Social connectedness and negative interactions appear to be underutilized as measures in population-based studies."

"Lifecourse theory scholars focus on how individuals traverse social roles, such as marriage, parenthood, and employment, in similar and different ways across their lives. This study examined one specific role trajectory: romantic relationships. This study examined men's and women's (N = 3617) relationship status and quality across approximately 30 years. Using second-order latent class analysis, results showed four predominant relationship role trajectories:

(a) Multiple Transitions, (b) Stable Marriage with High Conflict, (c) Stable Marriage with High Satisfaction, and (d) Marriage to Divorce/cohabitation. These relationship role trajectories differed on two aspects of quality of life: life satisfaction and depressive symptoms. Individuals in the Multiple Transitions trajectory consistently reported poorest quality of life; however, those in the Multiple Transitions and Stable Marriage with High Conflict trajectories were the only that reported decreases in depressive symptoms over 30 years. Relationship satisfaction poorly differentiated the trajectories compared to relationship conflict and stability" (Roberson et al., 2018).

"Results showed that receiving autonomy supportive or accommodating communication increased confidence in treatment. In addition, greater levels of partner accommodation, motivation, finances, perceived treatment effectiveness, less disapproval from one's social network, and lower perceived control over the mental health condition served as predictors of current treatment engagement. Given that numerous barriers prevent those with mental health concerns from accessing the care they need, it is important to distinguish and promote the facilitating role of partners in mental health help-seeking" (Muscari & Fleming, 2019).

Females are more often tasked with caring for aging parents. Grigoryeva (2017) studied division of elder care in families by gender. Among her findings are that daughters provide more parent care than sons do (13.6 hours per month for daughters, 5.9 hours per month for sons), suffer from higher costs (e.g., health consequences, loss of earnings) associated with parent caregiving than sons, and provide more flexible care to parents than sons. Interestingly, Grigoryeva found sons provide less elder parent care if they have a sister, while daughters provide more care if they have a brother (2017, p.136). However, Grigoryeva also observed that daughters provide more care to their elder mothers, while brothers provide more care to elder

fathers. Taken together, her findings lend empirical support for gender inequality in elderly parent care, a form of unpaid domestic labor disproportionately impacting women (2017, p. 137).

Sexual Health. Research has shown that sexual health is an indicator of quality of life for aging individuals (Group, 1998). Be that as it may, sexual health assessments can be difficult for seniors to obtain (Flaget-Greeneret al., 2014). Linday et al. (2007) conducted a study of sexuality and health among older adults in the United States and found 53% of respondents ages 65 to 74 were sexually active, as were 26% of those ages 75 to 85. While female participants in the study were significantly less likely to report sexual activity, an equal proportion of sexually active men and women reported one or more bothersome sexual concerns; women reported low desire (43%), vaginal dryness (39%), and inability to climax (34%) as their primary concerns, while men most commonly reported erectile dysfunction (37%). In all, 38% of men and 22% of women reported having discussed sex with a physician after the age of 50 (2007, p. 762).

Substance Use & Abuse. Alcohol and drug dependence, or addictive disorders, in older adults is a growing concern in the United States. Compared to previous generations, today's aging cohort demonstrates higher prevalence of lifetime drug and alcohol use, suggesting the need for substance abuse interventions for older adults will only increase (Kettaneh, 2015; Morgen et al., 2015; Dowling et al., 2008; Gfroerer et al., 2001; Choi et al., 2014). The National Survey of Substance Abuse Treatment Services (N-SSATS), is a national survey, which tracks treatment characteristics in substance use disorder (SUD) treatment facilities. Of the 40,569 U.S. facilities that operated in the N-SSATS between 2009-2001, only 854 (2.10%) indicated they provide specialized treatment services for both SUD and trauma for older adults (Morgen et al.).

Suicide. Suicide among older adults in the United States occurs at high rates; one in five suicide deaths is completed by an individual aged 60 or older (Winterrowd et al., 2017). Notably,

these rates exhibit differences across ethnic and gender groups, with European American men displaying the highest rates and African American women showing the lowest rates (Karch, 2011, based on National Violent Death Reporting System data for 17 US states). Knowledge of risk factors for older adult suicide, and an informed prevention strategy provide ways to recognize and respond to distress in older people (Fullen, 2016). Impulsivity is commonly correlated with suicidal ideation in younger adults; Neufel and O'Rourke (2009) explored whether the same association exists for older adults and found this to be a consistent finding across age, noting impulsivity is an even more significant risk factor for suicide than is hopelessness in older adults, and implying a benefit to screening for impulse in addition to hopelessness in assessing suicide risk for those in later life (p. 684). Conwell (2014) emphasizes a public health approach to suicide prevention among aging individuals, focusing on factors that either contribute to or mitigate suicide risk. For this dissertation, it suffices to bring awareness to the prevalence of suicide among older adults and encourage psychology professionals to be mindful of the knowledge base that exists on the matter. Attitudes about older adult suicide encompass a range but may include bias that is incongruent with the needs and best interests of the patient. For example, some providers feel a sense of relief for older adult victims of suicide they would not feel toward a younger patient. It is important to understand the value of the aging person's life at each stage and recognize when mental health concerns and suicidal ideations are present.

Minoritized Groups & Multiculturalism. As in all domains of psychological study, it is critical that researchers and providers maintain a focus on how minoritized groups are uniquely positioned relative to their majority counterparts. The study of aging is no different, and some researchers have looked at how the aging process is viewed and lived out by various cultural,

ethnic, and marginalized groups in the United States. Data gathered by the U.S. Census Bureau (2008), the U.S. Administration on Aging (2011), and the Federal Interagency Forum on Aging-Related Statistics (2010) demonstrate an uptick in both the quantity and makeup of America's aging population. As the overall demographics of the United States shift, the aging demographic also shifts, creating a more diverse cohort of older adults than has previously been seen in this country. Thorpe, Jr. and Whitfield (2017) note the implications this shift has for researchers and policymakers and imply a greater responsibility for understanding how minority aging research is relevant to professional practice.

Menkin et al. (2017) conducted a study to identify differences in expectations of aging between older adults of Korean, Chinese, Latino, and African American descent living in the United States. The researchers reviewed expectations of each group related to functional decline and health and well-being, and differences between race/ethnicity groups were observed. Lin and Kelley-Moore (2017) looked at the weathering hypothesis and considered how it may also apply to functional health trajectories in White, Black, and Hispanic older adults. The weathering hypothesis is a framework which utilizes the accumulation of stress for older adults as an explanation for unique patterns of health and functional status within racial and ethnic groups (Geronimus, 2001). What Lin and Kelley-Moore found was that no differences between White individuals and Black and Hispanic individuals existed at the baseline age of 55-65, but that significant group differences in functional limitations developed over time, with Black and Hispanic displaying substantially greater decline. This suggests there is evidence of a greater negative health impact for minoritized groups within the aging demographic.

In 2005, the National Gay and Lesbian Task Force estimated that between one and three million Americans over age 65 have identified as LGBT, and projected this number will increase

to four million by 2030. A study conducted by Fredriksen-Goldsen et al. (2017) used the Health Equity Promotion Model (HEPM; Fredricksen-Goldsen & Kim, 2017; Fredricksen-Goldsen, Simoni, et al., 2014) to examine contextual factors framing the life experiences and adaptiveness of LGBT older adults. Researchers identified life events for each participant related to identity development, work, and kinship relationships, and examined associations of those events with overall health and quality of life (QOL); clusters within the sample developed related to experiences of job-related discrimination, age of sexual identity disclosure, economic and social resources, and other factors, and differences in mental and physical health, and QOL also were observed (Fredriksen-Goldsen et al.).

What these studies suggest is that psychology professionals should recognize the role social inequality plays in the aging process. Researchers and clinicians working with older adults should avoid under-emphasizing the impact of marginalization on minoritized individuals, and find ways to explore discriminatory factors in treatment planning and in the treatment setting, keeping in mind that social disadvantages are not always apparent to professionals with a majority-identity or privileged status. It is the responsibility of providers to be knowledgeable about the ways in which health outcomes may be disproportionately disadvantaged for some patients. Thus, taking the time to assess and understand the implications of aging and of older adult identity is critical for effective treatment planning and clinical care.

The APA's (2009) guidelines for multicultural competence assert cultural competence includes both the awareness and acceptance of individual and group differences, and note that, "since older people from a given cohort have been exposed to events, conditions, and changes different from what was experienced by their counterparts from another cohort, one finds between-cohorts differences in attitudes, values, and behaviors" (p. 5).

The Institute of Medicine's (IOM) *Unequal Treatment: Confronting Racial and Ethnic Disparities in* Healthcare (2002)

> demonstrated the complexities of health care disparities. For example, racially and ethnically diverse elders are more likely to live in poverty and to be underinsured. In addition, the problems of health disparities are present even when income and access are plentiful. African American older adults, for example, are much less likely to receive routine diagnostic screenings for cancer and are less likely to be referred to specialists for heart disease, pain control and a host of other disorders. The IOM report concluded that many social factors were at the root of disparities, including racism and unconscious stereotyping. Multicultural competencies are thus necessary to assist practitioners in avoiding, sustaining or increasing disparities through subtle behaviors and attitudes (APA, 2009, p. 8).

In 2007, the U.S. Census Bureau estimated there were almost 35 million Americans age 65 and over. In the next 40 years, the number of individuals age 65 and over will continue to grow, and diversity among this age group will increase. Racially and ethnically minoritized seniors encompass over 19.3 percent of all older adults in America (Administration on Aging, 2008). The rates of growth in these groups are expected to exceed those of white Americans over the next 50 years. Between 2007 and 2030, the aging white population is projected to increase by 68% compared with 184% for aging minorities, including Hispanics (244%), African-Americans (126%), American Indians, Eskimos, and Aleuts (167%), and Asians and Pacific Islanders (213%) (AOA, 2008). By the year 2050, 16 million of the projected 81 million older adults in the United States will be foreign born (Pew Center, 2008).

Disparities across demographics demonstrate social inequalities; it is important to consider in designing, delivering, and evaluating clinical interventions, and psychology professionals should recognize the role social inequality plays in treatment outcomes. Researchers and clinicians should avoid under-emphasizing the impact of marginalization on minoritized individuals, and find ways to explore discriminatory factors in treatment planning and in the treatment setting, keeping in mind that social disadvantages are not always apparent to professionals with a majority-identity or privileged status. It is the responsibility of providers to be aware of research that health outcomes may be disproportionately disadvantaged for some individuals.

Treatment Settings. Long-term care (O'Shea & Norris, 2017), primary care (Skultety & Zeiss, 2006), rural settings (Ogbeide et al., 2016), managed care facilities (Norris et al., 1998), nursing homes (Grabowski et al., 2010), and hospitals (Semke & Jensen, 1997) are likely settings for mental health treatment for older adults. Such settings, often by necessity as well as proximity, are often medically-oriented. As such, "the medical profession as a whole has historically done a better job than the psychology profession in responding to managed care and other health care changes and in initiating and providing coordinated legislative and regulatory responses" (Karlin & Duffy, 2004, p. 513). It is hopeful that, as the aging population in America grows, the field of psychology will expand its commitment and services to older adults. With a coordinated effort, this trend will shift so that psychologists are initiating, or at least participating in, important legislative and regulatory decisions impacting the mental health care of older adults.

Ethics. Molinari (2012) described the various ethical issues facing providers working with older adults:

> Geropsychologists are often faced with a host of ethical dilemmas, especially those pitting the principles of autonomy versus beneficence, as they deal with older adults who have multiple medical and neurological problems that may impair the elders' abilities to make informed decisions. Confidentiality and privacy matters are often triggered in long-term care settings when communal safety standards conflict with personal choices and with the imperative for living in the least restrictive environment. These situations are complicated by family members having strong expectations for involvement, as they are by significant cultural variability in how individuals view sharing of communications and joint decision-making. (p. 407)

Providers should acknowledge their work with aging adults is likely to warrant unique ethical considerations that may not be intuitive. Ongoing education and consultation are important to ensure positive and negative ageist attitudes and behaviors do not find their way into the provider's conceptualization of the patient's diagnosis, treatment, and clinical experience. Barnett and Quenzel (2017) define clinical competence as "encompass[ing] the knowledge and skills required to effectively and properly treat a specific population" (p. 138).

Qualls et al. (2002; as cited in Karel et al., 2012) found that fewer than 20% of psychologists responding to a survey reported any formal geropsychological training, while nearly 60% reported desiring that training. Respondents in a survey conducted by the APA (2008) showed 39% of psychologists reported interacting with older adults (65+) in the previous week, yet only 4.2% considered geropsychology to be a specific focus. Michalski et al. (2010; as cited in Karel et al., 2012) found that providers of psychological services were spending an average of 8.5% of their clinical time with aging individuals.

Commonly, postdoctoral internships in clinical geropsychology serve to provide specialized training (Karel et al., 1999). Karel et al. noted the relative novelty of postdoctoral training in geropsychology, yet little progress has been made in this area. Historically, the Department of Veteran Affairs has been a leading provider of geropsychology training at both the internship and postdoctoral levels (Cooley, 1995; as cited in Karel et al., 1999), followed by university or medical center settings (APA, Division 12, Section II, 1997; as cited in Karel et al., 1999). There are currently only two APA-accredited postdocs in geropsychology. It is difficult to pinpoint the reason for such limited training opportunities for a demographic of patients that is growing so rapidly.

Niederehe et al. (1995; cited in Karel et al., 1999) noted the developmental state of the geropsychology specialty, pointing out that geropsychologists were in the process of establishing qualifications for and the assessment of competencies. Over 20 years later, the field is still developing, although a competency tool now exists, and qualifications have been articulated yet not widely taught or required for those providing services to aging individuals.

Veteran Population Characteristics

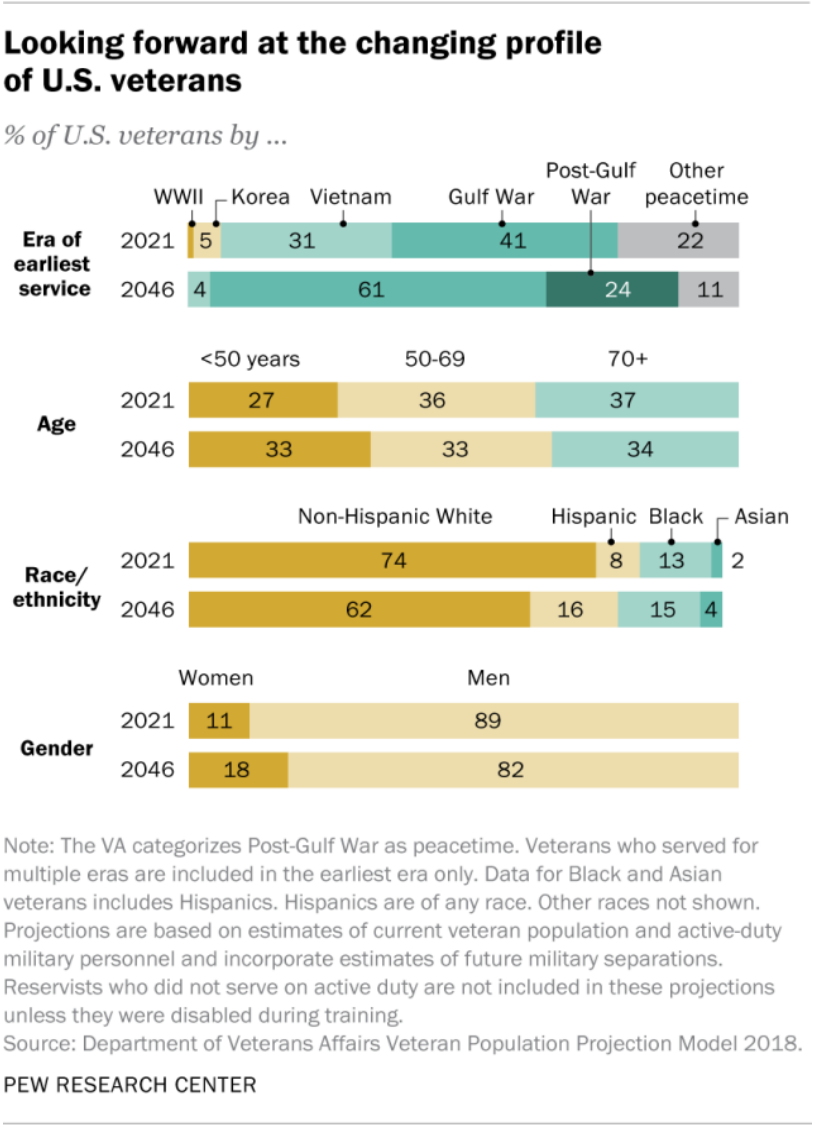
A 2014 analysis of Veteran characteristics (National Center for Veterans Analysis and Statistics, March 2016, va.gov) revealed a U.S. general population of individual age 17 and older living in the United States and Puerto Rico of 251.4 million, with 19.4 million counting as Veterans. Of identified Veterans, 1.6 million were women. The same report also included age distributions of men and women, shown in the figures below.

The Pew Research Center (2021) compiled data from the Department of Veteran Affairs (2018), and found that while currently 90 percent of Veterans are men, the proportion of female Veterans will increase to 18% by the year 2046. Also by 2046, the data expects there will be a

35% decrease in current living Veterans, with those Veterans from the Gulf War-era comprising the bulk of the Veteran population. In 1980, 18% of all adults in the U.S. were Veterans, compared to only 7% in 2018 (the draft was eliminated in 1973). Additional Veteran demographics are provided in Figure 1.

Figure 1

Veteran Demographics



Hack et al. (2017) conducted research on identity-based interventions and their use among Veterans and found that tailoring interventions to patient identity increased treatment efficacy and noted that failure to do so could have negative consequences (Hack et al., 2017, p. 727). They argued that Veteran identity is somewhat fluid based on individual military experiences and personal traits and made note of the absence of a standardized Veteran identity measure which would aid providers in the assessment of mental health and selection of effective treatments. They warned that Veteran identity is not monolithic and the full consequence of Veteran identity and overall health status has not been determined (p 727). Examples of salient Veteran identity factors include whether or not military service was completed during wartime or peace time, the level of controversy associated with a given war (e.g., Vietnam War), and combat experience. Harada et al. (2013) found combat Veterans, Veterans who participated in a Veteran Service Organization, and those whose military experience was positive were 2-2.3 times more likely to prefer VA care to outside or civilian care providers, while combat experience was a predictor of lower satisfaction with VA services. Similarly, Hack et al. suggested that if higher levels of "traditional positive" Veteran identification are linked with preferences for VA care, lower levels could explain hesitancy to engage in VA care. Research on female Veterans suggests Veteran identity may be more complex for women than that for men (Hack et al.). Challenges associated with female gender identity among Veterans are well-documented (Strong et al., 2018; Di Leone et al., 2016; Demers, 2013). Overall, Barrera et al. (2014) determined patients of VA care are substantially more likely to be male, of lower SES relative to the general population, of minority ethnicity, and to have greater baselines of generalized anxiety and depression.

Veterans & Mental Health

Milanak et al. (2013) found generalized anxiety disorder (GAD) to be prevalent among primary care patients in the VA system, and observed a correlation between GAD and substantial functional impairment. A comprehensive access measure, grounded in Veterans' experience, is considered essential to supporting the VA's efforts to improve access; Pyne et al. (2020) describe the process they used to develop the Perceived Access Inventory (PAI), a Veteran-centered measure of perceived access to mental health services. The Veterans Health Administration (VHA) provides mental health services via its Home Based Primary Care system, designed to meet the needs of older Veterans unable to travel to clinics (Hicken & Plowhead, 2010).

Veterans and Evidence-Based Treatment

Due to its focus on research, and thanks to the willingness of the Veteran population to participate in research, the VA system in the United States is both a source and setting for many evidence-based treatments. VA research is responsible for the establishment of an extensive and credible knowledge-base for the implementation and improvement of EBPs.

What is known about evidence-based treatments is less important than what we know about whether individuals choose to engage in them. Studies looking at non-engagement allow providers to understand what keeps people from engaging in treatments with known effectiveness. As many as 50 percent of Veterans referred to evidence-based psychotherapy at VAs do not engage in the treatment, with national engagement rates coming in even lower (Hundt, Harik, et al., 2017; Kehle-Forbes et al., 2016; as cited in Hundt, Helm et al., 2017). Resources have been directed at understanding the lack of engagement in evidence-based interventions, reducing known barriers, and improving access to and utilization of treatments.

Hundt et al. (2014) conducted a study to examine factors associated with utilization rates of psychotherapy in Veterans with PTSD, and found age to be the lone variable to independently predict utilization, with increased age correlating with increased utilization, and social and relational factors also predicting high or low utilization. Mignogna et al. (2014) conducted a pilot study to evaluate the implementation of bCBT in primary care settings, suggested an implementation model that includes 1) web-based provider training, 2) audits of treatment fidelity that include expert feedback, and 3) ongoing consultation. Historically, the primary focus of psychological treatment has been on existing mental illness (Dulmus & Wodarski, 1997; as cited in Rishel, 2007). Rishel (2007) has called for a shift away from a pathological approach to administering mental health services to a preventive model of care.

In a qualitative study of Veterans who decline evidence-based psychotherapies for PTSD, top practical barriers to treatment engagement were employment/college (33%) and transportation/distance (17%; Hundt et al., 2017). Hundt et al. also noted barriers related to knowledge of the treatment, emotional barriers, therapy-related concerns, and VA system-related issues. Furthermore, VA clinical managers are often "caught between competing demands to provide timely access to services for Veterans (i.e., via shorter treatment-as-usual appointments or group therapy formats) and the need to demonstrate implementation of evidence-based treatment" (Tuerk et al., 2013, p. 407).

The Veterans Health Administration has taken steps to disseminate and implement evidence-based psychotherapies in VA facilities based on their known effectiveness (Karlin & Cross, 2014). However, low engagement numbers in treatments indicate Veterans are failing to participate in evidence-based psychotherapies, even when referred (Hundt et al., 2017). Researchers have begun to look at brief, patient-centered models of care to consider how

treatment within the VA might be transformed. Cully et al. (2017) conducted a patient-randomized clinical trial at the Oklahoma City and Houston VA Medical Centers to evaluate the effectiveness and implementation potential of an integrated bCBT treatment in primary care settings. Due to its focus on research, and thanks to the willingness of the Veteran population to participate in research, the VA system in the United States is both a source and setting for testing many evidence-based treatments (EBTs). VA research is responsible for the establishment of an extensive and credible knowledge-base for the implementation and improvement of evidence-based practices.

Some considerations about EBTs and Veteran care should be noted. Bisson et al. (2007) found smaller effect sizes for CBT for anxiety and depression than for community samples. Continued efforts are needed to improve the awareness of, access to, and receipt of mental health services in the Veteran population, particularly older adults, with depression and anxiety disorders (DiNapoli et al., 2016), and the VHA implemented initiatives focused on improving mental health care quality, access, and utilization, including targeted initiatives for older Veterans (Zeiss and Karlin, 2008).

In a qualitative study of Veterans who decline evidence-based psychotherapies for PTSD, top practical barriers to treatment engagement were employment/college (33%) and transportation/distance (17%; Hundt, Helm et al., 2017). Hundt et al. also noted barriers related to knowledge of the treatment, emotional barriers, therapy-related concerns, and VA system-related issues. Furthermore, VA clinical managers are often "caught between competing demands to provide timely access to services for Veterans (i.e., via shorter treatment-as-usual appointments or group therapy formats) and the need to demonstrate implementation of evidence-based treatment" (Tuerk et al., 2013, p. 407).

Method of delivery is an additional consideration for health service implementation. Barrera et al. (2017, p. 115) noted telehealth interventions (e.g., care delivered via telephone or video conferencing) may be useful for rural, homebound older adults while avoiding costs of in-person care. Compared with face-to face CBT for depression, telephone-based interventions produce lower attrition (Mohr et al., 2012), equivalent treatment satisfaction and working alliance (Himelhoch et al., 2013), and similar improvements in depressive symptoms (Egede et al., 2015; Himelhoch et al., 2013; Mohr et al., 2012). One recent study of telephone-delivered CBT for generalized anxiety disorder (GAD) found significant improvements in GAD symptoms and worry severity at post treatment in rural older adults (Brenes, Danhauer, Lyles, Hogan, & Miller, 2015). "Although older adults who receive CBT for GAD improve less than younger adults, the factors that predict improvement are similar" (Hundt et al., 2014, p. 7).

Barrera et al. (2015, p. 73) observed that multiple meta-analyses of CBT as a treatment for PTSD "found smaller treatment effect sizes for Veteran samples than for non-Veteran samples (Barrera et al., 2013; Bisson et al., 2007; Bradley et al., 2005), and a randomized controlled trial comparing CBT for depression to treatment as usual in Veterans yielded nonsignificant results (Mohr et al., 2011). Similarly, a study of telemedicine-based collaborative care for depression in Veterans (Fortney et al., 2007) found smaller effect sizes for symptom improvement than a similar study of telemedicine-based collaborative care in patients from federally qualified health centers (Fortney et al., 2013). When the samples from these two studies were combined to examine predictors of treatment outcome, Veteran status was a significant moderator (risk factor) for treatment outcome (Grubbs, Fortney, & Pyne, 2014).

Barrera et al. (2015) a secondary data analysis of a randomized controlled trial (RCT) of CBT used to treat late-life anxiety in both Veterans and community participants. The study

compared CBT treatment groups in both groups with treatment as usual (TAU) groups. Researchers considered various participant factors in evaluating the efficacy of the treatments, including income, education, and social support. Interestingly, study data found significant treatment effects in the community sample (n = 122), but not in the Veteran sample (n = 101). Key between-groups differences indicate Veterans had lower education, lower income, and poorer overall health than their community counterparts in the study. More specifically, researchers found Veterans had greater severity of anxiety and depression at baseline, as well as poorer physical health, and higher rates of psychiatric comorbidities. In their analysis of Veteran outcomes, Barrera et al. (2015, p. 72) found poorer perceived social support was a significant predictor of poorer treatment outcomes (ps<.05). They suggest additional research is needed to improve CBT outcomes for Veterans.

Although no CBT outcome studies have included both Veteran and community participants within the same trial, several hypotheses regarding the seemingly differential response to treatment have been proposed. Potential explanations for Veterans' poorer treatment response include greater chronicity and symptom severity among Veterans (Mohr et al., 2011; Selim et al., 2004), higher rates of psychiatric and medical comorbidity (Agha et al., 2000; Campbell et al., 2007), lack of social support (Tsai et al., 2012; Pietrzak & Cook; 2013), and, although controversial, the potential for reinforcement of symptom maintenance through the VHA service-connected disability program (Frueh et al., 2007). Further exploration of these factors is warranted, as no studies have examined differences between Veteran and community participants in a single CBT trial; and few studies report predictors of CBT outcomes among Veterans (Barrera et al., 2015, p. 73).

Barrera et al. (2017) conducted a study consisting of three case studies in which a CBT intervention was used with rural, older adult Veterans in home-based primary care which showed decreased anxiety and depression symptoms subsequent to the treatment. Barrera et al. make a case for the efficacy of not only CBT, but for a CBT intervention delivered via telephone.

Cognitive Behavioral Therapy

This study re-evaluates published study outcomes based on a brief CBT intervention. This section defines CBT and briefly explores its origins, uses, and effectiveness. Cognitive-behavioral therapy (CBT) is a longstanding evidence-based treatment and has demonstrated efficacy in both younger and older adult civilian populations in treating common mental health conditions such as anxiety and depression (Cuijpers et al., 2014). Pioneered by Beck (1961) and Ellis (1962), CBT can be described as a set of interventions whose premise is that maladaptive cognitive factors contribute to and maintain mental health symptoms, psychological distress, and behavior problems (Hofmann et al., 2012). It was Beck (1961) who first developed a cognitive model of depression. Later, Beck (1976) laid out a framework for qualifying cognitive therapy as a psychotherapeutic intervention, which included credible outcomes based on empirical support and studies demonstrating its effectiveness. Subsequently, myriad studies established such evidence for cognitive therapy as a treatment for depression (Ernst, 1985) and meta-analytic support soon followed (Dobson, 1989; Hofmann et al., 2012). Similar success was found in the application of cognitive therapy for anxiety and panic (Beck, 1976; D. A. Clark, 1986; Beck & Brown, 1989; Butler et al., 1991), as well as for many other presenting concerns. Cognitive therapy challenged its predecessors of psychoanalysis and behavioral approaches to treatment, although behavioral components ultimately were grafted into the approach.

Summary

The background and information included in this chapter should have provided the context necessary to confirm the importance and potential impact of considering age as an interaction in psychological research, as well as provided some rationale for exploratory analysis of gender interactions. To begin, the ontological positionality of the researcher was disclosed and rationale was provided to establish the usefulness of the radical humanistic interpretive approach. Primarily, Chapter II reviewed extant literature related to the major components of the investigation: issues relevant to older adults, Veterans demographics and their experiences of mental health issues and treatments, EBTs and their use with Veterans, and what is known about CBT as it is utilized today. What is yet to be determined is whether or not the research questions and hypotheses described in Chapter I will generate the richness expected. Chapter III will present the study's methodology and approach to the data.

Chapter III: Methods

The previous chapters illustrated the need for further examination of the interaction effects of age on bCBT treatment outcomes and their change over time. Broadly, there is a lack of this type of analysis associated with published CBT research. A lifespan approach is recommended, specifically for researchers whose ontology is oriented toward humanism. Quantitative analysis is uniquely positioned to evaluate or re-evaluate datasets to explore lifespan factors that may help enrich understanding or generalization of a given study or intervention.

While myriad studies are conclusive about the effectiveness of CBT for various ages, presenting concerns, and treatment settings, minimal attention has been to paid how age moderates outcomes of CBT interventions in these studies. Through secondary analysis, this weakness in the accumulated literature can be addressed. This dissertation expands the knowledge regarding age and bCBT, with the ultimate goal of contributing to more efficient, generalizable, and effective treatment protocols and practices.

From February 2011 through November 2013, Cully et al. (2017) conducted a study at the Michael E. DeBakey (Houston) and Oklahoma City VA Medical Centers. Approval for the study was granted by the local institutional review board (IRB) at each VA facility. The purpose of the study was to determine "the practical effectiveness and implementation potential of brief psychotherapies that integrate mental and physical health" (p. 1014). Specifically the study sought to assess whether an integrated brief cognitive behavioral therapy (bCBT) would be effective in reducing anxiety, depression, and in improving general quality of life among Veterans with physical illnesses. A pragmatic patient-randomized trial design was utilized with a total of 302 participants in the final sample. Participants were randomly assigned to the control and experimental groups. Those in the experimental group (n = 180) were administered bCBT

over four months by mental health professionals. Those in the control group (n = 122) received the mental health assessment that was registered in their medical file. Outcomes measured included: depression as measured by the Patient Health Questionnaire-9 (PHQ-9), anxiety as measured by the Beck Anxiety Inventory (BAI), and secondary outcomes which were assessed through health-related QOL queries. The conclusion of Cully et al.'s research was that bCBT was "acceptable to participants and providers," appropriate for delivery in primary care facilities and was effective for "medically ill Veterans with depression and anxiety"; improvements for anxiety and depression among the Veterans studied were "moderate but persistent, and the impact on physical health outcomes was limited to shorter term effects and COPD participants" (p. 1).

The following section outlines the data used within the current analysis including details regarding the sample. Next, there is an explanation of the nature of the interventions used in the analysis followed by a description of the dependent and independent variables. Finally, the analysis plan is presented.

Study Participants

Participant Recruitment & Selection

Study participants were recruited through systematic chart reviews in the VA patient database, followed by an over-the-phone eligibility screening completed by study staff. Veterans' Health Administration databases and follow-up medical records were reviewed to identify potential participants. Those diagnosed with heart failure or COPD were identified. Opt-out letters were mailed to all Veterans with these diagnoses and who were currently enrolled with a primary care provider. The potential participants were contacted three times. Those Veterans who responded they were interested in participating completed an initial telephone

screening. The telephone screening had the following inclusion criteria: presence of depression or anxiety symptoms, a positive screen for mild or greater functional impairment, a negative screen for cognitive impairment, a negative screen for current substance use, a negative screen for psychotic and/or bipolar disorder, and no current suicidal intent (individuals with current suicidal ideation were considered eligible.

A key component of data collection for this study was the establishment of participant baselines for anxiety and depression, as departures from baseline were the outcomes tracked by the investigator, and the primary outcomes to be used for analysis in the present study. Following the initial telephone screen, an informational letter was mailed to eligible participants (Appendix C), then an additional baseline assessment was conducted to determine final eligibility. Inclusion criteria for the baseline evaluation consisted of elevated anxiety symptoms as reported on the BAI (score > or equal to 16) and/or the presence of depressive symptoms as determined by the PHQ-9 (score > or equal to 10). Study staff reviewed each participant's medical record to confirm no current participation in competing psychotherapeutic treatment was indicated. Finally, participants were randomized into either a treatment group for the bCBT intervention, or an Enhanced Usual Care (EUC) group (control).

Final Sample

The final sample consisted of a total of 302 participants selected out of 8835 eligible subjects; 180 were randomized to bCBT treatment and 122 to EUC. Table 1 depicts the participant recruitment from the eligible pool to the final sample. Table 2 contains the demographic characteristics for both the treatment and EUC groups and demonstrates the comparability of groups across all characteristics. Participants ranged in age from 41 to 91; the

bCBT participants had a mean age of 65.5 (SD = 8.6), and the EUC participants had a mean age of 66.5 (SD = 8.3).

Table 1

Participant Recruitment from Database to Final Sample

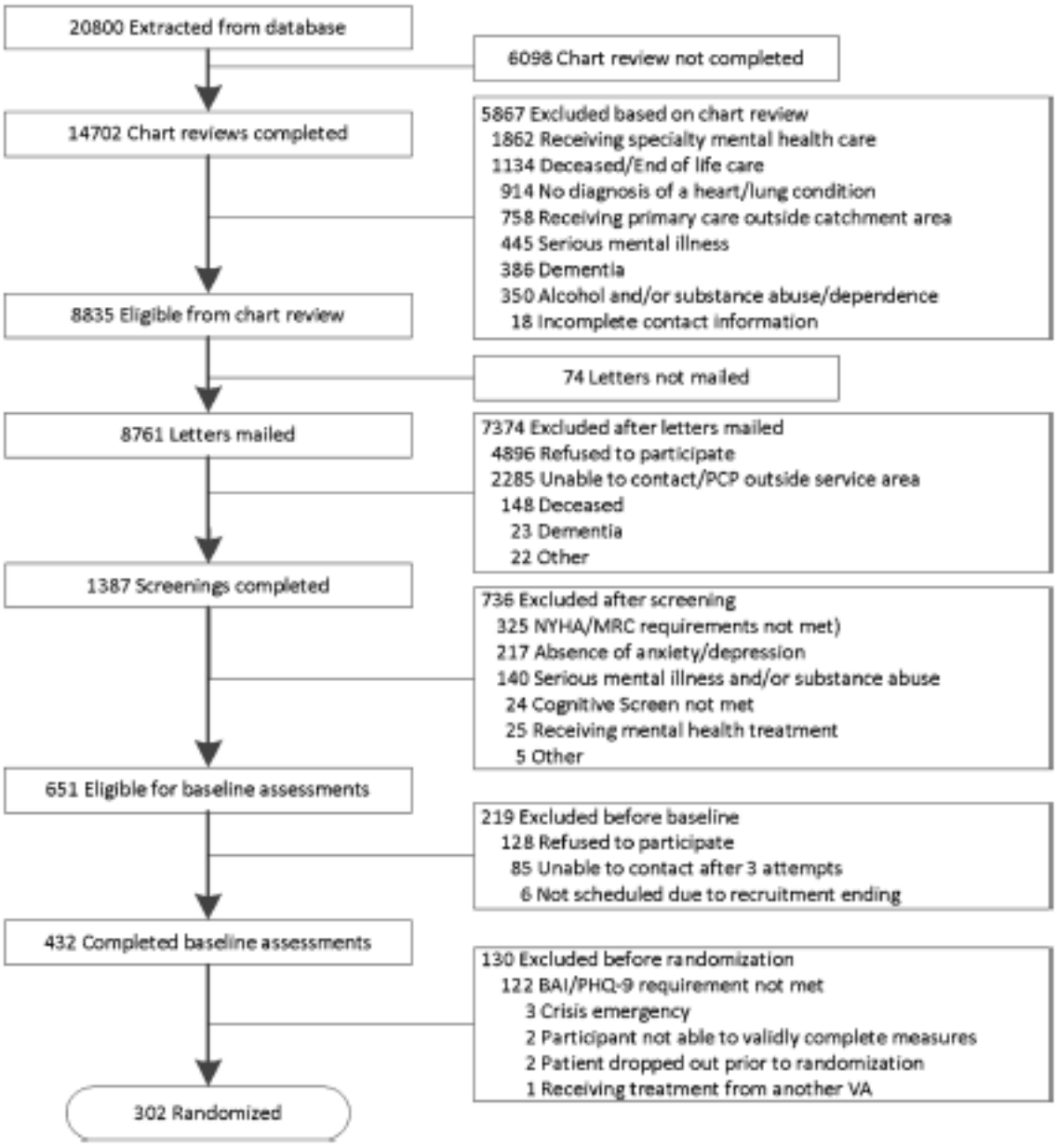


Table from original publication by Cully et al. (2017, p. 1017).

Table 2

Baseline Sociodemographic and Clinical Characteristics by Intervention Status

Table 1 Baseline Sociodemographic and Clinical Characteristics by Intervention Status

	Overall N (*n* = 302)	bCBT (*n* = 180)	EUC (*n* = 122)
Age (M, SD)	**65.5 (SD 8.6)**	**64.9 (SD 8.8)**	**66.5 (SD 8.3)**
Education			
High school or less	123 (40.7%)	73 (40.6%)	50 (41.0%)
Some college	134 (44.4%)	80 (44.4%)	54 (44.3%)
College graduate	45 (14.9%)	27 (15.0%)	18 (14.8%)
Male sex	285 (94.4%)	169 (93.8%)	116 (95.1%)
Race/ethnicity			
Non-Hispanic white	205 (67.8%)	120 (66.7%)	85 (69.7%)
African American	69 (22.9%)	42 (23.3%)	27 (22.1%)
Hispanic	8 (2.7%)	3 (1.7%)	5 (4.1%)
Other	20 (6.6%)	15 (8.3%)	5 (4.1%)
Living status			
Alone	70 (23.2%)	35 (19.4%)	35 (28.7%)
Spouse	169 (56.0%)	108 (60.0%)	61 (50.0%)
Family/other	63 (20.8%)	37 (20.6%)	26 (21.3%)
Marital status			
Married	185 (61.3%)	116 (64.4%)	69 (56.6%)
Not married	117 (38.7%)	64 (35.6%)	53 (43.4%)
Income			
Less than $20 k	104 (34.7%)	67 (37.4%)	37 (30.6%)
$20–$39 k	107 (35.7%)	61 (34.1%)	46 (38.0%)
$40 + k	89 (29.7%)	51 (28.5%)	38 (31.4%)
Chronic cardiopulmonary condition			
COPD only	187 (61.9%)	112 (62.2%)	75 (61.5%)
Heart failure only	75 (24.8%)	44 (24.4%)	31 (25.4%)
Both	40 (13.2%)	24 (13.3%)	16 (13.1%)
COPD/HF functional impairment[a]			
Mild	66 (21.9%)	43 (23.9%)	23 (18.9%)
Moderate	146 (48.3%)	84 (46.7%)	62 (50.8%)
Severe	90 (29.8%)	53 (29.4%)	37 (30.3%)
PHQ-9			
Total score (M, SD)	14.2 (SD 4.8)	13.8 (SD 4.6)	14.9 (SD 5.1)
N and % above cutoff[b]	264 (87.4%)	155 (86.1%)	109 (89.3%)
BAI			
Total score (M, SD)	22.0 (SD 9.6)	21.4 (SD 8.9)	22.9 (SD
N and % above cutoff‡	228 (75.5%)	138 (76.7%)	10.7) 90 (73.8%)
N and % meeting both PHQ-9 and BAI criteria‡	190 (62.9%)	113 (62.8%)	77 (63.1%)
N and % with a depression or anxiety diagnosis	180 (59.6%)	108 (60.0%)	72 (59.0%)
N and % with depression or anxiety medication	103 (34.1%)	58 (32.2%)	45 (36.9%)

[a]Functional impairment defined by MRC and NYHA criteria. Mild = MRC scores of 3 or NYHA score of 2; moderate = MRC score of 4 or NYHA score of 3; severe = MRC score of 5 or NYHA score of 4
[b]Cutoff score is 10 for PHQ-9 and 16 for BAI
[c]Diagnoses assessed using the MINI depression and anxiety subscales
[d]Depression and anxiety medication assessed for new medications or changes to existing medications during the 90 days prior to baseline
PHQ-9, Patient Health Questionnaire; BAI, Beck Anxiety Inventory; M, mean
SD, standard deviation; MRC, Medical Research Council; NYHA, New York Heart Association; bCBT = brief CBT; EUC = enhanced usual care

Table from original published study by Cully et al. (2017, p. 1018).

Treatment Groups

Intervention Group

Participants randomized to the bCBT intervention group were offered six sessions of bCBT, to be completed within four months from the date of referral, with a trained provider. Each of the bCBT sessions is outlined in the patient workbook (Appendix A) and in the corresponding provider manual (Appendix B). Both the patient workbook and provider manual

begin with information about how to use the document. The patient version orients the participant to the bCBT curriculum and provides a section to fill in the dates and times of each session, along with a space to document the clinician's name and contact information, along with contact information for study staff. In the patient workbook, each session begins with a page explaining what can be expected from the session and together the clinician and patient create a "roadmap" or agenda for the session. A "Rate Your Mood" page follows, consisting of the PHQ-9 measure, then session content and goal-setting. The provider manual follows a similar format, but includes suggested dialogue, additional clinical considerations, and strategies to address potential barriers during each session. The curriculum also includes a case study that is revisited during each session as an example to follow for learning skills, creating goals, and implementing action plans.

Session One: Getting Started. The first session is titled "Getting Started," and offers an introduction to the six-session intervention. In Session One, the clinician reviews what to expect from the curriculum during the course of treatment, sets a roadmap for the session, and provides psychoeducation about skill building and creating SMART (**S**pecific, **M**easurable, **A**ttainable, **R**ealistic, **T**ime-based) goals. After completing the "Rate Your Mood" page, a well-being inventory is completed to identify aspects of the patient's life (e.g., emotional health, physical health) the clinician and participant want to target together. Examples include increasing feelings of hopefulness about the future, becoming more active in hobbies, and learning healthy habits to improve sleep. Following psychoeducation about how behaviors and thoughts impact mood, the participant is introduced to a hypothetical case study about "Dave." The patient workbook describes Dave as "a 65-year-old Army Veteran who suffered a back injury two years ago and is

unable to work. He became distant from his family and believes his life has little meaning or purpose." (p. 5)

Next, the session explains SMART goals in greater detail and action planning is introduced. Instead of goal-setting which relies upon internal motivation for success, goals are chosen using the SMART framework and action planning takes a well-validated, written "if-then" method (Martiny-Huenger et al., 2017) to give the patient a clear path to achieving the established goal. The provider collaborates with the participant to identify a homework assignment for the upcoming week that employs the skills learned in the session, selecting a SMART goal and creating an action plan. The workbook includes blank action planning pages to document each week's goal and action plan. Session One then provides a "Skill Menu," from which the participant selects the content they would like to explore in the next session. The provider and patient then schedule the next session. Although the order of the skills may vary based on participant selection due to the flexible format, sessions two through five are described in subsequent sections in the order they appear in the workbook and provider manual.

Session Two: Engaging in Activities to Improve Mood. In the second session, titled "Engaging in Activities to Improve Mood," the clinician and patient explore ways the participant can become more active by connecting with loved ones and increasing pleasurable or meaningful activities. This session, along with the third session, are considered core skills, and make up the primary focus of the treatment. As with Session One, the provider collaborates with the patient to set a "roadmap" for the session, has the participant complete the "Rate Your Mood" inventory, and introduces session content. Session Two discusses the role behavior and mood play in depression, and revisits "Dave." In this session, Dave feels alone, ashamed at his lack of productivity. He admits to spending much of the day in bed or in front of the television, and

notes he has been avoiding socializing and attending church. Dave reports his desired activities as reconnecting with others, attending church, and tending to his home. Examples of Dave's SMART goals to address his mood and behavior include playing with his dog for at least 10 minutes five days per week, showering before 10am each day, and calling his daughter on Thursday.

Next, the workbook introduces a worksheet called "Record of Daily Activities and Mood." On this page, the clinician encourages the patient to capture a recent day's activities in order to identify possible connections between activity and mood. The worksheet displays three columns: "What were you doing?"; "How did you feel?"; and, "Why did you feel that way?" The sheet has several rows each for morning, afternoon, and evening activities. Then, the provider and participant work together to identify current activities and desired activities, and reference an included "Activity Cheat Sheet" to generate ideas. This session also reviews the previously selected goal and action plan, and develops a new action plan for the upcoming week. Session Two concludes with an "Engaging Activities Tip Sheet," which offers suggestions for successful completion of the established goal. Several other useful worksheets are included in the manual designed to offer various methods of goal tracking (e.g., daily activity/mood monitoring, hourly activity/mood monitoring).

Session Three: Managing Unhelpful Thoughts. The third session is titled "Managing Unhelpful Thoughts," and constitutes a second core skill. The provider offers a roadmap and introduction to the session content, then the participant completes the weekly "Rate Your Mood" worksheet. In this session, the clinician reviews psychoeducational material primarily about noticing, labeling, and managing distressing thoughts. The workbook contains visual lessons about the differences between feelings and thoughts, unhelpful thinking and helpful thinking,

unhelpful thinking patterns that accompany depression, how to identify unhelpful thinking, and designing coping statements to help manage unhelpful thoughts.

Integrated throughout this material are examples of "Dave," how he is doing and how the material applies to him. Exercises are provided throughout for the patient to write about their own unhelpful thoughts and coping statements. At the end of the session content, the workbook provides a section of optional advanced skills to learn and practice. This optional material approaches how to evaluate one's thinking patterns (e.g., examine the evidence), evaluates Dave's thinking, and includes space for the participant to evaluate their own unhelpful thoughts. The session concludes with the clinician and patient creating a new action plan.

Session Four: Using Relaxation Skills to Manage Stress & Tension. In session four, called "Using Relaxation Skills to Manage Stress and Tension," the provider reviews the session roadmap, introduces session content, and directs the patient to complete the weekly "Rate Your Mood" questionnaire. The clinician provides psychoeducation about stress and relaxation, checks in with "Dave" to see how he is applying the material, and reviews relaxation techniques like deep breathing and visualization. Examples are abundant and offer varied recommendations for content application. After the provider helps the participant draft a new action plan for practicing relaxation skills in the next week and scheduling Session Five, there are additional resources included in the manual for review. Supplemental resources consist of links to a free mobile application for practicing deep breathing and to an instructional video about using the application.

Session Five: Improving Health & Wellness. Session Five, "Improving Health and Wellness," is designed to convey information about health behaviors like eating, exercise, and sleep hygiene that encourage positive health outcomes. As always, the session begins with the

clinician and client setting a roadmap for the session, summarizing the skills that will be covered, and completing the "Rate Your Mood" measure. The provider reviews workbook content about physical health, pain, healthy eating, and sleep, revisiting the case study of Dave to see an example of how to identify opportunities for goal setting and wellness-based activities. Tips and exercises are interspersed throughout the content to keep the participant engaged in the material. Finally, the clinician and patient write an action plan and review supplemental resources, including relevant websites and useful mobile applications, before scheduling the final session.

Session Six: Final Session. In the sixth and final session, provider and participant review and conclude, making sure to establish an action plan for ongoing attainment of SMART goals. After the usual roadmapping and mood rating, the clinician conducts a progress review, encouraging the patient to rate their overall success in reaching goals and evaluating which areas of their life have improved since Session One and the contributing factors to their success. The provider discusses tips for maintaining progress and managing setbacks, then directs the participant to define their goals moving forward, consider steps they can take to achieve these goals, identify potential supports and barriers, and plan methods for overcoming obstacles. The final session concludes with information about additional support, including contact information for the Veterans' Crisis Line and space for the patient to record signs they may need to seek support.

EUC Group

Participants randomized to the EUC group were administered the same measures for tracking depression (PHQ-9) and anxiety (BAI) symptoms at baseline. Subsequent to each assessment, study staff entered a note into the participant's electronic medical record which encouraged providers to address related struggles into the patient's ongoing care plans. Using

this procedure, participants could technically receive care to address mental health symptoms, creating a control group which still may or may not have their symptoms addressed formally, but without utilizing the bCBT treatment outlined above.

Measures

Study staff followed up with participants four months post-treatment to re-assess depression and anxiety. Assessments were conducted over the phone and included the PHQ-9 and BAI, along with other measures not analyzed here. Examples of additional measures related to mental health collected include: the Locus of Control Questionnaire, Self-Efficacy Scale, Short Form Health Survey (SF-12V), Geriatric Depression Scale (GDS Short Form), Penn State Worry Questionnaire (PSWQ-8), COPE Inventory, and Brief Multidimensional Measure of Religion and Spirituality (BMMRS). Eight months following the completion of treatment, study staff followed up again, and administered the same measures collected in the four-month assessment over the phone. The final follow-up assessment was conducted 12 months subsequent to treatment completion. Similar to the four-month and eight-month follow ups, study staff conducted the 12-month follow up over the telephone and administered the same battery of assessments, including the PHQ-9 and BAI.

Personal Health Questionnaire (PHQ-9)

The PHQ-9 (Spitzer et al., 1999; Appendix D) is a nine-item self-report measure of depression. Respondents report how often a given symptom has been bothersome in the past two weeks. Specific items include “little interest and pleasure in doing things” and “trouble concentrating on things, such as reading the newspaper or watching television.” Spitzer et al. validated the PHQ-9 on a large sample of family practice or general internal medicine patients (N = 3000; age range = 18-99; mean age = 46, SD = 17.2). Of the sample, 585 were evaluated by

a mental health professional within 48 hours of responding to the instrument. Simultaneously, 62 physicians participated in the study and offered their input about the perceived value and utility of the PHQ-9. The study found the PHQ-9 is comparable in diagnostic validity to the previously adopted measure, the Primary Care Evaluation of Mental Disorders (PRIME-MD; Spitzer et al., 1994) but noted the PHQ-9 is a much more efficient tool. The questionnaire is brief, easily to administer, quickly scored by the clinician, and can be administered more than once, to demonstrate change in depressive symptoms over the course of treatment; the PHQ-9 has been validated as a diagnostic screener for depressive symptoms and major depression in adults (Blackwell and McDermott, 2014).

Related to the present study, Pinto-Meza et al. (2005) conducted a study to validate the PHQ-9 specifically with use over the telephone. Their results determined the instrument is valid when administered over the phone; the internal consistency of the telephone-administered PHQ-9 (Cronbach's a = .82; N = 289) was similar to that of the self-administered measure (Cronbach's a = .86; N = 288). The PHQ-9 has also been validated for use among older adults (Razykov et al., 2012; as cited in Barrera et al., 2015, p. 75).

Beck Anxiety Inventory (BAI)

The BAI (Beck, Epstein, Brown, & Steer, 1988; Appendix E) is a 21-item self-report measure of anxiety, and is specifically designed to distinguish anxious symptoms from depressive ones (Wetherell & Areán, 1997). Individuals are asked to respond indicating how much a given symptom has bothered them in the previous week (including the day of the assessment), by responding "not at all," "mildly," "moderately," or "severely." The measure produced sound internal consistency (Cronbach's a = 0.92) and good test-retest reliability (1 week; Cronbach's a = 0.75).

Wetherell and Areán (1997) conducted a psychometric evaluation of the BAI with older adult medical patients (N = 197; age range = 55-92; mean age = 67.8, SD = 7.6). The study determined the BAI to have high internal consistency (Cronbach's a = .92), and good inter-item correlation (mean r = .35; range = .10 - .73; corrected item-total correlations = .48 - .70, $p < .001$). The authors found a significant negative relationship between the BAI and age; more specifically, they found high internal consistency and adequate discriminant validity in the low-income and elderly participants in their study (Cronbach's alpha = .92). Steer et al. (1994) found similarly lower BAI scores in older adult patients than in college students. It has not yet been determined if these results are due to developmental characteristics or a cohort effect.

Research Design

The research design for the present study is a quantitative approach based in the scientific method. That is, the nature of a quantitative investigation is deductive reasoning—using data collected from an investigation, forming predictions or hypotheses based on observations, testing the hypotheses through structured analysis, then drawing conclusions to prove the hypotheses true or false based on findings. Further, structural equation modeling—more specifically, latent curve modeling—is the statistical methodology applied here. Such modeling enables a longitudinal analysis useful for estimated growth (or change) over time. The original study's research design was described as a "pragmatic, patient-randomized trial comparing bCBT to EUC" (Cully et al., 2017, p. 1015). The data for the current analyses were downloaded and provided to the researcher by the research staff of the original study (Cully et al., 2017). Variables included in the analysis are contained in Table 3.

Table of Variables			
Variables	**Data Type**	**Categories**	**Comments:**
Independent Variables			

Treatment Group	Nominal/ categorical	bCBT treatment group EUC group	Categorical
Age	Ordinal, continuous, not categorical	0-100+ years	Age is used as a moderator of outcomes in the analyses.
Time	Ordinal, categorical	Time 1 (baseline) Time 2 (4-month follow up) Time 3 (8-months follow up) Time 4 (12-month follow up)	PHQ and BAI data were obtained for study participants at baseline and at several points post-treatment: Time 1 (baseline), Time 2 (4 months), Time 3 (8 months), Time 4 (12 months).
Dependent Variables			
Treatment Outcomes	Interval	(1) PHQ score (2) BAI score	Participant scores (interval data) on the PHQ and BAI measures (discrete, exogenous variables) are considered as indicators of treatment outcomes at follow up.

Table 3. Variables.

Tools

This dissertation project used quantitative methods to collect and analyze data. More specifically, a fully encapsulated dataset was used in isolation, for the purpose of exploring a different research question than originally explored in published outcomes. SPSS and AMOS software were used in a secondary analysis of Cully et al.'s (2017) original data.

Trustworthiness

Credibility of the study is established by existing published literature stemming from the dataset. Transferability was operationalized in the present study by testing various aspects of the dataset and outcomes to derive additional meaning from what has already been learned. The researcher endeavored to lessen the impact of potential bias through variable selection and consultation. Cully et al.'s (2017) implementation analyses were restricted to descriptive data for intervention fidelity, bCBT initiation and completion rates, and survey responses from providers and bCBT patient participants. A fully-encapsulated dataset was used to ensure integrity of any merged functions in the manipulation of the data.

Data Analysis

A series of analyses, outlined in this section, were run to answer the research questions, test established hypotheses, and determine what correlations and conclusions could be drawn. The first research question asked, *Do treatment and age predict change over the study period in anxiety and depression? If so, what is the nature of those effects on change?* It is hypothesized that *treatment group will predict a more effective and stable change over time; it is uncertain whether age will be a predictor of change.* The second research question posed was, *Does age moderate the effect of treatment on changes over time in anxiety and depression?* The second hypothesis is that *age will be proven to moderate treatment effects in anxiety and depression over time. Positive treatment outcomes are likely to be less stable across time points as participants age and for those in the control group, or will remain stable but with different rates or types of change (e.g., differences in the shape of the trajectory).*

To evaluate change in selected outcomes between treatment groups over time, and to determine if those differences are moderated by age, the independent variables are bCBT treatment group and EUC group (both of these are categorical, exogenous variables), age (ordinal, continuous variable) and time (Time 1, Time 2, Time 3, Time 4), an ordinal, categorical variable. The dependent variables are treatment outcome 1 (PHQ-score), and treatment outcome 2 (BAI score); both of these are discrete, exogenous variables. The hypothesized outcome is that bCBT is more effective than usual care across the lifespan in treating anxiety and depression, but that meaningful differences exist in the trajectories of bCBT participants' depression and anxiety symptoms post-treatment when age is included as a moderator. To test these hypotheses, a number of quantitative analyses were completed.

Latent curve analysis is a good choice for answering the research questions since this is an analysis that has been used in peer-reviewed research to model the shape of outcome patterns over time. For example, deRoon et al. (2010) used latent growth analysis in a study of psychopathology and resilience following traumatic injury. Bub et al. (2007) used this approach to their data to model change trajectories over time in their study of behavior problems, cognitive ability, and achievement in children. Similarly, Toth-Kiraly et al. (2021) used latent curve modeling to better understand outcome implications (e.g., depressive symptoms, academic achievement) of problematic internet use in adolescents with identified social and individual antecedents (e.g., loneliness, sex) over a three year period.

To test how the positive effects of bCBT behaved post-treatment, a latent growth curve analysis was performed in AMOS. For this analysis, repeated measurements were the observed variables in the model, and variation across participants was captured by latent factors (intercept and slope). The repeated measurements are anxiety and depression outcomes (PHQ-9 and BAI scores) measured at baseline (Time 1), completion of bCBT sessions (Time 2), four months post-treatment (Time 3), eight months post-treatment (Time 4), and 12 months post-treatment (Time 5). The hypothesized outcome is that treatment outcomes will remain essentially stable over the various time points, but with differences in the shape of outcome trajectories over time when age is introduced as a moderator. The latent growth curve model is expected to show some variation in declining effects in participants as they age.

While not used in this investigation due to software limitations, a trajectory analysis may be complementary to a latent curve analysis. For example, Charnigo et al. (2011) modeled longitudinal data in behavioral change using group-based trajectory analyses. While latent curve analysis estimates average trajectory and uses covariates to explicate variability in this average,

trajectory modeling is a group-based approach which assumes there are distinct groups within the population with various underlying trajectories. This type of analysis is most often performed in SAS, while the latent growth curve model described here is entered through SPSS/AMOS. Kline (2016) offered a comparison of latent growth models and polynomial growth models. The use of repeated measures ANOVA was also considered.

All said, while various analyses were considered in answered the research questions, ultimately a hierarchical approach using latent growth modeling was determined to be the best method for testing the established hypotheses. This approach is further detailed in Chapter IV.

Summary

The point of considering age as a moderator of CBT outcomes is to minimize over-generalizability of established treatment efficacy; this chapter attempted to validate this approach to the data with the procedures described. The chapter began by outlining study methodology, then described the recruitment of participants, original study procedures, and measures used. Chapter III then described the independent and dependent variables, reviewed established research questions and hypotheses, and explained the differential plan for analysis. Chapter IV will demonstrate that the methodology described in Chapter III was followed, and will provide the study results. The researcher will relay how the findings address the research questions and established hypotheses, explore themes, and provide conclusions from the investigation. These conclusions are discussed in detail in Chapter V.

Chapter IV: Results

The results presented below are designed to address the following research questions, as stated in Chapter I:

1. Do treatment and age predict change over the study period in anxiety and depression? If so, what is the nature of those effects on change?
2. Does age moderate the effect of treatment on changes over time in anxiety and depression?

These questions are answered through a series of latent growth curve models using AMOS version 25. Missing data were addressed in AMOS using full-information maximum likelihood. Question #1 is addressed by first determining which model of change in BAI and PHQ-9 best describes how individuals (irrespective of group membership) changed from baseline to 12-months post-treatment during the study. Growth curve modeling was used to identify a suitable model of change over time in anxiety (as measured by the BAI) and depression (as measured by the PHQ-9). With a model identified, analysis progressed to testing the effects of treatment, age, and gender on change as reflected in the growth curve model identified in the previous step. Question #2 is addressed by adding interaction terms into the model to test for potential moderating effects of age and gender on the effect of treatment on growth parameters.

Testing Change Trajectory on Full Sample

My first set of analyses were designed to assess the best choice of model for change in outcomes from baseline to 12-months in the trial. Results from these analyses were used to inform the model of change to be tested as a function of treatment group, gender, and age. Initially, two possible models of change (linear and quadratic) were considered, with the expectation that individuals' (regardless of treatment group) BAI and PHQ-9 scores would decrease over time (since both were receiving care, albeit of different types). The overall fit of

the linear and quadratic change models for anxiety (BAI) and depression (PHQ-9) models – and all subsequent models in the results section – was evaluated using several fit indices that are provided by AMOS: Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and the PCLOSE test for the RMSEA. Conventionally, CFI and TLI values greater than .90 are considered indicative of acceptable model fit (values > .95 are generally regarded as indicating superior fit; Byrne, 2016). RMSEA values less than .05 indicate close fit of the model to the data, while values between .05 to .08 are generally regarded as indicating acceptable fit. Values greater than .10 generally indicate poor fit. The PCLOSE test for the RMSEA is used to test whether the model deviates significantly from .05 (the conventional threshold constituting a "close-fitting" model).

Figure 2 reflects initial model specifications assuming a linear and quadratic trend associated with the BAI measure; these are the same as those utilized with respect to the PHQ-9. In both models, the standard approach incorporates loadings from the intercept factor to each of the repeated measures (all manifest) that have fixed values of 1. Loadings for the slope factor in the linear model are shown as having fixed values of 0, 1, 2, and 3. With this coding system, the mean of the intercept growth factor is interpreted as the average BAI (or PHQ-9) at baseline (i.e., pre-treatment) and the mean of the slope factor will represent the average (predicted) linear change on the BAI per measurement occasion. This quadratic change model adds in a 'quadratic' factor (also latent) that models the quadratic component of each individual's growth curve. One can think of it as modeling the degree to which the linear change in BAI itself changes with each passing measurement occasion. The mean of the "Quad" factor, thus, is the average across individuals of that component of their growth curves. For all analyses in this study, the error variances associated with the repeated measures were constrained to be equal over time.

Figure 2

Growth Curve Models for Anxiety (BAI)

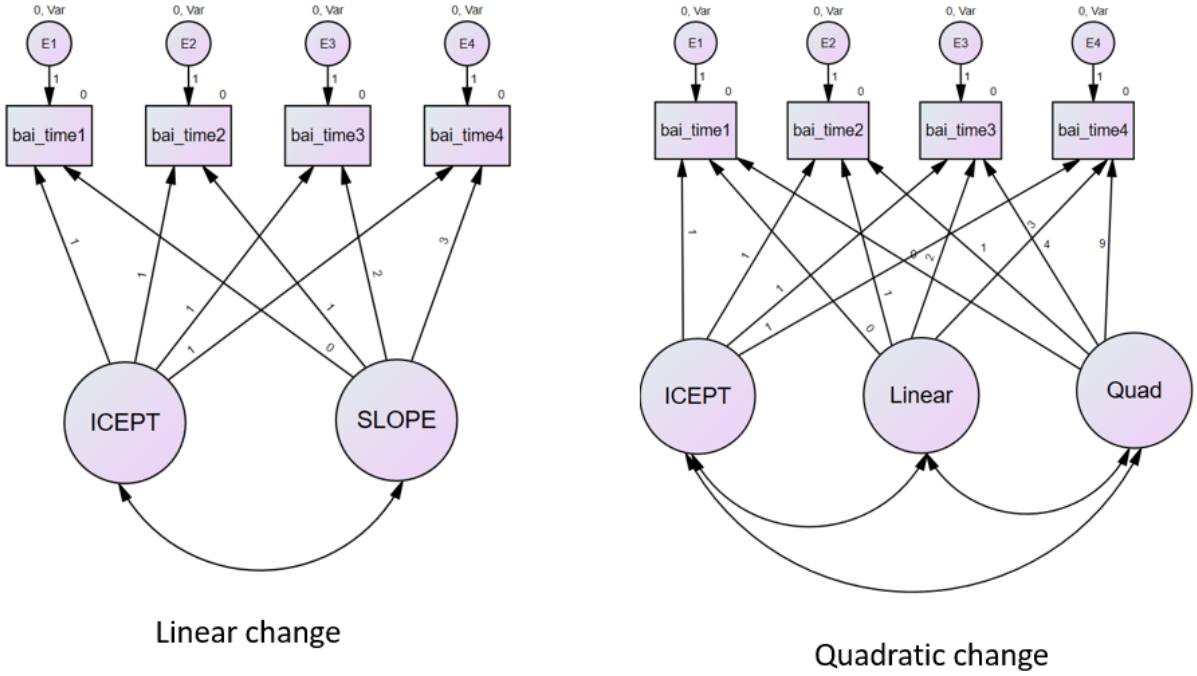


Table 4 below contains the measures of model fit for both linear and quadratic models for the BAI and PHQ-9. The model fit indices associated with the BAI indicated that both the linear and quadratic models exhibited acceptable fit to the data. Nevertheless, although the fit indices for the quadratic change appeared to show a superior fit to the data relative to the model assuming linear change over time, the variance-covariance matrix of the latent factors was not positive definite (making the solution inadmissible). With respect to the PHQ, the linear change model showed poor fit to the data relative to conventional standards, whereas the quadratic model results were somewhat mixed.

Given the problems fitting the models described above, a "latent-basis" modeling approach (McNeish & Matta, 2018) was utilized to model change in BAI and PHQ-9 over time. The objective with this approach is to estimate change empirically as opposed to specifying a

change model a priori. With this model specification, the factor loadings for the intercept factor remain again fixed to one. However, only two factor loadings on the "shape" factor (Kline, 2016) are fixed. A common parameterization involves fixing the first loading to 0 and the last loading to 1 (for examples of other parameterizations see Kline, 2016; Sterba,2014). According to McNeish and Matta (2018), the aforementioned parameterization allows one to interpret the freely estimated loadings as the "percentage of total growth that has occurred up to and including that specific time point" (p. 1406). Moreover, the mean of the slope factor serves to estimate the total change over time over the entire study period.

In the case of the BAI, this model specification exhibited fit that appeared better than the linear and quadratic models, with no hint of a positive-definite covariance matrix involving the latent factors. With respect to the PHQ-9, this specification also resulted in a model that fit the data better than the linear and quadratic model parameterizations.

Table 4

Model Fit for Latent Curve Models for Anxiety (BAI) and Depression (PHQ)

	Linear change model	Quadratic change model	Empirical estimate of change
Anxiety (BAI)			
Chi-square test	$\chi^2(6)=20.483$, p=.009	$\chi^2(4)=2.651$, p=.618	$\chi^2(6)=4.521$, p=.607
CFI	.974	1.000	1.000
TLI	.968	1.007	1.005
RMSEA	.072	.000	.000

RMSEA 90% CI	(.034,.111)	(.000,.072)	(.000,.064)
PCLOSE	.150	.852	.886
AIC	32.483	22.651	20.521
Depression (PHQ)			
Chi-square test	$\chi^2(6)=74.559$, $p<.001$	$\chi^2(4)=18.627$, $p<.001$	$\chi^2(6)=18.711$, $p=.005$
CFI	.845	.966	.970
TLI	.806	.915	.951
RMSEA	.166	.110	.084
RMSEA 90% CI	(.133,.202)	(.063,.163)	(.043,.128)
PCLOSE	<.001	.020	.083
AIC	86.559	38.627	34.711

Figure 3 contains the empirically-based change models for the BAI and PHQ. Key parameter estimates and significance tests for these models are provided in Table 2. Results from these models (of BAI and PHQ-9) indicate that there was significant variation across individuals in their intercepts (time 1 scores) and shape parameters. Thus, the results supported the subsequent step involving testing the effects of treatment, gender, and age on individual growth parameters. Notably, the means for the shape factor in both the BAI (mean=-3.123) and PHQ

models (mean=-2.244) were negative, indicating that a general downward trajectory in anxiety and depression over the study period.

Figure 3

Unstandardized Estimates Associated With the Empirical Change Models for Anxiety (BAI) and Depression (PHQ-9)

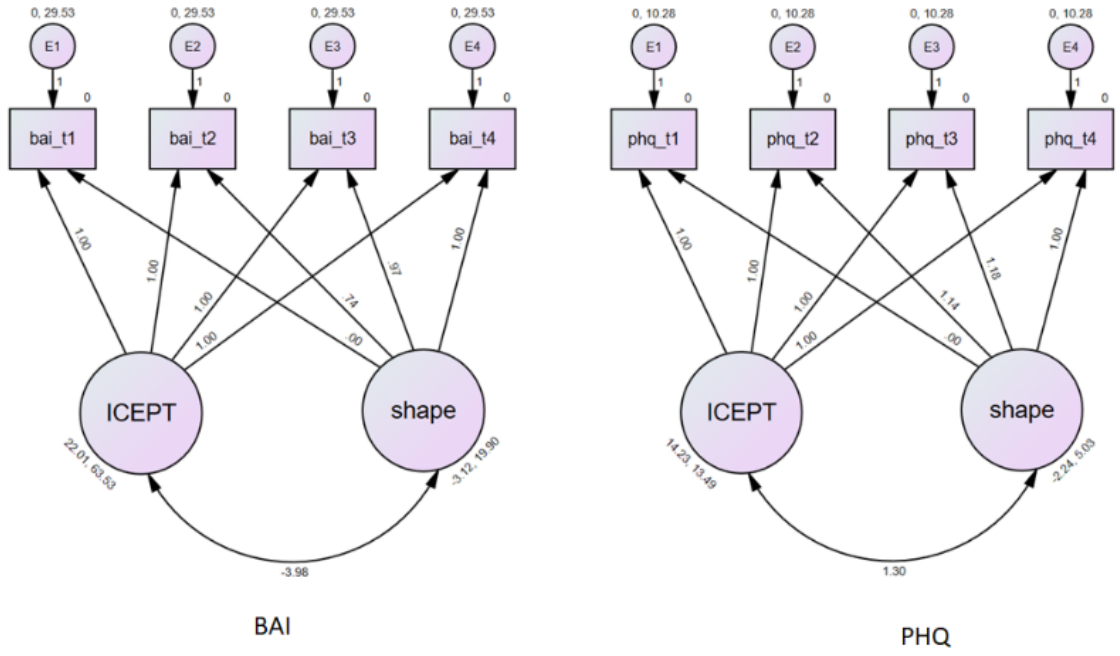


Table 5

Parameter Estimates and Test Results for Empirical Change Models for Anxiety (BAI) and Depression (PHQ-9)

Variable	Parameter	s.e.	p-value
Anxiety (BAI)			
Factor means			
Intercept	21.011	.555	<.001
Shape	-3.123	.477	<.001

Factor variances			
Intercept	63.525	7.752	<.001
Shape	19.905	7.234	.006
Factor covariance	-3.985	5.701	.485
Residual variances (all residuals constrained to equality)	29.532	2.010	<.001
Depression (PHQ-9)			
Factor means			
Intercept	14.230	.281	<.001
Shape	-2.244	.306	<.001
Factor variances			
Intercept	13.488	2.050	<.001
Shape	5.030	1.828	.006
Factor covariance	1.295	1.448	.371
Residual variances (all residuals constrained to equality)	10.281	.701	<.001

Predicting Variation in Change Parameters as a Function of Treatment, Age, and Gender

With our model of change established, additional analysis sought to answer the first research question, *Do treatment and age predict change over the study period in anxiety and depression? If so, what is the nature of those effects on change?* Models were tested with treatment, age, and gender serving as predictors of the variation in intercepts and shapes intercept and shape parameters associated with the individual change trajectories for the BAI and PHQ-9

(see Figure 4). Overall, both BAI and PHQ-9 models exhibited acceptable fit to the data (Table 6). Gender was included as a purely exploratory variable.

Figure 4

Model Specifications: Predicting Change Parameters from Treatment, Age, and Gender

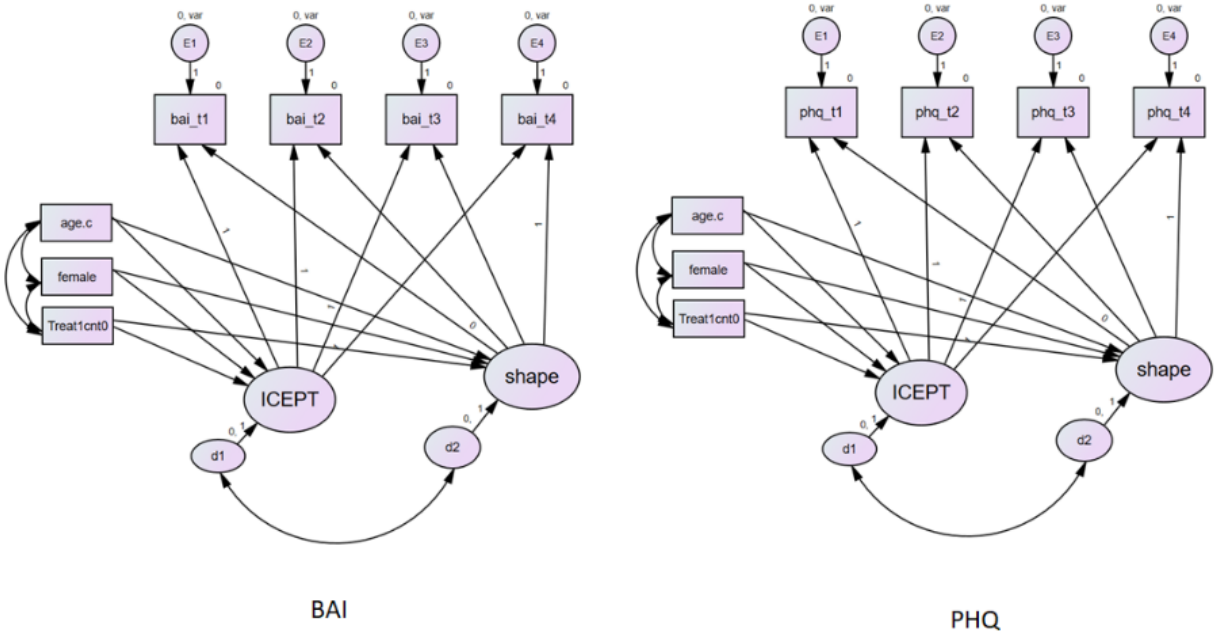


Table 6

Model Fit Indices for Anxiety (BAI) and Depression (PHQ-9) Models

	Anxiety (BAI)	Depression (PHQ)
Chi-square test	$\chi^2(12)=9.931$, p=.622	$\chi^2(12)=21.910$, p=.039
CFI	1.000	.978
TLI	1.009	.949

RMSEA	.000	.052
RMSEA 90% CI	(.000,.050)	(.012,.087)
PCLOSE	.950	.411
AIC	55.931	67.910

Parameter estimates and tests for these models are found in Table 7. For the BAI model, treatment emerged as a significant predictor of variation on the shape factor (b=-2.715, s.e.=1.00, p=.007), as was age (b=.151, s.e.=.058, p=.009). For the PHQ-9 model, treatment (b=-1.113, s.e.=.564, p=.049), age (b=-.067, s.e.=.033, p=.041), and gender (b=-2.534, s.e.=1.221, p=038) were significant predictors of baseline status on the PHQ-9. These results indicated that individuals in the bCBT group, those who were identified as female, and those who were older tended to score lower on the PHQ-9 at baseline than those in the control group, persons identified as male, and persons who were younger. Additionally, treatment (b=-1.608, s.e.=.579, p=.006) was a significant predictor of variation on the shape parameter.

Given the coding on the treatment variable (0=EUC, 1=bCBT), gender (0=male, 1=female), and age (centered at 0), the negative means of the shape factor in the BAI model (where mean=-1.769) and in the PHQ-9 model (where mean=-1.717) indicates that a hypothetical person in the EUC group, who is male, and whose age fell roughly at the sample mean showed decreases over the study period of both anxiety and depression. Since treatment emerged as a significant negative predictor in both models, we can interpret this as an indication that predicted decreases in depression and anxiety over the entire study period were more pronounced for individuals in the bCBT group as compared to the control group.

Table 7

Parameter Estimates and Test Results for Anxiety (BAI) and Depression (PHQ-9) Models: Predicting Change from Treatment, Gender, and Age

Variable	Parameter	s.e.	p-value
Anxiety (BAI)			
Factor means			
Intercept	23.262	.875	<.001
Shape	-1.769	.776	.023
Factor regressions			
Intercept on treatment	-1.728	1.123	.124
Intercept on gender	-3.725	2.429	.125
Intercept on age	-.074	.066	.258
Shape on treatment	-2.715	1.000	.007
Shape on gender	3.087	2.140	.149
Shape on age	.151	.058	.009
Variances of factor disturbances			
Intercept	61.549	7.633	<.001
Shape	14.479	6.435	.024
Covariance of factor disturbances	-3.828	5.410	.479
Residual variances (all residuals constrained to equality)	29.532	2.010	<.001
Depression (PHQ-9)			
Factor means			

Intercept	15.033	.440	<.001
Shape	-1.717	.456	<.001
Factor regressions			
Intercept on treatment	-1.113	.564	.049
Intercept on gender	-2.534	1.221	.038
Intercept on age	-.067	.033	.041
Shape on treatment	-1.608	.579	.006
Shape on gender	1.172	1.242	.346
Shape on age	.045	.034	.176
Variances of factor disturbances			
Intercept	12.695	1.990	<.001
Shape	4.298	1.714	.012
Covariance of factor disturbances	1.159	1.403	.409
Residual variances (all residuals constrained to equality)	10.296	.702	14.668

Testing for Additive Moderation of Treatment Effects by Age and Gender

The final set of analyses were designed to address the question, *Does age moderate the effect of treatment on changes over time in anxiety and depression?* To accomplish this, two models (one for BAI and one for PHQ) were specified, where two interaction variables were added as predictors in the model. [Interaction variables were constructed in SPSS by taking the product of the constituent variables.] This specification effectively allowed testing for additive moderation of the treatment effect. Figure 5 provides a visualization of the model specification. Based on the fit indices (Table 8) for these models, both exhibited acceptable fit to the data.

Figure 5

Moderation Models

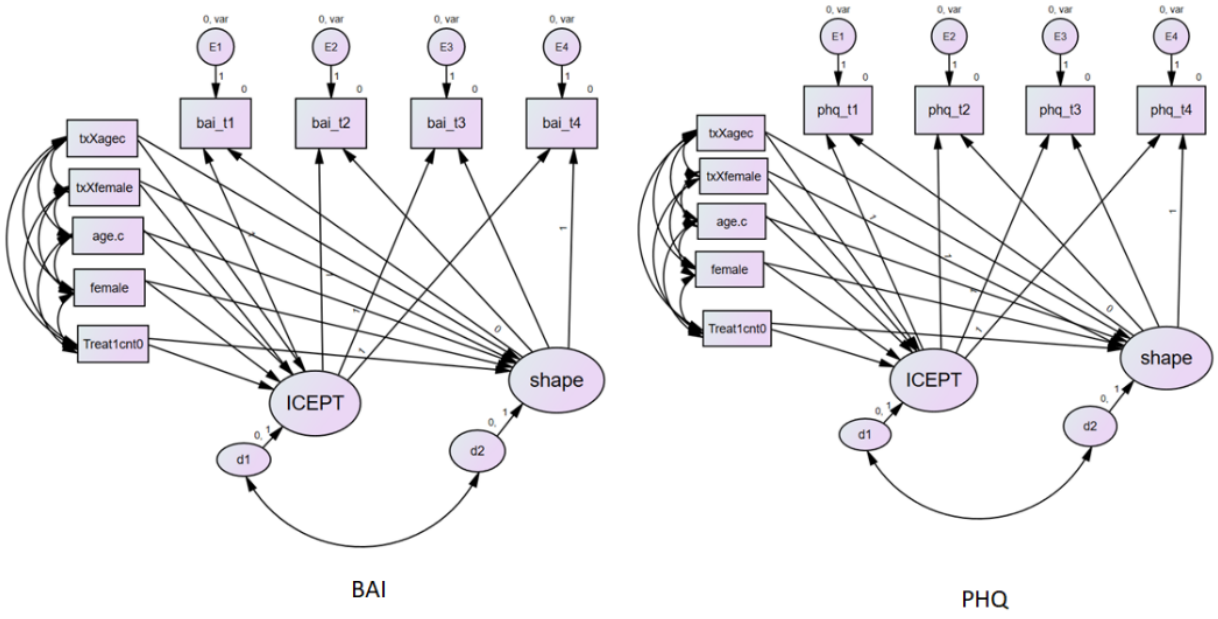


Table 8

Model Fit Indices for Anxiety (BAI) and Depression (PHQ-9) Models (Additive Moderation)

	Anxiety (BAI)	Depression (PHQ-9)
Chi-square test	$\chi^2(16)=11.977$, p=.746	$\chi^2(16)=26.554$, p=.047
CFI	1.000	.990
TLI	1.010	.972
RMSEA	.000	.047
RMSEA 90% CI	(.000,.039)	(.006,.077)
PCLOSE	.985	.528
AIC	87.977	102.554

An examination of the parameter estimates for the BAI model revealed none of the interaction terms were statistically significant in the model. In other words, there was no evidence that age or gender moderated the effects of treatment on initial status on the BAI or its change over the study period. Although the fit indices suggested the overall fit of the BAI model was good, the absence of any significant interaction effects suggests that a model without interaction terms is a better parameterization of the effects of treatment, age, and gender on growth curve components.

In the PHQ model, there was some evidence of moderation of the treatment effect on depression. The average intercept parameter for a hypothetical male (given their group is coded 0 on gender) in the control condition falling roughly at the mean on age (given its centering) was 14.977. The average on the shape parameter for these individuals was -1.377, consistent with a tendency for depression scores to decrease over time. Treatment was a near significant predictor of the intercept parameter (b=-1.077, s.e.=.581, p=.064) in the model, indicating that males (again, given the coding) of average age falling in the treatment group started out 1.077 points lower on depression than those in the control group. Treatment was a negative and significant predictor of the shape parameter (b=-1.598, s.e.=.522, p=.022), indicating that males of average age in the treatment group saw a decrease in depression of -1.377 – 1.598 = -2.975. This indicates a greater decrease in depression in the treatment group as compared to the control condition. Neither age nor gender emerged as significant predictors of the intercept or shape parameters. This indicates that neither of the first-order effects of these variables was related to initial status on depression or change over time. In other words, there appears to be no gender difference or age effect on initial status or change over time on depression.

The tests of the treatment X age and treatment X gender interactions on the intercept and

shape parameters were of most interest in addressing the question of whether age and/or gender moderates the effect of treatment on depression initial status or change over time. The treatment X gender interaction term was not a statistically significant predictor of the intercept or shape parameters in the model. The treatment X age interaction was also not a significant predictor of the intercept parameter. However, the treatment X age interaction, was a statistically significant positive predictor of the shape parameter (b=.139, p=.060, p=.021) in the model. Given that the effect of treatment on the shape factor was negative (b=-1.598, s.e.=.522, p=.002) in the model, this suggests that the greater predicted decrease in depression over the study period in the CBT group was less pronounced for older individuals. That is, for each one unit increase on age, the predicted decrease in depression changed by .139.

Table 9

Parameter Estimates and Test Findings for Additive Moderation Model for PHQ-9

Depression (PHQ-9)	Parameter	S.E.	*p*-value
Factor means			
Intercept	14.977	.499	<.001
Shape	-1.331	.406	.001
Factor regressions			
Intercept on treatment	-1.077	.581	.064
Intercept on gender	-2.531	2.039	.214
Intercept on age	-.009	.053	.861
Intercept on treatment by age	-.093	.068	.171
Intercept on treatment by gender	-.017	2.543	.995
Shape on treatment	--1.598	.522	.002

Shape on gender	-.362	1.785	.839
Shape on age	-.044	.047	.351
Shape on treatment by age	.139	.060	.021
Shape on treatment by gender	2.160	2.232	.333
Variances of factor disturbances			
Intercept	12.573	1.980	<.001
Shape	3.918	1.646	.017
Residual variances (all residuals constrained to equality)	10.307	.703	<.001

Chapter V: Discussion

This paper addressed the problem stated in Chapter I, that clinical research rarely utilizes quantitative analysis to consider age in determining efficacy of mental health treatments, despite developmental theories and scientific support for the fundamental implications of aging on psychological, biological/physiological and social health. More specifically, the present study extended published outcomes in a VA study of bCBT by including age in an analysis of the results. By investigating age as a moderator of change in treatment outcomes, this study addressed the risk of generalizing expected treatment efficacy and outcome trajectory inappropriately.

Based on the results presented in Chapter IV, we know there was a general downward trajectory in anxiety and depression over the study period (baseline, 4-, 8, and 12-month follow up), and that participants randomized to the bCBT group, those identified as female, and older individuals tended to score lower on the PHQ-9 at baseline than those in the EUC group, persons identified as male, and persons who were younger. Since treatment emerged as a significant negative predictor in both models, we know that predicted decreases in depression and anxiety over the entire study period were more pronounced for individuals in the bCBT group as compared to the EUC group. While none of the interaction terms were statistically significant in the BAI model, suggesting no evidence that age or gender moderated the effects of treatment on initial status on the BAI or its change over the study period, the predicted decrease in depression over the study period was less pronounced for older participants.

Interpretation

In interpretation of the study results, the reader is reminded that this dissertation project used quantitative methods to collect and analyze data. More specifically, a fully encapsulated

dataset was used in isolation, for the purpose of exploring a different research question than originally explored.

Based on the results presented in Chapter IV, we now know there was a general downward trajectory in anxiety and depression over the study period, and that participants randomized to the bCBT group, those identified as female, and older individuals tended to score lower on the PHQ-9 at baseline than those in the control group, persons identified as male, and persons who were younger.

The fact that randomization to bCBT treatment, female gender, and older age predicted lower PHQ-9 scores at baselines may suggest lower overall depressive symptomatology in women and older adults. Alternatively, there may be differences in reporting or assessment with these populations. This finding is consistent with previously cited literature. For example, Koma et al.'s (2020) analysis found depression and anxiety among older adults were reported at a lower rate than among younger adults (24% vs. 40%), and DiNapoli et al. (2016) found younger adults were the most likely to use mental health services.

Since treatment emerged as a significant negative predictor in both models, we know that predicted decreases in depression and anxiety over the entire study period was more pronounced for individuals in the bCBT group as compared to the EUC group.

Since treatment emerged as a significant negative predictor in both models, this can be interpreted as an indication that predicted decreases in depression and anxiety symptoms over the entire study period were more pronounced for individuals in the bCBT group than in the EUC group. In terms of analysis, insufficient information was available in the original published study (Cully et al., 2017) to exactly replicate the original analysis. Complicating analysis was the original study design, which used a flexible-format CBT approach; the intervention could be

more accurately be described as a "circle of care" than a manualized treatment replicated in a standardized fashion with each participant. Specifically, the session number variation (one to six sessions) demonstrated an individualized, humanistic approach to the intervention. There was also heavy conflation with other physical interventions, and many other confounds. Still, this suggests either a limitation in that a more pure intervention sample may have demonstrated better outcomes, or this finding suggests that taking a flexible, humanistic approach to bCBT is actually quite effective.

While none of the interaction terms were statistically significant in the BAI model, suggesting no evidence that age or gender moderated the effects of treatment on initial status on the BAI or its change over the study period, the predicted decrease in depression over the study period was less pronounced for older participants.

On one hand, the lack of standardization presents a problem for quantitative analysis. Conversely, this approach is reflective of the integrative nature of modern CBT, which mirrors the humanistic approach of the present study. Striking a balance between evidence-based treatment and a flexible format is a humanistic way of meeting the needs of patients. That said, while differences were observed across treatment groups, differences were not observed, for the most part, for the studied interactions. One exception is a subtler decrease of depressive symptoms over time in older adults. The lack of interaction effects in the BAI model runs counter to a previously cited study of CBT for generalized anxiety, in which Hundt et al. (2014) found lower effect sizes in older adults who received CBT for GAD than in younger adults. It is unclear why randomization served as a predictor.

Possible interpretations for this finding are that older adults internalize fewer positive benefits of the intervention, that their depressive symptoms are less dynamic than younger counterparts, or that some other component of the intervention- or provider-patient interaction with older adults differs. Reasons the results mostly show a lack of interaction effects with the chosen variables include the tailored approach providers took with patients (preferences for number of sessions and session content were permitted) and the general predictability of outcome trajectories in symptom variation.

References to Previous Research

The findings largely relate to previous similar studies. Historically, CBT was considered highly efficacious at its inception, while early criticisms of behavioral therapies pointed to lack of improvement in some patients and the lack of gains maintenance (Foa & Kozak, 1997). Other earlier behavioral therapy commentary suggested cognitive behavioral approaches should be tailored specifically to the response profile of patients during assessment, and promoted the integration of psychotherapy with behavior therapy (Douglas, 1989). Later on, further commentary echoed calls for flexibility. For example, Kendall and Peterman's (2015) study of CBT for adolescents experiencing anxiety showed moderate to large effects and superior outcomes to a comparison group and boasted CBT's accommodation of flexible and tailored application, including across delivery platforms (e.g., brief, web-, or school-based).

Another theme of CBT adaptations centers on the relevance of relational factors associated with treatment, including collaboration, Socratic dialogue, empathy, and positive regard (Kazantzis et al., 2017). Kazantis et al. (2018) completed a meta-analysis examining CBT processes (e.g., behavioral interventions, emotion regulation, psychoeducation) and in-session processes (e.g., therapeutic alliance, collaborative setting of goals, feedback), and noted the

evidence base for best process-outcome practices in CBT is newly emerging with no meta-analyses currently reported on the therapeutic relationship and related factors within the CBT intervention. An earlier meta-analysis by Hoffman et al. (2012) studied the efficacy of CBT across a wide variety of presenting problems in children and elderly adults and observed that, while the empirical support for CBT is quite strong, further research is needed to assess the efficacy of CBT in randomized-control trials. They emphasized that, with the exception of children and elderly populations, meta-analytic studies of CBT do not exist in the literature for other specific subgroups (e.g., ethnic minorities, low income samples).

Perhaps most comparable to the present study is a recent study by Rasing et al. (2021), which looked at the outcomes of blended CBT, face-to-face CBT, and usual care groups across three time points (baseline, post-intervention, and a six-month follow-up). While this study wasn't so much assessing efficacy of treatment per se, it was assessing the comparable viability of a flexible-format approach to CBT delivery, which ultimately was successful as compared to other treatment groups. Similar to the present study, Rasing and colleagues found depression decreases over time across all three treatment conditions. Likewise, Romero-Sanchiz's (2017) randomized clinical study of CBT in the Spanish primary care system analyzed outcomes and cost-effectiveness between internet-based CBT programs with and without provider support and a usual care group, and found both internet-based CBT formats to be appropriate both economically and clinically for patients with depression. Kraepelien et al. (2018) also found viability and cost-effectiveness in the use of an internet-based CBT treatment for mild to moderate depression in primary care.

In Chapter I, Hundt et al.'s (2018) study was cited, which observed symptom severity and full engagement in treatment predicted treatment outcome in older adults receiving CBT for

generalized anxiety. This finding runs counter to the results of both the original study (Cully et al., 2017) re-evaluated here which use a flexible format in bCBT delivery. An earlier study (Hundt et al., 2014), found lower effect sizes in older compared to younger adults and suggested patient variables were a factor in treatment response, but noted predictors of treatment outcomes in older adults rarely are examined. This finding is more similar to findings of the present study, but the gap in assessment of older adult variables is somewhat addressed.

In considering the possibility of cohort effects accounting for differences by age group, Steer et al. (1994) found lower BAI scores in older adult patients than in college students. Although Steer et al. were unable to determine if those results were due to developmental characteristics or a cohort effect, we can speculate a cohort effect is present in such a study and in the present study "since older people from a given cohort have been exposed to events, conditions, and changes different from what was experienced by their counterparts from another cohort, one finds between-cohorts differences in attitudes, values, and behaviors" (APA, 2009, 5). In the present study, age was found to be a predictor of baseline status for depression (b=-.067, s.e.=.033, p=.041), adding to the speculation that a cohort effect is possible.

Limitations

First, it is important to recognize there was neither a "pure" intervention group, nor a "pure" control group. Further, gains are still evident in the EUC group, but the gains were not as pronounced as with the bCBT treatment group. Essentially, the EUC participants were still receiving some sort of mental health care and some therapeutic benefit was present (it would be unethical to withhold treatment to study participants presenting with anxious or depressive symptomatology). Using this procedure, EUC participants were still able to mental health symptoms addressed in primary care, creating a control group which still may or may not have

their symptoms addressed formally, but without utilizing the bCBT treatment administered in the treatment group. By considering whether there were differences in the outcome trajectories of each group and whether age or gender offer significant interactions, the original study, which looked at treatment alone as a predictor of primary outcomes, is extended. The "value add" of the present study is determining whether the gains of the intervention group were *stronger* than those of the EUC group.

While there is a sufficient number of older adult participants in the sample to execute the proposed research and while the sample skews heavily male, the original study (Cully, 2017) was not developed for the particular purpose of evaluating age or gender as interactions with primary outcomes. That said, it is likely the research design is sufficient and appropriate to support the research questions and analyses presented in this dissertation.

Generalizability should be kept in mind, as it was in the original study. Data for the study was collected from VA primary care settings, and from patients presenting with a unique constellation of physical health factors. Further, the sample skews male, but the gender distribution is close to that of the general VA population. So, while caution is recommended in generalizing both the original and the present study to the general U.S. population, and while gender distribution would be a limitation if generalizing results to the general population, the data assessed here could safely be generalized to VA care settings.

Since the original study sought to assess whether an integrated bCBT intervention would be effective in reducing anxiety, depression, and in improving general quality of life among Veterans with physical illnesses, it is worth speculating whether the results are generalizable to physically healthy Veterans. It is reasonable to suspect higher baseline symptoms of depression and anxiety for Veterans with physical illnesses, but there is no reason to suspect differences in

change across the study period based on the presence or absence of physical illness were the study to be replicated. Exceptions may exist for Veterans whose physical illness place them notably closer to death than their physically health counterparts (e.g., those with poor prognosis).

Future Directions

There are many possibilities for the future directions of this research. Some options include devoting more resources to validating existing interventions on older adults samples, increasing graduate-level training exposure to issues of aging, and developing additional aging-related post-graduate professional training opportunities. This could be achieved with minimal funding burden due to the lack of data collection required. In order to achieve these objectives, advocacy efforts like those described in Chapter II should focus on exposing decision makers to the relevance of aging concerns and lobbying for change based on evidence. Policy work will be significant in drafting and passing legislation that benefits older adults and encourages increased professional competencies in working with the aging demographic.

Another possibility is that bCBT could be used to develop a model for family therapy. Since many older adults are joined at health care visits by a supportive other, and since many of the decisions made later in life are done in conjunction with loved ones, the field of family therapy could benefit from a model which utilizes a brief and effective mental health intervention, followed by longer term family therapy if it is both clinically indicated and logistically accessible for the family.

As mentioned in Chapter II, "the medical profession as a whole has historically done a better job than the psychology profession in responding to managed care and other health care changes and in initiating and providing coordinated legislative and regulatory responses" (Karlin & Duffy, 2004). As the general U.S. population (specifically the Boomer generation) ages, the

medical system will be less able to provide the type of mental health support needed. Ideally, outpatient, private practice, and community mental health settings become better equipped to address the mental health of older adults, in addition to primary care and inpatient or residential medical units.

As a result of the findings and in light of the other literature reviewed, some treatment modifications are suggested. For example, providers could ask patients about upcoming life stressors, and could consider such factors as symptoms severity, treatment adherence in the design, implementation, and interpretation of analysis. Further, while extending telehealth options is an important step in addressing geographic constraints and some age-based access disparities, obtaining reliable internet access continues to be a barrier for those with certain geographical, SES, and other limitations. Additionally, it is important to consider provider competence associated with treatment delivery for older patients.

Contributions and Significance

The intent of this research is to contribute to the vast literature on CBT, by extending an existing study in considering age and humanistic considerations in efficacy and intervention design. Hopefully, publication of this dissertation will encourage additional analysis of age-specific factors in CBT approaches and outcomes. The problems and questions addressed in this project are specific to the VA context. The implications of the findings for the discipline and for existing understanding are that older adults are worth studying and that there are differences that should continue to be explored as the VA population and the U.S. general population continues to age. Humanistic approaches, as hypothesized, should form the basis of interventions designed for implementation with older adults, and the flexible format used in the Cully et al. (2017) study should be integrated more often with traditional behavioral therapies, as suggested by other

recent relevant studies cited throughout this manuscript. Further, this project should inspire a true lifespan approach to psychological research, academic and professional training, and clinical practice.

Conclusions

The intent of this research was to contribute to the currently sparse knowledge base for treatments validated for use with older adults. It cannot be disputed that this area of evidence-based, peer-reviewed literature is lacking. Publication of this dissertation will encourage additional analysis of age-specific interventions and treatment considerations, inspire the integration of humanistic components in clinical psychological research, and further inform clinical practice and outcomes.

The potential impact of the present research on the field of psychology cannot be overstated. Beyond psychology, however, an aging society looks much different than a young one. First and foremost, this research sets out to remind readers that an aging society brings immense potential to enhance our country's systems and dispenses immeasurable wisdom and perspective into our population. The impending "gray wave"—some even call it the "gray tsunami"—of the aging Baby Boomer generation should not be seen as a burden, but as a unique set of circumstances which should inform process and policy, and inspire researchers, educators, providers, and lay persons to evaluate existing practices. Failing to see the privilege we have to age well as a society permits the perpetuation of ageism and prevents our country and culture from enjoying the exceptional benefits an older population offers.

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Appendix A: bCBT Patient Workbook



Appendix B: bCBT Provider Manual



Appendix C: Participant Letter

Michael E. DeBakey VA Medical Center
2002 Holcombe Boulevard (152)
Houston, TX 77030

March 4, 2019

[redacted]

Dear [redacted]

We recently spoke with you by phone about a research project called "*Effectiveness and Implementation of Brief Cognitive Behavioral Therapy in CBOCs.*" Thank you for taking the time to talk with us and for completing the questions.

Now we would like to give you some more information about participating. This letter explains the next steps to getting started.

- We will be calling you on **Wednesday, January 23rd, 2019 at 3:00pm** to go over the detailed description of the study. The description is enclosed with this packet.

- Then, we will ask you a few questions to be sure you are eligible to participate. The questions will take about 60 – 75 minutes to complete.

In this packet, you can find most of the questions we will ask you during the interview. We ask that you do not write in this packet so you can use it for the duration of the study.

If eligible, we will invite you to be a part of the project. If you choose not to participate in the study, we will delete your information to protect your privacy. Refusing to participate will not affect the quality of your care at the VA in any way. Whether you are eligible or not, you will receive a $20 check for completing the 60-75 minute interview described above.

We want to thank you for taking the time to consider taking part in our study. If you have any questions, please contact Darrell Zeno at **713-440-4492** or **1-800-553-2278 then 1 ext. 10367**.

We look forward to your participation in the research project.

Jeffrey Cully, PhD

Appendix D: Patient Health Questionnaire (PHQ-9)

Patient Health Questionnaire (PHQ-9)

Patient Name: _____ **Date:** _____

	Not at all	Several days	More than half the days	Nearly every day
1. Over the *last 2 weeks*, how often have you been bothered by any of the following problems?				
a. Little interest or pleasure in doing things	☐	☐	☐	☐
b. Feeling down, depressed, or hopeless	☐	☐	☐	☐
c. Trouble falling/staying asleep, sleeping too much	☐	☐	☐	☐
d. Feeling tired or having little energy	☐	☐	☐	☐
e. Poor appetite or overeating	☐	☐	☐	☐
f. Feeling bad about yourself or that you are a failure or have let yourself or your family down	☐	☐	☐	☐
g. Trouble concentrating on things, such as reading the newspaper or watching television.	☐	☐	☐	☐
h. Moving or speaking so slowly that other people could have noticed. Or the opposite; being so fidgety or restless that you have been moving around a lot more than usual.	☐	☐	☐	☐
i. Thoughts that you would be better off dead or of hurting yourself in some way.	☐	☐	☐	☐
2. If you checked off any problem on this questionnaire so far, 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: Beck Anxiety Inventory (BAI)

Beck Anxiety Inventory (BAI)

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not at all	Mildly, but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding / racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky / unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint / lightheaded	0	1	2	3
Face flushed	0	1	2	3
Hot / cold sweats	0	1	2	3