ABSTRACT

MOWREY, CANDICE LEIGH. Feminist Multiculturalism in Acceptance and Commitment Therapy Research: A Meta-Analysis of Voice and Power. (Under the direction of Dr. Marc A. Grimmett.)

Acceptance and Commitment Therapy has garnered empirical support for a wide range of target problems including depression, anxiety, and chronic pain. Meta-analyses have attempted to synthesize ACT research, but have yielded conflicting conclusions regarding the scope and significance of ACT in comparison to other treatments, particularly when ACT is compared to other active treatments such as Cognitive Behavior Therapy. Counselors and counselor educators have an ethical obligation to implement treatment strategies that have relevance and meaning for clients from diverse backgrounds, not just clients from majority groups, however current research is lacking in relevant, comprehensive information regarding the impact of widely accepted treatments on under-represented groups. The current meta-analysis investigated the effect of ACT using a feminist multiculturalist approach emphasizing voice and power. Studies included at least 20% of individuals from under-represented groups (e.g., children, older adults, people of color, and individuals in institutional settings) to address voice through representation. Additionally, studies were evaluated based on quality of life outcomes, which were used to operationalize the experience of power. Results indicate that ACT is moderately effective across target problems (e.g., depression and chronic pain), and minimally effective at improving quality of life for individuals who are under-represented in research and society based on gender, race, age, and social status. However, ACT was not found to reduce primary symptomology across studies that included more than 20% of individuals from racially under-represented groups, suggesting that ACT may not have universal effectiveness as suggested by leading
authorities such as the Substance Abuse and Mental Health Services Administration.

Findings that outcomes did not differ significantly across studies regardless of the training level of the treating counselor may have important implications for counselor educators.

Overall, the findings of the current meta-analysis indicate an ongoing need for inclusive, comprehensive research and practice regarding under-represented groups, and emphasize the roles of counselors and counselor educators to evaluate research through the critical lens of feminist multiculturalism.
Feminist Multiculturalism in Acceptance and Commitment Therapy Research: A Meta-Analysis of Voice and Power

by
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DEDICATION

For my husband, mother, and clients. Dan, you have supported me in ways I did not even know I would need supporting throughout this program and dissertation process. Thank you for your patience and seemingly endless willingness to pick up my slack. Mom—thank you for believing in me when I refused to believe in myself, for your unfaltering love and presence, and most importantly for your acceptance. Finally, to my clients, my teachers—thank you for having the courage to confront the darkness in all its forms and for letting me walk with you.
BIOGRAPHY

Candice Mowrey is a Licensed Professional Counselor and currently works in private practice in Cary, North Carolina. She provides individual counseling for a wide range of personal and relational issues, and also provides clinical supervision to counselors seeking licensure. She received a Bachelor of Arts with Honors in Psychology and a Master of Science in Rehabilitation Counseling and Psychology from the University of North Carolina at Chapel Hill. Upon completion of her Master’s in 2008, Mrs. Mowrey completed a fellowship in Psychosocial Rehabilitation at the Durham VA Medical Center, where she worked with veterans with severe mental illness, chronic pain, and chronic illness. She has since worked in a variety of settings including outpatient mental health, college counseling and disability services, methadone maintenance and intensive outpatient substance use treatment, and domestic and sexual violence treatment. She is currently a doctoral candidate in Counseling and Counselor Education at North Carolina State University.
I would like to deeply thank the following people for their presence and support.

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challenged me to think more critically about the publication process and to keep the end goal in sight from the start.

I would also like to thank Pauline Ellefson for your patience and willingness; you are the foundation and heart of this program. Daniel Goldberg, Mona Nour, Tia Crooms, thank you for your friendship, camaraderie, and laughter.
# TABLE OF CONTENTS

LIST OF TABLES ......................................................................................................................... ix
LIST OF FIGURES ...................................................................................................................... x

## CHAPTER 1 – INTRODUCTION ................................................................................................. 1
Purpose ........................................................................................................................................ 2
Statement of the Problem ........................................................................................................... 3
Research Questions ....................................................................................................................... 5
Summary of Method ..................................................................................................................... 5
Terms and Definitions
ACT Model of Human Suffering ................................................................................................. 6
Six Core Functions ....................................................................................................................... 7
Feminist Multiculturalism ........................................................................................................... 10
Under-Represented Group .......................................................................................................... 13
Quality of Life ............................................................................................................................. 15
Conclusion ................................................................................................................................... 17

## CHAPTER 2 – LITERATURE REVIEW ....................................................................................... 18
Acceptance and Commitment Therapy (ACT) ........................................................................... 18
ACT for Anxiety .......................................................................................................................... 19
ACT for Depression ..................................................................................................................... 21
ACT for Eating Disorders .......................................................................................................... 23
ACT for Substance Use .............................................................................................................. 24
ACT for Psychotic Disorders ..................................................................................................... 26
ACT for Physical Illness ............................................................................................................. 28
Additional Areas of Interest ....................................................................................................... 30
Meta-Analyses ............................................................................................................................ 31
Powers (2009) ............................................................................................................................. 31
Ruiz (2012) .................................................................................................................................. 32
Öst (2014) ................................................................................................................................... 33
Meta-Analytic Issues for Consideration .................................................................................... 35
ACT from a Feminist Multicultural Perspective ......................................................................... 36
Under-Represented Groups in ACT .......................................................................................... 36
Issues of Power in ACT Research: Exploring Stigma ................................................................. 43
Conclusion ................................................................................................................................... 45

## CHAPTER 3 – METHOD ............................................................................................................ 47
Meta-Analysis ............................................................................................................................ 47
Research Questions ..................................................................................................................... 48
Research Design .......................................................................................................................... 48
Search Strategy .......................................................................................................................... 48
Selection Criteria ......................................................................................................................... 49
Data Abstraction .......................................................................................................................... 50
Outcome Measures ...................................................................................................................... 52
Summary..................................................................................................................................................95
Limitations......................................................................................................................................................96
Implications for Future Research ..........................................................................................................................97
Methodological quality..........................................................................................................................................98
Additional considerations.........................................................................................................................................99
Implications for Counselors and Counselor Educators ..........................................................................................101
Conclusion.......................................................................................................................................................102
REFERENCES.....................................................................................................................................................104
APPENDICES....................................................................................................................................................126
## LIST OF TABLES

Table 1 *Adaptation of Hays (2001) ADDRESSING Model* .................................................................14

Table 2 *Domains of Quality of Life, Felce & Perry (1995)* .............................................................16

Table 3 *Representation of Under-Represented Ethnic Groups in ACT Research* .......................38

Table 4 *Representation of Women in ACT Research* .....................................................................41

Table 5 *Characteristics of Studies* ..................................................................................................66

Table 6 *Overall Effects of ACT Compared to Active and Inactive Control Groups* ...............69

Table 7 *Overall QoL Effects of ACT compared to Active and Inactive Control Groups* ..........70

Table 8 *Subgroup Analysis and Effect Size Estimates of Participant Characteristics on ACT Interventions for Target Problems* .................................................................72

Table 9 *Subgroup Analysis and Effect Size Estimates of Intervention and Study Characteristics on ACT Interventions for Target Problems* .................................................................76

Table 10 *Subgroup Analysis and Effect Size Estimates of Participant Characteristics on ACT Interventions for Quality of Life* ......................................................................................77

Table 11 *Subgroup Analysis and Effect Size Estimates of Intervention and Study Characteristics on ACT Interventions for Quality of Life* .................................................................78

Table 12 *Meta-Regression of Participant, Intervention, and Study Variables on Primary Outcome* ........................................................................................................................................80

Table 13 *Meta-Regression of Participant, Intervention and Study Variables on Quality of Life* ........................................................................................................................................81
**LIST OF FIGURES**

*Figure 1.* Flowchart of Selection and Coding Procedures .......................................................... 52

*Figure 2.* Flowchart of Data Analysis .......................................................................................... 61

*Figure 3.* Flowchart of Inclusion and Exclusion Results............................................................ 64
CHAPTER 1—INTRODUCTION

Acceptance and Commitment Therapy (ACT) has become a popular focus of research and clinical attention in the past decade. As part of the third wave of cognitive behavioral treatments (Kahl, Winter, & Schweiger, 2012), ACT uses a synthesis of Eastern mindfulness practices and Western behavior analysis to address a wide range of presenting problems (for full reviews and meta-analyses see Manlick & Cochran, 2012; Öst, 2014; Powers, 2009; Ruiz, 2012). Built from a research base of Relational Frame Theory and philosophical foundations of functional contextualism (Hayes, 2004), ACT clinicians use a broad range of techniques to target language; suggesting that psychological suffering hinges on the ways we use language to relate to the world and ourselves.

The third wave of cognitive behavior therapies (e.g. Dialectical Behavior Therapy and Mindfulness Based Cognitive Therapy) are characterized by themes including mindfulness, emotions, dialectics, and acceptance (Kahl, Winter, & Schweiger, 2012) and include existing methods of cognitive therapy geared toward behavior change. Theorists suggest that ACT contributes uniquely to the third wave therapies by developing meta-cognitive capacities through mindfulness and reorienting to one’s thoughts (Hayes et al., 2013). Current meta-analyses on ACT provide conflicting feedback on the utility and discreteness of ACT methods, particularly as compared to traditional cognitive therapies (See Ruiz 2012 for complimentary review, Öst 2014 for critical review). Inconsistency of treatment type, clinician training, and poor research design further complicate the process of evaluating ACT’s overall effectiveness.
Additionally, though there are many passionate research and clinical voices in support of ACT as a meaningful intervention for issues ranging from depression (Folke et al., 2012) to tinnitus (Westin et al., 2011), there is little information available regarding use of ACT with diverse or under-represented groups (Woidneck et al., 2012; Fusch et al., 2013). Despite these problems and unanswered questions, ACT has continued to gain steam as an evidence based practice, with far reaching implications beyond the world of academia that impact clinicians and the communities they serve. Insurance companies and managed care organizations use evidence-based standards as a metric for determining reimbursement, which in turn shapes the services available in community counseling agencies and private practices (Garber, 2001). This trickle down effect underscores the need for rigorous, intentional, and inclusive research that supports wellness in a wide range of cultural communities.

**Purpose**

The purpose of this meta-analysis will be to investigate ACT through a multicultural lens, operationalizing key elements of multicultural competence to determine ACT’s relevance to under-represented groups and social justice issues. The goals of this research are to investigate voice and power by (a) examining inclusion of diverse groups in ACT research (b) isolating effect sizes for under-represented groups (c) identifying moderation and mediation effects of cultural differences and (d) considering impact of ACT on contextual issues that affect under-represented groups through analysis of quality of life outcomes.
Statement of the Problem

Multiculturalism refers to “professional intervention and counseling relationships in which the counselor and the client belong to different cultural groups, subscribe to different worldviews, and have distinguishing differences such as gender, sexual orientation, disabilities, social class, spirituality, and lifespan (Baruth & Manning, 2012, p. 17). Beyond being an optional approach to counseling, numerous professional organization including the American Counseling Association (2014) and American Psychological Association (2003) have included multicultural competence as elements of ethical practice. Multiculturalism from an empirical perspective may be understood as meaningful and intentional inclusion of under-represented groups in research—giving voice to the experiences of those on the margins of society.

In this post-modernist world of counseling, it is no longer possible to draw a line between multiculturalism and social justice (Vera & Speight, 2003). As helping professionals, it is not enough to identify client differences within the imagined vacuum of the counselor’s office. We must recognize that difference within White, male, heterosexual, able-bodied dominant contexts is devalued in American society, and that our clients move daily through dysfunctional systems of racism, patriarchy, and other forms of inhumane inequity. The systems that perpetuate inequity exist on institutional, community, and individual levels (Prilleltensky, 2003). At the institutional level, racism, sexism, and other discriminatory practices decrease access to healthcare, education, and employment (Brondolo, Gallo, & Myers, 2008). This is evident in the mental health community as under-represented ethnic and racial groups have lower rates of engagement (Gonzalez et al., 2010).
and higher drop out rates (Alegria et al., 2007) than dominant groups. In the realm of research, connections between cultural characteristics and the many faces of oppression may be understood as constructs that operationalize power.

Psychotherapy researchers have traditionally been somewhat passive in their approach to acknowledging and exploring cultural differences, often equating attention to diversity issues with the inclusion of racial and ethnic head counts (Case & Smith, 2000). However, there are important conversations to be had regarding epistemological, contextual, and systemic factors that impact psychotherapy outcomes for under-represented groups. Hays (2009) and Horrell (2008) provide conceptual consideration of epistemological issues, suggesting that Cognitive Behavioral Therapies assume the traditional Western values of independence, assertiveness, and rationality are universal. Despite this groundwork, there is little empirical information available that addresses under-represented groups or that gives voice to non-Western perspectives on psychological wellness.

Given ACT’s high profile status as an evidence-based practice, it is imperative that gaps in multicultural consideration be identified and remedied. Woidneck and colleagues (2012) found that of 32 controlled trials, 21 reported the race of participants, and only 7 had more than 20% non-White participants. These findings highlight the need for a more thorough investigation of multicultural issues in ACT research. ACT as an inherently contextual theory has great potential to be accessible and meaningful for a wide range of populations. However, in order for this potential to be fulfilled, researchers must be willing to do the work of operationalizing the realities—the barriers, the resources, and the ways of being—of under-represented and oppressed groups.
**Research Questions**

In order to examine ACT from a multicultural perspective, a meta-analysis will be conducted to ascertain a) the level of representation in the literature of under-represented groups, b) effect sizes of ACT for under-represented groups, and c) effect of ACT on quality of life (QoL). Demographic variables related to under-represented groups will also be explored as potential moderators of effect size. Under-represented groups will be identified using Hays’ (2001) ADDRESSING model of identity, which stands for age (children and older adults), disability (acquired or developmental), religion (non- Christian), ethnicity (non-White American), social class (institutionalized or incarcerated), sexual orientation (non-heterosexual), indigenous heritage, national origin (non-American), and gender/sex (non-male identified). While all of these variables will be considered in the data coding, it is likely that many studies will not report on factors beyond race, gender, and age.

**Summary of Method**

A quantitative meta-analytic design will be used in this study. Inclusion criteria will be identified and used to generate a coding manual. Effect sizes will be calculated based on research questions. Articles will be evaluated for scientific rigor, which will be used along with various under-represented group statuses as moderators in later analysis. Sensitivity and power analyses will be conducted as well as tests for heterogeneity using Comprehensive Meta-Analysis.
Terms and Definitions

ACT Model of Human Suffering

The processes that underlie thought are the primary targets of ACT interventions. Human suffering arises from over-generalizing ways of knowing, evaluating, and predicting that are inherent in the process of thought, which result in attempts to control experience in order to avoid suffering. Hayes and colleagues (1999) outlined the following generalizations that contribute to experiential avoidance and suffering:

1. Verbal relations are primitive, dominant, and fundamental—our ability to form verbal connections between objects and events (internal and external) is essential to our survival and capacity to relate to the world around us. We engage in processes of association and evaluation automatically.

2. Verbal dominance—humans develop verbal representations of non-verbal events. Non-verbal experiences such as emotion and physical pain are immediately layered with language-based descriptions of those events.

3. Verbal relations are contextually controlled—the descriptive layer of experience is impacted by the context in which it occurs, including the internal context of the person (previous experiences and memories).

4. Behavior is contextual, not mechanical—the behavioral response to verbal relations cannot be understood separately from the context in which it occurs. Rather than being directly causal, verbal relations impact behavior along with contextual factors.

5. Changing verbal relations by adding new ones elaborates existing networks rather than eliminates them—attempting to control negative internal experiences or
judgments by engaging their opposites, has the unintended effect of strengthening the original internal experiences. For example, a client who is attempting to build self-confidence due to a global feeling of failure may attempt to think of their accomplishments. However, the process of engaging thoughts of success also activates the verbal rule “I am a failure,” thereby strengthening it and potential establishing a connection between feelings of failure and memories of achievement.

6. Verbal rules induce insensitivity to the direct consequences of responding—when we engage directly with verbal relations, we become less aware of the present moment and the consequences therein. An individual with social anxiety may experience the verbal rule “I panic in crowds” while at a concert. Engagement with this rule may preclude her from experiencing the fullness of the moment, which though it may include panic may also include enjoyment, sound, and a host of other sensory, emotional, experiential aspects.

The principle goal of ACT is to address the connection between language and suffering, bring awareness to ways that thought impacts behavior in context, and model a new way of relating to internal experiences that allows for flexibility and values-based action (Hayes, 2004). This process is accomplished through six core functions outlined below.

**Six Core Functions**

The process of ACT is composed of six core functions: (a) acceptance, (b) cognitive defusion, (c) being present, (d) self as context, (e) defining valued directions, and (f) committed action (Luoma, Hayes, & Walser, 2007). Acceptance as a construct and therapeutic technique is not unique to ACT, but is rather a common thread of third wave
cognitive therapies. With significant support as a stand-alone practice (Baer, 2003; Grossman et al., 2004), acceptance is a process of leaning in rather than avoiding, controlling, or altering thoughts and feelings (Fuchs et al., 2013). Through acceptance, clients develop an awareness and openness to internal experiences, which allows for engagement in meaningful behavior despite uncomfortable feelings (Hayes, 2004).

Cognitive defusion is a process of “deliteralizing” language. By creating a non-literal context for language, verbal representations of private experiences are viewed as words rather than what those words seem to mean. The purpose of defusion is to bring awareness to the process of language in order to broaden behavioral repertoires that have been constricted by attachment to verbal constructions of experience. Examples of defusion strategies include observing a thought without judgment, repeating a thought in order to connect with the sound rather than the content, or giving a thought physical form (Luoma, Hayes, & Walser, 2007). Defusion can then be understood as a process of shifting away from identifying with language-based rules towards awareness of those rules as they appear in the mind.

Present moment awareness engages our ability to connect with experience (internal and external) as it is happening. Mindfulness, another term for present moment awareness, can be understood as a skill for relating more effectively and less reactively to experiences (Germer, 2004). John Kabat-Zinn (2003), creator of another third wave therapy, Mindfulness-Based Stress Reduction has defined mindfulness as “paying attention in a particular way, on purpose, in the present moment” (p. 73). When we engage with the present moment and all its contents, we actively attend to experience without attachment, meaning when a thought arises in consciousness, we notice it rather than follow it. Being “lost in
thought” by following the story of our thoughts and internal experiences can be understood as the opposite of being mindful. Present moment awareness is intertwined with the process of defusion, creating the space in which defusion can occur.

Self as context helps clients develop an understanding of self as the constant and spacious context in which experience occurs. Rather than being a summation of verbally constructed rules (“I am a good person”, “I am a woman and women are nurturing”, etc.), self as context allows clients to contact a transcendent sense of self that goes beyond language. The conceptualized self, in contrast informs behavior in a limited, rule-governed way, allowing for interaction with the world on the basis of verbal constructions rather than engagement with the present moment (Hayes, 1999).

Defining valued directions is accomplished in the space created by acceptance, mindfulness, defusion, and self as context. Stephen Hayes (2013), ACT’s primary founder has indicated that the primary purpose of ACT is to increase the capacity to persist or change in the service of values. When ineffective and limiting ways of engaging with experience are abandoned, a new way of being becomes possible. Defining valued directions illuminates the client’s new path by helping her to hone in on that which is most important to her, that which gives her a sense of wholeness and meaning. Informed by functional contextualism, ACT helps clients shift from determining the accuracy of thoughts or feelings to the utility of thoughts and feelings in leading a values-based life. Through values-based living, clients are encouraged to identify ways of being that they find meaningful (i.e. being loving, honest, or compassionate), focusing on process rather than outcome alone (Hayes, 2004).
Finally, committed action involves behavioral strategies for enacting values in a flexible and mindful way. Elements of traditional behavior therapy such as exposure, skill building, shaping and goal setting are common to this treatment component, which can occur throughout the overall process of therapy. Once a client has indicated that a specific behavioral goal is in line with her values, the process of pursuing that goal will create situations in which she will have to practice the cognitive aspects of ACT such as acceptance and self-as context. Committed action can be understood as the functional active element of treatment through which behaviors are fundamentally altered (Luoma, Hayes, & Walser, 2007).

**Feminist Multiculturalism**

Feminism and multiculturalism have many overlapping features, however within counseling, key differences in these constructs are visible. Feminism champions empowerment, while multiculturalism has traditionally focused on awareness of differences. Feminist multiculturalism may be defined by the following features: a philosophical foundation of multiculturalism and feminism; emphasis on person-centered empowerment; and focus on concerns of oppressed groups.

Feminism as a clinical perspective was born of the humanistic movement in counseling set in the sociopolitical context of the Women’s Movement of the 1960s (Brown, 2010). Though early feminists such as Simone DeBeauvoir (1949) had long been speaking out against gender inequality in such forms as the socially sanctioned imprisonment of women within the domestic sphere, theorists and psychologists such as Broverman (1970) and Chesler (1972) drew attention to patriarchy in mental health practice and research;
insisting that therapy and research had privileged white male perspectives. A system of thought grew from these outcries that emphasized diversity, the data of experience, biopsychosocial factors, and insisted on empowerment and equality (Lerman, 1983).

Feminism has represented diverse ideals and practices throughout history. The 1960s through the early 1980s were characterized by no-difference feminism, asserting that there are no inherent differences between men and women, and that apparent differences result from socialization and inequality (Brown, 2010). Vocal activist and feminist, bell hooks (2002) has described this time period as one of personal awakening during which she observed women demanding equal pay, rejecting traditional gender roles, and embracing lesbian romantic relationships as the only way to rid oneself of relational patriarchal oppression.

The pendulum of revolution seemed to swing in the opposite direction during the mid 1980s through the mid 1990s as difference or cultural feminism emerged. In stark contrast to the no-difference paradigm, cultural feminism insists that inherent sex differences do exist, and that oppression is the result of devaluing traits and behaviors associated with femininity (Enns, 2004). Feminist psychology as a theoretical and clinical practice developed under this influence, with authors such as Carol Gilligan and Jean Baker Miller emphasizing the presence of a unique female voice and perspective—a voice denied and silenced throughout psychotherapy’s male-dominated history. Relational morality, nurturance, and the value of other above self were inherent in the psychology of female (Gilligan, 1982) according to cultural feminists. However, this movement drew criticism from ethnic under-represented groups who felt white voices continued to dominate the narrative.
Feminism of the 21st century embraces multiple levels of identity as potential points of oppression including race and spirituality (Comas-Diaz, 2008). From this modern perspective, feminism is meant to address the “theory and epistemology of power and empowerment within the larger social and political milieu” (Brown, 2010 p. 28). Feminist therapy as a result emphasizes the need for an egalitarian client/therapist relationship, reframes psychopathology in terms of distress and dysfunction, and considers identity as a social and contextual process (Brown, 2010). The overall goal of feminist therapy is empowerment as defined by the client.

The same social and historical climates that synergized feminism spurred the winds of multiculturalism, often referred to as the fourth force in counseling. Multiculturalism encompasses ethnographic identities including ethnicity, nationality, and language; demographic variables including age and gender; and status variables including socioeconomic and educational factors (Pedersen, 1990). The multicultural movement also asserts that multiple realities can co-exist based on cultural experiences and perspectives, and that no one perspective is superior or more accurate than another (Hansen, 2010). Beyond acknowledgment of difference, multicultural competence requires respectful exploration of intersecting cultural identities.

Multicultural feminism seeks to blend multicultural foundations of diversity with the feminist etic of power with the ultimate goal of social justice for all (Enns, 2012). There has been a necessary shift toward an understanding of multicultural differences that acknowledges privilege as it relates to group membership, and an accompanying realization
that counseling research must reflect critical engagement of oppressive narratives and conditions (McDowell & Fang 2007).

**Under-Represented Group**

The term *under-represented* in research frequently refers to racial and ethnic groups that constitute less than half of a population. This term will be very intentionally used in the place of *minority*, which connotes inequity beyond numeric representation in a group. For the purpose of this research study, under-represented groups will be identified using Hays’ (2001) ADDRESSING model of identity, which stands for age, disability (acquired or developmental), religion, ethnicity, social class, sexual orientation, indigenous heritage, national origin, and gender/sex. This model illustrates the complexity of identity in context. *Under-represented groups* will be the term substituted for *minority* in Hays model and updates to her groups have been made to reflect current terminology (see Table 1).
Table 1

*Adaptation of Hays (2001) ADDRESSING Model*

<table>
<thead>
<tr>
<th>Cultural Factor</th>
<th>Under-Represented Group</th>
<th>Biases with Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age/generational</td>
<td>Older adults</td>
<td>Ageism</td>
</tr>
<tr>
<td>Disability</td>
<td>People with disabilities</td>
<td>Ableism</td>
</tr>
<tr>
<td>Religion</td>
<td>Non-Christian groups</td>
<td>Religious intolerance</td>
</tr>
<tr>
<td>Ethnicity/Race</td>
<td>Non-white</td>
<td>Racism</td>
</tr>
<tr>
<td>Social Status</td>
<td>People of lower status</td>
<td>Classism</td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>LGBTQ identifying</td>
<td>Heterosexism</td>
</tr>
<tr>
<td>Indigenous Heritage</td>
<td>Native peoples</td>
<td>Racism</td>
</tr>
<tr>
<td>National Origin</td>
<td>Refugees, immigrants, international students</td>
<td>Racism and colonialism</td>
</tr>
<tr>
<td>Gender</td>
<td>Women, gender non-conforming</td>
<td>Sexism</td>
</tr>
</tbody>
</table>

Under-represented groups as a concept is also meant to highlight the lack of representation of non-majority cultural groups in psychotherapy research. Hays (2009) discussed the apparent divergence of multiculturalism and evidence-based practice suggesting that while CBT contains many conceptual similarities to multiculturalism, relevance to under-represented ethnic groups cannot be assured due to the dearth of population-specific research. Members of non-ethnic under-represented groups such as lesbian, gay, or bisexual individuals experience a similar absence of empirical attention in CBT literature (Martell, 2010). Without research specifically geared toward under-
represented groups, assumptions about generalizability are faulty and dangerous; serving to perpetuate damaging and devaluing norming processes that reinforce marginalization.

**Quality of Life**

The concept of Quality of Life (QoL) gained popularity as a meaningful metric of treatment outcomes largely due to the positive psychology movement of the 1970s (Seligman & Csikszentmihalyi, 2000). Rather than focusing on the absence of pathology as an indicator of health, QoL metrics explore layers of human experience beyond symptom profiles. As a result of decades of empirical study in health care, mental health, and social work, QoL measures and definitions have become increasingly diverse and context-specific, however QoL can be generally defined as a subjective evaluation of the degree to which an individual’s most important needs, goals, and wishes have been fulfilled (Frisch, 1992).

One of the most important aspects of QoL from a multicultural perspective is consideration of factors that impact individuals on community and systemic levels. QoL addresses five primary categories of wellbeing: physical, material, social, development or activity, and emotional. Within each of these categories are more specific areas of experience, which individuals rate based on their levels of subjective satisfaction as well as objective perception of the quality of those experiences and conditions (See Table 2) (Felce & Perry, 1995).
Table 2

Domain of Quality of Life, Felce & Perry (1995)

<table>
<thead>
<tr>
<th>Physical</th>
<th>Material</th>
<th>Social</th>
<th>Development/Activity</th>
<th>Emotional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Income</td>
<td>Relationships with relatives</td>
<td>Choice</td>
<td>Mood</td>
</tr>
<tr>
<td>Fitness</td>
<td>Living environment</td>
<td>Community</td>
<td>Work</td>
<td>Satisfaction</td>
</tr>
<tr>
<td>Safety</td>
<td>Privacy</td>
<td>Acceptance/Support</td>
<td>Leisure</td>
<td>Fulfillment</td>
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<td></td>
<td>Possessions</td>
<td></td>
<td>Housework</td>
<td>Self esteem</td>
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<td></td>
<td>Food</td>
<td></td>
<td>Education</td>
<td>Religion and faith</td>
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<td>Transport</td>
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<td>Productivity</td>
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<td></td>
<td>Neighborhood</td>
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<td></td>
<td>Security</td>
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<td></td>
<td>Stability</td>
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Since the recognition of QoL as a meaningful outcome measure, assessments have been developed for a variety of populations including cancer survivors (Osborn, Demoncada, & Feuerstien, 2006), children with medical (Battista et al., 2012) and intellectual disabilities (Gomez, Verdugo, & Arias, 2015), and individuals who are homeless (Hubley et al., 2014). Numerous studies have examined QoL as a primary outcome variable for mental health treatments for individuals with substance use disorders (Feelemyer et al., 2014) and eating disorders (Sy et al., 2013). QoL has also been examined through multicultural and social justice lenses, as evidenced by reviews on QoL measurement in Arabic speaking populations (Sayah et al., 2012), resource limited youths (Paltzer et al., 2013), and persons with intellectual disabilities (Gomez et al., 2015).

Quality of life as a metric of individual experience embodies a feminist multicultural philosophy. Rather than over simplifying wellbeing as an absence of symptoms, QoL
acknowledges context in a way that captures the impact of oppression. Aspects of QoL such as safety, acceptance, and choice speak directly to the experience of disempowerment and give concrete form to the spirit of inequality. Though there are reliability and validity challenges resulting from the plethora of QoL measures and lack of a consistent point of reference for scales (Felce & Perry, 1995), the underlying principles and frequency of use in psychotherapy literature make it the most likely candidate for quantifying power.

**Conclusion**

Acceptance and Commitment Therapy has a broad research base with predominantly positive treatment outcomes. Research visibility relates to community availability in the field of mental health, and it is therefore imperative that ACT be assessed by standards that are relevant to the communities in which ACT is provided. Multicultural feminism provides a philosophical rubric for providing meaningful therapy for under-represented groups, and yet the research base available to inform therapeutic approaches is rife with standards and procedures that marginalize diverse groups—their ways of knowing, being, and thriving. The researcher’s purpose for this dissertation is to examine the effectiveness of ACT from a multicultural feminist perspective, which will be embodied by examination of non-dominant group representation and outcomes in ACT research as well as investigation of QoL outcomes as a measure of oppression-related experience.
CHAPTER 2—LITERATURE REVIEW

Acceptance and Commitment Therapy (ACT)

Research on ACT has historically targeted specific diagnostic groups, predominantly anxiety (Bluett et al., 2014), physical illness (Gundy et al., 2011), depression (Rector, 2013), and substance use (e.g. Gonzalez-Menendez, 2013); however a broader range of issues including problems related to stigma and prejudice have also gained research attention. Despite encouraging movement toward more dynamic uses of ACT that aligns with feminist multiculturalism, there remains a noticeable absence of critical investigation of under-represented group perspectives and problems of interest. Additionally, there is significant inconsistency in research design and implementation in ACT literature, which further complicates the process of assessing ACT as an overall theory and practice (Öst, 2014).

In order to gain a sense of the scope and limitations of ACT research, a literature review was conducted using the following article databases: Educational Research and Information Center (ERIC) and PsycINFO. Search terms included “acceptance and commitment therapy” in the title and/or abstract as well as diagnostic categories “anxiety,” “depression,” “eating disorder,” “cancer,” “diabetes,” “substance,” “oppression,” “marginalized,” “underrepresented,” “multiculturalism,” and “review.” Literature was restricted to peer-reviewed journal articles. The body of work on ACT is sizeable, and requires a strategic approach in order to be presented in a meaningful, non-redundant way. Therefore, a brief summary of ACT literature in its entirety has been addressed starting with the most current literature reviews of ACT’s use in various diagnostic categories, which will be supplemented by empirical and conceptual articles that have been published since each
review. An exhaustive review of ACT meta-analyses and literature related to diversity and power is included. For additional comprehensive reviews of ACT see Hayes, Pistorello, & Levin, 2012; Murrell et al., 2011; and Smout et al., 2012.

**ACT for Anxiety**

Anxiety disorders including social phobia, generalized anxiety, agoraphobia, and panic disorder are both widespread and tend toward chronicity (Keller, 2000). Cognitive Behavioral Therapy has been the primary treatment model for these disorders, however, problems with engagement and treatment aversion are common, particularly when elements of exposure therapy are used. ACT has become an area of keen interest for anxiety researchers given that the model directly addresses experiential avoidance.

In a 2012 review of ACT for anxiety, Sharp suggested that anxiety disorders are developed and maintained through avoidance behaviors and cognitive fusion. She connected each of the six core functions with a problem area for individuals with anxiety disorders. Sharp additionally suggested that an unwillingness to experience the physical correlates of anxiety, the view that normal anxiety is threatening, and a behavioral repertoire of avoidance results in restricted functioning.

Mediator analysis of ACT versus CBT for social anxiety supports the connection between experiential avoidance and anxiety levels (Niles et al., 2014). In a randomized controlled study, authors found that experiential avoidance was the primary mediator of improvement in symptoms for the ACT group, whereas decreases in negative cognitions mediated change significantly in the CBT and ACT groups. These outcomes support earlier findings by Arch and colleagues (2012), who additionally found that cognitive defusion
mediated quality of life and avoidance in a sample of individuals with panic disorder or social anxiety. Defusion, however was not significantly different between CBT and ACT groups.

Obsessive Compulsive Disorder was examined in a study by Twohig and colleagues (2010) comparing the effectiveness of ACT versus Progressive Relaxation Training (PRT). Those in the ACT treatment group showed significant improvement in depression, quality of life, and OCD behavior, and demonstrated higher levels of acceptance. Thought control and cognitive fusion did not show significant changes by treatment condition, though there was an improving slope for the ACT treatment condition. Finally, ACT was rated as significantly more acceptable compared to PRT, which is meaningful given the high levels of treatment aversion and overt refusal rates for OCD treatment.

Though these isolated results suggest that ACT may result in clinical improvements above and beyond traditional CBT, a recent meta-analysis found that there were no significant differences in outcome or process measures when comparing ACT to other manualized treatment protocols for anxiety disorders (Bluett et al., 2014). A significant correlation was found between a measure of psychological flexibility and avoidance as measured by the Acceptance and Action Questionnaire and anxiety levels ($r = .45$, $p < .001$). Lack of significant findings related to process variables in ACT, however, suggests that more research is needed to determine whether ACT truly contributes a unique approach to treating anxiety disorders.
ACT for Depression

Though the majority of ACT research has been focused on anxiety disorders, a smaller body of research has investigated the use of ACT for individuals with depression. Folke, Parling, and Melin (2012) used a group-based ACT model to compare depression, distress, perceived stress, and quality of life outcomes in a sample of unemployed individuals to those receiving treatment as usual in Sweden. Effect sizes were large for the ACT group post-treatment for depression ($d = .71$), as well as for quality of life ($d = .74$), both of which were maintained at follow-up. It is important to note that treatment as usual has contextual implications given that healthcare is free in Sweden. There were no controls around the sort of treatment sought by the treatment as usual group.

Clinical gains over an extended follow up period were the focus of a randomized controlled trial of ACT versus cognitive therapy for a sample of individuals with depression and anxiety (Forman, et al., 2012). Using an intent-to-treat sample of 132 participants, higher levels of improvement were found in the cognitive therapy group on measures of depression, general functioning, and quality of life, but not for anxiety. Those in the completer group showed a similar trend, but none of the results reached significance. Scores on the mindfulness and acceptance scale used to measure ACT treatment effects yielded no clinical significance.

A more recent study examined the impact of ACT for depression in two treatment settings—internet-based versus face-to-face in a randomized controlled trial (Lappalainen et al., 2014). Participants receiving internet-based ACT completed self-guided modules on core ACT principles including values-based action, contact with the present, cognitive defusion,
and acceptance. Homework was assigned each week with the therapist providing asynchronous, written feedback. The internet-based group showed more significant improvement on measures of depression, general health, and life satisfaction, though both groups reported significant decreases in depression and mental wellbeing. Significant increases in mindfulness and psychological flexibility were found in both groups, though decreased automatic thoughts and thought suppression were only significant in the internet-based treatment. The authors suggest that internet-based modules may enhance personal responsibility for wellbeing resulting in higher commitment to using ACT strategies.

There is currently no overarching model for depression in the ACT literature as opposed to anxiety (Sharp, 2012). As a result, ACT research has a range of justifications, based on subsets of depressed groups, for mechanisms of change. Depression in older adults was conceptualized as the result of difficulty adjusting to changes and losses associated with aging by Karlin and colleagues (2013). As such, the acceptance-based approach in ACT was hypothesized to improve depression and quality of life. Using a sample of 746 older males in the Veteran’s Administration Health System, individual ACT treatment was significantly correlated with improvements in depression and in therapeutic alliance. Quality of life was not significantly impacted.

Overall, there are noticeable inconsistencies in the literature regarding the effectiveness of ACT for depression, particularly related to training of treating clinicians and control group design. In Karlin et al. (2013), clinicians were practicing therapists in VAs across the country who received 12-16 sessions of standardized training in ACT as well as ongoing supervision. In contrast, in Lappalainen et al. (2014) treating therapists were
psychology students with 13 hours of ACT training. Control group designs seem to account for significant variance in outcomes, with active treatment control groups often rivaling ACT groups on outcome measures.

**ACT for Eating Disorders**

Eating disorders (ED) seem to have a uniquely Western etiology, and epitomize both patriarchal assumptions about women and their bodies and the ACT-based concept of destructive normality (Hayes et al., 1999). Particularly in American societies, women, the predominantly affected demographic, are flooded with media images of unattainable thinness, which tie worth to weight in damaging ways. Given the culturally-sanctioned nature of watching ones’ weight, the expression of disordered eating through calorie control, over-exercise, binging, and purging represents an exaggeration of what is otherwise considered a “normal” obsession with one’s body (Heinburg & Thompson, 1995).

Manlick and colleagues (2013) elaborated the connection between ACT principles and eating disorders suggesting that features of mood intolerance, avoidance, and fusion with cognitions about body weight and worth underlie ED pathology. Body shape, weight, and control become the most important reference for measuring self-worth, which is accompanied by an unwillingness or inability to tolerate negative mood states. ACT serves to build acceptance of verbal rules linking weight to worth, placing an emphasis on values-based action rather than specifically on weight gain, for which clients with ED have little buy-in.

Experiential avoidance was confirmed as a significant mediator of change in binge eating behaviors following a one-day ACT workshop (Lillis, Hayes, & Levin, 2011). The
workshop included lecture, group work, and experiential exercises emphasizing values clarification, behavioral commitment, mindfulness and defusion from thoughts around eating, body image, and self-stigma. Participants also saw improvements in quality of life, self-stigma, weight loss and maintenance at a 3 month follow up compared to the waitlist control group.

Juarascio et al. (2013) used a more rigorous experimental design to explore the role of experiential avoidance in anorexia and bulimia, suggesting that existing treatments such as cognitive therapy are change-based, which is potentially a poor match for working with the ego-syntonic beliefs underlying disordered eating. Comparing ACT to treatment as usual defined in this study as an eclectic mix of CBT, feminist approaches, interpersonal, and psychodynamic influences, greater increases in the ACT groups scores for psychological flexibility were found, as well as a larger proportion of clients moving into a normative range of eating behaviors. The ACT group also had fewer rehospitalizations at follow up. While these findings are significant and represent a hopeful direction for ACT research, no ACT-specific processes were found to mediate change in eating behaviors.

**ACT for Substance Use**

Substance use is a complicated and costly problem to societies and individuals (Whiteford et al., 2013). Opiate dependence, for example, can result in legal and medical problems including increased risk of exposure to Hepatitis C and HIV through needle sharing (Buttram et al., 2014). Physicians often serve unsuspectingly as gatekeepers to opiate dependence, prescribing opiates following surgeries and injuries to individuals who find themselves in the throes of addiction marked by craving and withdrawal despite taking
medication as prescribed (Seghal, Manchikanti, & Smith, 2012). Ease of access accompanied with a lack of consistently successful treatment options contribute to this ongoing problem. Additionally, stigma around substance use and shame are further barriers to treatment engagement and maintenance (Luoma, 2011).

Hayes et al. (2004) compared outcomes for groups receiving methadone maintenance treatment (MMT) alone or MMT plus one of two treatment conditions, ACT or Intensive Twelve-Step Facilitation (ITSF). Both ACT and ITSF groups had significantly fewer positive urine drug screens post treatment and at the six-month follow up, however, there were no significant differences between the treatment groups. No significant changes were found on measures of psychological distress or social adjustment for any of the groups. High attrition rates likely reduced the power of this study with 14% of those assigned to treatment groups never attending a single session, while an additional 20% dropped out after one week of treatment. This rate is noticeably higher than rates from one national MMT survey, which found a drop out rate of 10.5% in 2004 (Riksheim et al., 2014). Currently, no other quantitative studies have addressed the use of ACT for opiate addiction.

Other types of substance use have been addressed a small number of studies. Examples include Gonzalez-Menendez et al. (2014), which explored ACT versus CBT for incarcerated females with addiction, and Petersen and Zettle (2009), which examined comorbid depression and alcohol use in ACT versus treatment as usual. Gonzalez-Menendez and colleagues found that CBT was superior to ACT in improving total scores on a measure of addiction severity, however ACT was related to greater increases on psychological and family impact of addiction subscales. Depression was diagnosed in 56.8% of the sample,
however, there was no discussion of improvements in depression as a potential mediator of change in drug use post treatment or at follow up. There were also no group differences found on ACT-related process variables as measured by the Acceptance and Action Questionnaire.

Petersen and Zettle (2009) investigated the significant problem of co-occurring mental illness and substance use disorders, highlighting findings that comorbidity between depression and substance use can range from 30-48% for women and 9-24% for men. In a sample from an inpatient 12-Step based program ($n = 24$), participants were assigned to individual ACT plus treatment as usual, or unstandardized treatment as usual alone. Change in ACT process variables were significant for the ACT group, which also required less treatment to be considered eligible for discharge by a multidisciplinary treatment team. Both groups showed equivalent reductions in depression based on two measures, the Beck Depression Inventory and Hamilton Rating Scale. Given that there were no follow-up measurements taken, and the sample was inpatient and therefore lacked access to alcohol, no data is available on ACT’s impact on alcohol use.

**ACT for Psychotic Disorders**

Individuals with psychotic disorders including schizophrenia, schizoaffective disorder, and delusional disorders often have high rates of relapse and low rates of treatment adherence. While these outcomes are partially related to the nature of these illnesses, a significant problem is low satisfaction with available treatments. Pharmacotherapy is the primary treatment for psychosis, and despite a wide range of medication options, few people report complete remission of problematic positive symptoms (e.g. hallucinations, ideas of
reference, and delusions) and additionally experience aversive side effects including metabolic syndromes and tremors (Helbling et al., 2006).

Cognitive interventions have shown promise in preventing movement from prodromal states to full psychosis (Kuipers et al., 2006), however Bach, Hayes, and Gallop (2012) considered the possibility that an acceptance-based protocol could be a meaningful option for those with potentially chronic psychotic disorders. In a group of participants, the majority of which were diagnosed with schizophrenia, ACT was compared to TAU in an inpatient setting. Those in the ACT group had lower hospitalization rates at 4-month and 1-year follow-ups.

While hospitalization is a crucial measure of treatment efficacy for psychosis, it does not account for many aspects of personal experience such as social, family, and occupational functioning or the intersection of multicultural factors with mental health. Gaudiano & Herbert (2006) compared ACT to TAU in an inpatient sample of individuals who were predominantly Black (88%), reported low education attainment (71%), and many were homeless (29%). Though psychotic disorders do not appear to be stratified by ethnographic variables, homelessness and educational attainment impact individuals with psychosis at significantly higher rates (Vila-Rodriguez et al., 2013) than individuals with other psychiatric diagnoses. The only difference in outcome or process variables found in ACT compared to TAU was on measures of distress related to hallucinations. Overall, both groups improved on measures of disability and a significant correlation between hallucination believability and distress was found.
More information is needed to determine ACT’s effectiveness for individuals with psychotic disorders, as well as a broader consideration of the ways in which psychosis affects individuals in context. The studies explored above focus on hospitalization and predominantly positive symptomology (additionally see Shawyer et al., 2012 for study on command hallucinations), however, social and cognitive skill deficits, as well as negative symptoms (e.g., alogia and catatonia) are impactful facets of these disorders that have far reaching consequences in domains of self-care, relationships, and work. Additionally, stigma around being diagnosed with and treated for psychotic illnesses presents a critical barrier to care and support that can mean the difference between life and death for many individuals (Vila-Rodriguez et al., 2013). In order to determine ACT’s utility in improving the lives of those with psychotic disorders, the complex nature of symptom impact must be acknowledged and addressed.

**ACT for Physical Illness**

Health psychology has emerged as a dynamic area of interest for many practitioners and researchers and is geared toward improving quality of life and extending the life span (Friedman & Adler, 2007) through behavior change. The result of this movement has been an increased awareness of the connections between psychological and physical wellness. Research in health psychology has considered the efficacy of using psychotherapy approaches to directly impact health outcomes in groups of people with chronic pain, epilepsy, and diabetes. Numerous studies have examined the use of ACT in treating physical illness.
A review of ACT in health psychology (Gundy et al., 2011) suggested that while outcomes are overall encouraging, ACT does not have enough consistent support to be considered a superior treatment. For chronic pain, ACT appeared to be associated with increases in physical functioning, but did not lead to meaningful decreases in pain levels. The authors cite limitations including small group size, and lack of comparison to CBT, which has significant empirical support for chronic pain. A meta-analysis of acceptance-based treatments (including, but not limited to ACT) found a small, but significant effect as indicated by decreased scores on measures of pain and depression (Veehof et al., 2010). A more recent study comparing ACT to CBT to increase physical activity in individuals with chronic pain found that there was no difference, or significant change between groups, and that gender and day of the week of activity were more robust predictors of activity level (VanBuskirk et al., 2014).

Other areas of health psychology including epilepsy, diabetes, cancer, and obesity outcomes have been investigated by ACT researchers. Quality of life, seizure behavior and frequency in individuals with epilepsy, as well as blood sugar levels in individuals with Type II Diabetes improved significantly with ACT interventions (Gundy et al., 2011). For individuals with end stage ovarian cancer, ACT was associated with significant reductions in depression, anxiety, and distress compared to CBT. For individuals recently diagnosed with breast cancer, ACT was also superior to CBT for improving quality of life. However, issues related to inactive or inconsistent control designs impact the power of these findings and no known studies have been conducted to replicate these findings or improve research design since the 2011 review. A recent study on mediators of quality of life in cancer patients found
that changes in psychological flexibility following ACT treatment predicted improvements in quality of life, distress, and mood (Feros, et al., 2013).

**Additional Areas of Interest**

ACT has been used as a primary intervention for a range of behavioral problems including trichotillomania, skin picking, and smoking, as well as for areas of clinical interest including PTSD and conduct disorder in adolescents. Trichotillomania, a behavioral condition in which individuals pull their hair to the point of noticeable loss, decreased significantly in a small sample of participants receiving a combination of ACT and habit reversal training (Crosby et al., 2012). Similarly, decreases in skin picking behavior were observed in a small sample of women following an ACT intervention (Twohig, Hayes, & Masuda, 2006). Individuals in an ACT group for quitting smoking had a 30.2% quit rate at 12-month follow up compared to those in a CBT group (13.2%) (Lopez et al., 2009).

Posttraumatic stress symptoms in adolescents were addressed in a small sample of adolescents living in community and residential facility settings using a 10-session individually administered ACT protocol. The adolescents involved in the study had experienced a range of negative events including sexual abuse, natural disasters, and the death of a primary care giver. At post-treatment, all of the participants reported such significant decreases in symptoms that they no longer met criteria for a PTSD diagnosis (Woidneck, Morrison, & Twohig, 2014). For a sample of three males and two females with a history of conduct disorder, a 4-session ACT intervention was associated with decreases in disruptive behaviors (e.g. property destruction, theft, and truancy) and increases in desirable
behaviors (e.g. arriving on time to class, completing assignments, and interacting calmly with teachers) (Gomez et al., 2014).

**Meta-Analyses**

**Powers (2009)**

The first meta-analyses of ACT began in 2008 as part of a larger review of third wave therapies (Öst, 2008). Though findings were supportive of ACT and Dialectical Behavior Therapy, research design limited the ability to make clear determinations about ACT on its own. Powers and colleagues (2009) addressed the lack of specificity in the first published meta-analysis comparing ACT to a wide range of other conditions, including TAU, CBT, and inactive controls. It was hypothesized that ACT would outperform control conditions when all outcome variables were combined, and that this effect would not be moderated by publication year.

Studies eligible for analysis were required to include at least one ACT-based treatment, a control (active or inactive), random or consecutive assignment, and be in English. Studies were excluded if they contained non-treatment seeking participants or lacked data sufficient for calculating effect sizes. Eighteen studies were included in the analysis, which involved calculating effect sizes for primary and secondary outcome measures.

Findings favored ACT above other treatments ($g = .42$) for primary outcomes as well as secondary outcomes, which included variables such as distress and disability ($g = .59$). ACT was also superior to TAU ($g = .42$) and waitlist control/placebo groups ($g = .68$). When grouped by diagnosis, ACT for depression yielded a medium effect ($g = .76$), however only
two studies were included in this analysis. For physical health, five studies showed a
positive effect for ACT ($g = .39$), while for other mental health issues ($n = 7$), ACT also
outperformed other treatments ($g = .60$). Additionally, study quality and heterogeneity were
not found to be significant predictors of ACT effect.

Though these results are favorable, there are gaps related to study design, available
research, and scope of Öst’s meta-analysis. Regarding study design, Öst conducted multiple
meta-analyses however, publication bias was only addressed for the overall findings, not for
symptom-specific meta-analyses of depression, physical, and mental health. The low number
of studies in these sub-categories reduces the power of the findings greatly. A general
problem with the research available for the meta-analysis was small participant numbers,
which also has implications for power. Finally, there are questions that were outside the
scope of the analysis, such as how ACT compares to specific active treatments, and how
effective ACT is for all participants, not just those seeking treatment. These questions would
be addressed by later analyses (Ruiz, 2012; Öst, 2014).

**Ruiz (2012)**

Ruiz (2012) compared ACT to CBT on outcomes, mediators, and moderators in order
to put ACT to a more rigorous test of its efficacy. Full, face-to-face treatments of ACT were
compared to traditional CBT and mediators including amount of treatment, format of
delivery, and demographic variables were considered. Outcome variables were grouped as
whole, and split into sub groups of depression, anxiety, and quality of life. Process measures
for CBT included anxiety sensitivity, dysfunctional attitudes, and frequency of automatic
thoughts, while ACT processes included experiential avoidance, defusion, and mindfulness.
Sixteen studies were included in the analysis, and ACT was found to outperform CBT overall (\(g = .40\)), at post-treatment (\(g = .37\)), and at follow-up (\(g = .42\)). No significant differences were found between depression, anxiety, or quality of life outcomes between ACT and CBT. ACT processes were found to be significant when post-treatment and follow-up time point measures were combined (\(g = .38\)), however, these gains were not maintained when follow-up alone was measured (\(g = .10\)). CBT processes did not demonstrate a significant effect at any time point, however only six studies were included in the analysis.

Öst (2014)

Öst’s meta-analysis (2014) was geared toward determining the overall efficacy of ACT as evidenced by effect sizes in randomized controlled trials. Four purposes for Öst’s research were identified: to update a previous systematic review (Ruiz, 2012), to determine whether or not increased methodological stringency had improved outcomes for later studies compared to earlier ones, to replicate findings from an earlier comparison of ACT versus CBT with a larger number of studies, and to evaluate the evidence-based status of ACT.

Inclusion criteria for Öst’s meta-analysis were as follows: published in an English language journal; randomization of subjects to either treatment/control or two or more active treatment groups; and participants with psychiatric, somatic, or work stress-related diagnoses (further diagnostic categories were identified). Studies that only involved one or two elements of ACT were excluded, decreasing the possibility that other acceptance-based therapies would be included in analysis. Overall, inclusion and exclusion criteria were clear and aligned with the research questions, resulting in sixty randomized controlled studies included, with sixteen excluded.
In order to assess the methodological quality of each study, Öst developed a measure in order to avoid “restriction-of-range” issues present in other assessment criteria. Though he presented a detailed list of criteria by which each study would be assessed, as well psychometric data supporting his instrument (Cronbach’s = 0.81), the instrument does not account for each study’s adherence to the ACT model overall, but rather assigns a score based on whether adherence was addressed in the article as well as use of manualized treatment. The construction of the instrument suggests that there could be considerable diversity in delivery of ACT as well as theory adherence that would not be captured in Öst’s analysis.

ACT showed a significant small effect ($g = .42$) across outcomes, though when compared to active treatments the effect was smaller ($g = .22$), and no significant difference was found comparing ACT to CBT or other behavioral therapies. There was a small, significant difference for ACT when used for somatic conditions ($g = .43$) (i.e. chronic pain) and stress ($g = .45$). Significant moderators emerged including gender and methodological quality. Studies with higher proportions of women and lower methodological quality had higher effect sizes.

Öst identified multiple methodological issues that required special statistical consideration in order to make studies combinable in a meaningful way. Treatment as usual (TAU) control groups were predominant in the studies, which typically referred to some form of CBT, however, this poses a threat to internal validity as TAU is not manualized and leads to lower power. Patients in TAU groups were also noted to have received significantly less therapy time than those in ACT groups. ACT was also frequently combined with elements of
other treatment protocols such as Dialectical Behavior Therapy (DBT). Diagnosing the participants proved to be inconsistent across the included studies, and very few met the criteria set out by Öst; that the participant is diagnosed by a trained interviewer with evidence of interrater reliability. Öst additionally indicated that many studies lack credibility ratings, which quantify participant beliefs about the potential usefulness of a treatment. Therapist variables that could impact outcomes were also not consistent addressed as evidenced by relatively few reports of competency and adherence ratings, and use of the same therapist for multiple treatment conditions.

**Meta-Analytic Issues for Consideration**

Based on the meta-analytic data available to date, it is difficult to come to any definitive conclusions regarding the efficacy of ACT as a broad or diagnosis-specific treatment approach, or as a meaningful alternative to empirically supported treatments such as CBT. Though effect sizes support ACT as a treatment overall, factors such as heterogeneity (Öst, 2014) and publication bias (Ruiz, 2012) impact the utility of these findings. Heterogeneity describes differences in effect sizes across studies, while publication bias reflects the tendency for studies with larger effect sizes to reach publication and studies with smaller effect sizes to go unpublished (Borenstein, 2009). Though component meta-analysis supports defusion, values, and mindfulness as active treatment functions in laboratory settings (Levin et al., 2012), ACT-specific measures do not consistently yield better results compared to CBT in treatment settings (Ruiz, 2012). The general consensus among meta-analytic research on ACT is that more scientific rigor is needed in the form of
randomized controlled trials, manualized active controls, and larger sample sizes in order
gauge whether ACT has something to offer above and beyond traditional CBT.

**ACT from a Feminist Multicultural Perspective**

Emphasis on person-centered empowerment and the effects of oppression on
marginalized groups are defining elements of feminist multiculturalism. Research that
embodies a feminist multicultural perspective must address oppression and the experiences
of individuals within marginalized groups, as well as examine issues related to power and
privilege. There is a burgeoning interest in these areas as they relate to and impact ACT
outcomes, however significantly more research is necessary. Currently, ACT literature can
be categorized based on attention to under-represented groups and/or power.

**Under-Represented Groups in ACT**

Woidneck and colleagues (2012) presented a review of cultural competency in ACT
outcome research. Cultural competence was defined based on the American Psychological
Association’s (2003) guidelines recommending examination of between groups and within
group differences, use of culturally relevant assessment techniques, consideration of cultural
explanations of outcomes, and thorough description of demographic and ethnographic
profiles of participants. Based on these guidelines, the authors identified 42 controlled or
randomized controlled trials of ACT, only 21 of which reported race or ethnicity. These
were further distilled based on percentage of representation of non-majority groups; only 7
contained groups with at least 20% of the individuals being from under-represented ethnic or
racial groups.
Since Ruiz’s review, 18 randomized controlled trials (RCTs) were found on ACT-- 6 RCTs reported more than 20% ethnically under-represented participants, 3 were predominantly White, and 9 did not report race or ethnicity (see Table 3). Niles et al. (2014) compared ACT to CBT for social anxiety using a sample of 37.9% racially under-represented individuals (including Hispanic and Asian Americans), but did not address race as a possible moderator or predictor. Wolitzky et al. (2012) used a sample of 28% ethnic non-majority (including predominantly Hispanic and Asian Americans) individuals when comparing ACT to CBT for anxiety, and found that race did not significantly mediate the outcome. Arch et al. (2012) also found that ACT was associated with decreases in anxiety in a sample of 128 individuals, 33% of which were from under-represented racial and ethnic groups (predominantly Hispanic) and acknowledged that the sample lacked power to conduct further analysis based on ethnicity. Berghoff et al. (2012) considered the connection between experiential avoidance and impulsiveness in a non-clinical sample of college students, 38% of which were from under-represented racial/ethnic groups (mostly Black/African American individuals). Craske et al. (2012) examined the impact of ACT on fear and avoidance with a sample comprised of nearly 40% of individuals from under-represented ethnic groups (primarily Hispanic and Asian participants) and found that race was not a significant predictor of symptom reduction. Finally, Benson et al. (2014) used an eclectic treatment approach that included elements of ACT to reduce over-shopping behaviors in a group of 11 women, 36% of which fell into either “Hispanic” or “other” racial/ethnic categories.
Table 3

**Representation of Under-Represented Ethnic Groups in ACT Research**

<table>
<thead>
<tr>
<th>Author (Publication Year)</th>
<th>Target Problem</th>
<th>% Under-Represented Ethnic Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch (2012)</td>
<td>Anxiety</td>
<td>12% His, 8.8% B/AA, 8% As/PI, .08% AmIn</td>
</tr>
<tr>
<td>Benson (2014)</td>
<td>Over-Shopping</td>
<td>64% W, 1 His, 3 Other</td>
</tr>
<tr>
<td>Berghoff (2012)</td>
<td>Avoidance</td>
<td>32.6% B/AA, 7% His, .07% As, .06% Other</td>
</tr>
<tr>
<td>Biglan (2013)</td>
<td>Psychological Flexibility</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Burhman (2013)</td>
<td>Chronic Pain</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Carlbring (2013)</td>
<td>Depression</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Craske (2014)</td>
<td>Social Phobia</td>
<td>17.24% His, 2.3% B/AA, 18.39% As/PI</td>
</tr>
<tr>
<td>Fabricant (2013)</td>
<td>Obsessional Thoughts</td>
<td>2% His, 4% B/AA, 6% Other</td>
</tr>
<tr>
<td>Fledderus (2013)</td>
<td>Psychological Distress</td>
<td>93% Dutch 7% Other</td>
</tr>
<tr>
<td>Lanza (2013a)</td>
<td>Substance Use</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Lanza (2013b)</td>
<td>Substance Use</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Livheim (2014)</td>
<td>Depression/Anx/Stress</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Lloyd (2013)</td>
<td>Burnout</td>
<td>93% White British, 7% Other</td>
</tr>
<tr>
<td>Luciano (2014)</td>
<td>Avoidance</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Niles (2014)</td>
<td>Social Anxiety</td>
<td>13% His, 15% As, 13% Other</td>
</tr>
<tr>
<td>Whittingham (2013)</td>
<td>Cerebral Palsy</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Wicksell (2013)</td>
<td>Chronic Pain</td>
<td>Not Reported</td>
</tr>
<tr>
<td>Wolitzky (2012)</td>
<td>Anxiety</td>
<td>14.9% His, 5.7% B/AA, 1.1%AmIn, 2.3% Other</td>
</tr>
</tbody>
</table>

His = Hispanic/Latina, B/AA = Black/African American, As/PI = Asian/Pacific Islander, AmIn = American Indian.
Though these articles represent progress towards inclusion and representation of non-majority ethnic groups in research in English-speaking countries, reporting percentages and within group analysis are superficial acknowledgments of racial and ethnic differences that do not address context. In order to move research in a more meaningful direction for underrepresented groups, demographic variables should be analyzed intentionally with sound theoretical support. For example, Gregg et al. (2007) used a sample of 29.6% Asian/Pacific Islanders, 28.4% Hispanic, and 9.9% African American individuals to explore the impact of ACT versus education on behaviors related to managing Type II Diabetes. No information was provided on the rationale for the sample’s ethnic composition. Census data suggests Asian/Pacific Islander’s have a similar rate of occurrence of diabetes as White Americans (8.4% and 7.1% respectively). In contrast, 18.7% of African Americans meet diagnostic criteria for Type II Diabetes (Chow et al., 2012), which raises questions as to the relevance of Gregg et al.’s sample to the population in need.

Murrell et al. (2014) examined the impact of an ACT intervention to increase values-driven action in adolescents with ADHD, learning disabilities, or intellectual disabilities in a sample of 89% African American and 11% Hispanic individuals. It is unclear what conceptual or theoretical link was being made between target diagnoses and ACT processes. Finally, there was no discussion regarding the intersection of race and diagnostic categories under consideration, which perpetuates the myopic view that inclusion of racially under-represented participants meets the standards of culturally competent research.

In comparison, Murrell and colleagues (2009) conducted a case study on an Asian-Indian immigrant exploring the potential for ACT’s efficacy in addressing issues related to
acculturation and anxiety. Over the course of fourteen individual counseling sessions, a 32 year old female graduate student client explored feelings of inadequacy that resulted in social disengagement and withdrawal from relationships. By reconnecting with self-identified values of parenting and traditional cultural supports, the client was able to decrease anxiety and increase willingness to engage in values-based action. This study represents an important shift toward incorporating demographic information into case conceptualization and treatment planning that could be further explored using a quantitative approach.

A search using PsycINFO, ERIC, and MEDLINE for “acceptance and commitment therapy” with majority female participants yielded 19 studies in English language, peer reviewed journals (see table 4 for list). Seven of these were randomized controlled trials, three were pilot studies, six were quasi-experimental, three were case studies. Chronic pain was the most frequently addressed topic (6 articles) followed by disordered eating or weight related issues (4 articles), substance use (3 articles, and cancer (2 articles). Life threatening illness (Low et al., 2012), sexual orientation (Yadavaia & Hayes, 2012), infertility stress (Peterson & Eifert, 2011), posttraumatic stress (Twohig, 2009), and anxiety (Ellis, 2000) were also addressed.
Table 4

Representation of Women in ACT Research.

<table>
<thead>
<tr>
<th>Author</th>
<th>Study Design</th>
<th>Female %</th>
<th>Target Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnes (2010a)</td>
<td>Quasi-exp</td>
<td>60.5</td>
<td>Weight</td>
</tr>
<tr>
<td>Barnes (2010b)</td>
<td>Quasi-exp</td>
<td>68</td>
<td>Stress/weight</td>
</tr>
<tr>
<td>Benson (2014)</td>
<td>RCT</td>
<td>100</td>
<td>Shopping</td>
</tr>
<tr>
<td>Forman (2009)</td>
<td>Pilot</td>
<td>100</td>
<td>Obesity</td>
</tr>
<tr>
<td>Lanza (2014)</td>
<td>RCT</td>
<td>100</td>
<td>Substance use</td>
</tr>
<tr>
<td>Lanza (2013)</td>
<td>RCT</td>
<td>100</td>
<td>Substance use</td>
</tr>
<tr>
<td>Ljotsson (2014)</td>
<td>Pilot</td>
<td>100</td>
<td>Fibromyalgia</td>
</tr>
<tr>
<td>Low (2012)</td>
<td>Quasi-exp</td>
<td>62</td>
<td>Life threatening illness</td>
</tr>
<tr>
<td>McCracken (2013)</td>
<td>Pilot</td>
<td>68.5</td>
<td>Chronic pain</td>
</tr>
<tr>
<td>McCracken (2012)</td>
<td>Quasi-exp</td>
<td>62.5</td>
<td>Chronic pain</td>
</tr>
<tr>
<td>McCracken (2011)</td>
<td>Quasi-exp</td>
<td>63</td>
<td>Chronic pain/insomnia</td>
</tr>
<tr>
<td>Menendez (2014)</td>
<td>RCT</td>
<td>100</td>
<td>Substance use</td>
</tr>
<tr>
<td>Muller (2014)</td>
<td>Case study</td>
<td>100</td>
<td>Acculturation/anxiety</td>
</tr>
<tr>
<td>Pearson (2012)</td>
<td>Quasi-exp</td>
<td>100</td>
<td>Body dissatisfaction/ED</td>
</tr>
<tr>
<td>Peterson (2011)</td>
<td>Case study</td>
<td>50</td>
<td>Infertility</td>
</tr>
<tr>
<td>Rost (2012)</td>
<td>RCT</td>
<td>100</td>
<td>Ovarian cancer</td>
</tr>
<tr>
<td>Twohig (2009)</td>
<td>Case study</td>
<td>100</td>
<td>PTSD</td>
</tr>
<tr>
<td>VanBuskirk (2014)</td>
<td>RCT</td>
<td>55.2</td>
<td>Chronic pain</td>
</tr>
<tr>
<td>Wicksell (2013)</td>
<td>RCT</td>
<td>100</td>
<td>Fibromyalgia</td>
</tr>
</tbody>
</table>

RCT = Randomized Control Trial, Quasi-exp = quasi-experimental, ED = Eating Disorder, PTSD = Posttraumatic Stress Disorder

Women represent a disproportionately higher rate of fibromyalgia cases than men (Marcus, 2009). With few successful treatment options and high rates of stigma (Waugh, Byrne, & Nicholas, 2014), chronic pain conditions such as fibromyalgia are associated with significant individual and societal costs (Kroese et al., 2013). In a study comprised entirely of women with fibromyalgia, ACT was found to mediate improvements in psychological flexibility, quality of life, and pain-related functioning (Wicksell et al., 2013). A pilot study of internet-based ACT found similar results, with moderate effect sizes in areas of disability,
depression, and anxiety in an all-female sample (Ljotsson, et al., 2014). Group-based ACT was associated with gains in physical and emotional functioning that were maintained at a 3-month follow up for fibromyalgia and other chronic pain conditions (McCracken, Sato, & Taylor, 2013).

Despite the encouraging focus on women participants, there is a lack of acknowledgment of the contextual overlap between gender and chronic pain. Experiences such as sexual trauma (Goldberg, 1999) and chronic role strain disproportionately impact women compared to men, and are correlated significantly with chronic pain severity (Jablonska, Soares, & Sundin, 2012). ACT could be appropriate for addressing many of these layers of gendered experience, however the connections must be conceptualized as research questions rather than reduced to demographic footnotes.

Though women and racial/ethnic under-represented groups are gaining more attention in research, individuals who identify as gay, lesbian, bisexual, or transgender have a very limited presence in ACT research to date, and have not been the focus of any empirical inquiry. Walloch et al. (2012) used sexual minority stress theory and objectification theory to build a case for using ACT to address internalized stigma around sexuality that could underlie eating disorders in gay men. Stitt (2014) similarly argued that ACT could help LGBT clients dealing with heteronormative social pressure become more self-accepting.

Generally, ACT offers a potentially relevant treatment for marginalized and under-represented groups based on its inherently contextual focus, and emphasis on person-centered principles of equality in the therapeutic relationship and client-defined values. The dialectical stance may enhance empathy, while assisting clients to move forward despite
internalized negative messages related to various cultural identities (Fuchs et al., 2013) and structural oppression. However, systematic examination of ACT’s impact on quality of life for individuals from underrepresented groups has yet to be done.

**Issues of Power in ACT Research: Exploring Stigma**

“Power is pivotal in attaining wellness, promoting liberation, and resisting oppression” (Prilleltensky, 2008, p. 116), and can be understood as a myriad of personal, societal, psychological, and political forces that impact one’s ability to influence events. In the mental health field, power mitigates which treatments are deemed effective, the rules of sound research, and even which behaviors and private experiences are pathological or healthy (Enns, Williams, & Fassinger, 2013). Indeed, our way of knowing the difference between health and disease is a function of power, an internalization of social constructions that becomes taken for granted as universal and personal truth. A useful metric of power is stigma, which can be understood as a variety of cognitive evaluative processes (e.g., beliefs about mental illness or substance use being indicators of weakness or moral depravity) that inform behavioral outcomes (e.g., discrimination against individuals with mental health or substance use treatment histories) (Mannarini & Boffo, 2015). Stigma interferes with social engagement, treatment seeking and adherence, and access to resources (Hinshaw, 2007).

Researchers have begun considering the use of ACT to impact stigma both within and towards groups of individuals with psychiatric diagnoses. A recent review of therapeutic approaches for stigma conceptualized health-related stigma as a process of devaluation and exclusion on the basis of socially discredited health conditions (Livingston & Boyd, 2010). Findings suggested a heavier stigma surrounding substance use disorders compared to other
diagnoses, which are frequently viewed through a moralistic lens as the results of poor individual choices. After examining research pertaining to reducing self, social, and structural stigma, ACT was found to have a large effect for self and structural stigma, with no data available regarding social stigma (Livingston & Boyd, 2010). Changes in stigma could be related to increased willingness to identify and experience negative attributions while acting based on personal and professional values of fairness and equity (Livingston & Boyd, 2010).

Two studies have empirically addressed ACT’s impact on decreasing stigma in substance use counselors (Hayes et al., 2004) and individuals with substance use disorders (Luoma et al., 2008). Hayes et al. (2004) compared three conditions: a one day ACT workshop on negative beliefs about substance use multicultural competence training, and training on biological underpinnings of methamphetamine addiction for addiction counselors. The ACT training was significantly correlated with decreases in burnout and believability of negative assumptions about individuals with substance use disorders. Luoma and colleagues (2008) addressed self-stigma in a group of individuals undergoing substance use treatment in a residential facility. Increases in perceived social support, self-esteem, general health and psychological flexibility, as well as decreases in stigma, self-concealment and internalized shame were found following six hours of ACT in a group setting.

Non-substance use diagnoses have also received research attention regarding stigma. Masuda et al. (2007) found that a 2.5 hour ACT training with college students was equally as effective at reducing stigma when compared to an information session regarding etiology, prevalence, impact, and treatment for mental illness. ACT may have a larger impact on
stigma if delivered in a different format based on the predictive value of psychological flexibility in Masuda’s (2007) study, a primary target of ACT interventions (Hayes, 2004). Reductions in stigma in the education group were mediated by psychological flexibility at baseline with those scoring higher on measures of inflexibility demonstrating poorer outcomes.

Racial prejudice, as well as self-stigma towards individuals with HIV, seems to be positively impacted by ACT interventions. Lillis et al. (2007) found that college students receiving a brief ACT training on dealing with prejudicial thinking related to race were more willing to engage in positive action (i.e., per self-report) associated with increased racial competence and inclusion as compared to students who received a lecture on the psychological basis of racial differences. Skinta et al. (2014) used a sexual minority stress model to inform the use of ACT with compassion focused therapy to impact self-stigma in five HIV positive gay and bisexual males receiving mental health services. Though the pool was too small for meaningful statistical inference, the general trend following 8 sessions of ACT was an increase in psychological flexibility and a decrease in self-stigma.

**Conclusion**

Based on research available on ACT, there is no consensus regarding its status as an evidence-based practice, a better alternative to traditional CBT, or its efficacy with underrepresented groups. Two potential directions stand out for further research: the way of traditional psychotherapy research or the feminist multicultural approach, which at least superficially seem to be at odds with one another. Traditional psychotherapy research has the bastion of the scientific method behind it with rigorous study design, controlled
conditions, and the chance of making a mark in the Western-built halls of academia along with the legitimacy required to impact social policy and clinical practice. Feminist multiculturalism in its most radical forms rejects the established protocols of quantitative inquiry, challenges the possibility of objectivity, and demands understanding in context for the liberation of marginalized peoples (Sechzer & Rabinowitz, 2008). Dialectical thinking allows two seemingly irreconcilable options to exist simultaneously, each one representing a spark of truth (Linehan, 1993). From a dialectical perspective, the questions to be considered are these: Can the modern scientific method lead us to contextually relevant truths regarding the human experience? Can ACT be evaluated in a meaningful way that reflects the diversity of experiences, the layering of identities, and the inequities that people of under-represented groups face daily? Is it possible to unite the scientific method, including its dark history of White supremacist, patriarchal epistemology, with the empowerment-focused philosophy of feminist multiculturalism? The current meta-analysis will examine these questions in depth.
CHAPTER 3: METHOD

Meta-Analysis

The term *meta-analysis* was coined in the late 1970s and was used to describe the process of combining statistical analyses from multiple studies in order to integrate findings (Glass, 1976). The process of pooling data from multiple studies dates back to the 1940s, when one of the first meta-analyses was conducted on data from 60 years of research on extrasensory perception (O’Rourke, 2007). Currently, meta-analysis allows for synthesis of large amounts of data and provides a useful way of conceptualizing bodies of literature holistically. Meta-analysis is extremely helpful from a clinical standpoint as it synthesizes, consolidates, and summarizes the meaning of findings from multiple studies, providing valuable information and saving time for practicing therapists. Rather than cull through hundreds of articles on potentially impactful interventions, meta-analyses provide empirically validated summaries in an accessible format.

There are weaknesses associated with the meta-analytic process, however, similar to other methods of empirical inquiry, such as lack of true random sampling (Rosenthal, 1991). Meta-analysis quality is dependent upon the quality of the studies included therein. In this way, conditions that impact individual studies (e.g. selection, observer, and attrition bias) subsequently affect the validity of meta-analyses. Problems related to study selection and publication bias pose threats to validity in meta-analyses as well (Finkch & Tramer, 2008). When these threats are taken into account and controlled however, meta-analyses can be considered as the highest standard of evidentiary support (Shekelle et al., 1999).
Research Questions

The aim of the current meta-analysis was to examine voice and power in ACT research, using feminist multicultural philosophy with the following research questions:

1. Is ACT more or less effective at reducing primary symptomology (e.g., depression, anxiety, or chronic pain) in samples consisting of at least 20% under-represented groups as compared to inactive control conditions (e.g. waitlist, no treatment)?

2. Is ACT more or less effective at reducing primary symptomology in samples consisting of at least 20% under-represented groups as compared to active treatments (e.g. cognitive behavioral therapy, treatment-as-usual, psychoeducation)?

3. Is ACT more or less effective at improving quality of life (as measured by scales such as the Quality-of-Life-Inventory) in samples consisting of at least 20% under-represented groups compared to inactive control conditions?

4. Is ACT more or less effective than active treatments in improving quality of life in samples consisting of at least 20% under-represented groups?

5. How do moderator variables at participant, intervention, and study levels contribute to variance in quality of life for samples consisting of at least 20% under-represented groups?

Research Design

Search Strategy

A comprehensive literature search was conducted using the following databases: PsycINFO, the Education Research and Information Center (ERIC), PubMed, and Medline. Terms “acceptance and commitment therapy” and “quality of life” in the abstract was
searched. Additionally, other meta-analyses and reviews were cross-referenced for missing articles. Based on inclusion of ACT treatment and use of a quality of life outcome measure, abstracts were separated into three categories: relevant, irrelevant, or needs further consideration. Relevant and articles that require further consideration were retrieved and reviewed, while irrelevant abstracts were discarded. Full-text articles were then assessed based on selection criteria.

**Selection Criteria**

Given the purpose of this meta-analysis is to capture information related to under-represented groups, and previous research has pointed to a deficit of information regarding under-represented racial and ethnic groups (Fuchs et al., 2013; Woidneck et al., 2012), a primary goal will be maximization of inclusion. Though other reviews and meta-analyses have focused solely on randomized controls for empirical rigor in order to hold ACT research to the highest standards, it is likely that randomized controlled designs alone will not yield sufficient data to make meaningful conclusions about under-represented groups. Therefore, selection criteria for the current meta-analysis included:

1. Provision of ACT treatment as indicated by at least three ACT (i.e., defusion, acceptance, and values) elements not used in combination with other modalities such as Dialectical Behavior Therapy or psychoanalytic approaches.
2. Inclusion of 20% or more participants from under-represented groups
3. Quality of Life (QoL) measurement; and
4. Inclusion of relevant statistical data to determine Hedges g (i.e., means and standard deviations).
Studies included a quality of life outcome measure, and were comprised of at least 20% of an under-represented group (i.e. 20% female, non-White, non-heterosexual, etc.). In order to build on existing research, the 20% value was drawn from Woidneck and colleagues’ review (2012) on racial and ethnic diversity in ACT research. The 20% value will help to minimize the decrease in power associated with unequal sample sizes across groups (Frazier, Tix, and Barron, 2004). Any discrete category of identity such as race or sexual orientation must represent at least 20% of the sample on its own as opposed to pooling categories (e.g. 5% non-White + 15% female), which allowed for analysis of moderation of groups within the under-represented group category. Additionally, articles must appear in a peer-reviewed journal, and be written or translated into English.

**Data Abstraction**

All study data was coded using a detailed manual (Appendix A) to include participant, study, and intervention level data. Participant data included age, religion, race/ethnicity, social status, sexual orientation, indigenous heritage, national origin, and gender (Hays, 2001). Social status was quantified based on the environment in which the participants were accessed (i.e., incarcerated, institutionalized, community outpatient treatment, or general community). Study data addressed number of participants, methodological quality, design (e.g., randomized controlled trial or quasi-experimental), treatment comparison group (e.g., waitlist control, treatment-as-usual, placebo, psychoeducation), intent-to-treat versus completers only, attrition, and experience level of treatment administering clinician. Intervention characteristics that were assessed include treatment format (e.g., group, individual, online), number of sessions, treatment setting (e.g.,
community or university). Effect size data was coded for controlled trials at pre-, post-treatment, and follow up time points for intervention and comparison groups. For within group designs, effect sizes were recorded at pre- and post-treatment and follow-up.

Öst (2014) found significant heterogeneity in level of training in treating clinicians, time in treatment for ACT interventions compared to control conditions, and study quality, therefore, the current meta-analysis addressed these variables and potential moderators as well. Intent-to-treat data were preferred to completer data given the potential for overestimated effect sizes associated with completers-only (Newell, 1992). See Figure 1 for a diagram of selection and coding procedures.
Outcome Measures

Quality of life and target problems. Two categories of outcome measures were examined in the current meta-analysis: quality of life (QoL) and target problems. Quality of life is measured by a variety of scales, often tailored to a specific population (e.g., cancer-related quality of life, Aaronson et al., 1993). Despite heterogeneity in population focus, QoL measures consistently assess the same general areas of experience (e.g., social
engagement, family relationships, and safety), and were therefore be pooled to calculate an overall QoL effect size. Target problems were identified based on primary outcomes for each study (e.g., a study focused on depression will be evaluated based on depression scores measured by Beck Depression Inventory). ACT has been used for a diverse range of target issues, therefore significant heterogeneity in outcome measures was anticipated. Target issues were grouped into categories in order to gain a general understanding of ACT’s impact on depression, anxiety, behavioral issues, chronic pain, mental health, physical health, and social justice problems in under-represented groups (e.g., women, people of color, and individuals under incarceration).

**Categorization of target problems.** Depression and anxiety are often considered within the same study (see Avdagic, Morrissey, & Boschen, 2014; Forman et al., 2012; Niles et al., 2014) and were therefore grouped for effect size estimates. Behavioral issues included substance use, disordered eating, and behavioral correlates of anxiety disorders such as trichotillomania, as well as any other issues that are operationalized based on behavioral outcomes. Substance use has been very intentionally included in this category to decrease stigma that results from the moralization of substance use behavior. Chronic pain has been designated as a separate category due to the large amount of literature available on the topic (See Veehof et al., 2010 for review). Issues related to cancer, diabetes, and epilepsy, were grouped in the physical health category. Similarly, outcomes related to PTSD, psychosis, ADHD, and other non-depression or anxiety related psychiatric diagnoses were allocated to the mental health group. Finally, articles dealing with stigma, prejudice, and racism were categorized under social justice issues.
Control Conditions

The most current meta-analysis of ACT found significantly different effect sizes when ACT interventions were compared to active or inactive control groups (Öst, 2014). For this reason, control conditions were dichotomized based on the features of control conditions. Active control conditions included any form of treatment—treatment-as-usual, medication, case management, non-ACT therapy, psychoeducation, and supportive counseling. Though the highest standard of meta-analysis would require comparison of ACT to existing empirically validated treatments (typically CBT), it is unclear that CBT is more effective for under-represented groups. Therefore, ACT was compared to any form of treatment to avoid the currently unsupported assumption that CBT has universal efficacy (Fuchs et al., 2013).

Inactive controls included waitlist controls and absence of any treatment or interaction.

Assessment of Study Quality

Maximizing study inclusion can come at the cost of overall quality, however, as Rosenthal (1991) indicates, these costs can be mitigated by rating studies for methodological rigor and examining the impact of these ratings on effect size in moderator analysis. Given the number of rating options available, it was necessary to pick a scale that best reflects the nature of the studies to be included in the meta-analysis. One of the most frequently used scales, and the highest ranked for face, content, criterion, and construct validity (Olivo et al., 2008) is the Jadad Scale (Jadad, 1996). This scale assigns a range of 2-4 points based on five questions about blinding, randomization, and account of all participants. Though simple to use, Öst (2014) pointed out that the scale creates a restriction of range problem that may result in low sensitivity.
Psychotherapy Outcome Study Methodology Rating Form. Alternative assessment tools include Öst’s Psychotherapy Outcome Study Methodology Rating Form (POSM-RF), which was used in both 2008 and 2014 mindfulness-based and ACT meta-analyses. The POSM-RF lacks psychometric data and is designed to assess randomized controlled trials of participants with diagnosed conditions, which make the measure less than ideal for the current meta-analysis which will include uncontrolled studies as well as non-clinical samples. Additionally, the POSM-RF is extremely subjective and rates studies based on assessor perception rather than concrete presence or absence of criteria. Given that the current meta-analysis had only have one reviewer, it was necessary to reduce the potential impact of rater bias as much as possible to provide robust analysis of methodological quality.

Veehof methodological rating process. The current meta-analysis included an adaptation of quality assessment used in Veehof and colleagues’ meta-analysis of ACT for chronic pain (2010). Veehof et al. (2010) used a scale combining Jadad’s criteria and select criteria from the Cochrane Collaboration (Deeks, Higgins, & Altman, 2008) that uses dichotomous rating (assigning a value of 1 for presence of criteria and 0 for absence) on an 8-point scale to address randomization, study design, training of intervention clinicians, and treatment integrity. This scale adds to the Jadad measure by assessing intervention level variables, but is not so specific to medical and psychotherapy interventions as to be prohibitive of non-clinical sample assessment. Given that not all of the participants in the studies in the current meta-analysis were diagnosed, item 6, which addresses diagnosis by a physician was split into two alternative items—for clinical samples, diagnosis by a trained clinician was rated higher than self-report; for non-clinical samples, community sampling
was rated higher than university or convenience sampling (Appendix B). Community samples were expected to yield rates of diversity that are more reflective of the general population, and therefore increase generalizability.

Possible Confounds

The Fail-Safe N procedures outlined by Orwin (1983) was performed to address publication bias also known as the “file-drawer problem” (Rosenthal, 1991). Publication bias describes the increased likelihood that studies reporting a significant effect will be published compared to studies that fail to reject the null hypothesis. The Fail-Safe N statistical procedure computes the number of studies in which the intervention effect was zero that would be needed to change the statistically significant results to a statistically non-significant finding in a meta-analysis. Additionally, Egger’s regression coefficient was calculated to quantify bias detected on a funnel plot given that a broad range of study sizes were included in the current meta-analysis (Borenstein, 2005, p. 196). Small studies may detect disproportionately large effect sizes, which could then outweigh the impact of studies that have large samples with more reliable effects. Bias is illustrated by plotting Hedge’s g values on the X-axis and standard error on the Y-axis. When no bias is present, the outcomes form a symmetrical funnel. Given that bias was evident based on asymmetry of the funnel plot, Duvall and Tweedie’s trim and fill method was used to resolve the potential over-representation of small studies with large effect sizes (Borenstein, 2005, p. 195).
Data Analysis

Effects modeling. There is significant debate regarding appropriate protocol for meta-analytic inquiry (Field, 2005). The primary argument involves the utility of random versus fixed effects analysis, which largely depends on the level of heterogeneity anticipated across studies (Rosenthal, 1991). The diversity of participants, target problems, outcome measures, and designs indicated that there was not a singular true effect size across studies, which suggested that a random effects model was appropriate. A random effects model treats each study as a unit, rather than assessing effect size based on number of participants, as is the case in a fixed effects model (Hedges & Vevea, 1998). The benefit of the random effects model is that it increases generalizability to other potential study outcomes while minimizing within- and between-study variance, but has less power than a fixed effects model (Hedges & Vevea, 1998).

Effect sizes. In order to compute an overall effect, measures of study effect were converted to Hedges g using Comprehensive Meta-Analysis Software. When effect sizes were not available, Cohen’s d was calculated, dividing the mean differences of control and intervention groups by the pooled standard deviations of both groups at post-treatment and follow-up. When studies used multiple measures of target problems or QoL, effect sizes for each measure were averaged (Borenstein et al., 2009), resulting in a single combined effect size for each study target problem and one effect size for quality of life. Multiple follow-up measurements were taken across studies, which were also averaged to indicate one overall follow-up effect size. For within-group designs, d was derived comparing means at pre- and post-intervention time points. Additionally, intention-to-treat data was used when available
instead of completer data, which has been found to overestimate effect sizes (Newell, 1992). Cohen’s $d$ was converted to Hedges $g$ to correct the potential over-estimation of effect size that is associated with small sample sizes (Hedges, 1981). Cohen’s rule of thumb (1988) was used to interpret effect sizes, which describes $≥ .20$ as the smallest effect size, $≥ .50$ as moderate, and $≥ .80$ as large.

**Tests of Heterogeneity**

Cochran’s $Q$ statistic was used to test for heterogeneity across studies included in the current meta-analysis (Cochran, 1954). Heterogeneity can be understood as the presence of significant variation in effect sizes (Kriston, 2013). The $Q$ statistic evaluates the null hypothesis that there are no significant differences in effect size estimates among studies included in the analysis, and the studies are therefore homogenous in all aspects. When $Q$ reaches significance ($p ≤ 0.05$), it can be assumed that meaningful differences exist between the studies under analysis.

In order to more meaningfully assess heterogeneity, $I^2$ was computed. $I^2$ statistic quantifies the amount of heterogeneity by measuring the total variation resulting from sampling error. Calculated as a percentage $I^2 = 100 \times (Q - df)/Q$, resulting values are categorized to indicate low (25%), moderate ($≥ 50$%), or high ($≥ 75$%) heterogeneity (Higgins et al., 2003). Where $Q$ indicates the presence or absence of heterogeneity, $I^2$ quantifies the amount of inconsistency in effect size estimates across studies. When $Q$ is less than or equal to the degrees of freedom, $I^2$ will equal zero (Borenstein, Hedges, & Rothstein, 2007).
**Moderator Analyses**

**ANOVA.** Sub-group and meta-regression moderator analyses were conducted to identify the potential impact of participant, study, and intervention characteristics on target problems and QoL outcome effect sizes. For sub-group moderators, analog analysis of variance (ANOVA) subgroup analyses were performed using the mixed-effects model. *Participant moderators* included:

- Age (child/adolescent 1-19 years, adult 20-64 years, or older adult 65+ years),
- Race/ethnicity (≥ 20% of under-represented racial group or < 20% under-represented racial group)
- Sexual orientation ((≥ 20% identified as LGBT or < 20% identified as LGBT),
- Gender (≥ 50% of female or < 50% female)
- Social status ((≥ 20% institutionalized or < 20% institutionalized).

Gender was set at 50% female rather than 20% to more accurately represent the studies included in the analysis, all of which had more than 20% female participants.

*Intervention level moderators* included:

- Treatment format (group, individual, or online),
- Number of sessions (1-6, 7-12, or 13-16),
- Experience level of treating clinician (graduate student or trained/licensed clinician).

*Study design moderators* included:

- Comparison group type (none, waitlist, TAU, CBT, or other),
• Target problem (depression or anxiety, behavioral issues, other mental health issue, chronic pain, or other physical health issue)

**Meta-regression.** Univariate meta-regression analyses were also performed on continuous variables to examine the amount of variance in target problem and QoL outcomes that may be accounted for by predictor variables. Five predictor variables entered into each model (one for target problem outcome and another for quality of life outcome)—methodological quality rating, total number of sessions, percentage of racially under-represented participants, percentage of female participants, and percentage of institutionalized participants. It was necessary to rule out, or alternatively to highlight, the impact of methodological quality on effect sizes. Number of sessions was included in the regression to account for non-ACT specific factors that could influence outcomes. Representation of non-majority groups was restricted by the data present in the studies under review. For this reason, gender, race, and institutionalization status are the only participant variables that could reasonably be evaluated in a regression in order for results to have any significance. See Figure 2 for flowchart of data analysis.
Figure 2. Flowchart of Data Analysis.

**Target Problem Overall Effect**

**QoL overall effect**

**ANOVA:** Type of comparison group, target problem, gender, race, social status, age, number of sessions, total treatment hours, methodological rating, experience level of treating clinician.

**Meta-regression:** Gender, age, race, number of sessions, hours of treatment, methodological rating

**Publication Bias:** Orwin’s Fail-Safe N, Egger’s regression coefficient, Duval and Tweedie’s trim and fill
Conclusion

The current study used a feminist multiculturalist lens to examine issues of voice and power in ACT research. Using a meta-analytic design, the broad spectrum of current ACT research was categorized based on the presence of under-represented groups (voice) and the over-all impact of ACT on quality of life (power). Data on participant-, study-, and intervention-level data was coded for statistical consideration. Analysis of variance indicated correlations between under-represented group variables and outcomes, while meta-regression was used to identify predictors of outcomes. Standard procedures for ensuring adherence to statistical assumptions (i.e., tests for heterogeneity) were conducted and presented along with overall effect sizes.
CHAPTER 4-- RESULTS

Studies Included in Meta-Analysis

A search of ERIC, Medline, and PsycINFO databases for “acceptance and commitment therapy” and “quality of life” in peer-reviewed journals yielded 65 studies. Three additional studies were identified in reference lists of existing reviews. Figure 2 illustrates details of included studies and reasons for exclusion. The majority of studies that were excluded from the current meta-analysis due to the absence of adequate data to compute Cohen’s $d$ for the identified target problem and/or quality of life. Eight additional studies were excluded due to absence of any treatment component (e.g., Ferreira et al., 2013 testing an acceptance-based scale for individuals with irritable bowel syndrome). Six studies combined ACT with other treatment model components (e.g., Benson et al., 2014 which used ACT along with elements of dialectical behavior therapy, psychodynamic psychotherapy, psychoeducation, and motivational interviewing to address over-shopping behaviors). Three studies were re-analyses of data that had already been published, and were excluded so as not have over-representation of a single sample. Lundgren et al. (2008) for example, was a mediation analysis of Lundgren et al. (2006), which investigated the use of ACT for chronic pain. Two studies did not meet the 20% cut off for under-represented group member inclusion. Finally, one study was excluded due to the absence of a values component of ACT treatment (i.e., Carlbring et al., 2013).
Figure 3. Flowchart of Inclusion and Exclusion Results

Characteristics of Included Studies

The number of participants in included studies totaled 590. Nineteen studies were randomized controlled trials (RCTs), 7 of which compared ACT to a non-CBT active control, 6 compared ACT to treatment as usual (TAU), and 4 compared ACT to a CBT treatment package. Treatment as usual is a broad intervention category with components that are based on medical need and accepted practice. In the current analysis, TAU described treatment for
chronic pain in three studies (i.e., Burhman et al., 2013; Dahl, et al., 2004; Wicksell et al., 2008) and tinnitus in Westin et al., 2011. In the remaining three studies, TAU was used for binge eating (Weineland et al., 2012), substance use (Luoma et al., 2012), and sick day utilization for individuals with depression (Folke et al., 2012). Two studies used a waitlist control, and the remaining 6 studies used a pre-/post-treatment design. For additional description of the studies included in the current meta-analysis, see Table 5.

Regarding under-represented group composition of samples, all of studies \((k = 25)\) qualified on the basis of including more than 20\% female participants, while 4 studies included more than 20\% racially under-represented participants. Fifteen studies did not report on the racial or ethnic backgrounds of the participants, while 3 indicated the sample was composed entirely of White individuals. Three studies included individuals who were institutionalized at the time of data collection, while 20 included individuals with a formal mental or physical health related diagnosis. Two studies reported on the sexual orientation of the participants, one of which indicated that all of the participants were heterosexual. Three studies explored ACT’s use in children, while the remainder \((k = 22)\) used adult participants. No studies included a majority of individuals over the age of 64. One study, Forman et al., (2007) reported on the national origin of participants, 4.5\% of which were international students. No data was available on religious affiliation or indigenous heritage.
### Table 5

**Characteristics of studies included in meta-analysis**

<table>
<thead>
<tr>
<th>Study</th>
<th>Target Problem</th>
<th>N</th>
<th>Mean Age</th>
<th>% Female</th>
<th>Ses</th>
<th>% Racial Non-Majority</th>
<th>Format</th>
<th>Target Measure</th>
<th>QoL Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dahl 2004</td>
<td>Chronic Pain</td>
<td>19</td>
<td>36.7</td>
<td>89.47</td>
<td>4</td>
<td>NR</td>
<td>Ind</td>
<td>Sick days</td>
<td>Life Satisfaction Questionnaire</td>
</tr>
<tr>
<td>Lundgren 2006</td>
<td>Epilepsy</td>
<td>27</td>
<td>38.9</td>
<td>51.85</td>
<td>4</td>
<td>NR</td>
<td>Ind/Grp</td>
<td>Seizure Frequency</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Dalrymple 2007</td>
<td>Social Anxiety</td>
<td>19</td>
<td>31</td>
<td>52.8</td>
<td>12</td>
<td>NR</td>
<td>Ind</td>
<td>Brief Fear of Negative Evaluation Scale</td>
<td>Beck Anxiety Inventory</td>
</tr>
<tr>
<td>Forman 2007</td>
<td>Anxiety/Depression Epilepsy</td>
<td>101</td>
<td>27.9</td>
<td>80.2</td>
<td>15.6</td>
<td>26.8</td>
<td>Ind</td>
<td>Seizure Index</td>
<td>WHO Quality of Life Inventory</td>
</tr>
<tr>
<td>Lundgren 2008</td>
<td>Epilepsy</td>
<td>18</td>
<td>21.9</td>
<td>33.33</td>
<td>4</td>
<td>NR</td>
<td>Ind/Grp</td>
<td>Seizure Index</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Wicksell 2008</td>
<td>Chronic Pain</td>
<td>22</td>
<td>48.2</td>
<td>73</td>
<td>10</td>
<td>NR</td>
<td>Ind</td>
<td>Pain Disability Index</td>
<td>Short Form 36-Health Survey Quality of Life Scale</td>
</tr>
<tr>
<td>Wicksell 2009</td>
<td>Pediatric Pain</td>
<td>32</td>
<td>14.8</td>
<td>78.1</td>
<td>13</td>
<td>NR</td>
<td>Ind</td>
<td>Functional Disability Inventory</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Twohig 2010</td>
<td>Obsessive Compulsive Disorder Cancer</td>
<td>79</td>
<td>37</td>
<td>61</td>
<td>7.2</td>
<td>5% His, 1% B/AA, 2.5% As/PI</td>
<td>Ind</td>
<td>Yale-Brown Obsessive Compulsive Scale</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Feros 2011</td>
<td>Cancer</td>
<td>45</td>
<td>51.8</td>
<td>75.6</td>
<td>9</td>
<td>NR</td>
<td>Ind</td>
<td>Acceptance and Action Questionnaire</td>
<td>Functional Assessment of Cancer Therapy Quality of Life Inventory</td>
</tr>
<tr>
<td>Westin 2011</td>
<td>Tinnitus</td>
<td>64</td>
<td>53.5</td>
<td>64</td>
<td>8.38</td>
<td>NR</td>
<td>Ind</td>
<td>Tinnitus Handicap Inventory</td>
<td>Short Form 36-Health Survey WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Wetherell 2011</td>
<td>Chronic Pain</td>
<td>114</td>
<td>54.9</td>
<td>50.9</td>
<td>5.38</td>
<td>NR</td>
<td>Grp</td>
<td>Brief Pain Inventory-Short Form Interference</td>
<td>WHO Quality of Life Inventory</td>
</tr>
<tr>
<td>Yadavaia 2011</td>
<td>Self-Stigma</td>
<td>5</td>
<td>30.8</td>
<td>40</td>
<td>8.6</td>
<td>20% NaAM, 40% Bi 7.1% B/AA, 10.7% His, 8.9% As/PI, 1.8% NaAm</td>
<td>Ind</td>
<td>Daily ratings of thoughts</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Arch 2012</td>
<td>Mixed Anxiety</td>
<td>143</td>
<td>38.16</td>
<td>52.3</td>
<td>9.4</td>
<td></td>
<td>Ind</td>
<td>Clinical Severity Rating</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Clarke 2012</td>
<td>Treatment Resistance</td>
<td>20</td>
<td>41</td>
<td>90</td>
<td>16</td>
<td>NR</td>
<td>Grp</td>
<td>Global Severity Index</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Folke 2012</td>
<td>Depression</td>
<td>34</td>
<td>40.56</td>
<td>88.2</td>
<td>4.89</td>
<td>0%</td>
<td>Grp</td>
<td>Beck Depression Inventory</td>
<td>WHO Quality of Life BREF</td>
</tr>
<tr>
<td>Hesser 2012</td>
<td>Tinnitus</td>
<td>99</td>
<td>50.1</td>
<td>42.9</td>
<td>8</td>
<td>NR</td>
<td>Online</td>
<td>Tinnitus Handicap Inventory</td>
<td>Quality of Life Inventory</td>
</tr>
<tr>
<td>Luoma 2012</td>
<td>Shame</td>
<td>133</td>
<td>33.6</td>
<td>45.86</td>
<td>1</td>
<td>.05% B/AA, .13% His, .02% NaAm</td>
<td>Grp</td>
<td>Internalized Shame Scale</td>
<td>Quality of Life Scale</td>
</tr>
<tr>
<td>Shawyer 2012</td>
<td>Command Hallucinations</td>
<td>44</td>
<td>40</td>
<td>44</td>
<td>14.3</td>
<td>NR</td>
<td>Ind</td>
<td>Confidence to cope with command hallucinations</td>
<td>Quality of Life Scale</td>
</tr>
<tr>
<td>Weineland 2012</td>
<td>Emotional Eating</td>
<td>39</td>
<td>43.9</td>
<td>89.7</td>
<td>NR</td>
<td>NR</td>
<td>Ind</td>
<td>Online</td>
<td>Eating Disorder Examination Questionnaire</td>
</tr>
<tr>
<td>Wicksell 2012</td>
<td>Fibromyalgia</td>
<td>40</td>
<td>45.1</td>
<td>100</td>
<td>12</td>
<td>NR</td>
<td>Grp</td>
<td>Pain Disability Index</td>
<td>Health Related Quality of Life Inventory</td>
</tr>
<tr>
<td>Buhrman 2013</td>
<td>Chronic Pain</td>
<td>76</td>
<td>48.8</td>
<td>59.2</td>
<td>4.2</td>
<td>NR</td>
<td>Online</td>
<td>Chronic Pain Acceptance Questionnaire</td>
<td>Quality of Life Inventory</td>
</tr>
<tr>
<td>Dehlin 2013</td>
<td>Obsessive Compulsive Disorder</td>
<td>5</td>
<td>32.4</td>
<td>60</td>
<td>8</td>
<td>0%</td>
<td>Ind</td>
<td>Self-monitoring of avoided activities</td>
<td>Quality of Life Scale</td>
</tr>
<tr>
<td>Hayes-Skelton 2013</td>
<td>Generalized Anxiety</td>
<td>81</td>
<td>33.3</td>
<td>60</td>
<td>12.8</td>
<td>2% B/AA, 4% His, 2.5% As/PI, 2.5% ArAm, 2.5% Bi</td>
<td>Ind</td>
<td>Structured Interview Guide Hamilton Anxiety Scale</td>
<td>Quality of Life Inventory</td>
</tr>
<tr>
<td>Avdagic 2014</td>
<td>Generalized Anxiety</td>
<td>51</td>
<td>36.2</td>
<td>67</td>
<td>6</td>
<td>NR</td>
<td>Grp</td>
<td>Penn State Worry Questionnaire</td>
<td>Quality of Life Inventory</td>
</tr>
<tr>
<td>Woidneck 2014</td>
<td>Posttraumatic Stress Disorder</td>
<td>7</td>
<td>14.6</td>
<td>71.4</td>
<td>10</td>
<td>NR</td>
<td>Ind</td>
<td>Subjective Distress Rating Scale</td>
<td>Comprehensive Quality of Life Scale-Student Version</td>
</tr>
</tbody>
</table>

Study Quality Analysis

The Veehoff (2010) scale for study quality was adapted to address multiple target problems, as well as study designs and yields scores ranging from 0 to 8. The methodological quality rating is meant to capture elements of research design that contribute to or detract from the strength of a study. Therefore, presence of characteristics such as random sampling lead to higher scores, and absence of characteristics such as intention to treat analysis results in lower scores on the Veehoff Scale. An analysis of the overall quality of studies included in the current meta-analysis yielded a mean score of 4.76 (SD = 1.92) with a range of 2-8. When comparing studies by methodological quality rating groups (i.e., low quality with scores from 0 to 2, moderate quality with scores from 3 to 5, or high quality with scores from 6 to 8), 12% of the studies were of low quality, 56% of the studies demonstrated moderate quality, and roughly 32% received scores indicating high methodological quality.

ACT for Target Outcomes

Each study included in the current meta-analysis (k = 25) yielded one effect size for a primary outcome. The effect size for each study compared the impact of ACT to an active control condition (e.g., CBT), an inactive control (e.g., waitlist), or the pre- and post test scores of a single group following ACT treatment (see Table 6). The average number of participants in each study was 48.9 (SD = 36.45) with a range of 5-143 participants. A random-effects meta-analysis indicated an overall mean effect size $g = .55$ (95% CI: [.368 to .732], $z = 5.93$, $df = 24$, $p < .001$), which reached the cutoff for a moderate effect ($g = .5$). The average effect size of ACT when stratified by treatment comparison group (e.g., ACT
versus CBT) ranged from \( g = .117 \) for CBT treatment comparison groups to \( g = 1.13 \) for studies using a within group, pre-post design. Tests of overall heterogeneity were found to be significant within the moderate range \( I^2 = 64.43\% \) (\( Q = 67.47, df = 24, p < .001 \)), suggesting that significant differences exist between studies that are not due to chance alone.

Table 6

**Overall effects of ACT compared to active and inactive control groups**

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>( k )</th>
<th>( g ) (SE)</th>
<th>95% CI</th>
<th>( Z )</th>
<th>( p )</th>
<th>( Q )</th>
<th>( I^2 )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT</td>
<td>4</td>
<td>.12 (.098)</td>
<td>-.075 to .310</td>
<td>1.19</td>
<td>.233</td>
<td>.65</td>
<td>0</td>
<td>.884</td>
</tr>
<tr>
<td>TAU</td>
<td>6</td>
<td>.36 (.112)</td>
<td>.145 to .582</td>
<td>3.23</td>
<td>.001</td>
<td>9.69</td>
<td>48.38</td>
<td>.085</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>.41 (.114)</td>
<td>.185 to .631</td>
<td>3.59</td>
<td>.000</td>
<td>4.35</td>
<td>0</td>
<td>.629</td>
</tr>
<tr>
<td><strong>Inactive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WL</td>
<td>2</td>
<td>.33 (.194)</td>
<td>-.047 to .712</td>
<td>1.72</td>
<td>.086</td>
<td>1.90</td>
<td>47.39</td>
<td>.168</td>
</tr>
</tbody>
</table>

*Note.* \( k \) = number of comparisons; \( g \) = Hedge’s \( g \) effect size; SE = standard error; CI = confidence interval; \( Z \) = \( Z \)-score; \( p \) = significance level; \( Q \) = variance between studies as a proportion of total variance; \( I^2 \) = percentage of total variance; CBT = Cognitive Behavioral Therapy; TAU = Treatment as Usual; WL = waitlist

**ACT for Quality of Life**

A small, but significant effect was found for ACT on quality of life (\( g = .38 \), 95% CI: [.275 to .483], \( z = 5.75 \), \( df = 24, p < .001 \)). Tests for heterogeneity yielded \( Q \) values less than the degrees of freedom, indicating an absence of statistically significant heterogeneity across the combined studies. ACT outperformed other active and inactive comparison groups, though the comparison to waitlist conditions did not reach statistical significance (\( p = .084 \)). For additional analyses of quality of life outcomes by treatment comparison groups, see Table 7.
Table 7

Overall QoL effects of ACT compared to active and inactive control groups.

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>k</th>
<th>g (SE)</th>
<th>95% CI</th>
<th>Z</th>
<th>p</th>
<th>Q</th>
<th>I²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT</td>
<td>4</td>
<td>.27 (.099)</td>
<td>.076 to .463</td>
<td>2.73</td>
<td>.006</td>
<td>1.48</td>
<td>0</td>
<td>.686</td>
</tr>
<tr>
<td>TAU</td>
<td>6</td>
<td>.26 (.111)</td>
<td>.039 to .473</td>
<td>2.31</td>
<td>.021</td>
<td>4.69</td>
<td>0</td>
<td>.455</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>.39 (.114)</td>
<td>.169 to .614</td>
<td>3.44</td>
<td>.001</td>
<td>4.01</td>
<td>0</td>
<td>.675</td>
</tr>
<tr>
<td>Inactive</td>
<td>2</td>
<td>.33 (.193)</td>
<td>-.045 to .712</td>
<td>1.73</td>
<td>.084</td>
<td>.27</td>
<td>0</td>
<td>.606</td>
</tr>
</tbody>
</table>

Note: k = number of comparisons; g = Hedge’s g effect size; SE = standard error; CI = confidence interval; Z = Z-score; p = significance level; Q = variance between studies as a proportion of total variance; I² = percentage of total variance; CBT = Cognitive Behavioral Therapy; TAU = Treatment as Usual; WL = waitlist

Subgroup Analysis on Overall Effect

A total of 9 moderators (i.e., gender, age, race, social status, experience level of treating clinician, treatment format, number of sessions, target problem, and comparison group) were considered in an ANOVA subgroup analysis to examine the potential differences in primary and quality of life outcomes for ACT compared to other interventions. Subgroups were categorized as addressing participant, study, or intervention level data and results are displayed in Table 8. Outcomes were considered significant if p values were less than .05. Participant data were initially to include age, race/ethnicity, social status, sexual orientation, indigenous heritage, gender, and national origin, and religion, however no data were available on indigenous heritage. National origin and religion were reported by one study each. Sexual orientation was reported by two studies, but only one study included individuals who identified as being on the LGBT spectrum. Analysis of variance for the
impact of ACT on target problems grouped by participant characteristics can be found in Table 8.

**Participant Data**

Subgroup analysis of race indicated a significant effect based on the percent of racially under-represented participants included in each study ($Q_B = 17.07, df = 2, p = .000$) (See Table 8). Studies with more than 20% racially under-represented participants resulted in a lower effect size ($g = .13$, 95% CI: [-.066 to .322], $z = 1.29$, $df = 3$, $p < .197$) than studies comprised of less than 20% racially under-represented participants ($g = .42$, 95% CI: [.140 to .701], $z = 2.94$, $df = 2$, $p = .003$). Additionally, the effect size for the greater than 20% group did not reach the cut off for a small effect, $g = .20$. Eighteen of the 25 studies did not report the ethnic or racial characteristics of participants. Age was also a significant moderator of effect size ($Q_B = 4.18$, $df = 1$, $p = .041$), indicating more positive outcomes for children ($g = .89$, 95% CI: [.462 to 1.31], $z = 4.10$, $df = 2$, $p < .001$) when compared to individuals over the age of 19 ($g = .43$, 95% CI: [.323 to .536], $z = 7.92$, $df = 2$, $p < .001$). Social status was also significant, indicating more positive outcomes for individuals who were institutionalized during data collection ($g = .76$, 95% CI: [.340 to 1.19], $z = 3.54$, $df = 2$, $p < .001$) as compared to outpatient samples ($g = .42$, 95% CI: [.003 to .312], $z = 7.64$, $df = 2$, $p < .001$). Gender was not a significant predictor of ACT’s impact on target problems ($Q_B = 3.12$, $df = 1$, $p = .077$).
Table 8

Subgroup analysis and effect size estimates of participant characteristics on ACT interventions for target problems

<table>
<thead>
<tr>
<th>Subgroup Analysis at Post-Test</th>
<th>Effect Size Estimates</th>
<th>Tests of Heterogeneity</th>
<th>ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>k</td>
<td>g (SE)</td>
<td>95% CI</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 50% female</td>
<td>6</td>
<td>.28 (.112)</td>
<td>.061 to .501</td>
</tr>
<tr>
<td>≥ 50% female</td>
<td>19</td>
<td>.51 (.060)</td>
<td>.389 to .623</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20% Und-rep</td>
<td>3</td>
<td>.42 (.143)</td>
<td>.140 to .701</td>
</tr>
<tr>
<td>≥ 20% Und-rep</td>
<td>4</td>
<td>.13 (.099)</td>
<td>-.066 to .322</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child/Adol</td>
<td>2</td>
<td>.89 (.216)</td>
<td>.462 to 1.31</td>
</tr>
<tr>
<td>Adult</td>
<td>23</td>
<td>.43 (.054)</td>
<td>.323 to .536</td>
</tr>
<tr>
<td>Social Status</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20% Instit</td>
<td>21</td>
<td>.42 (.055)</td>
<td>.003 to .312</td>
</tr>
<tr>
<td>≥ 20% Instit</td>
<td>3</td>
<td>.76 (.216)</td>
<td>.340 to 1.19</td>
</tr>
</tbody>
</table>

Note. k = number of comparisons; g = Hedge’s g effect size; SE = standard error; CI = confidence interval; Z = Z-score; p = significance level; Q = variance between studies as a proportion of total variance; I² = percentage of total variance; Und-rep = racially under-represented group; Instit = Institutionalized
**Intervention Data**

Studies were grouped by intervention level data related to the experience level of the treating clinician, treatment format, and number of sessions. There was no significant difference in overall effect of ACT when treatment was administered by graduate students compared to trained or licensed clinicians \((Q_B = 1.72, df = 1, p = .423)\). Treatment format (i.e., individual, group, or online) also did not result in any significant differences in overall ACT effectiveness \((Q_B = 3.66, df = 2, p = .161)\). Number of sessions was the only intervention level variable that moderated the effect of ACT on the primary outcome with studies administering treatment over the course of 7 to 12 sessions demonstrating the greatest effect \((g = .66, 95\% \text{ CI: } [.508 \text{ to } .811], z = 8.52, df = 2, p < .001)\).

**Study Data**

Initially, six target problem groups were identified (i.e., depression and anxiety, behavioral issues, other mental health issues, chronic pain, other physical health issues, and social justice). Behavioral issues and social justice categories included one study per category, and were therefore unable to be analyzed as distinct subcategories. These studies included Weineland et al. (2012), which examined the impact of ACT on binge eating compared to treatment as usual, and was originally to be categorized as a behavioral issue study. The other study was Luoma et al. (2012), which investigated ACT’s effectiveness as reducing shame associated with substance use disorder diagnoses, and were to be categorized as a social justice study. Both studies were categorized as “other mental health issues” and subgroups *behavioral issue* and *social justice* were deleted.
No significant differences were found between target problem groups \((Q_B = 5.59, df = 3, p = .133)\). Treatment comparison group type did contribute significantly to the variance found between effect sizes for active versus inactive control groups. Studies using inactive control groups demonstrated a significantly larger effect \((g = .92, 95\% \text{ CI: } [.010 \text{ to } .722], z = 9.19, df = 1, p < .001)\) than studies comparing ACT to active controls \((g = .28, 95\% \text{ CI: } [.158 \text{ to } .401], z = 8.52, df = 1, p < .001)\) such as CBT.

**Subgroup Analysis on Quality of Life**

The same moderators (i.e., gender, age, race, social status, experience level of treating clinician, treatment format, number of sessions, target problem, and comparison group) were used to run the ANOVA for the overall effect of ACT on quality of life outcomes. Subgroups were used to determine if ACT effectiveness was moderated by participant, intervention, or study level characteristics. None of the participant characteristics (i.e., gender, racially under-represented group status, age, and social status) reached statistical significance as moderators of variance in quality of life outcomes following an ACT intervention (results displayed in Table 10).

Intervention and study level variable results are displayed in Table 11. Intervention level predictors also did not result in significant variation in quality of life outcomes, though number of sessions approached significance \((Q_B = 5.90, df = 2, p = .052)\) with a moderate effect of \(g = .51\) for the 7 to 12 session subgroup \((95\% \text{ CI: } [.354 \text{ to } .664], z = 6.45, df = 2, p < .001)\). Of the study level variables, target problem did not account for variance in quality of life outcome, but type of control group was a significant predictor \((Q_B = 5.93, df = 1, p = .015)\). The inactive control subgroup demonstrated a larger effect \((g = .59, 95\% \text{ CI: } [.392 \text{ to } .789], z = 7.93, df = 1, p < .001)\).
.796], z = 5.76, df = 1, p < .001) than the quality of life effect for the active control subgroup 
(g = .30, 95% CI: [.180 to .423], z = 4.88, df = 1, p < .001).
# Table 9

Subgroup analysis and effect size estimates of intervention and study characteristics on ACT interventions for target problems

<table>
<thead>
<tr>
<th>Subgroup Analysis at Post-Test - Intervention</th>
<th>Effect Size Estimates</th>
<th>Tests of Heterogeneity</th>
<th>ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$k$</td>
<td>$g$ (SE)</td>
<td>95% CI</td>
</tr>
<tr>
<td>Exp Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grad Stud</td>
<td>11</td>
<td>.40 (.072)</td>
<td>.257 to .538</td>
</tr>
<tr>
<td>Licensed</td>
<td>13</td>
<td>.52 (.080)</td>
<td>.359 to .671</td>
</tr>
<tr>
<td>Tx Format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>14</td>
<td>.55 (.071)</td>
<td>.408 to .688</td>
</tr>
<tr>
<td>Group</td>
<td>8</td>
<td>.34 (.092)</td>
<td>.158 to .519</td>
</tr>
<tr>
<td>Online</td>
<td>3</td>
<td>.37 (.148)</td>
<td>.078 to .658</td>
</tr>
<tr>
<td># of Sessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 6</td>
<td>8</td>
<td>.27 (.092)</td>
<td>.094 to .454</td>
</tr>
<tr>
<td>7 to 12</td>
<td>12</td>
<td>.66 (.077)</td>
<td>.508 to .811</td>
</tr>
<tr>
<td>13 to 16</td>
<td>5</td>
<td>.30 (.115)</td>
<td>.069 to .521</td>
</tr>
<tr>
<td>Subgroup Analysis at Post-Test - Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target Prob</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dep/Anx</td>
<td>7</td>
<td>.33 (.086)</td>
<td>.156 to .493</td>
</tr>
<tr>
<td>Other MH</td>
<td>7</td>
<td>.57 (.109)</td>
<td>.356 to .785</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>6</td>
<td>.41 (.115)</td>
<td>.189 to .640</td>
</tr>
<tr>
<td>Other PH</td>
<td>5</td>
<td>.63 (.122)</td>
<td>.391 to .870</td>
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<td>Control Cond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>17</td>
<td>.28 (.062)</td>
<td>.158 to .401</td>
</tr>
<tr>
<td>Inactive</td>
<td>8</td>
<td>.92 (.100)</td>
<td>.010 to .722</td>
</tr>
</tbody>
</table>

*Note. $k$ = number of comparisons; $g = $ Hedge’s $g$ effect size; SE = standard error; CI = confidence interval; $Z = $ Z-score; $p = $ significance level; $Q = $ variance between studies as a proportion of total variance; $I^2 = $ percentage of total variance; MH = Mental Health; PH = Physical Health*
Table 10

Subgroup analysis and effect size estimates of participant characteristics on ACT interventions for quality of life

<table>
<thead>
<tr>
<th>Subgroup Analysis at Post-Test</th>
<th>Effect Size Estimates</th>
<th>Tests of Heterogeneity</th>
<th>ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>k</td>
<td>g (SE)</td>
<td>95% CI</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 50% female</td>
<td>6</td>
<td>.21 (.114)</td>
<td>-.009 to .437</td>
</tr>
<tr>
<td>≥ 50% female</td>
<td>19</td>
<td>.43 (.060)</td>
<td>.307 to .542</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20% Und-rep</td>
<td>3</td>
<td>.38 (.142)</td>
<td>.101 to .659</td>
</tr>
<tr>
<td>≥ 20% Und-rep</td>
<td>4</td>
<td>.28 (.101)</td>
<td>.079 to .473</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child/Adol</td>
<td>2</td>
<td>.71 (.229)</td>
<td>.258 to 1.16</td>
</tr>
<tr>
<td>Adult</td>
<td>23</td>
<td>.36 (.055)</td>
<td>.253 to .467</td>
</tr>
<tr>
<td>Social Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20% Instit</td>
<td>21</td>
<td>.37 (.055)</td>
<td>.259 to .474</td>
</tr>
<tr>
<td>≥ 20% Instit</td>
<td>3</td>
<td>.59 (.230)</td>
<td>.137 to 1.04</td>
</tr>
</tbody>
</table>

*Note. k = number of comparisons; g = Hedge’s g effect size; SE = standard error; CI = confidence interval; Z = Z-score; p = significance level; Q = variance between studies as a proportion of total variance; \( \hat{I}^2 = \) percentage of total variance; Und-rep = racially under-represented group; Instit = Institutionalized
Table 11

Subgroup analysis and effect size estimates of intervention and study characteristics on ACT interventions for quality of life

<table>
<thead>
<tr>
<th>Subgroup Analysis at Post-Test - Intervention</th>
<th>Effect Size Estimates</th>
<th>Tests of Heterogeneity</th>
<th>ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>k</td>
<td>g (SE)</td>
<td>95% CI</td>
</tr>
<tr>
<td>Exp Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grad Stud</td>
<td>11</td>
<td>.35 (.073)</td>
<td>.204 to .489</td>
</tr>
<tr>
<td>Licensed</td>
<td>13</td>
<td>.40 (.080)</td>
<td>.247 to .561</td>
</tr>
<tr>
<td>Tx Format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>14</td>
<td>.43 (.072)</td>
<td>.287 to .571</td>
</tr>
<tr>
<td>Group</td>
<td>8</td>
<td>.35 (.092)</td>
<td>.171 to .530</td>
</tr>
<tr>
<td>Online</td>
<td>3</td>
<td>.24 (.147)</td>
<td>-.045 to .533</td>
</tr>
<tr>
<td># of Sessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 6</td>
<td>8</td>
<td>.22 (.091)</td>
<td>.038 to .396</td>
</tr>
<tr>
<td>7 to 12</td>
<td>12</td>
<td>.51 (.079)</td>
<td>.354 to .664</td>
</tr>
<tr>
<td>13 to 16</td>
<td>5</td>
<td>.36 (.115)</td>
<td>.013 to .134</td>
</tr>
<tr>
<td>Subgroup Analysis at Post-Test - Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target Prob</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dep/Anx</td>
<td>7</td>
<td>.35 (.086)</td>
<td>.182 to .520</td>
</tr>
<tr>
<td>Other MH</td>
<td>7</td>
<td>.47 (.113)</td>
<td>.246 to .689</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>6</td>
<td>.29 (.114)</td>
<td>.069 to .518</td>
</tr>
<tr>
<td>Other PH</td>
<td>5</td>
<td>.43 (.123)</td>
<td>.189 to .670</td>
</tr>
<tr>
<td>Control Cond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>17</td>
<td>.30 (.062)</td>
<td>.180 to .423</td>
</tr>
<tr>
<td>Inactive</td>
<td>8</td>
<td>.59 (.103)</td>
<td>.392 to .796</td>
</tr>
</tbody>
</table>

Note. k = number of comparisons; g = Hedge’s g effect size; SE = standard error; CI = confidence interval; Z = Z-score; p = significance level; Q = variance between studies as a proportion of total variance; \( F \) = percentage of total variance; MH = Mental Health; PH = Physical Health
Meta-Regression for Target Problems

Variables for meta-regression analysis were identified during the literature review process based on outcomes from previous meta-analyses on ACT. Therefore, rather than use ANOVA results reported in the previous sections to guide moderator selection, univariate meta-regression was conducted on continuous participant, study, and intervention level data consistent with previous meta-analyses, as well as the aims of the current meta-analysis. Continuous participant characteristic variables were mean age, gender (percentage of females), and race (percentage of racially under-represented participants). Though it would be more consistent with a feminist multicultural stance to examine the impact of ACT on individuals from each race uniquely, there was not enough data or representation of non-majority ethnic groups for meaningful statistical inquiry. Similarly, not enough data was available to include sexual orientation, social status, country of origin, religion or indigenous heritage as potential predictors. Intervention level predictors included number of hours of treatment and number of sessions, while methodological rating was entered as the study level predictor. See table 12 for meta-regression results.

None of the participant or intervention level predictors entered into the models reached statistical significance. Despite significant between group variance for age (children versus adults) and racially under-represented subgroups (less than 20% versus more than 20% under-represented group), neither age nor race was found to be significant predictors of the overall effect of ACT in the studies included in the analysis (see Table 12). Methodological rating was a significant predictor however, with 57% of the variance in
primary outcome effect size accounted for by methodological rating, which suggested that as methodological rating increases, effect size decreases.

Table 12

Meta-regression of participant, intervention, and study variables on primary outcome

<table>
<thead>
<tr>
<th>Variable</th>
<th>$k$</th>
<th>Regression Coefficient</th>
<th>Test of Heterogeneity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$B$ (SE)</td>
<td>95% CI</td>
</tr>
<tr>
<td>Participant Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>25</td>
<td>.007 (.341)</td>
<td>-.003 to .170</td>
</tr>
<tr>
<td>Race</td>
<td>7</td>
<td>.007 (.006)</td>
<td>-.006 to .020</td>
</tr>
<tr>
<td>Age</td>
<td>25</td>
<td>-.005 (.009)</td>
<td>-.023 to .013</td>
</tr>
<tr>
<td>Intervention Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours of Tx</td>
<td>18</td>
<td>.016 (.015)</td>
<td>-.014 to .046</td>
</tr>
<tr>
<td>Total Sessions</td>
<td>25</td>
<td>.016 (.024)</td>
<td>-.031 to .062</td>
</tr>
<tr>
<td>Study Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method Rating</td>
<td>25</td>
<td>-.150 (.042)</td>
<td>-.231 to -.069</td>
</tr>
</tbody>
</table>

Note. $k$ = number of comparisons; $B$ = regression coefficient; SE = standard error; CI = confidence interval; $Z$ = Z-score; $p$ = significance level; $Q$ = variance between studies as a proportion of total variance

Meta-Regression for Quality of Life

Univariate meta-regression was also used to examine the impact of participant, study, and intervention level variables on quality of life outcomes. As was evident for the overall effect size estimates, participant characteristics were not significantly associated with quality of life outcomes across the studies used in the current analysis (See Table 13). Hours of treatment was a significant predictor, with more hours of treatment associated with higher effect sizes for quality of life ($B = .018$, 95% CI: [.001 to .034], $z = 2.12$, $df = 1$, $p < .05$). Methodological rating reached significance at $p = .005$, however, no variance in quality of life effect size was predicted by methodological rating due to lack of variance between studies.
Table 13

Meta-regression of participant, intervention, and study variables on quality of life

<table>
<thead>
<tr>
<th>Variable</th>
<th>k</th>
<th>B (SE)</th>
<th>95% CI</th>
<th>Z</th>
<th>p</th>
<th>Q</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>25</td>
<td>.005 (.003)</td>
<td>-.002 to .110</td>
<td>1.42</td>
<td>.156</td>
<td>2.01</td>
<td>.156</td>
</tr>
<tr>
<td>Race</td>
<td>7</td>
<td>-.001 (.005)</td>
<td>-.011 to .009</td>
<td>-.24</td>
<td>.809</td>
<td>.06</td>
<td>.809</td>
</tr>
<tr>
<td>Age</td>
<td>25</td>
<td>-.002 (.005)</td>
<td>-.013 to .009</td>
<td>-.38</td>
<td>.707</td>
<td>.14</td>
<td>.707</td>
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<tr>
<td>Intervention Characteristics</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours of Tx</td>
<td>18</td>
<td>.018 (.008)</td>
<td>.001 to .034</td>
<td>2.12</td>
<td>.034</td>
<td>4.48</td>
<td>.034</td>
</tr>
<tr>
<td>Total Sessions</td>
<td>25</td>
<td>.019 (.013)</td>
<td>-.006 to .043</td>
<td>1.46</td>
<td>.143</td>
<td>2.14</td>
<td>.143</td>
</tr>
<tr>
<td>Study Characteristics</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method Rating</td>
<td>25</td>
<td>-.088 (.032)</td>
<td>-.151 to -.026</td>
<td>-2.79</td>
<td>.005</td>
<td>7.80</td>
<td>.005</td>
</tr>
</tbody>
</table>

Note. k = number of comparisons; B = regression coefficient; SE = standard error; CI = confidence interval; Z = Z-score; p = significance level; Q = variance between studies as a proportion of total variance

Publication Bias

Fail-Safe N analysis was conducted to determine the number of studies that would be needed to nullify the significant effect of ACT on target problems and quality of life outcomes found in the current meta-analysis. For the effect of ACT on target problem outcomes to be insignificant at \( p > .05 \), 573 studies with null findings would need to be added to the analysis. For each study included in the current analysis, roughly 23 studies with non-significant findings would be needed to render the current meta-analysis non-significant.

Further examination of publication bias was conducted by examining a funnel plot of the observed studies. Asymmetry of the funnel plot indicated the potential for missing studies, which would likely have resulted in a disproportionately large estimated effect of ACT on target problems. Egger’s regression intercept test was conducted to quantify the bias present on the funnel plot (intercept = 2.82, 95% CI: [.85 to 4.79], t(23) = 2.96, two-tailed \( p = .007 \).
Duval and Tweedie’s trim and fill reduced the observed studies by 10, bringing the overall impact of ACT to $g = .26$, which would still meet criteria for a meaningful effect ($g > .20$ for a small effect).

For quality of life, the Fail-Safe N was estimated to be 325 studies. For each study included in the current analysis there would need to be roughly 13 studies that resulted in no treatment effect in order for the current meta-analysis to be insignificant. When quality of life effect sizes were plotted against standard error in a funnel plot, it was determined that no studies were missing. Additionally, Egger’s intercept test did not indicate significant bias (intercept = 1.10, 95% CI: [-.11 to 2.31], $t(23) = 1.88$, two-tailed $p = .073$). Based on funnel plot symmetry and a non-significant intercept test, corrections for bias, including the trim and fill method were not conducted.
CHAPTER 5—DISCUSSION

Summary of Findings

The aim of the current meta-analysis was to determine the effectiveness of ACT from a feminist multicultural perspective; examining the intersection of voice and power by considering ACT’s impact on physical and mental health, as well as quality of life in under-represented groups. Twenty-five studies with a total of 590 participants indicated that ACT is moderately effective for improving outcomes related to physical and mental health \( (g = .57, CI:[.380 to .765], df = 24, p < .001) \) in samples that include at least 20% of individuals from under-represented groups (e.g., children and adolescents, women, racially under-represented groups, individuals in institutional settings). For quality of life, ACT was found to be less effective across the included studies, yielding a small effect size of \( g = .38 \).

Interpreting Variance

Multiple subgroups were identified to test ACT’s effect as a function of participant, study, and intervention level characteristics. Participant characteristics that contributed to differences in ACT’s effectiveness for primary outcomes (e.g., chronic pain, depression, and anxiety) included race and age. Studies that included more than 20% of individuals from racially under-represented groups showed a non-significant effect for ACT \( (g = .13) \), when compared to studies that included less than 20% of individuals from racially under-represented groups \( (g = .42) \), which indicates that ACT may not be effective for people of color.

Studies that focused on children outperformed those that used adult samples, however these findings are preliminary given that only two studies included children, one of which
included primarily children who were also institutionalized. At the intervention level, number of sessions was associated with significant variance in overall outcomes, with studies using 7 to 12 sessions of ACT outperforming both of the remaining subgroups (1 to 6 sessions, and 13 or more sessions) ($g = .66$, CI: [.508 to .811], $df = 2$, $p < .001$). Finally, treatment comparison group was significantly predictive of ACT’s overall effect. Studies using inactive controls (i.e., waitlists) resulted in significantly better outcomes than those studies comparing ACT to active treatments such as CBT or treatment as usual.

For quality of life outcomes, no significant variance was found in the effect sizes computed for included studies. Lack of variance could be the result of multiple factors related to potential confounds such as restriction of range. Specifically, further investigation of the quality of life measures used in each of the 25 studies suggested that restriction of range could have impacted those studies ($k = 7$) that used the Quality of Life Inventory (QOLI), an instrument that provides integer scores ranging from -6 to 6. The dispersion of scores for studies using the QOLI in the current meta-analysis was small and ranged from - .17 (Dalrymple et al., 2007) to 1.92 (Forman et al., 2007). The quality of life effect size was also computed without the 7 studies that used the QOLI, however this did not reveal any additional significant variance ($Q = 14.28$, $df = 16$, $p = .578$).

The forest plot of quality of life outcome effect sizes displayed a wide range of values for Hedge’s $g$, and many of the studies could not reject the null hypothesis. Based on the apparent heterogeneity, additional measures were taken to determine if the differences between studies were in fact significant. Six studies used a within groups design, which has less statistical power than between groups designs. In order to compute Hedge’s $g$ for
dependent groups, Cohen’s $d$ is divided by one minus the correlation between pre and post-treatment scores. Initially, the correlation was computed for each study included in the meta-analysis, resulting in a range of $r$ values (.25 to .78). When $r$ was held constant at .50, which is the default setting for Comprehensive Meta-Analysis data analysis software, a small amount of variance ($I^2 = 3.14\%$) became apparent, however it was not statistically significant ($p = .418$). Similarly, when studies with less than 10 participants ($k = 3$) were removed from the analysis to control for over-estimation of effect size common to small samples, no variance was indicated. Despite the lack of statistically significant variance, ACT was found to have a significantly greater effect on quality of life when compared to inactive versus active controls. ACT may be more effective than no treatment, but ACT is not consistently more effective than other active treatments, particularly CBT.

**Interpreting Meta-Regression**

Meta-regression was used to provide further explanation for differences in effect sizes across ACT studies. Gender, race, mean age, number treatment sessions, total hours of treatment, and methodological quality rating were entered into univariate regression models for both the target outcome and the quality of life outcome.

**Target problem outcome.** Given that there was moderate to high between groups variance for each of the participant level variables, as well as the number of sessions and type of control condition, it was expected that the ANOVA variables would also be predictive of variance when coded continuously. For the target outcome, effect size differences across studies were not predicted by variance in gender, race, or age. Effect size was also not impacted by the number of sessions or hours of treatment. Methodological quality rating was
significantly predictive of effect size however, accounting for up to 57% of the variance across studies.

In order to effectively interpret regression findings, it is important to consider limitations of the current meta-analysis. Participant characteristics of age and race yielded significant skewed and/or missing data. Two studies included children or adolescents, while the remainder of the studies focused on adults. The mean age of participants included in adult studies was 37.9, resulting in low power to draw conclusions about ACT’s effectiveness for individuals who are not in middle adulthood. Lack of inclusion of individuals across the lifespan is significantly limiting for generalizability, particularly given that 20% of the US population is approaching late adulthood (CDC, 2013).

The consideration of race as a potential moderator was hindered by the lack of data reported in the studies under analysis. Of 25 studies, only 7 reported the racial or ethnic make up of the participants. Three studies included less than 10% of racially under-represented group members, while 4 studies had 20% or more racially under-represented group members. Minimal reporting of race and ethnicity, along with low sample sizes for racially under-represented groups make it difficult to determine ACT’s effectiveness for groups other than racial and ethnic majority group members. Lack of representation of individuals across the lifespan and lack of reporting on the racial and/or ethnic make up of samples severely limits the ability to draw statistical conclusions about ACT’s effectiveness. In order for variance to be identified and explained, sample sizes must be adequate both overall and at the subgroup level.
Methodological quality rating was a significant predictor of target problem effect size indicating that as methodological quality increased, effect size decreased. Study quality was rated based on characteristics such as random assignment to treatment, experience level of diagnosing clinicians, and participant recruitment sources. Higher ratings indicate greater empirical rigor, which theoretically translates into a truer effect size that is reflective of treatment impact rather than an artifact of sampling error or other confounds. In the current meta-analysis, for every unit increase in methodological rating the effect size decreases by .15, which is significant given Cohen’s rule of thumb for interpreting effects ranges from .20 for a small effect to .80 for a large effect. Methodological rating as a significant predictor of effect size is consistent with previous meta-analyses of ACT (Öst, 2014) as well as other psychological interventions (Cuijpers et al., 2009). The predictive capacity of methodological rating indicates that ACT effect sizes are greatly influenced by how well studies are designed. The more rigorous the study, the more likely the results reflect ACT’s effectiveness as opposed to other factors. In the current meta-analysis, increased rigor was associated with lower rates of effectiveness suggesting that ACT’s apparent effectiveness in other meta-analyses could be inflated by poor study design.

**Quality of life outcome.** Despite a lack of variance indicated in the ANOVA for quality of life outcomes, a meta-regression was conducted to look for trends in variance even though none were anticipated to be statistically significant moderators. One recommendation to account for the inaccurate reporting of homogeneity when sample sizes are small is to set a 10% cutoff for the confidence interval as opposed to 5%. Broadening the range of studies considered significant can result in a false positive however, and variance should therefore be
interpreted with caution (Higgins et al., 2003). Using $p < .10$ as a metric for significance indicates that more sessions of ACT could result in greater impact on quality of life, and gender approaches significance as a predictor of positive outcomes. Using the standard cutoff for significance ($p < .05$), number of hours of treatment and methodological rating were the most likely predictors of quality of life outcome.

**Contributions to ACT Research**

The current meta-analysis provides critical assessment of the effect of ACT for under-represented groups, which challenges ACT’s categorization and reputation as an empirically valid treatment for all. The more individuals from racially under-represented groups included in the studies under analysis, the poorer the outcome, suggesting that ACT is not only less effective for individuals from racially under-represented groups, but may not be effective at all in reducing symptoms related to target problems. In contrast, the current meta-analysis results indicate that ACT may be particularly beneficial for children in outpatient settings, and adults who are institutionalized (i.e., living in a hospital setting for treatment of mental or physical condition), indicating the need for additional research into moderators of treatment effects for these groups.

**Race**

No studies specifically target issues related to race in ACT research. Information is limited regarding the impact of race on therapy outcomes, particularly cognitive behavioral therapies. A literature search for race and cognitive behavioral therapy yielded 12 studies, 4 of which were on substance use outcomes, and 3 of which were on domestic violence outcomes. One meta-analysis on race and CBT outcomes found of 322 studies on CBT, only
16 included predominantly Black or Hispanic samples, and further found that rates of retention, engagement, and substance use reduction were lower for Black and Hispanic samples compared to White samples (Windsor, Jemal, & Alessi, 2015).

Potential reasons for lower treatment effects for individuals from racially under-represented group could exist on multiple levels. For individuals from collectivist communities, such as Native Americans and individuals of Asian descent, the involvement of an outsider in one’s problems may be viewed as shameful or disruptive to family functioning. As a result, even those clients who attend therapy may have ambivalence about engaging in the process fully due to fears about family or community implications of being in therapy. Additionally, if a client of color is meeting with a White counselor, there may be concerns regarding the counselor’s ability to understand the client’s experience in the context of race. The counseling relationship may also be impacted by the client’s stage of racial identity development, which according to Cross’ model could range from absence of awareness of racial differences to integration of race as a component of broader identity (Cross, Parham, & Helms, 1991).

Aside from individual cultural identity effects, ACT may not be viewed as a good fit for individuals from racially under-represented groups. ACT is built on assumptions of cognitive primacy—language and thinking are both the problem and solution according to ACT principles. People of color may not share this way of understanding human experience and may instead understand psychopathology as the result of emotional, physical, or mystical sequela. Individuals of Indian heritage or other ayurvedic traditions consider depression to be an imbalance of nutrients to be addressed by diet and physical activity such as yoga.
(Krishnamurthy et al., 2007). Treating depression by talking and changing relationships to thought as recommended by ACT therapists would reasonably seem an ineffective approach to someone from an ayurvedic tradition.

At a systemic level, issues of race, poverty, and access to services are deeply connected. Therapy, regardless of modality, requires social capital to be accessed. It must not be taken for granted that everyone knows what therapy is, how to find a therapist, or has the resources for continued engagement in therapy. Resources potentially required for therapy include time, money, insurance coverage, transportation, work flexibility for taking time off, and childcare. People of color have disproportionately fewer of the resources required for engagement in any sort of therapy when compared to White individuals (DeNavas-Walt, 2005).

Age

In the current meta-analysis, two studies utilized samples of children or adolescents. Woidneck et al. (2014) used ACT to address symptoms of stress following trauma in 7 adolescents, while Wicksell et al. (2009) examined ACT’s effectiveness for treating long-standing pediatric pain in 32 adolescents with a mean age of 14.8. The two studies including adolescents contributed to a significantly greater effect for ACT as compared to the 23 studies that included adult participants, however, these findings must be interpreted with caution given that over half of the participants in Woidneck et al. (2014) were considered institutionalized based on being recruited from a residential treatment facility. Therefore, what appeared to be an effect of age on outcome could have been impacted by institutional status, which was also associated with larger effect sizes for ACT. It is possible, however,
that adolescents are particularly well suited developmentally for ACT tasks of reorienting to thoughts through defusion and challenging established ways of relating to thinking through metaphor (Broderick & Blewitt, 2010, p. 296).

**Institutional Status**

Studies including individuals in institutional settings such as residential treatment programs or mental health facilities showed greater improvement than studies that included outpatient samples alone. Three studies included participants in institutional settings, which were a residential treatment center for eating disorders (Woidneck et al., 2014), supported living centers in Australia (Shawyer et al., 2012), and a center for individuals with epilepsy in South Africa (Lundgren 2006). It is difficult to draw conclusions regarding reasons for greater improvements in individuals in institutional settings in the current studies due to the diversity of issues under study and different levels of care provided in each context. One potentially consistent factor in across institutional settings is the power differential between client and therapist, which may be more impactful and behaviorally directive in inpatient settings than in outpatient settings. When clients are constrained to bounds of an institution, they are met with staff serving dual purposes of care and control (Onyett, 2000), and may shape responses in treatment and research to be more pleasing to those in power.

**Limitations of the Studies Included in Analysis**

The limitations of the studies included in the current meta-analysis indicate the need for increased rigor in psychological research, as well as the relevance of the feminist multicultural research approach. On the study level, characteristics such as low sample size, absence of drop out analysis, and lack of treatment integrity checks contributed to lower
statistical power and lower methodological ratings. Participant level limitations included low
diversity and lack of reporting on crucial cultural identity components.

**Small sample size.** A consistent problem across included studies was small sample
sizes with less than half \( k = 12 \) of the studies meeting the Veehof (2010) criteria for
adequate sample size \( n = 50 \). Attrition analysis, which provides important information
regarding potential differences between treatment completers versus those that drop out, was
also absent from many studies. Nine studies lost at least 5 participants over the course of
treatment and did not include analysis of attrition. Luoma et al. (2012), which investigated
the impact of ACT on shame in individuals with substance use diagnoses, had 54 dropouts,
most of which \( n = 24 \) were from the treatment as usual group. Though reasons for attrition
were speculated including incarceration due to pending legal charges, the overall results,
which indicated that ACT was not effective at reducing shame \( g = .01 \) or improving quality
of life \( g = .18 \) must be interpreted without the added context of attrition analysis.

**Treatment integrity.** Treatment integrity reflects the adherence of treatment to the
underlying therapeutic model (Perepletchikova & Kazdin, 2005), and could potentially be
impacted by the level of training the acting clinician has in the treatment protocol. A
significant weakness of many of the studies included in the current meta-analysis was a lack
of attention to treatment integrity. Eleven of the studies under analysis did not report on
adherence to either the ACT model or other therapeutic models serving as comparison
groups. Dahl et al., (2004) investigated the impact of ACT on pain and disability levels in
comparison to CBT. In addition to an absence of treatment integrity evaluation, the clinician
providing ACT was trained and licensed, while the individual providing CBT was a nurse.
with no formal psychotherapy training. Though the nurse did receive supervision from a trained clinician, it is possible that the substantial treatment effect found for ACT ($g = 1.21$) could have been significantly impacted by differences in knowledge and skill level between treatment providers.

**Participant level variables.** Participant level limitations are of particular importance to the current meta-analysis, which sought to investigate the impact of ACT on groups that are under-represented in research and prone to marginalization in the Western populations. Regarding gender, only 6 studies had less than 50% females, which is a significant strength of the included studies. Race and ethnicity of participants, however, were only reported in 7 studies, and reached the 20% under-represented group mark in 4 studies. Sexual orientation was reported in two studies, though one study reported that all of the participants were heterosexual. Social status, a complicated and multi-faceted demographic variable, is frequently defined by components such as education level and marital status (Krieger, Williams, & Moss, 1997), however for the purpose of the current analysis, was intended to capture aspects of social status most likely to lead to marginalization or exclusion (i.e., institutionalization or incarceration). Three studies included individuals who were institutionalized, but none included individuals who were incarcerated. Regarding age, 2 studies focused on children, with the remainder using only adult participants. No studies focused specifically on older adults. Indigenous heritage was also not addressed in any of the studies, despite the fact that several studies included Native American participants. Indigenous heritage could indicate a complicated relationship to treatments built on values and perspectives of colonizing groups (Hill, Lau, & Sue, 2010).
Low diversity in studies is clearly problematic from a generalization perspective. Part of the impetus for feminist multiculturalism in counseling came from a recognition that assessments and treatments normed on White, middle class men incorrectly assumes that the experiences of the majority and dominant social group represent the experiences of all. However, inclusion of under-represented groups without clear rationale does not solve the problem of representation. Forman et al. (2007) used a majority female sample (80.2%) when investigating ACT for anxiety compared to Cognitive Therapy. ACT did not significantly outperform Cognitive Therapy either on overall outcome or on quality of life, and no reasons were provided regarding the inclusion of a predominantly female sample. Though there are theoretically sound reasons for focusing on women in an anxiety and depression study (e.g., higher rates of reported anxiety and depression in women; Weissman et al., 1993), such reasons warrant consideration and inclusion.

Yadavaia et al. (2011) explored ACT for self-stigma in a group of participants reporting negative self-judgments about being attracted to people of the same sex. In addition to meeting very few of the requirements for empirical rigor, there was also no consideration of the intersection of race and sexuality in a sample that was predominantly from ethnic non-majority groups. Though the authors discussed the societal precursors to self-stigma at length, and provided significant insight into the challenges posed by identifying on the LGBT spectrum in a heteronorming society, there is an important narrative around race and sexuality that was not addressed. The sample consisted of 5 individuals, 2 of which were bi-racial, 1 Native American, 1 non-reporting, and 1 White. While no racial group seems to be necessarily more accepting than another regarding individuals on the
LGBT spectrum are, the experience of same-sex partnering may differ across ethnic groups. The concept of down-low sexual relations in African American communities, for example loosely describes the act of men having sex with other men without exclusively identifying as gay (Han et al., 2013). It is unclear as to whether down low identification provides protection from discrimination and emasculation, or creates an alternative to the predominantly White image of being a gay male (Han et al., 2013). It is important to acknowledge, however, that same-sex partnership has differing implications depending upon one’s ethnic or racial identity.

**Summary**

Though findings regarding the impact of ACT on racially under-represented groups, children, and individuals under institutional care are unique to the current meta-analysis, many previous findings were replicated in the current study. The current meta-analysis provides further support for ACT as a meaningful intervention for individuals from racial majority groups with a range of target problems (e.g., depression, anxiety, chronic pain, and other physical health problems) consistent with previous meta-analyses (Powers et al., 2009; Veehoff et al., 2010). Methodological rating was found to be a significant predictor of overall effect size, which is consistent with Öst’s (2014) meta-analytic findings.

The current meta-analysis contributes to ACT research uniquely in its exclusive consideration of under-represented groups. Unlike Fuchs et al. (2013), the current analysis isolated ACT for under-represented groups rather than considering ACT as part of a broader range of interventions that were acceptance or mindfulness-based. Woidneck et al. (2012) suggested in a systematic review that ACT would be beneficial for ethic or racially under-
represented groups based on synthesis of research using at least 20% of ethnically underrepresented individuals, however this hypothesis was not supported in the current meta-analysis. Finally, the current meta-analysis was the first at the present time to consider quality of life as a requisite outcome as opposed to a mediator of overall treatment effect or secondary source of variance. Given quality of life’s potential as a concrete unit of measurement for issues related to power, the current meta-analysis offers an example of exploring power as a primary outcome.

The findings of the current meta-analysis must be interpreted with consideration for the limitations of the studies under analysis. While corrections for bias indicate that conclusions drawn about ACT’s effectiveness for groups underrepresented by race, social status, and age are significant, factors such small sample size, lack of rigorous drop out and treatment integrity analysis, and low diversity were consistent problems across the included studies. In order to explore the complexity of how treatment outcomes may be affected by intersecting cultural identities and power dynamics, future studies could be improved by attending to design using the standards of both the scientific method and feminist multiculturalism.

Limitations

The current meta-analysis was limited by factors including use of one reviewer, emphasis on published studies, and diversity of study features (e.g., outcome measures and treatment comparison groups). Multiple reviewers are preferred for meta-analysis to ensure consistency of adherence to inclusion criteria. The current meta-analysis only had one reviewer, which leaves room for bias and coding errors to go unchecked. Additionally,
though the Fail-Safe test for publication bias suggests that it is unlikely enough unpublished data would sway the current results, future meta-analyses should incorporate unpublished studies on under-represented groups and quality of life when available.

The studies included in the current meta-analysis used a wide variety of outcome and quality of life measures, which could dilute effect size data. There were in fact too many measures to form subgroups for further analysis. Additionally, numerous treatment comparison groups were used, which lessened the power of between groups ANOVAs. Within each subgroup there was considerable diversity, given that treatment as usual differed based on the target issue and setting. The “other” active treatment group included a range of approaches as well, such as befriending as a treatment for psychosis (Shawyer et al., 2012), tinnitus retraining therapy (Westin, 2011), and progressive relaxation training (Twohig et al., 2010). Of the four subgroups for target problems (i.e., depression and anxiety, other mental health, chronic pain, and other physical health), no group had the recommended 10 studies (Borenstein, 2009) for robust moderation analysis.

**Implications for Future Research**

The findings of the current meta-analysis primarily point to the dearth of sociocultural identity information on the impact of ACT in under-represented groups. Low effect sizes for studies with larger percentages of racially under-represented group members indicate that ACT may not be universally effective. Small to moderate effect sizes for target problems and quality of life outcomes indicate that ACT could be useful for some specific under-represented groups such as children and individuals who are institutionalized, but these effects are largely mediated by methodological design.
While it is useful to know that individuals from under-represented groups may experience differences in treatment outcomes (see Beissner et al., 2012 for discussion of race and treatment of chronic pain; Lester et al., 2010 for study on treatment termination for PTSD in African Americans; O’Mahen et al., 2011 for study on incidences of stigma-related depression in pregnant Black women), there is little to no data to explain this phenomenon. So long as research includes a small number of individuals from racial non-majority groups, the impact of race may be lost in the data. It follows that as long as research on the impact of race is restricted to stratifying treatment effects by skin color we will remain unclear as to how the multi-dimensional experience of race interacts with the therapeutic process.

Qualitative research focusing on racially under-represented groups could identify points of disconnection within the therapy process that contribute to higher attrition rates and lower rates of improvement, as well as environmental and systemic barriers to treatment engagement.

**Methodological Quality**

Though the most direct means of addressing low methodological quality may be to increase sample sizes, standardize treatments, and adhere concretely to empirical standards, emphasis on these factors may stall continued investigation from a practical standpoint. Future research should go beyond adhering to the culturally biased standards of the scientific method and address meaningful inclusion of under-represented groups; provide critical discussion of how outcomes are impacted by cultural contexts; and address issues of treatment access alongside treatment efficacy.
Additional Considerations

Many of the studies included in the current meta-analysis demonstrate efforts to remove bias in research by including under-represented group members in samples, however, this does not move research forward in terms of testing the very assumptions underlying the scientific method. Qualitative or mixed methods approaches allow for participants to have a voice beyond quantitative data, while participatory action research (PAR) involves underserved community members in the design, implementation and interpretation of research (Enns et al., 2013). Though research will always be limited in its ability to capture truths transferable beyond the moment of analysis, embracing the relativity of experience sets an example for researchers in other fields, clinicians, and policy makers to consider the impact of culture and context.

In order for research to be meaningful, thoughtful and critical, exploration of results in cultural contexts must follow intentional research design. If research on ACT is to illuminate its utility for a wide range of populations, then those populations cannot be reduced to diagnostic categories or demographic markers. Outcomes should be explored in real world contexts, which are impacted by oppression, discrimination, and inequality. Arch et al., (2012) with a methodological rating of 7 out of 8 in the current meta-analysis, found that ACT outperformed CBT on quality of life improvement in a sample of individuals, 28% of which were from racially under-represented groups, 52.3% of which were female. The target problem, depression and anxiety, was not impacted significantly however ($g = .04$). A feminist multicultural interpretation of these findings might discuss how ACT improves quality of life in the context of being a woman or racially under-represented group member.
Perhaps ACT helps women to juggle multiple roles, or defuse from oppressive societal messages about their bodies and sexuality. ACT might help ethnic non-majorities defuse from negative media images of people of color while staying connected to values-based goals. The conversation of current research can be extended beyond relevant statistics to include contextualized experience.

Finally, treatments that cannot be accessed by people in need are not useful, no matter how effective they appear in a research setting. Ten of the studies in the current meta-analysis addressed the importance of access, though these were largely recommendations for future research rather than aspects of the included research. Reducing the cost of access was a priority for several studies (e.g., Buhrman et al., 2013; Lundegren et al., 2006; Twohig et al., 2010; Weineland et al., 2012; Wicksell et al., 2009). Forman et al., 2007 suggested that ACT could be considered accessible on the basis of its effectiveness when delivered by therapists in training as opposed to requiring significant experience and training to be effective. Dehlin et al., 2013 and Woidneck et al., 2014 measured treatment acceptability as part of study protocol, and found that ACT was considered highly credible and acceptable by participants, which addresses internal barriers to treatment that could present in groups that are mistrustful of therapy or medical professionals. Hayes-Skelton et al., 2013 conducted qualitative interviews and reported that treatment was particularly acceptable to members of under-represented groups on the basis of emphasizing values-based living. Consideration of training and dissemination was also discussed (Hayes-Skelton et al., 2013).
Implications for Counselors and Counselor Educators

The most direct counseling implication of the current meta-analysis is that ACT has promise as a treatment for individuals from a range of cultural backgrounds, with a range of presenting issues. For counselor educators, ACT may be an effective skill set for counselors in training given that outcomes were not impacted by clinician experience level. Aside from these practical implications, clinicians will hopefully be challenged by the present meta-analysis to delve more deeply and critically into the research upon which they base their clinical work. Specifically, counselors are encouraged to evaluate treatment research on the basis of intentional inclusion of under-represented group members and to assess their own practices from a feminist multicultural standpoint.

Based on findings that suggest ACT’s effectiveness varies significantly around demographic variables such as race and age, clinicians are encouraged to explore how cultural factors may be impacting relationships and outcomes with clients. Relational Cultural Theory (RCT) provides concrete strategies for evaluating and building connection around cultural differences, as well as addressing client experiences of oppression and marginalization (Jordan & Hartling, 2002). Using RCT as a platform for providing ACT or other treatment modalities may aid the process of healing disconnections based on disempowerment and isolation.

Counselor educators serve three primary roles: teaching and supervision, research and scholarship, and service (Calley & Hawley, 2008). Within these diverse roles lies significant responsibility to act as gatekeepers of the counseling profession, while fostering growth and empowerment in future counselors. New therapists often struggle with the ambiguity
inherent in the counseling process, and frequently request concrete structure and skills in supervision (Rønnestad & Skovholt, 1993). ACT has promise as both a skill set to build new counselor confidence and a structure for providing supervision and guidance. The current meta-analysis found that clinician experience level did not predict therapy outcomes, suggesting that ACT may be an appropriate tool for new counselors that would simultaneously build efficacy for the counselor and lead to meaningful positive change for clients. As a supervision structure, ACT could help new counselors work with concrete thinking by enhancing psychological flexibility, however this has yet to be empirically investigated.

Finally, counselors are encouraged to assess the structures that could be impacting access to their services, and become a voice and a force of change in their own communities. Becoming a presence in the community can build a bridge to clients who would otherwise remain on the margins. Attending health vendor fairs in underserved communities, build relationships with religious leaders and healers, and providing free psychoeducation sessions can heighten therapist visibility, while creating opportunities for connecting with individuals who may otherwise perceive counseling as service beyond their means and reach or lacking relevance to their lives (Baruth & Manning, 2012 p. 48).

**Conclusion**

The current meta-analysis adds to the body of work that supports ACT as an effective treatment, but also raises significant concerns regarding the state of ACT research from a feminist multicultural perspective. ACT was found to improve primary outcomes as well as quality of life outcomes, however, these findings must be considered preliminary at best for
under-represented groups. The narrative of treating individuals who are not White, middle-class, Americans remains incomplete, and requires the voices of other social-cultural groups to be whole. Psychotherapy research continues to strive for legitimacy in the eyes of science—effort and work that seemingly requires adherence to a disempowering, reductive way of understanding human experience. However, researchers and clinicians have an opportunity to dismantle this arcane way of relating to empirical inquiry, and work toward dynamic and contextual knowledge that is built on a foundation of empowerment and change. The research evaluated in the current meta-analysis displays signs of that change as evidenced by Yadavaia and Hayes (2011) calling for a change in the social contexts that perpetuate stigma in people with substance use issues, and Lundgren et al. (2006) meeting with South African treatment providers to construct an ACT protocol that was relatable for locals with epilepsy.

From a philosophical perspective, ACT resonates with person-centeredness and seems to include space for empowerment and cultural awareness. The research must now meet the practical, inclusive, and relevant standards of feminist multiculturalism. With a tool such as ACT, modern psychotherapy research could move toward a more comprehensive and complex way of knowing, one that does not accept symptom reduction as the most valid metric of efficacy, rather considers connection, empowerment, and personally defined wellness to be the optimal standard of treatment success.
REFERENCES


meta-analyses. *Cochrane Handbook for Systematic Reviews of Interventions:*
Cochrane Book Series, 243-296.

States (2005).* DIANE Publishing.

and adolescents post-TBI: a systematic review and meta-analysis. *Journal of
Neurotrauma,* 29, 1717-1727.

Ellis, A. (2000). The importance of cognitive processes in facilitating accepting in
psychotherapy. *Cognitive and Behavioral Practice,* 7(3), 288-299.


Changes in quality of life (WHOQOL-BREF) and addiction severity index (ASI)
among participants in opioid substitution treatment (OST) in low and middle income
countries: An international systematic review. *Drug and alcohol dependence,* 134,
251-258.

Developmental Disabilities,* 16, 51-74.


perspectives (pp. 48-71). New York, NY: Guilford Press.


*Behaviour Research and Therapy, 44*(10), 1513-1522.


Appendix A

Coding Manual

Adapted from Thomas (2014)

Report
R1. Report number: ______________

R2. First author’s surname, year of publication

= ___________________________

R3. Type of organization
__ University
__ Government agency
__ Contract firm
__ Other = ____________________

Pre-Treatment Participant Information
S1. Sample size at baseline
__ = N total sample size
__ = n treatment group sample size
__ = n control group sample size
__ = n comparison group 1 sample size
__ = n comparison group 2 sample size

S2. Mean age
__ = Mean age of treatment sample
__ = SD
__ = Mean age of control sample
__ = SD
__ = Mean age of comparison group 1
__ = SD
__ = Mean age of comparison group 2
__ = SD

Category of mean age:
__ Child/Adolescent (0-19 years)
__ Adult (20-64 years)
__ = Older adult (65+ years)

Age range = __________
S3. Gender treatment group
___ = n female
___ = %
___ = n male
___ = %
___ = n non-binary
___ = %
___ = transgender
___ = %
___ = other
___ = %

S4. Gender control group
___ = n female
___ = %
___ = n male
___ = %
___ = n non-binary
___ = %
___ = transgender
___ = %
___ = other
___ = %

S5. Gender comparison group 1
___ = n female
___ = %
___ = n male
___ = %
___ = n non-binary
___ = %
___ = transgender
___ = %
___ = other
___ = %

S6. Gender comparison group 2
___ = n female
___ = %
___ = n male
___ = %
___ = n non-binary
___ = %
__ = transgender
__ = %
__ = other
__ = %

S7. Gender overall
__ = n female
__ = %
__ = n male
__ = %
__ = n non-binary
__ = %
__ = transgender
__ = %
__ = other
__ = %

S8. Race/ethnicity of treatment group
__ = White/Caucasian
__ = %
__ = Black/African American
__ = %
__ = Hispanic/Latina
__ = %
__ = Asian/Pacific Islander
__ = %
__ = Arabic/Middle Eastern
__ = %
__ = Native American
__ = %
__ = Biracial/Mixed race
__ = %
__ = other
__ = %

S9. Race/ethnicity of control group
__ = White/Caucasian
__ = %
__ = Black/African American
__ = %
__ = Hispanic/Latina
__ = %
__ = Asian/Pacific Islander
S10. Race/ethnicity of comp. group 1
  ___ = White/Caucasian
  ___ = Black/African American
  ___ = Hispanic/Latina
  ___ = Asian/Pacific Islander
  ___ = Arabic/Middle Eastern
  ___ = Native American
  ___ = Biracial/Mixed race
  ___ = other
  ___ = %

S11. Race/ethnicity of comp group 2
  ___ = White/Caucasian
  ___ = Black/African American
  ___ = Hispanic/Latina
  ___ = Asian/Pacific Islander
  ___ = Arabic/Middle Eastern
  ___ = Native American
  ___ = Biracial/Mixed race
  ___ = %
__ = other
__ = %

S12. Race/ethnicity overall
__ = White/Caucasian
__ = %
__ = Black/African American
__ = %
__ = Hispanic/Latina
__ = %
__ = Asian/Pacific Islander
__ = %
__ = Arabic/Middle Eastern
__ = %
__ = Native American
__ = %
__ = Biracial/Mixed race
__ = %
__ = other
__ = %

S13. Sexual orientation of treatment group
__ = Heterosexual/straight
__ = %
__ = Gay/Lesbian
__ = %
__ = Bisexual
__ = %
__ = Other
__ = %

S14. Sexual orientation of control group
__ = Heterosexual/straight
__ = %
__ = Gay/Lesbian
__ = %
__ = Bisexual
__ = %
__ = Other
__ = %

S15. Sexual orientation of comp group 1
__ = Heterosexual/straight
__ = %
__ = Gay/Lesbian
__ = %
__ = Bisexual
__ = %
__ = Other
__ = %

S16. Sexual orientation of comp group 2
__ = Heterosexual/straight
__ = %
__ = Gay/Lesbian
__ = %
__ = Bisexual
__ = %
__ = Other
__ = %

S17. Social status of treatment group
__ = incarcerated
__ = %
__ = Institutionalized
__ = %
__ = Community outpatient
__ = %
__ = Community general
__ = %

S18. Social status of control group
__ = incarcerated
__ = %
__ = Institutionalized
__ = %
__ = Community outpatient
__ = %
__ = Community general
__ = %

S19. Social status of comp group 1
__ = incarcerated
__ = %
__ = Institutionalized
__ = %
__ = Community outpatient
__ = %
__ = Community general
__ = %

S20. Social status of comp group 2
__ = incarcerated
__ = %
__ = Institutionalized
__ = %
__ = Community outpatient
__ = %
__ = Community general
__ = %

S21. National origin of treatment group
__ = Citizen
__ = %
__ = Immigrant
__ = %
__ = Refugee
__ = International student
__ = %

S22. National origin of control group
__ = Citizen
__ = %
__ = Immigrant
__ = %
__ = Refugee
__ = International student
__ = %

S23. National origin of comp group 1
__ = Citizen
__ = %
__ = Immigrant
__ = %
__ = Refugee
__ = International student
__ = %
S24. National origin of comp group 2
  _ = Citizen
  _ = %
  _ = Immigrant
  _ = %
  _ = Refugee
  _ = %

S25. Religion of treatment group
  _ = Christian
  _ = %
  _ = Muslim
  _ = %
  _ = Jewish
  _ = %
  _ = Eastern tradition
  _ = %
  _ = Atheist
  _ = %
  _ = Agnostic
  _ = %
  _ = Other
  _ = %

S26. Religion of control group
  _ = Christian
  _ = %
  _ = Muslim
  _ = %
  _ = Jewish
  _ = %
  _ = Eastern tradition
  _ = %
  _ = Atheist
  _ = %
  _ = Agnostic
  _ = %
  _ = Other
  _ = %
S27. Religion of comp group 1
__ = Christian
__ = %
__ = Muslim
__ = %
__ = Jewish
__ = %
__ = Eastern tradition
__ = %
__ = Atheist
__ = %
__ = Agnostic
__ = %
__ = Other
__ = %

S28 Religion of comp group 2
__ = Christian
__ = %
__ = Muslim
__ = %
__ = Jewish
__ = %
__ = Eastern tradition
__ = %
__ = Atheist
__ = %
__ = Agnostic
__ = %
__ = Other
__ = %

S29. Primary issue at intake
__ Depression/Anxiety
__ Behavioral issues
__ Other mental health
__ Chronic pain
__ Other physical
__ Social justice

Treatment Information
T1. Comparison group
__ Yes
__ No

T2. Number of comp groups
__ 1
__ 2
__ Other

T3a. Type of comp group 1
= ________________________

T3b. Type of comp group 2
= ________________________

T4. Number of sessions for ACT
= ____

T5. Mean attended ACT sessions
= ____

T6. Hours of ACT treatment
= ____

T7. Treatment fidelity assessment
__ Yes
__ No

T8. Fidelity results
__ Low
__ Medium
__ High

T9. Treatment setting
__ Community
__ University

Outcome Measures
O1. Primary, Non-QoL Outcome measure
O2. QoL Measure

Research Design
R1. Treatment group design
   __ Individual
   __ Group
   __ Online
   __ Other: ________________________

R2. Control group design
   __ Wait list
   __ Treatment as usual/standard care
   __ Minimal contact
   __ Placebo
   __ No treatment
   __ CBT
   __ Blended therapy
   __ Psychoeducation
   __ Supportive therapy

R3. Type of design
   __ RCT
   __ Quasi-experimental
   __ One group, pre/post

R4. Experience level of treating clinician
   __ Trained/licensed clinician
   __ Graduate student
   __ Trained layperson
   __ Untrained layperson

R5. Equivalence testing at pre-test?
   __ Yes
   __ No

R6. Significant differences?
   __ Yes
   __ No
Treatment Outcome Data

A1. Sample size at pre-treatment
Treatment = _______
Control = _______
Comp 1 = _______
Comp 2 = _______
Completion rate % = _______
Attrition rate % = _______

A2. Sample size at post-treatment
Treatment = _______
Control = _______
Comp 1 = _______
Comp 2 = _______
Completion rate % = _______
Attrition rate % = _______

A3. Sample size at follow-up 1
Treatment = _______
Control = _______
Comp 1 = _______
Comp 2 = _______
Completion rate % = _______
Attrition rate % = _______

A4. Sample size at follow-up 2
Treatment = _______
Control = _______
Comp 1 = _______
Comp 2 = _______
Completion rate % = _______
Attrition rate % = _______

A5. Total attrition N = _______
A6. ITT or completers only?
   __ ITT
   __ Completers

A7. Satisfaction rating
   __ = Treatment mean
   __ = SD
   __ = Control mean
   __ = SD
Effect Size Data
Page Number for data: ______

E1. Means and SD at pre-treatment
__ = Treatment mean
__ = SD
__ = Control mean
__ = SD
__ = Comp group 1 mean
__ = SD
__ = Comp group 2 mean
__ = SD

E2. Means and SD at post-treatment
__ = Treatment mean
__ = SD
__ = Control mean
__ = SD
__ = Comp group 1 mean
__ = SD
__ = Comp group 2 mean
__ = SD

E3. Means and SD at follow up 1
__ = Treatment mean
__ = SD
__ = Control mean
__ = SD
__ = Comp group 1 mean
__ = SD
__ = Comp group 2 mean
__ = SD

E4. Means and SD at follow up 2
__ = Treatment mean
__ = SD
__ = Control mean
__ = SD
__ = Comp group 1 mean
__ = SD
__ = Comp group 2 mean
__ = S
Appendix: B

Methodological Quality Rating Scale

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Allocation to conditions was based on randomization</td>
<td>1/0</td>
</tr>
<tr>
<td>2. Randomization scheme was described as appropriate, e.g. using a</td>
<td>1/0</td>
</tr>
<tr>
<td>computer, random number table</td>
<td></td>
</tr>
<tr>
<td>3. A dropout analysis was conducted or there were no dropouts</td>
<td>1</td>
</tr>
<tr>
<td>Reasons of attrition were reported, but no analysis was conducted</td>
<td>0</td>
</tr>
<tr>
<td>4. Intention to treat analysis was performed or there were no dropouts</td>
<td>1/0</td>
</tr>
<tr>
<td>5. At least one of the trainers was experienced or trained in ACT</td>
<td>1</td>
</tr>
<tr>
<td>Specific experience or training was not reported</td>
<td>0</td>
</tr>
<tr>
<td>6. a. Clinical samples: Participant was diagnosed by a trained and/or</td>
<td>1</td>
</tr>
<tr>
<td>licensed clinician, or patient was referred by a licensed clinician</td>
<td></td>
</tr>
<tr>
<td>prior to admission</td>
<td></td>
</tr>
<tr>
<td>Recruitment through media, or diagnosis based on a scale or self-</td>
<td>0</td>
</tr>
<tr>
<td>report</td>
<td></td>
</tr>
<tr>
<td>b. Non-clinical samples: Community-based</td>
<td>1</td>
</tr>
<tr>
<td>University samples</td>
<td>0</td>
</tr>
<tr>
<td>7. The study had a minimal level of statistical power to find significant</td>
<td>1</td>
</tr>
<tr>
<td>effects of the treatment, and included 50 or more persons in the</td>
<td></td>
</tr>
<tr>
<td>comparison between treatment and control group (this allows the study</td>
<td></td>
</tr>
<tr>
<td>to find standardized effect sizes of 0.80 and larger, assuming a</td>
<td></td>
</tr>
<tr>
<td>statistical power of 0.80 and alpha of 0.05)</td>
<td></td>
</tr>
<tr>
<td>Sample smaller than 50, or the total the sample was bigger than 50, but</td>
<td>0</td>
</tr>
<tr>
<td>the results were only reported divided by different studies</td>
<td></td>
</tr>
<tr>
<td>8. Treatment integrity was checked during the study by supervision of</td>
<td>1</td>
</tr>
<tr>
<td>the therapists during treatment, or by recording the treatment sessions,</td>
<td></td>
</tr>
<tr>
<td>or by systematic screening of protocol adherence by a standardized</td>
<td></td>
</tr>
<tr>
<td>measurement instrument</td>
<td></td>
</tr>
<tr>
<td>Treatment integrity was not checked, or integrity was supervised by</td>
<td>0</td>
</tr>
<tr>
<td>one of the therapists, or they tried to keep the intervention sound by</td>
<td></td>
</tr>
<tr>
<td>intensive consultation</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Veehof et al., 2010