



A systematic review of inclusion of minoritized populations in randomized controlled trials of acceptance and commitment therapy[☆]

Akshay Misra^{a,*}, Ashley Bryan^a, Naomi S. Faber^b, Destiny Printz Pereira^c, Sonya Faber^d, Monnica T. Williams^d, Matthew D. Skinta^a

^a Department of Psychology, Roosevelt University, 430 S Michigan Ave, Chicago, IL, 60605, USA

^b Department of Psychology, Bryn Mawr College, 101 N Merion Ave, Bryn Mawr, PA, 19010, USA

^c Department of Psychological Sciences, University of Connecticut, 406 Babbidge Road, Unit 1020 Storrs, CT, 06269-1020, USA

^d School of Psychology, University of Ottawa, Vanier, 136 Jean-Jacques-Lussier Private, Ottawa, ON K1N 9A8, Canada

ARTICLE INFO

Keywords:

Acceptance and commitment therapy
Systematic review
Minority inclusion
Ethnoracial minority
Sexual minority
Gender minority

ABSTRACT

Acceptance and Commitment Therapy (ACT) is an empirically supported treatment for a variety of clinical concerns and has over 1000 randomized controlled trials (RCTs). ACT may be a potentially effective treatment for racial, sexual orientation and gender diverse people who experience unique stressors related to their identities and higher rates of psychopathology and have unique mental health considerations. Despite this, there remains a lack of inclusion of reporting and inclusion of these communities in psychological research. This lack of inclusion of minority populations limits the generalizability of the findings of RCTs to those populations. Further, although there is a growing number of minority graduate students and trainees, this increased diversity often does not extend to their principal investigators. The current study reviews racial, sexual, and gender minority inclusion of participants as well as of principal investigators in 75 ACT RCTs performed in the United States ($n = 10,914$). Of these, 73% were White, 11% were Black, 5% were Latine, 3% were Asian, 2% were Native American, 0.4% were Pacific Islander, 0.1% were Middle Eastern, and 3% were multiracial while 1% were reported as Other and another 1% as Unknown. Of the 75 studies reviewed, 5 reported on sexual orientation and 73% of participants were heterosexual, 7% were gay or lesbian, 5% were bisexual, 2% were pansexual, 4% were asexual, 1% were queer, 1% were questioning, and 1% were reported as Other and 7% as Unknown ($n = 297$). Only two studies reported on gender identity beyond men and women, with one study including all cisgender participants and one study reporting that 2% of participants were nonbinary. Of the 32 PIs that responded, 94% were White, 2% were Mixed, and 2% were Asian. In terms of sexual orientation and gender identity, one PI was gay, one was asexual, and cisgender women authored 26% of studies. These results indicated that despite Black participants being more accurately represented, Latine and Asian participants were largely underrepresented. Regardless of level of representation, the numbers of racial, sexual, and gender minority participants were still limited and therefore conclusions cannot be made about the generalizability of ACT for these populations. Recommendations for more inclusive practices are provided. We discuss limitations to this review and the implications of PI refusal to report their sexual and gender identity.

1. Introduction

By 2050, projections show that the population of Black American, Hispanic, Asian, Indigenous, or Alaskan Native individuals will comprise of approximately 40% of the United States population, which equates to around 33 million people (Bernal & Scharrón-del-Río, 2001; Orlovic et al., 2019). Research suggests that people of color generally have

different mental health needs compared to the White population, however, these communities have less access to care and if they receive care, it is usually of poorer quality (Bernal & Scharrón-del Río, 2001). Moreover, Black Americans experience higher rates of psychosocial stressors compared to their White counterparts despite comparable rates of mental health wellness between Black and White Americans (Louie & Wheaton, 2018; Thomas Tobin et al., 2022). Historically, Whiteness has

[☆] This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

* Corresponding author. Dept. of Psychology, Roosevelt University, 430 S. Michigan Ave, Chicago, IL, 60605, USA.

E-mail address: amisra03@mail.roosevelt.edu (A. Misra).

been embedded in United States culture as the norm and central ideology that maintains systematic oppression and also serves as a factor for increasing the likelihood that people of color will experience race-related stress, depression, anxiety, and health disparities (Versey et al., 2019). As a result, people of color experience poorer mental and physical health due to actively protecting themselves against racial stereotypes and microaggressions (Versey et al., 2019). Moreover, scientific findings on race-based traumatic stress suggests that racial discrimination can be experienced by racial and ethnic minorities as a psychological trauma, which may manifest through posttraumatic stress symptoms (Polanco-Roman et al., 2017). For example, Black Americans disproportionately experience higher rates of posttraumatic stress disorder (PTSD) which becomes compounded by experiences of racism and discrimination; additionally, the risk for developing PTSD is greater for Black Americans and persists beyond young adulthood more when compared with White Americans (Himle et al., 2009; Williams et al., 2014).

2. Prevalence of psychopathology amongst sexual, gender, racial, and multiple minority groups

Lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals are largely underrepresented in randomized clinical trials (RCTs), which negatively impacts mental health treatment for sexual and gender minority (SGM) individuals due to their unique experiences related to internalized stigma, resilience, coping, and behavioral health (Budge et al., 2017).

SGM individuals experience unique microaggressions and minority stressors which contributes to the need for increased diversity in RCTs to improve treatment effects and generalizability of findings (Budge et al., 2019; Polo et al., 2018). Individuals who are a part of multiple-stigmatized groups, such as lesbian, gay, bisexual, transgender, and queer people of color (LGBTQ-POC), are more likely to experience both external (prejudice/discrimination) and internal (self-doubt/rumination) stressors that shape their lived experiences and contribute to psychopathology (Budge et al., 2017). Multiple-minoritized populations, specifically LGBTQ-POC, have an increased risk for negative physical and psychological health outcomes due to experiences of cumulative discrimination and social exclusion, such as racism from the LGBTQ community and heterosexism and homophobia within their racial/ethnic community (Budge et al., 2017; Cyrus, 2017; Sutter & Perrin, 2016). These compounded experiences of discrimination and prejudice not only contributes to the risk of mental health challenges among LGBTQ-POC, but also has implications on their access to quality of care and mental health services.

3. The presence of minoritized populations in RCTs

Researchers have suggested multiple factors that create barriers for the recruitment of ethnic minorities into mental health research, including lack of trust, stigma, logistical issues, differences in explanatory models, and lack of cultural awareness in researchers (Waheed et al., 2015). A systematic review exploring all published randomized control trials in panic disorders, for example, showed that only 44.7% of RCTs reported ethnicity data for their sample (Mendoza et al., 2012). Further, only 24% of Canadian and US studies included Latino participants, highlighting the underrepresentation of Latinos in clinical trials for obsessive compulsive disorder (OCD; Williams et al., 2010). In order to meet this need in research, innovative and culturally sensitive recruitment strategies are necessary to research and implement in order to promote effective services and interventions to minority populations. Research suggests that people who engage in clinical trials have better health outcomes – hence, including minorities into RCTs provides an opportunity for better generalizability of research findings and helps provide equitable treatment for those communities (Hussain-Gambles et al., 2004).

The empirical literature pertaining to the underrepresentation of SGM participants in RCTs suggests that most researchers fail to collect or report any data on sexual orientation and gender diversity. A systematic review exploring the frequency of data included in RCTs in behavioral and psychological interventions for depression and anxiety found that there was only one study that reported the sexual orientation of participants, and no articles included non-cisgender gender identities (Heck et al., 2017). This emphasizes the need for reform in RCTs reporting practices if our clinical science is assumed to be generalizable across populations.

There is also a lack of empirically supported treatments for minority communities, especially for LGBTQ-POC individuals. There are few efficacy studies and RCTs that have been conducted with ethnic minorities (Bernal & Scharron-del Rio, 2001). This is a problem because randomized controlled trials (RCTs) are considered the gold standard in the field of psychological and medicinal interventions, however, sexual, gender, and racial/ethnic minorities are often under-represented in these studies (Hussain-Gambles et al., 2004). As a result, there is a lack of external validity for interventions to treat minority communities, which creates an issue of generalization due to an absence of data to support mental health treatment for minority groups. Excluding ethnic, racial, gender, and sexual minorities from clinical trials is not only bad science but it also impacts the external validity of trial findings.

3.1. Acceptance and commitment therapy (ACT)

Acceptance and Commitment Therapy (ACT) aims to help individuals engage in behaviors that align with one's values even in the presence of unwanted emotions or cognitions (Hayes et al., 2012; Polanco-Roman et al., 2017; Pull, 2008). There is a growing body of evidence and RCTs that suggest that ACT can be an effective intervention to treat a variety of disorders, including depression, pain, anxiety disorders, trichotillomania, substance use, psychotic disorder, epilepsy, and depression (Polanco-Roman et al., 2017). ACT is recognized by Division 12 of the American Psychological Association as an evidence-based method for treating depression, chronic pain, coping with psychosis, and mixed anxiety disorders (Hayes et al., 2012). There is also research suggesting that ACT can be effective in reducing prejudice and ethnic and racial stigma (Williams et al., 2020), though there is a need for more controlled conducted studies and large sample sizes to explore if ACT is generally as or more effective compared to other treatment approaches (Pull, 2008).

3.2. The presence of minoritized populations in ACT research

There is support that ACT may be effective for many different presenting problems as other forms of CBT. ACT has also been deemed as adaptable for a diverse set of populations (Hayes et al., 2012). Given ACT's foundation of functional contextualism, cases are conceptualized and treatment is planned on an individual basis for every patient. For example, treatment may vary in the level of therapist self-disclosure, may be more or less directive given the client's culture and unique history, and may include culturally relevant metaphors (Masuda et al., 2022). While values vary from culture to culture, the idea of therapy incorporating self-identified values into their social context potentially makes ACT adaptable (Harris, 2006).

Though there is a lack of literature regarding how ACT can be applied to different populations, there is one meta-analysis that explores the efficacy of ACT with diverse populations. Fuchs et al. (2013) explored how ACT can be applied to treatment for clients from nondominant cultural or marginalized backgrounds. They discuss how acceptance-based behavioral therapies (ABBTs) emphasize how narrowed responses (i.e., psychological inflexibility) to affective and cognitive experiences, such as judgment, confusion, and avoidance, negatively affect one's life. Thus, ABBT's may be helpful for people from marginalized or underserved backgrounds experiencing minority

stressors in several ways by targeting psychological flexibility. Psychological flexibility, the overarching target of ACT, has been shown to mediate the relationship between experiences of sexual racism and minority stress in sexual minority men of color as well as the relationship between increased engaged living and stress related to sexual orientation (Bhambhani et al., 2020; Chan & Yip, 2021). Additionally, ABBTs emphasize the self-as-context, that psychological suffering is a universal experience, and the contextual factors that contribute to a person's distress. As all of these factors are external to the qualities of the individual, ABBTs may be particularly relevant and beneficial to minoritized communities who may have adverse histories with healthcare systems or who have previously been blamed for and internalized their struggles by either previous providers or based on cultural beliefs (Fuchs et al., 2013).

Fuchs et al. (2013) further underscore that ACT takes a dialectical stance, balancing the acceptance of pain that is not freely changeable and often due to contexts beyond our control with the identification of behavioral changes that are within our control. For ethnoracial, sexual, and gender minorities in the United States whose pain is often a product of minority stress and systemic inequities, this stance can empower individuals to engage in valued action without minimizing or pathologizing their pain. While the literature suggests the efficacy of ACT, more research needs to be conducted especially regarding the effectiveness of ACT with racial, sexual, and gender minority populations to strengthen the generalizability of findings and accounts of confounding factors.

3.3. The current study

This study attempts to determine the success of both participant and researcher inclusion efforts within ACT RCTs. As noted in past reviews of RCTs and their degree of inclusion by race, gender identity, or sexual orientation, limits to inclusion similarly limit the claims that might be made about the generalizability of an intervention. Available data has been systematically assessed, with each article reviewed for inclusion followed by a review of the identities of those principal investigators (PI) who drive the development of ACT RCTs.

4. Methods

This review was based upon the regularly maintained list of ACT RCTs by the Association for Contextual Behavioral Sciences for only those studies conducted in the United States, checked against additional RCTs primarily found on PsychInfo and MEDLINE via PubMed. Demographic data, such as sexual orientation as well as racial and gender identity was collected in an excel document and correlations were run to assess relationships between race, sexuality and gender identity inclusion as well as recruitment methods. In addition to this, we collected data on the total number of participants enrolled in each study, names of the respective journals, and year of publication. Our initial data collection covered over 65 types of disorders within the 100 papers, including common mental health diagnoses such as depression and eating disorders, as well as health behaviors derived from or associated with medical diagnoses such as cancer and human immunodeficiency virus (HIV). Trials on the efficacy of behavioral therapy for conditions including weight loss and smoking cessation were also found among the collected studies.

Other collected data from the pool of studies included city and state of origin, hours of treatment exposure, recruitment methods, treatment modalities of which there were six (one-on-one, group, web-based, virtual, self-help group app, or zoom), and the number of sites, with the majority of studies taking place at one site. Recruitment methods for each study included a variety of new and old media methods (clinical referral, internet, email, word of mouth, etc.), and were coded as 1 (method was used in the study) and 0 (method was not used) for subsequent statistical evaluation. Treatment modalities were coded in an identical manner. Data analyzed also included the category “relevant

patient outcomes” in which outcomes of each study were summarized and compared with the category “Racial and ethnic outcomes,” the purpose of which was to provide data about any relevant differences between racialized participants and White participants.

Studies were excluded if they were: 1) Conducted outside of the U.S, 2) Not published in English, or 3) Sample duplicates or secondary analyses of papers that were already accounted for in the search. A total of 100 papers were systematically reviewed in this fashion. 11 reviewed studies did not report on race and 14 only reported binary, White, and Non-white categories for race and were therefore excluded from review. See Fig. 1 for an overview of the study selection in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

4.1. Characteristics of principal investigators

Demographic information about the authors was also collected. As these questions were only being asked of principal investigators regarding basic demographic data, our institutional review board determined this fell under the Common Rule with no consent documentation required. The official institution webpage for the corresponding author for each article was examined to determine if gender and ethnic background were publicly noted. For each author where this information was not available, the individuals were contacted by email where they were asked to confirm their role as primary researcher of the article and to share their age, gender identity, sexual orientation, race, and ethnicity. The corresponding authors of the 75 included studies were contacted. Nine principal investigators authored multiple studies resulting in a total of 54 authors who were contacted. Twenty-two authors did not respond while an additional two authors responded but both declined to provide sexual orientation and one declined to provide gender identity information. Ethnoracial data from 32 authors, sexual orientation data from 30 authors, and gender identity data from 29 authors were included for review.

4.2. Statistical analyses and outcome measures

SPSS was used to conduct all analyses. Demographic data from participants in included studies were organized within Excel. Percentages of participant and PI racial, sexual, and gender identities were calculated based on the number of participants for whom this data was reported. Data were also coded based on whether ACT interventions were used in relation to specific clinical concerns (i.e., coping with physical or mental health diagnosis), general distress, reducing stigma, and mental health professionals. Recruitment was coded based on methods used, such as clinician referral, local advertisements, and word of mouth and a biserical correlation was used to assess the relationship between recruitment method and minority inclusion. Two-sample z-tests were used to determine significance of differences in inclusion of ethnoracial identities in RCTs compared with the United States population.

5. Results

5.1. Study selection

The initial search resulted in 100 studies. A total of 25 studies were excluded from this review due to missing demographic data. Eleven articles did not report race, and 14 articles did not include sufficient demographic data for this study. For example, Bricker et al. (2013) and Mosher et al. (2018) only reported the proportion of participants that were White in their demographic data table and England et al. (2012) reported that most participants were White. The included studies spanned from 2002 to 2022 across 34 journals. The diversity of targets amongst the selected studies restricted the ability to compare results to established norms for DSM targets based on race. A majority of studies

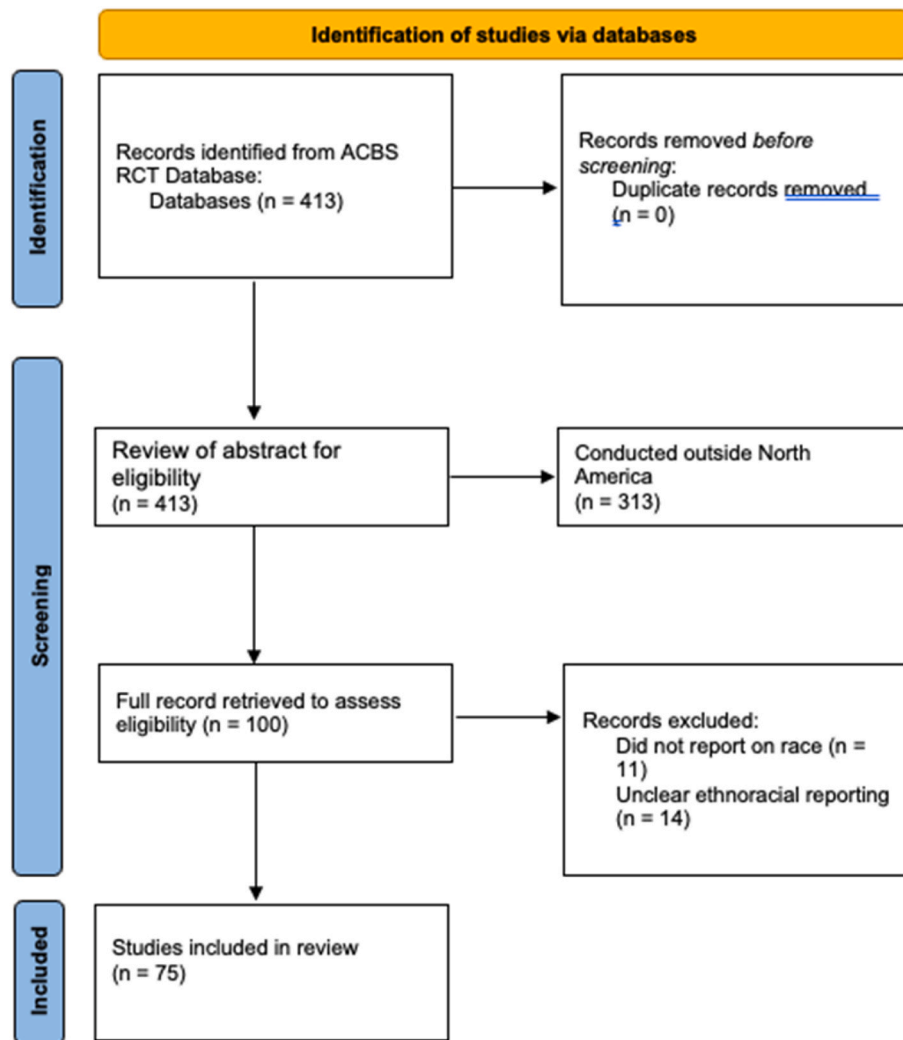


Fig. 1. Flow diagram of study selection.

explored ACT interventions targeting specific clinical concerns (84%), with the most common being anxiety. Six studies involved participants experiencing significant general distress. Two studies examined the

transdiagnostic utility of ACT. Three studies explored ACT interventions in reducing stigma, such as attitudes towards people with psychological disorders and reducing microaggressions on college campuses and

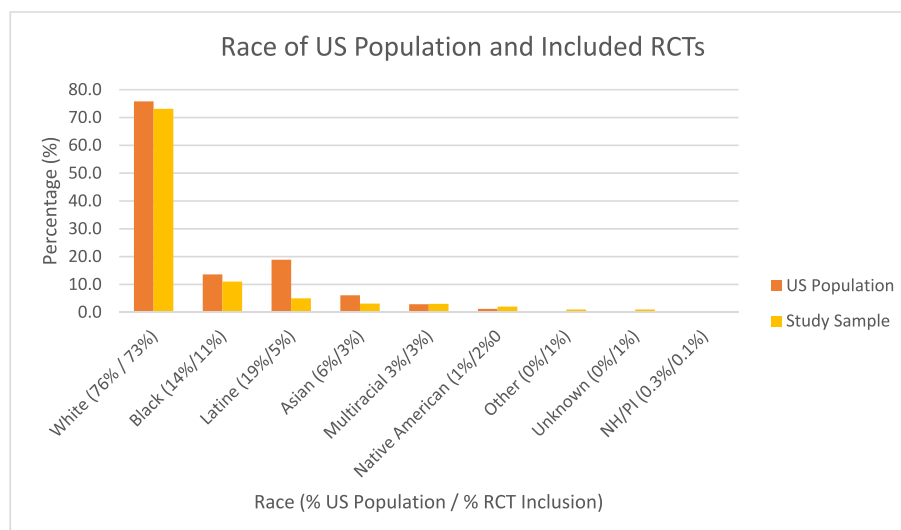


Fig. 2. Race of participants in United States population and included studies.

healthcare. Two studies examined the use of ACT interventions with mental health professionals.

5.2. Racial and ethnic minority inclusion

The 75 studies in this sample included 10,914 participants. Among these participants, 8010 (73%) were White, 1212 (11%) were Black, 595 (5%) were Latine, 373 (3%) were Asian, 174 (2%) were Native American, 45 (0.4%) were Pacific Islander, 7 (0.1%) were Middle Eastern, and 343 (3%) were multiracial. Another 117 (1%) were reported as Other and 72 (1%) were reported as Unknown. Reporting of Latine inclusion was inconsistent throughout the sample as studies used various labels. Ten (13%) studies had majority non-White samples and one study had a fully Japanese sample. Eight (11%) studies reported on differential outcomes for racial and ethnic minorities. Black, Latine, Asian, and Native Hawaiian or Other Pacific Islander groups were underrepresented in the included ACT RCTs compared with the United States population estimates from 2021 (see Fig. 2). Proportions of White ($z = -6.59, p < .01$), Black ($z = -7.92, p < .01$), Latine ($z = -37.01, p < .01$), Asian ($z = -13.1, p < .01$), and Native Hawaiian/Pacific Islander ($z = 7.68, p < .01$) participants reported in RCTs were all significantly less than corresponding United States population estimates.

Note. Racial representation of the United States population based on 2021 census estimates from compared with participants in the sample of included studies. NH/PI = Native Hawaiian/Pacific Islander (U.S. Census Bureau, 2021).

5.3. Sexual and gender minority participant inclusion

Five of 75 studies explicitly reported on sexual orientation, though this was only reported for 297 participants of the 319 participants. Of these, 73% were heterosexual, 7% gay or lesbian, 5% bisexual, 2% pansexual, 4% asexual, 1% queer, 1% questioning, 1% reported as “other”, and 7% listed as “unknown”. None of the studies reported outcomes for sexual minority participants compared to heterosexual participants. Two studies (Bricker et al., 2018; Lee et al., 2018) reported on LGBTQ identity but did not provide more specific demographic data for these participants. 74 of 75 studies reported on binary gender identities (i.e., men/women), though only two studies described gender identities more broadly. Serowik et al. (2020) conducted a study that noted all participants as cisgender and reported that there were no trans participants. Eustis et al. (2018) reported that 2% of participants in their study reported their gender as nonbinary. No authors or studies have reported on participants who were LGBTQ+ and people of color.

5.4. Principal investigator demographics

The identified studies included 54 principal investigators who were subsequently contacted to obtain racial, ethnic, gender identity, and sexual orientation demographic data. 22 PIs did not respond to multiple attempts to contact them, and one declined to share their information. Demographic data from 32 PIs, accounting for 50 studies, was collected, resulting in a 59% response rate. Of these PIs, 94% were White, 2% were Mixed, and 2% were Asian American. Nine PIs were particularly prolific, conducting multiple studies. Of these, seven reported their race as White.

PIs were also asked to share their sexual orientation and gender identity. Two authors declined to provide their sexual orientation and one of them also declined to provide their gender identity (see discussion below regarding specific feedback on surveying sexual orientation and gender identity). Ninety-four percent of studies were conducted by heterosexual, cisgender PIs, though there was one asexual PI and one gay PI represented among those studies reviewed. Cisgender women authored 26% of studies.

5.5. Recruitment methods

Many of the studies in the sample (49%) used multiple recruitment methods. The use of flyers and local advertisements (49%; $r = -0.064, p = .59$), clinical referral (25%; $r = -0.12, p = .31$), and internet advertisements (24%; $r = -0.054, p = .65$) were the most common, and were not correlated with increased inclusion by people of color.

6. Discussion

The results present a nuanced view of the current state of ACT research and diversity, as significant underrepresentation of a group in therapeutic research calls into question the applicability and generalizability of the treatment being studied. It is important that clinical trials accurately reflect the diversity present in the larger, American population. Black, Latine, Asian, and Native Hawaiian or Other Pacific Islander groups were found to be significantly underrepresented in ACT RCTs in comparison to their compositions of the United States population. The problem of underrepresentation of minority groups in research is compounded further when considering the need to oversample minority groups to ensure statistical relevance (Mendoza et al., 2012). Oversampling refers to the intentional selection of participants from specific subgroups in higher numbers than what would be expected in a random sample. This practice is common in health disparity research to obtain sufficient data from minority groups in order to obtain sufficient data for meaningful analysis within these groups (Chen et al., 2020).

While the Black community seems relatively well represented, the negligible representation of Latine participants and low representation of Asian American participants is evident and leaves more to be desired from research in this field. Further, though Black people are numerically present across studies, without subgroup analysis, given the relatively small numbers of Black people per study, it cannot be assumed the ACT interventions were effective for them (Williams et al., 2013). The sparse reporting on gender identity and sexual orientation limits any claims regarding efficacy or effectiveness for gender identity and sexual orientation minoritized populations. The lack of consideration of intersectional identities further limits study results.

ACT research is comparatively better at representative recruitment of Black participants than clinical trials for OCD treatment, as recorded in 2010 (1.0%) and clinical trials for panic disorders as recorded in 2012 (4.9%) (Mendoza et al., 2012; Williams et al., 2010). It also seems more representative of Latine populations than OCD trials and panic disorder trials where, even with the conflation of Hispanic and Latine participants in a single category, the percentage remained at 1% and 3.4% respectively (Mendoza et al., 2012; Williams et al., 2010). While ACT research representation seems to show considerable improvement when compared to reviews of CBT RCTs with OCD and panic disorders, even the improved numbers are still considerably non-representative when compared to census data. It is also important to note that the percentages given for OCD and panic disorders may be outdated and the lack of new, up to date articles assessing racial inclusivity in therapeutic treatment is indicative of a glaring gap in the existing literature.

None of the studies reviewed reported on differences in outcomes for different ethnorracial groups. However, eight studies had a majority of participants of color, two of which were written by authors of color. In a study comparing ABBT with CT for test anxiety, Brown et al. (2011) found that their sample of majority non-White participants had improved test scores following treatment. In the only study consisting of an entire sample of people of color, Japanese college students studying in the United States were found to have experienced improved mental health and increased psychological flexibility from two months of ACT bibliotherapy (Muto et al., 2011). In a study with a sample consisting of 50% Black mental health professionals, Bethay et al. (2013) found that ACT in combination with applied behavioral analysis training resulted in improved general distress in those who actively practiced the ACT skills, and this improvement was greater for those who were more

initially distressed compared with applied behavioral analysis alone. Forman, Hoffman, et al. (2013a, b) compared the effectiveness of cognitive- and acceptance-based coping skills to avoid consumption of sweets for a sample including over 50% women of color. Results of this study suggested that rates of cravings and level of consumption were reduced for the acceptance-based consumption group and these results were stronger for those that reported greater awareness of the food environment and increased emotional eating. In a sample of college-aged men with gambling disorder (67% Black), those that received 8 h of individual sessions of ACT experienced increased psychological flexibility and present-moment awareness when compared with no treatment (Dixon et al., 2016). Compared with treatment as usual, Moitra et al. (2017) found ABBT to improve attendance to medical appointments, illness-related experiential avoidance, willingness to disclose HIV status, and number of HIV disclosures in a sample of predominantly participants of color living with HIV (22% White). Herbert et al. (2018) conducted a replication study comparing ACT and CBT for social anxiety disorder and found that both treatments resulted in improvements in symptoms, although this improvement was more prevalent in the CBT group (49% White). Sander et al. (2021) found that among a majority non-White sample of individuals suffering from mild to moderate traumatic brain injury, those that received eight sessions of ACT had improved psychological distress as well as increased psychological flexibility and committed action (27% Black, 25% Latine).

The current review does not provide adequate evidence to conclude whether these treatments are effective or are being effectively culturally adapted for Latine groups and, while there has been some improvement in diversity within studies, continued changes are needed to ensure a generalizable clinical science in the future.

6.1. Recommendations

There is no substantial evidence that suggests insufficient reporting of ethnoracial, sexual, and gender identities of research participants is due to a lack of awareness on how to assess for such data on the part of ACT researchers. It is the norm to often report the portion of White participants, revealing the ability to collect such data but oversight in its inclusion in papers. The findings of the current paper underscore the need for improved methodology and intentionality in the way demographic data is disseminated for publication.

Various authors have outlined recommendations that address the trend of omitting detailed demographic data in publications. When assessing sexual orientation and gender identity, Suen et al. (2020) provide recommendations for assessing sexual orientation and gender identity based on qualitative data gathered from a diverse sample of SGM participants. Questions assessing sexual orientation and gender identity must account for both complexity and fluidity by including write-in answers and allowing for the selection of multiple answers. These suggestions allow for participants to express themselves in linguistically relevant ways. Additionally, questions should be specific in what they are assessing (e.g., sexual behavior, attraction, or identity or gender expression, assigned sex at birth, or internal gender identity). While these recommendations have historically been considered barriers to obtaining statistically relevant conclusions, they address the culture of avoidance towards these groups and provide for a more nuanced view of RCT results. In addition to recruiting diverse samples and including detailed breakdowns of ethnoracial demographics, Roberts et al. (2020) recommend that authors justify their demographics as they would other parts of their methodology such as sample size. These recommendations incentivize authors to critically evaluate their involvement in their and subsequent challenging of the current norms regarding this data.

Beyond comprehensive reporting of participant demographics, it is also recommended that research teams critically evaluate their own demographics. Although ACT researchers have demonstrated a value for training underrepresented minority students, this study illuminates that

the vast majority of the power amongst research teams still resides with White principal investigators (Martin et al., 2022). Even amongst research teams that are diverse in terms of identity and institutional rank, they still often reflect societal power structures with cisgender White men making the research decisions. It is imperative that those with power over teams commit to inclusive practices such as mentorship, sponsorship, allowing space for disagreement from research members with less power, and engaging in reflexivity (Hattery et al., 2022).

6.2. Limitations

Limitations exist both within this approach to assessing diversity within ACT research, as well as within reporting in the contextual behavioral science world. Firstly, it may have been possible to more systematically approach PIs to request access to raw data, or to query whether data was collected but not reported. This might increase the generalizability of claims regarding ACT efficacy if this data were to exist without prior report. Further, in our query of PI demographic information, we received feedback from one helpful PI early on that the tone might be overly informal and the description of the purpose of data collected was unclear. This led to deeper team discussion and a revised text that was used with all non-respondents after that point, though there is the possibility that a first impression a PI did not find compelling may have reduced willingness to respond at a later date. Finally, the nature of such a review necessitates that the source data has aged by the time a review is complete. Larger, more diverse studies that may be underway today or recently completed will not be reflected in this review, even if they appear in print or are disseminated prior to this publication. To that end, this still may serve as an important touchstone of where ACT RCTs merit improvement at this point in time.

6.3. PI responses to demographic query

The response of PIs to the demographic questions was informative in a variety of ways. The decision had been made to only survey PIs as growing diversity among trainees and graduate students might artificially create a sense of inclusion in the field when those individual's identities have not translated into changing demographics among independent researchers. Many PIs noted a desire to report the demographics of their team or concern about the team's exclusion from this survey as contributors to the science of ACT RCTs. In each case a PI asked about this, the rationale was shared.

Responses to questions regarding sexual orientation, in particular, yielded a small number of strongly worded responses. In addition to those noted as refusing to respond only to those questions mentioned above, others expressed concern that it would be asked or shock that one could ask principal investigators, with the societal privileges this role suggests, about this demographic variable without a higher degree of IRB scrutiny. The notion that sexual orientation is more sensitive than other demographics, or that sexual minoritized people are vulnerable in a manner that asking might lead to harm, has long been rejected by LGBTQ+ researchers within the United States in studies that involve adults (some greater protections might be necessary when conducting research with minors to prevent unwanted disclosure that would place youth at risk) (e.g., McDonald, 2016). To the contrary, the belief that asking about sexual orientation is inappropriate has been criticized as having a chilling effect on the advancement of relevant science and denies sexual minoritized people of their autonomy (e.g., Blair, 2016). This raises important concerns that ACT RCTs are neglecting to assess sexual orientation and gender diversity through a misplaced sense of protectionism among PIs, paradoxically weakening the basis of a science of intervention that might reduce bias-driven suffering among sexual minoritized people. While those PIs who responded strongly or angrily with a clear desire to not respond were not engaged on this topic, those who expressed concern in a more open manner received an educational

email from the PI of this review (MDS) explaining the homophobic function of that concern. More work is needed to determine if group norms, experiential avoidance, or beliefs about acceptable demographic questions pose a barrier to inclusion in this area.

7. Conclusion

ACT RCTs, while only serving as one form of evidence for the utility of this therapeutic approach, are an important source of information for the generalizability of interventions across populations. As explored in this review, there appear to be a mix of both strengths and weaknesses within the published body of research. The greatest need for increased diversity may be among principal investigators, as limited diversity by those conducting research reduces the likelihood that meaningful questions will be asked, regardless of participant inclusion in clinical trials. There is some evidence that ACT researchers value mentoring trainees of color though our findings highlight the continued absence of principal investigators of color (Martin et al., 2022). Secondly, there are a number of underrepresented populations included within ACT RCTs, with Latine participants perhaps most conspicuous in their underrepresentation. Greater efforts might be taken to overrepresent participants of color in ongoing clinical trials. Finally, the near absence of reporting on sexual orientation or gender categories beyond man and woman are indicative of both a culture of avoidance and disinterest in the needs and utility of these approaches for sexual orientation and gender minoritized populations. It is important not simply that practice change, but that the contextual behavioral scientific community grapple more deeply with the assumptions and practices that drive such neglect.

Declaration of competing interest

Given his role as an Editorial Board Member, Mathew D. Skinta had no involvement in the peer-review of this article and had no access to information regarding its peer-review. No further conflicts of interest.

References

- Bernal, G., & Scharón-del-Río, M. R. (2001). Are empirically supported treatments valid for ethnic minorities? Toward an alternative approach for treatment research. *Cultural Diversity and Ethnic Minority Psychology, 7*(4), 328–342. <https://doi.org/10.1037/1099-9809.7.4.328>
- * Bethay, J. S., Wilson, K. G., Schnitzer, L. W., Nassar, S. L., & Bordieri, M. J. (2013). A controlled pilot evaluation of acceptance and commitment training for intellectual disability staff. *Mindfulness, 4*(2), 113–121. <https://doi.org/10.1007/s12671-012-0103-8>
- Bhambhani, Y., Flynn, M. K., Kellum, K. K., & Wilson, K. G. (2020). The role of psychological flexibility as a mediator between experienced sexual racism and psychological distress among men of color who have sex with men. *Archives of Sexual Behavior, 49*(2), 711–720. <https://doi.org/10.1007/s10508-018-1269-5>
- Blair, K. L. (2016). Ethical research with sexual and gender minorities. *The SAGE encyclopedia of LGBTQ studies, 3*, 375–380.
- Bricker, J. B., Mull, K. E., McClure, J. B., Watson, N. L., & Heffner, J. L. (2018). Improving quit rates of web-delivered interventions for smoking cessation: Full-scale randomized trial of WebQuit.org versus Smokefree.gov: Improving quit smoking rates of websites. *Addiction, 113*(5), 914–923. <https://doi.org/10.1111/add.14127>
- * Bricker, J., Wyszynski, C., Comstock, B., & Heffner, J. L. (2013). Pilot randomized controlled trial of web-based acceptance and commitment therapy for smoking cessation. *Nicotine & Tobacco Research, 15*(10), 1756–1764. <https://doi.org/10.1093/ntr/ntt056>
- * Brown, L. A., Forman, E. M., Herbert, J. D., Hoffman, K. L., Yuen, E. K., & Goetter, E. M. (2011). A randomized controlled trial of acceptance-based behavior therapy and cognitive therapy for test anxiety: A pilot study. *Behavior Modification, 35*(1), 31–53. <https://doi.org/10.1177/0145445510390930>
- Budge, S. L., Israel, T., & Merrill, C. R. S. (2017). Improving the lives of sexual and gender minorities: The promise of psychotherapy research. *Journal of Counseling Psychology, 64*(4), 376–384. <https://doi.org/10.1037/cou0000215>
- Chan, K. K. S., & Yip, C. C. H. (2021). The impact of psychological flexibility on sexual identity stress and well-being among lesbian, gay, and bisexual individuals. *American Journal of Orthopsychiatry, 91*(5), 660–670. <https://doi.org/10.1037/ort0000567>
- Chen, S., Stubblefield, A., & Stoner, J. A. (2020). Oversampling of minority populations through Dual-Frame surveys. *Journal of survey statistics and methodology, 9*(3), 626–649. <https://doi.org/10.1093/jssam/smz054>
- Cyrus, K. (2017). Multiple minorities as multiply marginalized: Applying the minority stress theory to LGBTQ people of color. *Journal of Gay & Lesbian Mental Health, 21*(3), 194–202. <https://doi.org/10.1080/19359705.2017.1320739>
- * Dixon, M. R., Wilson, A. N., & Habib, R. (2016). Neurological evidence of acceptance and commitment therapy effectiveness in college-age gamblers. *Journal of Contextual Behavioral Science, 5*(2), 80–88. <https://doi.org/10.1016/j.jcbs.2016.04.004>
- * Eustis, E. H., Hayes-Skelton, S. A., Orsillo, S. M., & Roemer, L. (2018). Surviving and thriving during stress: A randomized clinical trial comparing a brief web-based therapist-assisted acceptance-based behavioral intervention versus waitlist control for college students. *Behavior Therapy, 49*(6), 889–903. <https://doi.org/10.1016/j.beth.2018.05.009>
- * Forman, E. M., Butryn, M. L., Juarascio, A. S., Bradley, L. E., Lowe, M. R., Herbert, J. D., & Shaw, J. A. (2013a). The mind your health project: A randomized controlled trial of an innovative behavioral treatment for obesity: Innovative behavioral treatment for obesity. *Obesity, 21*(6), 1119–1126. <https://doi.org/10.1002/oby.20169>
- * Forman, E. M., Hoffman, K. L., Juarascio, A. S., Butryn, M. L., & Herbert, J. D. (2013b). Comparison of acceptance-based and standard cognitive-based coping strategies for craving sweets in overweight and obese women. *Eating Behaviors, 14*(1), 64–68. <https://doi.org/10.1016/j.eatbeh.2012.10.016>
- Fuchs, C., Lee, J. K., Roemer, L., & Orsillo, S. M. (2013). Using mindfulness and acceptance-based treatment with clients from nondominant cultural and/or marginalized backgrounds: Clinical considerations, meta-analysis findings, and introduction to the special series. *Cognitive and Behavioral Practice, 20*(1), 1–10. <https://doi.org/10.1016/j.cbpra.2011.12.004>
- Harris, R. (2006). Embracing your demons: An overview of acceptance and commitment therapy. *Psychotherapy in Australia, 12*(4), 2–8.
- Hattery, A. J., Smith, E., Magnuson, S., Monterrosa, A., Kafonek, K., Shaw, C., Mhonde, R. D., & Kanewske, L. C. (2022). Diversity, equity, and inclusion in research teams: The Good, the bad, and the Ugly. *Race and Justice, 12*(3), 505–530. <https://doi.org/10.1177/21533687221087373>
- Hayes, S. C., Jacqueline, P., & Levin, M. E. (2012). Acceptance and commitment therapy as a unified model of behavior change. *The Counseling Psychologist, 40*(7), 976–1002. <https://doi.org/10.1177/0011000012460836>
- Heck, N. C., Mirabito, L. A., LeMaire, K., Livingston, N. A., & Flentje, A. (2017). Omitted data in randomized controlled trials for anxiety and depression: A systemic review of the inclusion of sexual orientation and gender identity. *Journal of Consulting and Clinical Psychology, 85*(1), 72–76. <https://doi.org/10.1037/ccp0000123>
- * Herbert, J. D., Forman, E. M., Kaye, J. L., Gershkovich, M., Goetter, E., Yuen, E. K., Glassman, L., Goldstein, S., Hitchcock, P., Tronieri, J. S., Berkowitz, S., & Marando-Blanc, S. (2018). Randomized controlled trial of acceptance and commitment therapy versus traditional cognitive behavior therapy for social anxiety disorder: Symptomatic and behavioral outcomes. *Journal of Contextual Behavioral Science, 9*, 88–96. <https://doi.org/10.1016/j.jcbs.2018.07.008>
- Himle, J. A., Baser, R. E., Taylor, R. J., Campbell, R. D., & Jackson, J. S. (2009). Anxiety disorders among African Americans, blacks of Caribbean descent, and non-Hispanic whites in the United States. *Journal of Anxiety Disorders, 23*(5), 578–590. <https://doi.org/10.1016/j.janxdis.2009.01.002>
- Hussain-Gambles, M., Atkin, K., & Leese, B. (2004). Why ethnic minority groups are under-represented in clinical trials: A review of the literature. *Health and Social Care in the Community, 12*(5), 382–388. <https://doi.org/10.1111/j.1365-2524.2004.00507.x>
- * Lee, E. B., Haeger, J. A., Levin, M. E., Ong, C. W., & Twhog, M. P. (2018). Telepsychotherapy for trichotillomania: A randomized controlled trial of ACT enhanced behavior therapy. *Journal of Obsessive-Compulsive and Related Disorders, 18*, 106–115. <https://doi.org/10.1016/j.jocrd.2018.04.003>
- Louie, P., & Wheaton, P. (2018). Prevalence and patterning of mental disorders through adolescence in 3 cohorts of Black and White Americans. *American Journal of Epidemiology, 187*(11), 2332–2338. <https://doi.org/10.1093/aje/kwy144>
- Martin, S., Rhodes, A. C., Brill, C. D., & Sandoz, E. K. (2022). Diversity-related factors in research mentorship and publishing in the ACBS community and the Journal of Contextual Behavioral Science. *Journal of Contextual Behavioral Science, 26*, 56–62.
- Masuda, A., Morgan, L., Spencer, S. D., Qina'au, J., & Jo, D. (2022). Cultural adaptations of acceptance and commitment therapy. In M. P. Twhog, M. E. Levin, & J. M. Petersen (Eds.), *The Oxford Handbook of acceptance and Commitment therapy* (1st ed., pp. C30.S1–C30.S16). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780197550076.013.30>
- McDonald, J. (2016). Expanding queer reflexivity: The closet as a guiding metaphor for reflexive practice. *Management Learning, 47*(4), 391–406.
- Mendoza, D. B., Williams, M. T., Chapman, L. K., & Powers, M. (2012). Minority inclusion in randomized clinical trials of panic disorder. *Journal of Anxiety Disorders, 26*(5), 574–582. <https://doi.org/10.1016/j.janxdis.2012.02.011>
- * Moitra, E., LaPlante, A., Armstrong, M. L., Chan, P. A., & Stein, M. D. (2017). Pilot randomized controlled trial of acceptance-based behavior therapy to promote HIV acceptance, HIV disclosure, and retention in medical care. *AIDS and Behavior, 21*(9), 2641–2649. <https://doi.org/10.1007/s10461-017-1780-z>
- Mosher, C. E., Secinti, E., Li, R., Hirsh, A. T., Bricker, J., Miller, K. D., Schneider, B., Stornio, A. M., Mina, L., Newton, E. V., Champion, V. L., & Johns, S. A. (2018). Acceptance and commitment therapy for symptom interference in metastatic breast cancer patients: A pilot randomized trial. *Supportive Care in Cancer, 26*(6), 1993–2004. <https://doi.org/10.1007/s00520-018-4045-0>
- * Muto, T., Hayes, S. C., & Jeffcoat, T. (2011). The effectiveness of acceptance and commitment therapy bibliotherapy for enhancing the psychological health of Japanese college students living abroad. *Behavior Therapy, 42*(2), 323–335. <https://doi.org/10.1016/j.beth.2010.08.009>
- Orlovic, M., Smith, K., & Mossialos, E. (2019). Racial and ethnic differences in end-of-life care in the United States: Evidence from the health and retirement study (HRS). *SSM Population Health, 7*, 1–7. <https://doi.org/10.1016/j.ssmph.2018.10.0331>
- Polanco-Roman, L., Danies, A., & Anglin, D. M. (2017). Racial discrimination as race-based trauma, coping strategies and dissociative symptoms among emerging adults.

- Psychological Trauma*, 8(5), 609–617. <https://psycnet.apa.org/doi/10.1037/tra0000125>.
- Pull, C. B. (2008). Current empirical status of acceptance and commitment therapy. *Current Opinion in Psychiatry*, 22, 55–60. <https://doi.org/10.1097/ycp.0b013e32831a6e9d>
- Roberts, S. O., Baretke-Shavit, C., Dollins, F. A., Goldie, P. D., & Mortenson, E. (2020). Racial inequality in psychological research: Trends of the past and recommendations for the future. *Perspectives on Psychological Science*, 15(6), 1295–1309. <https://doi.org/10.1177/1745691620927709>
- * Sander, A. M., Clark, A. N., Arciniegas, D. B., Tran, K., Leon-Novelo, L., Ngan, E., Bogaards, J., Sherer, M., & Walsler, R. (2021). A randomized controlled trial of acceptance and commitment therapy for psychological distress among persons with traumatic brain injury. *Neuropsychological Rehabilitation*, 31(7), 1105–1129. <https://doi.org/10.1080/09602011.2020.1762670>.
- * Serowik, K. L., Roemer, L., Suvak, M., Liverant, G., & Orsillo, S. M. (2020). A randomized controlled pilot study evaluating Worry less, live more: The Mindful way through anxiety Workbook. *Cognitive Behaviour Therapy*, 49(5), 412–424. <https://doi.org/10.1080/16506073.2020.1765858>.
- Suen, L. W., Lunn, M. R., Katuzny, K., Finn, S., Duncan, L., Sevelius, J., Flentje, A., Capriotti, M. R., Lubensky, M. E., Hunt, C., Weber, S., Bibbins-Domingo, K., & Obedin-Maliver, J. (2020). What sexual and gender minority people want researchers to know about sexual orientation and gender identity questions: A qualitative study. *Archives of Sexual Behavior*, 49(7), 2301–2318. <https://doi.org/10.1007/s10508-020-01810-y>
- Sutter, M., & Perrin, P. B. (2016). Discrimination, mental health, and suicidal ideation among LGBTQ people of color. *Journal of Counseling Psychology*, 63(1), 98–105. <https://doi.org/10.1037/cou0000126>
- Thomas Tobin, C. S., Erving, C. L., Hargrove, T. W., & Satcher, L. A. (2022). Is the Black-White mental health paradox consistent across age, gender, and psychiatric disorders? *Aging & Mental Health*, 26(1), 196–204. <https://doi.org/10.1080/13607863.2020.1855627>
- U.S. Census Bureau. (2021). *Quick Facts: United States. The census Bureau*. <https://www.census.gov/quickfacts/fact/table/US/PST045221>.
- Versey, H. S., Cogburn, C. C., Wilkins, C. L., & Joseph, N. (2019). Appropriated racial oppression: Implication for mental health in Whites and Blacks. *Social Science & Medicine*, 230, 295–302. <https://doi.org/10.1016/j.socscimed.2019.03.014>
- Waheed, W., Hughes-Morley, A., & Woodham, A. (2015). Overcoming barriers to recruiting ethnic minorities to mental health research: A typology of recruitment strategies. *BMC Psychiatry*, 15, 101. <https://doi.org/10.1186/s12888-015-0484-z>
- * Williams, M. T., Kanter, J. W., Peña, A., Ching, T. H. W., & Oshin, L. (2020). Reducing microaggressions and promoting interracial connection: The racial harmony workshop. *Journal of Contextual Behavioral Science*, 16, 153–161. <https://doi.org/10.1016/j.jcbs.2020.04.008>
- Williams, M. T., Malcoun, E., Sawyer, B. A., Davis, D. M., Bahojb Nouri, L., & Bruce, S. L. (2014). Cultural adaptations of prolonged exposure therapy for treatment and prevention of posttraumatic stress disorder in African Americans. *Behavioral Sciences*, 4(2), 102–124.
- Williams, M., Powers, M., Yun, Y. G., & Foa, E. B. (2010). Minority representation in randomized controlled trials for obsessive-compulsive disorder. *Journal of Anxiety Disorders*, 24, 171–177. <https://doi.org/10.1016/j.janxdis.2009.11.004>
- Williams, M. W., Tellawi, G., Wetterneck, C. T., & Chapman, L. K. (2013). Recruitment of ethnic/racial minorities for mental health research. *The Behavior Therapist*, 36(3), 151–156.
- ### Further reading
- * Anthony, C. A., Rojas, E. O., Keffala, V., Glass, N. A., Shah, A. S., Miller, B. J., Hogue, M., Willey, M. C., Karam, M., & Marsh, J. L. (2020). Acceptance and commitment therapy delivered via a mobile phone messaging robot to decrease postoperative opioid use in patients with orthopedic trauma: Randomized controlled trial. *Journal of Medical Internet Research*, 22(7), Article e17750. <https://doi.org/10.2196/17750>.
- * Arch, J. J., Eifert, G. H., Davies, C., Vilardaga, J. C. P., Rose, R. D., & Craske, M. G. (2012a). Randomized clinical trial of cognitive behavioral therapy (CBT) versus acceptance and commitment therapy (ACT) for mixed anxiety disorders. *Journal of Consulting and Clinical Psychology*, 80(5), 750–765. <https://doi.org/10.1037/a0028310>.
- Arch, J. J., Wolitzky-Taylor, K. B., Eifert, G. H., & Craske, M. G. (2012b). Longitudinal treatment mediation of traditional cognitive behavioral therapy acceptance and commitment therapy for anxiety disorders. *Behavior Research and Therapy*, 50, 469–478. <https://doi.org/10.1016/j.brat.2012.04.007>
- * Bach, P., & Hayes, S. C. (2002). The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 70(5), 1129–1139. <https://doi.org/10.1037/0022-006X.70.5.1129>.
- * Bricker, J. B., Watson, N. L., Mull, K. E., Sullivan, B. M., & Heffner, J. L. (2020). Efficacy of smartphone applications for smoking cessation: A randomized clinical trial. *JAMA Internal Medicine*, 180(11), 1472. <https://doi.org/10.1001/jamainternmed.2020.4055>.
- * Brown, R. A., Reed, K. M. P., Bloom, E. L., Minami, H., Strong, D. R., Lejuez, C. W., Kahler, C. W., Zvolensky, M. J., Gifford, E. V., & Hayes, S. C. (2013). Development and preliminary randomized controlled trial of a distress tolerance treatment for smokers with a history of early lapse. *Nicotine & Tobacco Research*, 15(12), 2005–2015. <https://doi.org/10.1093/ntr/ntt093>.
- * Carels, R. A., Caroline Miller, J., Selensky, J. C., Hlavka, R., Solar, C., Rossi, J., & Ellis, J. (2019). Using an acceptance-based behavioral approach as a supplement to obesity treatment: A stepped-care approach. *Journal of Contextual Behavioral Science*, 12, 98–105. <https://doi.org/10.1016/j.jcbs.2019.03.002>.
- * Craske, M. G., Niles, A. N., Burklund, L. J., Wolitzky-Taylor, K. B., Vilardaga, J. C. P., Arch, J. J., Saxbe, D. E., & Lieberman, M. D. (2014). Randomized controlled trial of cognitive behavioral therapy and acceptance and commitment therapy for social phobia: Outcomes and moderators. *Journal of Consulting and Clinical Psychology*, 82(6), 1034–1048. <https://doi.org/10.1037/a0037212>.
- * Crosby, J. M., & Twhohig, M. P. (2016). Acceptance and commitment therapy for problematic internet pornography use: A randomized trial. *Behavior Therapy*, 47(3), 355–366. <https://doi.org/10.1016/j.beth.2016.02.001>.
- * Davies, C. D., Niles, A. N., Pittig, A., Arch, J. J., & Craske, M. G. (2015). Physiological and behavioral indices of emotion dysregulation as predictors of outcome from cognitive behavioral therapy and acceptance and commitment therapy for anxiety. *Journal of Behavior Therapy and Experimental Psychiatry*, 46, 35–43. <https://doi.org/10.1016/j.jbtep.2014.08.002>.
- * Forman, E. M., Butryn, M. L., Manasse, S. M., Crosby, R. D., Goldstein, S. P., Wyckoff, E. P., & Thomas, J. G. (2016). Acceptance-based versus standard behavioral treatment for obesity: Results from the mind your health randomized controlled trial: An RCT of Acceptance-Based Behavioral Treatment. *Obesity*, 24(10), 2050–2056. <https://doi.org/10.1002/oby.21601>.
- * Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A randomized controlled effectiveness trial of acceptance and commitment therapy and cognitive therapy for anxiety and depression. *Behavior Modification*, 31(6), 772–799. <https://doi.org/10.1177/0145445507302202>.
- * Gifford, E. V., Kohlenberg, B. S., Hayes, S. C., Antonuccio, D. O., Piasecki, M. M., Rasmussen-Hall, M. L., & Palm, K. M. (2004). Acceptance-based treatment for smoking cessation. *Behavior Therapy*, 35(4), 689–705. [https://doi.org/10.1016/S0005-7894\(04\)80015-7](https://doi.org/10.1016/S0005-7894(04)80015-7).
- * Gifford, E. V., Kohlenberg, B. S., Hayes, S. C., Pierson, H. M., Piasecki, M. P., Antonuccio, D. O., & Palm, K. M. (2011). Does acceptance and relationship focused behavior therapy contribute to bupropion outcomes? A randomized controlled trial of functional analytic psychotherapy and acceptance and commitment therapy for smoking cessation. *Behavior Therapy*, 42(4), 700–715. <https://doi.org/10.1016/j.beth.2011.03.002>.
- * Glassman, L. H., Forman, E. M., Herbert, J. D., Bradley, L. E., Foster, E. E., Izzetoglu, M., & Ruocco, A. C. (2016). The effects of a brief acceptance-based behavioral treatment versus traditional cognitive-behavioral treatment for public speaking anxiety: An exploratory trial examining differential effects on performance and neurophysiology. *Behavior Modification*, 40(5), 748–776. <https://doi.org/10.1177/0145445516629939>.
- * Gratz, K. L., & Gunderson, J. G. (2006). Preliminary data on an acceptance-based emotion regulation group intervention for deliberate self-harm among women with borderline personality disorder. *Behavior Therapy*, 37(1), 25–35. <https://doi.org/10.1016/j.beth.2005.03.002>.
- * Gregg, J. A., Callaghan, G. M., Hayes, S. C., & Glenn-Lawson, J. L. (2007). Improving diabetes self-management through acceptance, mindfulness, and values: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 75(2), 336–343. <https://doi.org/10.1037/0022-006X.75.2.336>.
- * Hadlrandsmlyth, K., Dindo, L. N., Wajid, R., Sugg, S. L., Zimmerman, M. B., & Rakel, B. A. (2019). A single-session acceptance and commitment therapy intervention among women undergoing surgery for breast cancer: A randomized pilot trial to reduce persistent postsurgical pain. *Psycho-Oncology*, 28(11), 2210–2217. <https://doi.org/10.1002/pon.5209>.
- * Hahs, A. D., Dixon, M. R., & Paliliunas, D. (2019). Randomized controlled trial of a brief acceptance and commitment training for parents of individuals diagnosed with autism spectrum disorders. *Journal of Contextual Behavioral Science*, 12, 154–159. <https://doi.org/10.1016/j.jcbs.2018.03.002>.
- * Hayes-Skelton, S. A., Roemer, L., & Orsillo, S. M. (2013). A randomized clinical trial comparing an acceptance-based behavior therapy to applied relaxation for generalized anxiety disorder. *Journal of Consulting and Clinical Psychology*, 81(5), 761–773. <https://doi.org/10.1037/a0032871>.
- * Hinton, M. J., & Gaynor, S. T. (2010). Cognitive defusion for psychological distress, dysphoria, and low self-esteem: A randomized technique evaluation trial of vocalizing strategies. *International Journal of Behavioral Consultation and Therapy*, 6(3), 164–185. <https://doi.org/10.1037/h0100906>.
- * Johns, S. A., Stutz, P. V., Talib, T. L., Cohee, A. A., Beck-Coon, K. A., Brown, L. F., Wilhelm, L. R., Monahan, P. O., LaPradd, M. L., Champion, V. L., Miller, K. D., & Giesler, R. B. (2020). Acceptance and commitment therapy for breast cancer survivors with fear of cancer recurrence: A 3-arm pilot randomized controlled trial. *Cancer*, 126(1), 211–218. <https://doi.org/10.1002/cncr.32518>.
- * Juarascio, A. S., Forman, E. M., & Herbert, J. D. (2010). Acceptance and commitment therapy versus cognitive therapy for the treatment of comorbid eating pathology. *Behavior Modification*, 34(2), 175–190. <https://doi.org/10.1177/0145445510363472>.
- * Juarascio, A., Shaw, J., Forman, E., Timko, C. A., Herbert, J., Butryn, M., Bunnell, D., Matteucci, A., & Lowe, M. (2013). Acceptance and commitment therapy as a novel treatment for eating disorders: An initial test of efficacy and mediation. *Behavior Modification*, 37(4), 459–489. <https://doi.org/10.1177/0145445513478633>.
- * Kanter, J. W., Rosen, D. C., Manbeck, K. E., Branstetter, H. M. L., Kuczynski, A. M., Corey, M. D., Maitland, D. W. M., & Williams, M. T. (2020). Addressing microaggressions in racially charged patient-provider interactions: A pilot randomized trial. *BMC Medical Education*, 20(1), 88. <https://doi.org/10.1186/s12909-020-02004-9>.

- * Katterman, S. N., Goldstein, S. P., Butryn, M. L., Forman, E. M., & Lowe, M. R. (2014). Efficacy of an acceptance-based behavioral intervention for weight gain prevention in young adult women. *Journal of Contextual Behavioral Science*, 3(1), 45–50. <https://doi.org/10.1016/j.jcbs.2013.10.003>.
- * Krafft, J., Twohig, M. P., & Levin, M. E. (2020). A randomized trial of acceptance and commitment therapy and traditional cognitive-behavioral therapy self-help books for social anxiety. *Cognitive Therapy and Research*, 44(5), 954–966. <https://doi.org/10.1007/s10608-020-10114-3>.
- * Levin, M. E., Haeger, J., & Cruz, R. A. (2019). Ailing acceptance and commitment therapy skill coaching in the moment through smartphones: Results from a randomized controlled trial. *Mindfulness*, 10(4), 689–699. <https://doi.org/10.1007/s12671-018-1004-2>.
- * Levin, M. E., Haeger, J. A., Pierce, B. G., & Twohig, M. P. (2017). Web-based acceptance and commitment therapy for mental health problems in college students: A randomized controlled trial. *Behavior Modification*, 41(1), 141–162. <https://doi.org/10.1177/0145445516659645>.
- * Levin, M. E., Hayes, S. C., Pistorello, J., & Seeley, J. R. (2016). Web-based self-help for preventing mental health problems in universities: Comparing acceptance and commitment training to mental health education: Preventing mental health problems in universities. *Journal of Clinical Psychology*, 72(3), 207–225. <https://doi.org/10.1002/jclp.22254>.
- * Levin, M. E., An, W., Davis, C. H., & Twohig, M. P. (2020). Evaluating acceptance and commitment therapy and mindfulness-based stress reduction self-help books for college student mental health. *Mindfulness*, 11(5), 1275–1285. <https://doi.org/10.1007/s12671-020-01344-3>.
- Levin, M. E., Krafft, J., Hicks, E. T., Pierce, B., & Twohig, M. P. (2020). A randomized dismantling trial of the open and engaged components of acceptance and commitment therapy in an online intervention for distressed college students. *Behaviour Research and Therapy*, 126, Article 103557. <https://doi.org/10.1016/j.brat.2020.103557>.
- Levin, M. E., Krafft, J., Seifert, S., & Lillis, J. (2022). Tracking valued and avoidant functions with health behaviors: A randomized controlled trial of the acceptance and commitment therapy Matrix mobile app. *Behavior Modification*, 46(1), 63–89. <https://doi.org/10.1177/0145445520913987>.
- * Levin, M. E., Petersen, J. M., Durward, C., Bingeman, B., Davis, E., Nelson, C., & Cromwell, S. (2021). A randomized controlled trial of online acceptance and commitment therapy to improve diet and physical activity among adults who are overweight/obese. *Translational Behavioral Medicine*, 11(6), 1216–1225. <https://doi.org/10.1093/tbm/ibaa123>.
- * Levin, M. E., Pistorello, J., Seeley, J. R., & Hayes, S. C. (2014). Feasibility of a prototype web-based acceptance and commitment therapy prevention program for college students. *Journal of American College Health*, 62(1), 20–30. <https://doi.org/10.1080/07448481.2013.843533>.
- * Lillis, J., Hayes, S. C., Bunting, K., & Masuda, A. (2009). Teaching acceptance and mindfulness to improve the lives of the obese: A preliminary test of a theoretical model. *Annals of Behavioral Medicine*, 37(1), 58–69. <https://doi.org/10.1007/s12160-009-9083-x>.
- * Lillis, J., Niemeier, H. M., Thomas, J. G., Unick, J., Ross, K. M., Leakey, T. M., Kendra, K. E., Dorfman, L., & Wing, R. R. (2016). A randomized trial of an acceptance-based behavioral intervention for weight loss in people with high internal disinhibition: Acceptance-Based Intervention for Weight Loss. *Obesity*, 24(12), 2509–2514. <https://doi.org/10.1002/oby.21680>.
- * Luoma, J. B., Hayes, S. C., Twohig, M. P., Roget, N., Fisher, G., Padilla, M., Bissett, R., Holt, C., & Kohlenberg, B. (2007). Augmenting continuing education with psychologically focused group consultation: Effects on adoption of group drug counseling. *Psychotherapy: Theory, Research, Practice, Training*, 44(4), 463–469. <https://doi.org/10.1037/0033-3204.44.4.463>.
- * Luoma, J. B., Kohlenberg, B. S., Hayes, S. C., & Fletcher, L. (2012). Slow and steady wins the race: A randomized clinical trial of acceptance and commitment therapy targeting shame in substance use disorders. *Journal of Consulting and Clinical Psychology*, 80(1), 43–53. <https://doi.org/10.1037/a0026070>.
- * Luoma, J. B., & Vilardaga, J. P. (2013). Improving therapist psychological flexibility while training acceptance and commitment therapy: A pilot study. *Cognitive Behaviour Therapy*, 42(1), 1–8. <https://doi.org/10.1080/16506073.2012.701662>.
- * Masuda, A., Hayes, S. C., Fletcher, L. B., Seignourel, P. J., Bunting, K., Herbst, S. A., Twohig, M. P., & Lillis, J. (2007). Impact of acceptance and commitment therapy versus education on stigma toward people with psychological disorders. *Behaviour Research and Therapy*, 45(11), 2764–2772. <https://doi.org/10.1016/j.brat.2007.05.008>.
- * McClure, J. B., Bricker, J., Mull, K., & Heffner, J. L. (2020). Comparative effectiveness of group-delivered acceptance and commitment therapy versus cognitive behavioral therapy for smoking cessation: A randomized controlled trial. *Nicotine & Tobacco Research*, 22(3), 354–362. <https://doi.org/10.1093/ntn/nty268>.
- * Morrison, K. L., Smith, B. M., Ong, C. W., Lee, E. B., Friedel, J. E., Odum, A., Madden, G. J., Ledermann, T., Rung, J., & Twohig, M. P. (2020). Effects of acceptance and commitment therapy on impulsive decision-making. *Behavior Modification*, 44(4), 600–623. <https://doi.org/10.1177/0145445519833041>.
- * Moyer, D. N., Page, A. R., McMakin, D. Q., Murrell, A. R., Lester, E. G., & Walker, H. A. (2018). The impact of acceptance and commitment therapy on positive parenting strategies among parents who have experienced relationship violence. *Journal of Family Violence*, 33(4), 269–279. <https://doi.org/10.1007/s10896-018-9956-5>.
- * Niles, A. N., Burklund, L. J., Arch, J. J., Lieberman, M. D., Saxbe, D., & Craske, M. G. (2014). Cognitive mediators of treatment for social anxiety disorder: Comparing acceptance and commitment therapy and cognitive-behavioral therapy. *Behavior Therapy*, 45(5), 664–677. <https://doi.org/10.1016/j.beth.2014.04.006>.
- * Ong, C. W., Lee, E. B., Krafft, J., Terry, C. L., Barrett, T. S., Levin, M. E., & Twohig, M. P. (2019). A randomized controlled trial of acceptance and commitment therapy for clinical perfectionism. *Journal of Obsessive-Compulsive and Related Disorders*, 22, Article 100444. <https://doi.org/10.1016/j.jocrd.2019.100444>.
- * Petersen, J. M., Krafft, J., Twohig, M. P., & Levin, M. E. (2021). Evaluating the open and engaged components of acceptance and commitment therapy in an online self-Guided Website: Results from a pilot trial. *Behavior Modification*, 45(3), 480–501. <https://doi.org/10.1177/0145445519878668>.
- * Petersen, C. L., & Zettle, R. D. (2009). Treating inpatients with comorbid depression and alcohol use disorders: A comparison of acceptance and commitment therapy versus treatment as usual. *Psychological Record*, 59(4), 521–536. <https://doi.org/10.1007/BF03395679>.
- * Roemer, L., Orsillo, S. M., & Salters-Pedneault, K. (2008). Efficacy of an acceptance-based behavior therapy for generalized anxiety disorder: Evaluation in a randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 76(6), 1083–1089. <https://doi.org/10.1037/a0012720>.
- * Rost, A. D., Wilson, K., Buchanan, E., Hildebrandt, M. J., & Mutch, D. (2012). Improving psychological adjustment among late-stage ovarian cancer patients: Examining the role of avoidance in treatment. *Cognitive and Behavioral Practice*, 19(4), 508–517. <https://doi.org/10.1016/j.cbpra.2012.01.003>.
- * Stotts, A. L., Green, C., Masuda, A., Grabowski, J., Wilson, K., Northrup, T. F., Moeller, F. G., & Schmitz, J. M. (2012). A Stage I pilot study of acceptance and commitment therapy for methadone detoxification. *Drug and Alcohol Dependence*, 125(3), 215–222. <https://doi.org/10.1016/j.drugalcdep.2012.02.015>.
- * Twohig, M. P., Abramowitz, J. S., Smith, B. M., Fabricant, L. E., Jacoby, R. J., Morrison, K. L., Bluett, E. J., Reuman, L., Blakey, S. M., & Ledermann, T. (2018). Adding acceptance and commitment therapy to exposure and response prevention for obsessive-compulsive disorder: A randomized controlled trial. *Behaviour Research and Therapy*, 108, 1–9. <https://doi.org/10.1016/j.brat.2018.06.005>.
- * Twohig, M. P., Hayes, S. C., Plumb, J. C., Pruitt, L. D., Collins, A. B., Hazlett-Stevens, H., & Woidneck, M. R. (2010). A randomized clinical trial of acceptance and commitment therapy versus progressive relaxation training for obsessive-compulsive disorder. *Journal of Consulting and Clinical Psychology*, 78(5), 705–716. <https://doi.org/10.1037/a0020508>.
- Twohig, M. P., & Levin, M. E. (2017). *Acceptance and commitment therapy as a treatment for anxiety and depression: A review* (Vol. 40, pp. 751–770). *Psychiatric Clinics of North America*. <https://doi.org/10.1016/j.psc.2017.08.009>
- * Varra, A. A., Hayes, S. C., Roget, N., & Fisher, G. (2008). A randomized control trial examining the effect of acceptance and commitment training on clinician willingness to use evidence-based pharmacotherapy. *Journal of Consulting and Clinical Psychology*, 76(3), 449–458. <https://doi.org/10.1037/0022-006X.76.3.449>.
- * Villatte, J. L., Vilardaga, R., Villatte, M., Plumb Vilardaga, J. C., Atkins, D. C., & Hayes, S. C. (2016). Acceptance and commitment therapy models: Differential impact on treatment processes and outcomes. *Behaviour Research and Therapy*, 77, 52–61. <https://doi.org/10.1016/j.brat.2015.12.001>.
- * Vowles, K. E., McNeil, D. W., Gross, R. T., McDaniel, M. L., Mouse, A., Bates, M., Gallimore, P., & McCall, C. (2007). Effects of pain acceptance and pain control strategies on physical impairment in individuals with chronic low back pain. *Behavior Therapy*, 38(4), 412–425. <https://doi.org/10.1016/j.beth.2007.02.001>.
- * Vowles, K. E., Witkiewitz, K., Cusack, K. J., Gilliam, W. P., Cardon, K. E., Bowen, S., Edwards, K. A., McEntee, M. L., & Bailey, R. W. (2020). Integrated behavioral treatment for veterans with co-morbid chronic pain and hazardous opioid use: A randomized controlled pilot trial. *The Journal of Pain*, 21(7–8), 798–807. <https://doi.org/10.1016/j.jpain.2019.11.007>.
- * Wells-Di Gregorio, S. M., Marks, D. R., DeCola, J., Peng, J., Probst, D., Zaleta, A., Benson, D., Cohn, D. E., Lustberg, M., Carson, W. E., & Magalang, U. (2019). Pilot randomized controlled trial of a symptom cluster intervention in advanced cancer. *Psycho-Oncology*, 28(1), 76–84. <https://doi.org/10.1002/pon.4912>.
- * Woods, D. W., Wetterneck, C. T., & Flessner, C. A. (2006). A controlled evaluation of acceptance and commitment therapy plus habit reversal for trichotillomania. *Behaviour Research and Therapy*, 44(5), 639–656. <https://doi.org/10.1016/j.brat.2005.05.006>.
- * Yadavaia, J. E., Hayes, S. C., & Vilardaga, R. (2014). Using acceptance and commitment therapy to increase self-compassion: A randomized controlled trial. *Journal of Contextual Behavioral Science*, 3(4), 248–257. <https://doi.org/10.1016/j.jcbs.2014.09.002>.
- * Zettle, R. D. (2003). Acceptance and commitment therapy (ACT) vs. systematic desensitization in treatment of mathematics anxiety. *Psychological Record*, 53(2), 197–215. <https://doi.org/10.1007/BF03395440>.
- Zettle, R. D., & Hayes, S. C. (1987). Component and process analysis of cognitive therapy. *Psychological Reports*, 61(3), 939–953. <https://doi.org/10.2466/pr.1987.61.3.939>