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Systemic biases promoting the under-inclusion of marginalized groups in randomized controlled trials for co-occurring alcohol use and posttraumatic stress disorder: an intersectional analysis

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ABSTRACT

Co-occurring posttraumatic stress disorder and alcohol use disorder is a major public health concern affecting millions of people. Although this disorder affects people from all groups, research shows that, when compared to White people, people of color systematically suffer worse chronicity and burden of disorder. Additionally, research shows that people of color endure a variety of barriers to accessing treatment and often require specialized or culturally appropriate care. Consequently, the array of treatments available must have been determined to be effective for people of color when they access treatment, and people of color must be well represented in research to ensure effective treatment. Therefore, randomized controlled trials testing treatments for this disorder must include racially diverse samples and ensure treatments are effective for all groups. Further, if they lack diversity, it is necessary to explore whether and how the process of conducting randomized controlled trials is biased toward the constrained inclusion of people of color. This study used a Matrix of Domination framework as an intersectional method to investigate this question. It assessed the inclusion of people by race and sex in randomized controlled trials for co-occurring posttraumatic stress disorder and alcohol use disorder. We found that people of color and White women are significantly underincluded in randomized controlled trials and that these studies are hegemonically, disciplinarily, and structurally biased in ways that facilitate the overrepresentation of White men and the underrepresentation of marginalized groups.

KEYWORDS

Intersectionality; randomized controlled trials; trauma; substance use; alcohol; feminism

Introduction

Co-occurring posttraumatic stress disorder and alcohol use disorder (PTSD/AUD) is a meaningful public health issue affecting close to six million people (Simpson et al., 2019). Those with PTSD/AUD generally endure

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significant psychosocial impairment and poor quality of life and are significantly more likely than the general population to face homelessness, incarceration, and early, preventable mortality (Simpson et al., 2019; Smith & Cottler, 2018). Additionally, when compared to those with only PTSD or AUD, people with PTSD/AUD have more complicated, chronic, and intractable disorder courses (Simpson et al., 2019).

Research consistently finds that women have higher PTSD/AUD prevalence rates than men, and the most recent estimates show women's prevalence rates are double those of men (67.7%:32.2% respectively; Simpson et al., 2019). In contrast, research into racial prevalence rates offers conflicting insights. Some data indicates that Black and Latine people have higher odds of experiencing PTSD/AUD than White people (Blanco et al., 2013). Other research indicates that non-White people account for only 29.6% of PTSD/AUD cases (Simpson et al., 2019). Yet, other literature suggests that Indigenous people have higher PTSD/AUD prevalence rates than White people (6.5%:2.4% respectively; Emerson et al., 2017). It is plausible that sample variation, differences in how prevalence rates are estimated and from what data sources estimates are drawn, or a blend of these factors influence these different insights.

Also, insight into PTSD/AUD prevalence rates by race *and* gender is lacking. Some evidence indicates Indigenous women have higher rates compared to White women (4.3%:1.8% respectively; Emerson et al., 2017); however, there is limited to no evidence from large-scale studies regarding the differences in prevalence across Black and Latine women. There is also evidence indicating that Indigenous men (9.5%) have higher rates than White men (3.1%; Emerson et al., 2017), but there is limited evidence regarding the prevalence rates of Black and Latine men. Importantly, one could theorize that because PTSD and AUD are highly co-occurring disorders (Smith & Cottler, 2018) and because Indigenous, Black, and Latine people may have higher PTSD prevalence rates (Bassett et al., 2014; Hall-Clark et al., 2016) and have roughly equivalent SUD rates (Center for Behavioral Health Statistics Quality [SAMHSA], 2021), PTSD/AUD prevalence rates across Indigenous, Black, Latine, and White groups may be roughly similar. Yet, more research is needed.

Despite limited and conflicting evidence regarding PTSD/AUD prevalence by race, research has consistently shown that women and men of color endure more chronic and severe PTSD, AUD, and PTSD/AUD than White people (Blanco et al., 2013; Brown et al., 2022; Fischer et al., 2022; Ruglass et al., 2016; Simpson et al., 2019; Williams et al., 2012). Several issues may explain their more chronic and severe PTSD/AUD. Studies indicate that men and women of color endure unique traumas linked with PTSD and harmful substance use patterns (e.g., racial discrimination; Bird et al., 2021; Sibrava et al., 2019; Williams et al., 2012) and higher rates

of traumas significantly correlated with PTSD and AUD (e.g., intimate partner violence; McLaughlin et al., 2019). Additionally, they endure more structural barriers impeding their access to behavioral health treatment (Bailey et al., 2018).

The potential that racially marginalized groups may have higher or equivalent PTSD/AUD prevalence rates as White people and the evidence of their more chronic and severe PTSD/AUD highlight the need for ensuring that when men and women of color enter treatment for PTSD/AUD, they receive evidence-based treatments that have been found to be generalizable and effective for them. However, research shows that people of color are systematically underincluded in clinical research and have been for decades.

In the 1990s, The National Institute of Health (NIH) recognized that people of color were significantly under-included in research and implemented the Revitalization Act, which required NIH-funded researchers to enhance their inclusion of marginalized groups in randomized controlled trials (RCTs) (National Institutes of Health [NIH], 2001). However, a recent review of NIH-funded RCTs from 2004, 2009, and 2015 found only a slight increase (43–46%) in the median number of women enrolled and that 80% of RCTs enrolled a majority White sample (Geller et al., 2018).

Notably, the under-inclusion of marginalized groups in RCTs is not limited to NIH studies. Rather, marginalized groups are systematically under-included in RCTs across different domains for a vast array of issues, including cancer (Aldrighetti et al., 2021), heart failure (Reza et al., 2022), obsessive-compulsive disorder (Williams et al., 2010), and more. Even in research on diseases in which people of color have higher prevalence rates than White people (e.g., Lupus), White people are included in RCTs at higher rates (Falasinnu et al., 2018; Reid et al., 2023). To drive home the point, a recent evaluation of clinical trials conducted over five time periods between 1997 through 2014 across 29 countries found that 86% of participants were White (Knepper & McLeod, 2018).

This is concerning for several reasons. Mainly, RCTs are considered the “gold standard” design in psychology, medicine, nursing, and social work due to their allowance for randomization, controlled grouping, blinding, and more (Grossman & Mackenzie, 2005). Because RCTs are considered the “gold standard,” they are more likely to receive federal and institutional funding than studies using different designs and have a more significant influence over policy, programming, and clinical endeavors than non-RCT studies (Deaton & Cartwright, 2018a, 2018b; Frieden, 2017). Therefore, policy, programming, and clinical evidence are primarily drawn from White people and are implemented across all groups. This would not be an issue if different groups did not have different lived realities and needs. However, different groups can have dramatically different life experiences based on group-level identities like race, sex, class, etc. (Rolin, 2009; Wylie, 2012).

For example, Indigenous people experience unique stressors like historical trauma, displacement, and limited culturally informed resources, and Indigenous people's heightened rates of hypertension, alcohol misuse, and suicide are linked to these stressors (Andersen et al., 2021; Davis et al., 2016; Hartmann et al., 2019; Hautala et al., 2019). Their unique, group-level standpoint reveals that, although they may experience the same disorders and illnesses as other groups, the causes of these disorders/illnesses are unique to indigenous life, and treatments must be able to address those unique factors. Thus, the stark lack of diversity in RCTs calls to question the relevance of policy, social programming, and evidence-based practice stemming from RCTs.

The under-inclusion of marginalized groups in RCTs is so systematically common in research that it is indicative of a systemic problem within how RCTs are developed and implemented. This is especially clear given that recent research has debunked the assertion that marginalized groups are less willing to participate in RCTs (Bibbins-Domingo & Helman, 2022). Therefore, the slow increase in sample diversity over the last several decades suggests that it is plausible that elements within the way RCTs are shaped, implemented, and evaluated orient them toward the constrained inclusion of marginalized groups. From an intersectional matrix of domination perspective, power may operate in various RCT domains to privilege knowledge development by/for dominant groups and subordinate knowledge development by/for marginalized groups.

Matrix of Domination and intersectionality

In the 1990s, sociological scholar Patricia Hill Collins developed the Matrix of Domination, which asserts that people experience privilege and/or subjugation depending upon how power manifests within hegemonic, structural, institutional, and interpersonal domains (Collins, 1990; D'iGnazio, & Klein, 2020). The hegemonic domain refers to the dialogue or discourse circulating in an institution or about a phenomenon. The structural domain refers to the nature of the physical location where something occurs. The disciplinary domain refers to the rules, regulations, and/or requirements of the object under investigation. Finally, the interpersonal domain refers to the relationship between an individual's identities and experiences within the structural, disciplinary, and/or hegemonic domains (Collins, 1990; D'iGnazio & Klein, 2020). Since the 1990s, Collins has evolved her thinking about this framework, and today, she considers it one of many intersectional approaches for examining the relationship between power and some phenomenon under investigation (see Collins & Bilge, 2020). Intersectionality (Crenshaw, 1989) emerged from Black Feminist scholars and is a valuable framework for examining relationships

between power, privilege, and oppression. According to intersectionality, power manifests itself in society in various ways, including within and across hegemonic, structural, institutional, and interpersonal domains, and can affect people differently based on their intersecting social identities (Collins & Bilge, 2020).

Over the last several decades, scholars in the social and health sciences have used intersectionality to examine how power influences health disparities (Bowleg, 2021), how the overinclusion of White men in clinical research sustains epistemic ignorance of the needs of other groups (Tuana, 2004), and to articulate how clinical science can better develop studies to include marginalized groups and erode health disparities (Buchanan & Wiklund, 2020). This study furthers this tradition by using intersectionality to examine whether and how PTSD/AUD RCTs may be structured to limit knowledge production for marginalized groups. Doing so is necessary because PTSD/AUD is a significant public health disorder wherein marginalized groups suffer health disparities that could be addressed by clinical science. Until these issues are explored and altered, RCTs and the policies, programs, and practices they inform will produce knowledge applicable to only a privileged few.

Therefore, we used Patricia Hill Collin's Matrix of Domination as an intersectional method (Collins, 1990; Collins & Bilge, 2020) to conduct a narrative synthesis review of RCTs for PTSD/AUD. We sought to analyze the overall sample composition of people included in PTSD/AUD RCTs by race and sex and whether and how the limited inclusion of marginalized groups by race and sex in RCTs for PTSD/AUD may be influenced by (a) the study authors' written rationale (dialogue) about PTSD/AUD; (b) the demographic characteristics of where each study was implemented; and (c) the (lack of) diversity policies in journals where RCTs were published. We conducted a narrative synthesis review because narrative syntheses allow theory to structure the review process and results (Sutton et al., 2019).

Current study

We conducted a narrative synthesis review to explore the race and sex demographic characteristics of people included in RCTs for PTSD/AUD and to determine the relationship between the hegemonic, structural, and disciplinary domains of power where RCTs occur (Collins, 1986). Also, because dialogue makes up the hegemonic domain, we employed a thematic discourse analysis to aid our inquiry into the hegemonic domain. Next, although the interpersonal domain is also important for understanding sample diversity in RCTs, we did not investigate this domain for this study. This is because, among the studies included in this analysis, the

authors' sex, race/ethnicity, or other individual features relevant to the interpersonal domain were unavailable, and it would have been inappropriate to assume these author characteristics based on phenotypes.

Methods

Procedure

We used a narrative synthesis review strategy because it allows theory to guide how the review is conducted and how the results are organized (Sutton et al., 2019). Narrative synthesis reviews share the same literature and organization search principles as scoping reviews (Sutton et al., 2019). Therefore, this narrative synthesis followed the PRISMA-ScR methodology for scoping reviews (Page et al., 2021). The search terms for this study (Medical Subject Headings [MeSH] and relevant keywords) were applied to PubMed and PsycINFO to find published literature from the last ten years (Table 1). We included RCTs examining treatments of PTSD/AUD or those examining treatments for co-occurring mental health and SUD during around the last ten years from when this study began (January 2012 through January 2023). Additionally, given recent evidence that there are few RCTs strictly examining treatments for co-occurring PTSD and AUD ($N=5$; Taylor et al., 2017), RCTs testing treatments for co-occurring PTSD and SUD were also included in this study as long as $\geq 50\%$ of the sample was experiencing AUD. Similarly, RCTs testing co-occurring AUD and mental illness were included as long as $\geq 50\%$ of the sample was experiencing PTSD. We imported literature into Covidence for data management. Articles were screened at the title and abstract level. Irrelevant articles were dropped. The articles that were kept underwent a full-text examination. Finally, articles kept after a full-text examination underwent one final full-text screening—a total of 6,958 studies populated from our search in PUBMED and PsycINFO. After screening studies at abstract and full-text levels, 18 RCTs were eligible for this review. Figure 1 depicts the flow of inclusion and exclusion.

Table 1. Key search terms.

Search	Search terms
1	"alcohol use disorder" OR alcohol use OR alcohol abuse OR alcohol addiction OR alcohol dependence OR alcoholism OR alcoholic OR "Alcohol Drinking" [Mesh] OR "Alcoholism" [Mesh]
2	Posttraumatic stress disorder OR PTSD OR "Stress Disorders, Post Traumatic" [Mesh]
3	Comorbid* OR co-occurring
4	OR co-occur OR co-exist* OR "Comorbidity" [Mesh] OR multimorbid*
5	#1 AND #2 AND #3
6	(randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR RCT[tiab] OR randomized[tiab] OR placebo[tiab] OR drug therapy[sh] OR randomly[tiab] OR trial[tiab] OR groups[tiab] NOT (animals [mh] NOT humans [mh]))
6	#4 AND #5

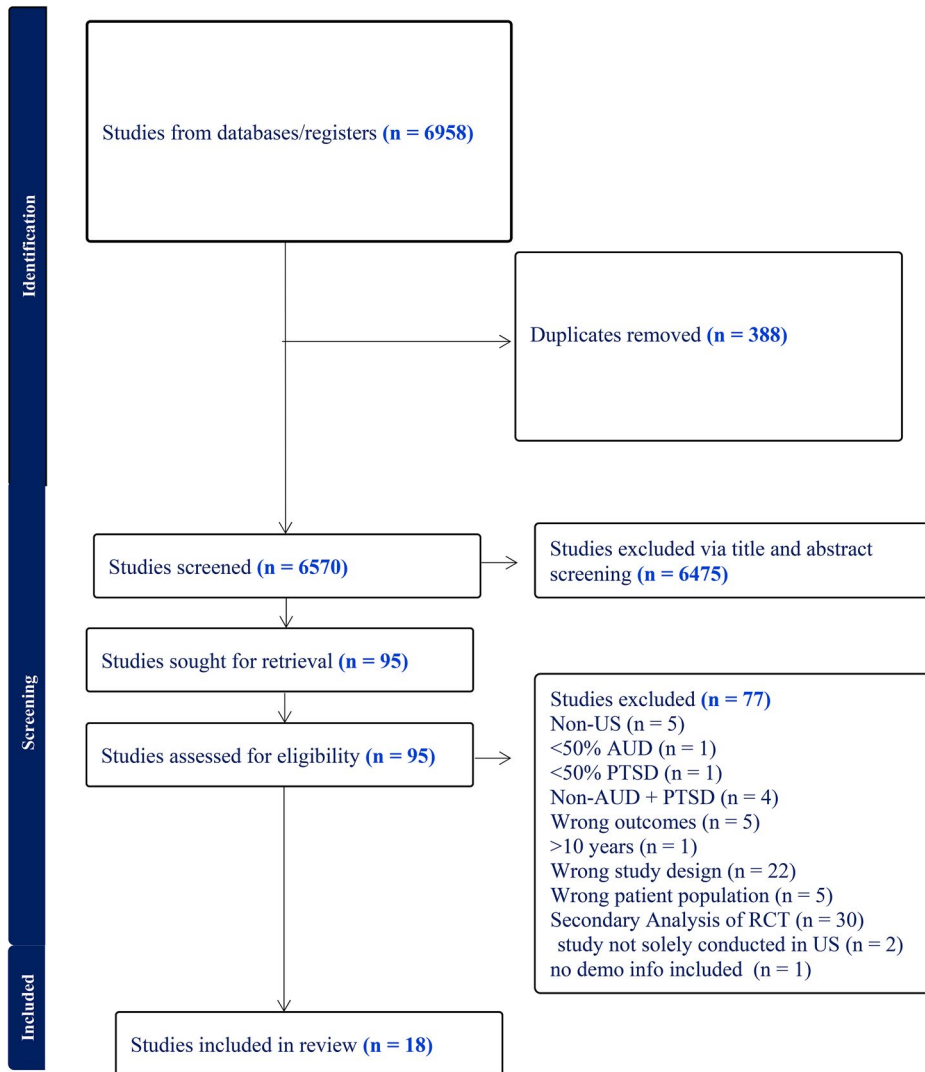


Figure 1. PRISMA flow diagram.

Analytic plan

First, we examined the demographic information reported in studies to identify the sex and racial characteristics of study participants. Second, we applied an intersectional analysis to inspect how elements within the hegemonic, structural, and disciplinary domains of power related to the constrained inclusion of marginalized groups (Collins, 1986). We sought to explore the link between sample diversity and how the rationale for a study is built, where a study occurs, and finally, where a study is published.

Hegemonic domain

We conducted a thematic discourse analysis to explore if there was a relationship between a researcher's dialogue about co-occurring PTSD and

AUD and the constrained inclusion of marginalized groups in studies (Braun & Clarke, 2006; Clarke & Braun, 2018). The questions guiding analysis within this domain were: a) how do researchers describe the prevalence of, underlying factors related to, and diversity matters related to this disorder; b) are there patterns in how authors discuss these matters; and c) what are these patterns and how are they linked to study sample composition? To answer these questions, we used the thematic analysis approach laid out by Braun and Clarke (2006).

Drawing from the entire data corpus, we used the introduction, study sample, and discussion sections as the dataset for analysis because these sections frame and illustrate a researcher's thinking about the questions above. Then, we manually applied values coding to the data in three cycles. We used values coding because it allows one to code data to reflect the values, worldviews, and beliefs underpinning the semantic discourse (Saldaña, 2016). Third, these codes were defined and sorted into potential themes. Finally, we reviewed the themes and organized them according to the questions above. Importantly, we did not explore methods sections because their descriptive variability was too great. Many authors did not provide enough details regarding their sampling procedures, rationale for inclusion/exclusion, and more.

Structural domain

We aggregated demographic characteristics of surrounding zip codes for the study location. Then, we compared the zip code's race and gender demographic makeup to each study sample's race and gender demographic makeup. We had two goals for this analysis. First, we explored trends in the demographic makeup where RCTs were implemented. Second, to explore if there was an observable parallel between the majority demographic group of an area where a study occurred and the majority demographic group in the corresponding study.

Disciplinary domain

Finally, we explored whether the journals where RCTs were published had explicit statements about the importance of sample diversity in research on their author instruction page. If journals had explicit requirements in their author instruction page, we identified when the requirements were established. We analyzed the sample diversity of articles published in journals with diversity statements to determine if they had more diverse samples than those published in journals without. We also examined whether the departments where a study's primary author worked had explicit declarations about diversity (e.g., diversity, equity, and inclusion [DEI] statements). If so, we assessed when those statements were made public and if studies published from these departments had greater sample diversity.

Results

PUBMED and PsycINFO populated a total of 6,958 studies. Eighteen RCTs were eligible for this review after screening studies at abstract and full-text levels (Figure 1). Most participants in the RCT studies were White (59.5%) and male (~78%). In contrast, women comprised ~22% of the sample, Black participants totaled 23.5%, and Latine people comprised ~7.1%. These groups were followed by multiracial (5.1%), Asian/Pacific Islander (1.2%), and AI/AN (0.7%) participants. No studies reported demographic characteristics by race/ethnicity *and* sex; therefore, we cannot estimate the composition of participants by these identities. Yet, because most participants were White and male, it is likely that most RCT participants were White men.

Twelve of these 18 studies were devised solely for veterans, and of the participants in these twelve studies, 89.1% were men, and 60% were White. Among the remaining participants, 22.2% were Black, followed by Latine (7%), multiracial (3.2%), Asian/Pacific Islanders (1.5%), and AI/AN (0.9%) participants. The remaining RCTs studied the general population, and 56% of this sample were women. White people were again the majority group at ~60% of the sample population, followed by Black (27.7%), Latine (7.6%), multiracial (11.1%), and Asian and AI/AN participants (each 0.36%). Overall, White men (and, to a lesser extent, White women) are the majority group studied in PTSD/AUD studies (Table 2). We explore results regarding the limited inclusion of marginalized groups by domain below.

Hegemonic domain

Drawing from the dialogue authors used to describe PTSD/AUD and to frame their studies, we generated three themes related to the limited recruitment of diverse samples. Below, each theme is identified, and the sub-components cohering the themes are detailed.

Problem definition

Simplification of prevalence

Seventeen of the eighteen author groups did not acknowledge the diversity in prevalence of PTSD/AUD by race/ethnicity and/or sex. Instead, the

Table 2. Total demographic results.

Total population (N=2,220)	Veteran population (N=1,672)	General population (N= 548)
59.51% White	60% White	58.03% White
23.59% Black	22.22% Black	27.74% Black
7.16% Latine	7% Latine	7.66% Latine
5.18% Multiracial	3.23% Multiracial	11.13% Multiracial
0.77% AI/AN	0.90% AI/AN	0.36% AIAN
1.26% Asian/Pacific Islander	1.56% Asian/Pacific Islander	0.36% Asian/Pacific Islander
77.98% Male	89.11% Male	44% Male
22.02% Female	11.48% Female	56% Female

authors only detailed the prevalence of PTSD/AUD among the general or veteran population. One author group (Myers et al., 2015) detailed the prevalence of PTSD/AUD among the general population *and* women, and they subsequently focused recruitment on women. However, in this case, Myers and her team did not acknowledge variation in the prevalence of PTSD/AUD among different groups of women and subsequently recruited a majority of White women despite women of color having higher rates of the disorder (H. Cho, 2012; Fedina et al., 2022).

Intrapersonal problems and uniform solutions

Many authors suggested PTSD/AUD arose from intrapersonal coping deficits and did not acknowledge social factors related to PTSD/AUD. They made declarations like “individuals may consume alcohol as an avoidant coping strategy in response to distress” or “[PTSD and AUD] is driven by the inability or unwillingness to experience negatively evaluated thoughts, feelings, sensations...” and “[people with PTSD/AUD] lack the coping skills needed for recovery.” Drawing from these problem definitions, authors offered treatments to alter or enhance people’s coping skills but did not offer treatments targeting social stressors.

Absence of people of color’s trauma

Some authors explicitly identified a specific trauma (e.g., combat, IPV) and tested treatments aimed at addressing the effects of that trauma. When authors identified a specific trauma to treat, they recruited the participants with a higher probability of enduring the trauma. However, no authors identified traumatic stressors that were relevant to people of color (e.g., racial discrimination). Therefore, no authors exclusively recruited people of color.

Racial homogeneity

Only three author groups mentioned race in their studies. Each author group mentioned having “strong” or “good minority” representation in their sample. For example, one author group concluded: “We were pleased to see that our sample had *strong* minority representation... which helps to promote generalizability to diverse populations [emphasis added]” (Najavits et al., 2018). The authors drew this conclusion after cohering all non-White people into a single percentage group. However, when the racial composition of this study is broken down, it was composed of 60% White people, 30% Black people, and only 2–4% of any other ethnic/racial group. Thus, this study did not have “strong minority representation” but had a moderate number of Black participants and relatively few members from any other non-White group. The study authors’ conclusion indicates a belief that all numerical minority groups cohere into a single identity

group. The remaining RCTs had similar racial compositions, yet each declared, “[o]ur study is well represented by minority groups....”

Androcentrism

Combat preference

Studies that recruited combat veterans almost always focused their treatments on addressing combat trauma. Men are the majority group involved in military combat and make up the vast majority of those with combat trauma (Patten & Parker, 2011). Although women’s participation in combat is increasing, women still participate at low rates (Patten & Parker, 2011). Only in 2015 were women granted the ability to enter all military combat situations (Rosenberg & Philipps, 2015). Thus, most studies were skewed toward exploring a mainly men’s issue, thereby centering men’s needs. In other words, they were androcentric (Harding, 1991; Wylie, 2012).

Structural domain

We inspected demographic data from 17 of 18 studies to explore a link between the demographics of the area where a study occurred and the corresponding study’s sample demographics. One study did not provide enough information to permit this analysis. Therefore, we excluded this study from the structural domain analysis.

Over half (55.8%) of PTSD/AUD RCTs occurred in locations where men were the majority demographic, and seven occurred in a zip code with a majority female population. Ninety percent (90%) of the time, an RCT had a majority male sample when it occurred in a zip code with a majority white population. Only one RCT did not have a majority-male sample despite occurring in a zip code with a majority-male population, and this was because the study exclusively recruited women (Myers et al., 2015). Among the seven RCTs occurring in a zip code with a majority female population, two recruited a majority female sample, and the remaining five recruited a majority male sample. However, these five studies focused on recruiting veterans, a predominately male population (Parker et al., 2019). In contrast, the two RCTs with a female sample majority that took place in a zip code with a majority female population were not focused on recruiting veterans.

Next, 85% of RCTs occurred in a zip code with a majority White population, and ~80% of the time, the sample majority of an RCT was White when a demographic majority was White. Notably, recruitment efforts of RCTs appeared to make a difference in whether a majority White sample was recruited from a majority White zip code. In every RCT that recruited a majority White sample from a majority White zip code, participants

were recruited *only* from the clinic where the study occurred. In contrast, when RCTs recruited participants from the clinic *and* the community (*via* advertising the study in newspapers), the RCT had a majority Black sample. The effect of recruiting from the clinic and community also mattered for RCTs occurring in a zip code with a majority Black population. Of the three RCTs conducted in these areas, the two with a majority Black sample were recruited from the clinic and community. In contrast, the study that only recruited from the clinic had a majority White sample.

Finally, 55% of studies occurred in a zip code with a majority of White *and* male people. Of these studies, 68% of RCTs had a majority White and male sample. Among those RCTs whose sample majority did not reflect the White male demographic majority, they either explicitly recruited a female sample or recruited from the clinic and the community. [Table 3](#) breaks down the demographic characteristics of each study, and [Table 4](#) details the structural domain findings.

Disciplinary domain

Journal diversity initiatives

The studies in this review were published across 14 journals ([Table 5](#)). Only four of these journals openly encourage authors to consider DEI in their samples. These statements emanated from journals affiliated with the American Psychological Association (APA) and were established in 2018. Four of the 18 articles were published in these journals, and two were published the same year or after DEI declarations materialized (Flanagan et al., 2019; Tripp et al., 2021). Yet, the sample diversity of these studies was indistinguishable from those published in journals without explicit DEI statements.

Department diversity initiatives

Studies were conducted by authors housed in 12 distinct departments. Eleven of these departments had no statement related to DEI and its relevance to research conducted in their department (see [Table 5](#)). Only one- the Department of Psychiatry at the University of Pennsylvania, has a DEI statement (created in 2020). However, the article by authors from this department was published in 2013, meaning we cannot offer results regarding the link between departmental statements and sample composition.

Discussion

Our study explored the race and sex sample composition of PTSD/AUD RCTs and whether and how domains of power influenced the limited

Table 3. Demographic characteristics of each study.

Study authors	Race\Ethnicity ^a	Sex
Stappenbeck et al., 2015	C: 42.3% AA: 43.6% H: 3.8% N: 2.6% A: 1.3% O: 6.4%	F: 48.7% M: 51.3%
Kehle-Forbes et al., 2019	W: 41% AA: 48% H: 4.9% NH\PI: 1.1% MR: 1.1%	F: 8% M: 92%
Najavits et al., 2018	C: 60% AA: 30.1% H: 4% MR: 3.9% NH/PI: 2.0%	F: 27% M: 73%
McGovern et al., 2015	W: 98.6%	F: 59.3% M: 40.7%
Hein et al., 2015	C: 23% AA: 59% H: 10% O: 7%	F: 81% M: 19%
Foa et al., 2013	W: 30% B: 63% H: 4.2% NA: 0.6% O: 1.2%	F: 34% M: 65%
Back et al., 2019	C: 60% AA: 37% H: 3.7% MR: 2.4%	F: 9.1% M: 90.1%
Ruglass et al., 2017	W: 18% B: 59% H: 20% O: 2.7%	F: 36% M: 64%
Tripp et al., 2021	W: 67.9% AA: 8.6% AI/AN: 2.5% A: 7.4% MR: 12.3% PI/HN: 1.2%	F: 14.8% M: 85.2%
Staffer et al., 2019	W: 36.2% B: 38.3% H: 2.1% A: 4.3% O: 19.1%	M: 100%
Flanagan et al., 2019	W: 34.3% B: 61.2% O: 3%	M: 100%
Norman et al., 2019	W: 65.5% B: 13.4% H: 29.4% A: 5% O: 15.1%	F: 10.1% M: 89.9%
Haller et al., 2016	W: 51%	M: 93.8%
McDevitt-Murphy et al., 2014	W: 64.7% B: 27.9% A: 1.5% MR: 5.9%	F: 87.1% M: 12.9%
Coffey et al., 2016	W: 77.8% B: 22.2%	F: 42.2% M: 57.8%
Myers et al., 2015	W: 60% B: 12.50%	F: 100%

(Continued)

Table 3. Continued.

Study authors	Race\Ethnicity ^a	Sex
Brief et al., 2013	H: 25%	F: 6.6% M: 93.3%
	C: 79.3%	
	AA: 4.3%	
	H: 9.6%	
	AI/AN: 1.8%	
Batki et al., 2014	NH/PI: 1%	F: 6.66% M: 93.33%
	C: 46.66%	
	AA: 23.33	
	H: 6.66%	
	A: 3.33%	
	PI: 3.33%	
	MR: 10%	
	AI/AN: 3.33%	

^aTerms from studies are used: C: Caucasian; W: White; AA: African American; H: Hispanic; NA: Native American; AI/AN: American Indian/Alaska Native; A: Asian; O: Other; NH/PI: Native Hawaiian, Pacific Islander; MR: Multiracial.

inclusion of marginalized groups in RCTs. We found that White males are greatly overrepresented in research, which is concerning given women have double the PTSD/AUD prevalence rates of men and that Indigenous and other people of color likely have high prevalence rates and are known to have more chronic and debilitating PTSD/AUD courses on average. After analyzing this issue more deeply, we also found that the limited inclusion of marginalized groups in RCTs is a problem supported by the logical construction, structural implementation, and journal regulations of PTSD/AUD RCTs. Below, we discuss how elements within the power domains may explain these findings.

Hegemonic domain

The dialogue authors used to define and discuss PTSD/AUD, how they described people of color, and their focus on a primarily men’s problem (combat trauma) likely influenced the over-inclusion of White males. Firstly, failing to acknowledge the diversity in the prevalence of PTSD/AUD within the general or veteran population likely prevented researchers from actively seeking out diverse samples or questioning whether their samples were representative. Second, many authors focused on addressing the PTSD/AUD of combat veterans- a necessary and important group to help. However, this focus invisibly orients PTSD/AUD research toward White males’ overrepresentation because they are the most likely to endorse trauma from military combat (Lehavot et al., 2018). Interestingly, sexual violence against women is a more common military trauma and is more greatly linked with PTSD than combat trauma (Lehavot et al., 2018; Zinzow et al., 2007). Therefore, if researchers expanded their focus to address some of the more prevalent forms of trauma in the military, the research field would be less androcentric and plausibly more generalizable.

Table 4. Structural domain findings.

Study author	Racial demographics ^a	Study recruitment/ implementation location and racial demographics ^b		Study sex	Study location sex demographics	
Stappenbeck et al., 2015	C: 42.3%	<u>University of Washington</u>		F: 48.7%	<u>University of Washington</u>	
	AA: 43.6%	White 51.1%		M: 51.3%	Female 48.9%	
	H: 3.8%	Black 5.7%			Male 51.1%	
	N: 2.6%	15.7% Latino/a				
	A: 1.3%	AI/AN 0.8%				
	O: 6.4%	Asian 37.2%				
Kehle-Forbes et al., 2019 ^c	W: 41%	<u>Minneapolis</u>	<u>Philadelphia</u>	F: 8%	<u>Minneapolis</u>	<u>Philadelphia</u>
	AA: 48%	White 63.1%	White 38.5%	M: 92%	Female 49.3%	Female 52.4%
	H: 4.9%	Black 18.4%	Black 40.8%		Male 50.7%	Male 47.6%
	NH/PI: 1.1%	Latino 9.8 %	Latino 15.4%			
	MR: 1.1%	NH/PI 2%	NH/PI 0.0%			
		Multiracial 6.9%	Multiracial 5.3%			
Najavits et al., 2018	C: 60%	<u>Boston</u>		F: 27%	<u>Boston</u>	
	AA: 30.1%	White 50.1%		M: 73%	Female 52.2%	
	H: 4%	Black 23.5%			Male 47.8%	
	MR: 3.9%	Latino 19.8%				
	NH/PI: 2.0%	NH/PI 0.1%				
		Multiracial 9.6%				
McGovern et al., 2015	W: 98.6%	<u>Lebanon, NH</u>		F: 59.3%	<u>Lebanon, NH</u>	
		87.9% White		M: 40.7%	Female 53.4%	
					Male 46.6%	
Hein et al., 2015	C: 23%	<u>New York State Psych. Institute</u>		F: 81%	<u>New York State Psych. Institute</u>	
	AA: 59%	W 39.8%		M: 19%	F 52.0%	
	H: 10%	B 23.4%			M 48.0%	
	O: 7%	L 28.9%				
		Mult 7.1%				
Foa et al., 2013	W: 30%	<u>Philadelphia</u>		F: 34%	<u>Philadelphia</u>	
	B: 63%	38.5% White		M: 65%	Female 52.4%	
	H: 4.2%	40.8% Black			Male 47.6%	
	NA: 0.6%	15.4% Latino				
	O: 1.2%	0.3% AI/AN				
		5.3% Multiracial				
Ruglass et al., 2017	W: 18%	<u>City University of New York</u>		F: 36%	<u>City University of New York</u>	
	B: 59%	W 63.5%		M: 64%	F 52.4%	
	H: 20%	B 18.5%			M 47.6%	
	O: 2.7%	L 26.4%				
		Mult 3.6%				
Tripp et al., 2021	W: 67.9%	<u>San Diego Health Care System</u>		F: 14.8%	<u>San Diego Health Care System</u>	
	AA: 8.6%	W 58.2%		M: 85.2%	F 49.0%	
	AI/AN: 2.5%	B 6.0%			M 51.0%	
	A: 7.4%	AI/AN 0.6%				
	MR: 12.3%	Asian 1.2%				
	PI/HN: 1.2%	Mul 10.3%				
		NH/P 10.5%				
Staffer et al., 2019	W: 36.2%	<u>San Francisco VA Healthcare</u>		M: 100%	<u>San Francisco VA Healthcare</u>	
	B: 38.3%	W 43.4%			F 48.8%	
	H: 2.1%	B 5.2%			M 51.2%	
	A: 4.3%	Latino 15.4%				
	O: 19.1%	Asian 34.4%				
		Mult 8.4%				

(Continued)

Table 4. Continued.

Study author	Racial demographics ^a	Study recruitment/ implementation location and racial demographics ^b	Study sex	Study location sex demographics
Flanagan et al., 2019	W: 34.3% B: 61.2% O: 3%	<u>Ralph Johnson VA Center</u> W 74.1% B 19.6% Mult 2.6%	M: 100%	<u>Ralph Johnson VA Center</u> F 52.6% M 47.4%
Norman et al., 2019	W: 65.5% B: 13.4% H: 29.4% A: 5% O: 15.1%	<u>San Diego Health Care System</u> W 58.2% B 6.0% Latino 30.1% Asian 1.2% Mul 10.3%	F: 10.1% M: 89.9%	<u>San Diego Health Care System</u> F 49.0% M 51.0%
Haller et al., 2016	W: 51%	<u>San Diego Health Care System</u> W 58.2%	M: 93.8%	<u>San Diego Health Care System</u> F 49.0% M 51.0%
McDevitt-Murphy et al., 2014	W: 64.7% B: 27.9% A: 1.5% MR: 5.9%	<u>Veterans Affairs Med Center Memphis</u> W 40.4% B 54.6% Asian 2.9% Mult 1.7%	F: 87.1% M: 12.9%	<u>Veterans Affairs Med Center Memphis</u> F 52.5% M 47.7%
Coffey et al., 2016	W: 77.8% B: 22.2%	<u>San Diego Health Care System</u> W: 58.2% B: 6.0%	F: 42.2% M: 57.8%	<u>San Diego Health Care System</u> F 49.0% M 51.0%
Myers et al., 2015	W: 60% B: 12.50% H: 25%	<u>San Diego Outpatient Psych</u> W: 58.2% B: 6.0% L: 30.1%	F: 100%	<u>San Diego Outpatient Psych</u> F 49.0% M 51.0%
Brief et al., 2013	W: 79.3% B: 4.3% H: 9.6% AI/AN: 1.8% NH/PI: 1%	<u>San Francisco VA Healthcare</u> W: 43.4% B: 5.2% L: 15.4% AI/AN 0.5% NH/PI 0.4%	F: 6.6% M: 93.3%	<u>San Francisco VA Healthcare</u> F 48.8% M 51.2%
Batki et al., 2014	W: 46.66% B: 23.33% H: 6.66% A: 3.33% PI: 3.33% MR: 10% AI/AN: 3.33%	<u>San Francisco Dept. of Psychiatry</u> W 51.1% B 5.7% L: 15.7% A: 37.2% PI: 0.5% MR: 4.8% AI/AN: 0.8%	F: 6.66% M: 93.33%	<u>San Francisco Dept. of Psychiatry</u> F 48.9% M 51.1%

^aTerms from studies are used: C: Caucasian; W: White; AA: African American; H: Hispanic; NA: Native American; AI/AN: American Indian/Alaska Native; A: Asian; O: Other; NH/PI: Native Hawaiian; Pacific Islander; MR: Multiracial.

^bWe use terms from the US census. ^cThis study occurred in two sites. They each had a different majority racial composition.

Third, researchers rarely acknowledged traumatic contexts beyond military combat. Most assigned PTSD/AUD as an issue of problematic coping and tested the effectiveness of coping skills treatments. The veracity of this claim is not under scrutiny; however, the contextual reasons why people have PTSD/AUD matter (Bresin & Mekawi, 2021) and may

Table 5. Journal and departmental diversity initiatives.

Journal	Diversity initiative	Year initiated	Relevant study
Addictive Behaviors	No	N/A	N/A
Addiction	No	N/A	N/A
Alcohol: Clinical and Experimental Research	No	N/A	N/A
Behavior Research and Therapy	No	N/A	N/A
Drug and alcohol dependence	No	N/A	N/A
Experimental and Clinical Psychopharmacology	Yes	2018	Flanagan et al. (2019)
Journal of Consulting and Clinical Psychology	Yes	2018	Brief et al. (2013) Hien et al. (2015) McDevitt-Murphy et al. (2014)
JAMA	No	N/A	N/A
JAMA Psychiatry	No	NA	NA
Journal of Dual Diagnosis	No	N/A	N/A
Psychology of Addictive Behaviors	Yes	2018	Coffey et al. (2016)
Psychological Trauma: Theory, Research, Practice, and Policy	Yes	2018	Tripp et al. (2021)
Psychotherapy and Psychosomatics	No	N/A	N/A
Substance Use and Misuse	No	N/A	N/A
Department			
Dept. of Psychiatry & Human Behavior, University of Mississippi Medical Center	No	N/A	N/A
Dept. of Psychiatry, University of Pennsylvania	Yes	2020	Foa et al., 2013
Dept. of Psychiatry and Behavioral Sciences, University of South Carolina	No	N/A	N/A
Dept. of Psychology, City College of New York	No	N/A	N/A
Dept. of Psychiatry and Behavioral Sciences, University of Washington	No	N/A	N/A
Dept. of Psychiatry, Geisel School of Medicine, Dartmouth	No	N/A	N/A
Memphis Veterans Affairs Medical Center	No	N/A	N/A
Minneapolis Veterans Affairs Healthcare System	No	N/A	N/A
San Diego State University/University of California Davis Joint Psychology Program	No	N/A	N/A
San Francisco Veterans Affairs Medical Center	No	N/A	N/A
Veterans Affairs, Boston Health Care System	No	N/A	N/A
Veterans Affairs, San Diego Healthcare System	No	N/A	N/A

influence the types of coping skills one needs to learn for recovery. For example, in the introduction, we mentioned that Indigenous people often endure PTSD/AUD for unique sociocultural reasons and need culturally adapted treatments to target their trauma and substance use issues (Herron & Venner, 2022). It stands to reason that recognizing the contextual issues driving PTSD/AUD would influence study design, and failing to acknowledge the contextual issues driving PTSD/AUD plausibly prevented researchers from adapting their interventions (culturally or

otherwise) and subsequently intentionally seeking out men and women of color to treat.

Finally, among the few studies that discussed race, their dialogue revealed an assumption that all people of color cohere into a single group, and this assumption had material consequences. Authors who recruited one group of color would assert that they had sufficient non-White representation in their study and that their treatment was effective across all racial groups. However, each racialized group has distinct experiences, challenges, and resources (Collins, 1990; Collins & Bilge, 2020), and the struggles of Black people cannot be equated to those of Indigenous people and so on (Tuck & Yang, 2021; Wilderson, 2020). Therefore, it is inappropriate to conceive of AI/AN, Latina, Asian, Black, or other racialized groups as a single unit. This assumption also had consequences for how evidence was referenced and built upon. For instance, one study (Hien et al., 2015) cited Najavits' study as evidence that Seeking Safety (the treatment under investigation) is effective across all racial groups, stating, "Seeking Safety... has been found to significantly reduce substance use as well as PTSD symptoms *across a variety of populations* [emphasis added]." Yet, most Seeking Safety study participants are White, followed by Black people, and there are relatively few from other groups. Therefore, the clinical evidence built from assumptions that all people of color are one group is misleading.

Structural domain

Rarely did RCTs occur in a zip code where the majority group was non-White or female. This issue may contribute to low sample diversity because the sample demographic makeup of an RCT often reflected the demographic makeup of where an RCT occurred. Interestingly, however, the recruitment efforts of researchers seemed to mediate whether the sample demographics paralleled the regional demographics. For instance, sample demographics did not mirror regional demographics when authors explicitly focused on recruiting women from a majority-male zip code or when they recruited combat veterans from a majority-female zip code. Additionally, despite recruiting in a majority White zip code, authors who recruited from the clinic *and* the community recruited more Black participants than White participants. In contrast, when authors only recruited from a clinic in a majority White or Black zip code, they recruited mainly White participants. However, we may continue to over-recruit White men because universities and behavioral health clinics are often primarily instantiated in and composed of whiteness (Bonilla-Silva & Peoples, 2022; Hardy, 2022).

Disciplinary domain

The hegemonic and structural issues were supported by the lack of regulation surrounding sample diversity in the disciplinary domain. Major research institutions like the NIH have urged all in the scientific community to take charge in actively recruiting marginalized groups into RCTs since the 1990s (NIH, 2001). Furthermore, researchers have urged changes in journal activities to enhance diversity (Buchanan et al., 2021). However, zero journals in this sample had explicit regulations regarding sample diversity, meaning researchers can continue to ignore the lack of recruitment of marginalized groups in RCTs. Among the journals with a DEI statement on the author instruction's page, the articles published lacked sample diversity and mirrored studies published in journals without a statement. This indicates that DEI statements in journals are potentially superficial unless enforced by regulations that ensure articles will only get published depending on an appropriate level of diversity. Also, though we cannot comment upon the relationship between departmental statements and study samples, most departments were silent about DEI. The significant lack of DEI initiatives across journals and departments suggests an indifference regarding marginalized people's low inclusion rates in research, supporting their constrained inclusion in RCTs.

Putting it all together

Hegemonically, researchers do not discuss the diversity of the prevalence of PTSD/AUD nor the diversity of experiences contributing to PTSD/AUD by identity. Additionally, they homogenize people of color into a single group and are androcentrically biased. Also, research is mainly conducted in White and male areas, and one's sample composition will most likely mirror the regional composition. Further, academic journals appear indifferent toward requiring researchers to recruit diverse samples by failing to link publication with sample diversity (where appropriate). These power domains synergize and limit researchers' ability to recruit diverse samples, and this synergy likely explains why PTSD/AUD RCT sample composition is overwhelmingly White and male.

Future directions and limitations

To increase the inclusion of marginalized groups in RCTs and promote social justice, authors must explicitly identify differences in PTSD/AUD prevalence by identity. Moreover, researchers must identify the social experiences marginalized groups face relevant to PTSD/AUD to enhance their participation

in RCTs. For instance, race and sex discrimination are each linked with PTSD and AUD (Bing-Canar et al., 2020; Bird et al., 2021; Cano, 2020; Desalu et al., 2019), and future RCTs should test treatments that address these issues. Additionally, authors must be cognizant of the demographic makeup of the regions *and* clinics where their study is being implemented. They must especially employ recruitment efforts that enable them to sample marginalized groups, and implementing studies in non-White-majority and non-male-majority areas may best accomplish this. Finally, journals must implement regulations regarding sample diversity to ensure authors reflect on whom they are recruiting before they begin their study. Until that is done, journal reviewers and editors should consider sample diversity when deliberating whether to accept studies for publication.

Next, this study has several limitations. First, we only examined inclusion by race and sex. However, had we analyzed inclusion by other characteristics like class or age, we may have discerned alternative means by which RCTs are systematically structured toward under-including oppressed groups. After all, age and class are relevant factors associated with PTSD/AUD treatment seeking and recovery; therefore, future investigations should bear these variables in mind. Additionally, although comparing sample representativeness by zip code demographic characteristics was novel and yielded important insights, it is possible that participants in the studies could have lived in zip codes close to those where the study occurred. For instance, it is possible that the participants in studies occurring in Boston were from Dorchester. However, there is evidence of an inverse relationship between study participation and geographical distance between participants and study implementation location (Kelly et al., 2016). Therefore, we argue that it is plausible that those who participated in the study were close, if not in the same zip code as where the study occurred. However, future studies should examine neighboring zip codes as well and assess the overall race and sex demographics of the area concerning the sample representativeness of the study/studies that occurred in the region. Next, several studies were conducted through healthcare systems, and people of color may be less involved with these institutions and, therefore, research attached to these institutions may be primed for the underrepresentation of racially oppressed groups. This suggests that future studies should think critically about the relationship between an institution and the community involved in the study and use community-engaged methods where appropriate.

This analysis is also limited because we could not assess the interpersonal domain and its effects on recruitment. We could not do so because the authors did not share a positionality statement in their publication. Some (Buchanan et al., 2021) have suggested that positionality statements help understand how and why studies take the shape they do. They would have allowed us to analyze the intrapersonal domain. Indeed, there are

fears that positionality statements may further marginalize vulnerable scholars (Buchanan et al., 2021), so we cautiously make this recommendation. Finally, other elements within these domains that have not been analyzed may contribute to the constrained inclusion of marginalized groups. For instance, funding requirements likely play a role. Future research should investigate other elements within each domain (e.g., funding requirements) and link these elements with who is and is not systematically included in RCTs.

Conclusion

The constrained inclusion of marginalized groups in PTSD/AUD RCTs is related to how RCTs are hegemonically framed, structurally implemented, and disciplinarily regulated. Consequently, the findings from PTSD/AUD RCTs are unlikely to be representative and generalizable to racially oppressed groups. Thus, the treatments offered to marginalized groups may not be helpful, potentially explaining why marginalized groups are more likely to leave PTSD/AUD treatment early (McClendon et al., 2020). In sum, the constrained inclusion of marginalized groups in RCTs is encoded and naturalized in the fabric of the RCT process. Until researchers and journals begin acknowledging the needs of marginalized groups, explicitly seeking them out, and regulating their limited inclusion in research, they will likely remain under-included in RCT research.

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