

# A systematic review of sociodemographic reporting and representation in eating disorder psychotherapy treatment trials in the United States

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## Abstract

**Objective:** Eating disorders (EDs) were once conceptualized as primarily affecting affluent, White women, a misconception that informed research and practice for many years. Abundant evidence now discredits this stereotype, but it is unclear if prevailing “evidence-based” treatments have been evaluated in samples representative of the diversity of individuals affected by EDs. Our goal was to evaluate the reporting, inclusion, and analysis of sociodemographic variables in ED psychotherapeutic treatment randomized controlled trials (RCTs) in the US through 2020.

**Methods:** We conducted a systematic review of ED psychotherapeutic treatment RCTs in the US and examined the reporting and inclusion of gender identity, age, race/ethnicity, sexual orientation, and socioeconomic status (SES) of enrolled participants, as well as recruitment methods, power analyses, and discussion of limitations and generalizability.

**Results:** Our search yielded 58 studies meeting inclusion criteria dating back to 1985. Reporting was at times incomplete, absent, or centered on the racial/gender majority group. No studies reported gender diverse participants, and men and people of color were underrepresented generally, with differences noted across diagnoses. A minority of papers considered sociodemographic variables in analyses or acknowledged limitations related to sample characteristics. Some progress was made across the decades, with studies increasingly providing full racial and ethnic data, and more men included over time. Although racial and ethnic diversity improved somewhat, progress appeared to stall in the last decade.

**Discussion:** We summarize findings, consider context and challenges for RCT researchers, and offer suggestions for researchers, journal editors, and reviewers on improving representation, reporting, and analytic practices.

**Public Significance:** Randomized controlled trials of eating disorder psychotherapeutic treatment in the US are increasingly reporting full race/ethnicity data, but information on SES is inconsistent and sexual orientation absent. White women still

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comprise the overwhelming majority of participants, with few men and people of color, and no gender-diverse individuals. Findings underscore the need to improve reporting and increase representation to ensure evidence-based treatments are effective across and within diverse groups.

**Objetivo:** Los trastornos de la conducta alimentaria (TCA) alguna vez se conceptualizaron como enfermedades que afectaban principalmente a las mujeres blancas, adineradas, un concepto erróneo que informó la investigación y la práctica clínica durante muchos años. Abundante evidencia ahora desacredita este estereotipo, pero no está claro si los tratamientos prevalecientes "basados en la evidencia" se han evaluado en muestras representativas de la diversidad de individuos afectados por los TCA. Nuestro objetivo fue evaluar el informe, la inclusión y el análisis de las variables sociodemográficas en los ensayos controlados aleatorios (ECA) del tratamiento psicoterapéutico para TCA en los Estados Unidos hasta 2020.

**Métodos:** Se realizó una revisión sistemática de los ECA de tratamiento psicoterapéutico de los TCA en los Estados Unidos y se examinó el informe y la inclusión de la identidad de género, la edad, la raza/etnia, la orientación sexual y el estado socioeconómico (ESE) de los participantes inscritos, así como los métodos de reclutamiento, los análisis de poder y la discusión de las limitaciones y la generalización.

**Resultados:** La búsqueda arrojó 58 estudios que cumplieron los criterios de inclusión que datan de 1985. Los informes a veces eran incompletos, ausentes o centrados en el grupo mayoritario racial / de género. Ningún estudio informó participantes con diversidad de género, y los hombres y las personas de color estuvieron subrepresentados en general, con diferencias observadas entre los diagnósticos. Una minoría de los artículos consideró variables sociodemográficas en los análisis o reconoció limitaciones relacionadas con las características de la muestra. Se lograron algunos avances a lo largo de las décadas, con estudios que proporcionan cada vez más datos raciales y étnicos completos, y más hombres incluidos con el tiempo. Aunque la diversidad racial y étnica mejoró un poco, el progreso pareció estancarse en la última década.

**Discusión:** Resumimos los hallazgos, consideramos el contexto y los desafíos para los investigadores de ECA, y ofrecemos sugerencias para investigadores, editores de revistas y revisores sobre cómo mejorar la representación, el informe y las prácticas analíticas.

#### KEYWORDS

disparities, ethnicity, gender, inclusion, race, randomized controlled trials, sexual orientation, socioeconomic status

## 1 | INTRODUCTION

Health disparities are health differences between groups associated with disadvantages across economic, social, and/or environmental domains (US Department of Health and Human Services, 2008).

Considerable disparities exist in service utilization and referrals to mental health treatment broadly (Geiger, 2003), and eating disorder (ED) treatment specifically (Coffino et al., 2019; Hart et al., 2011; Marques et al., 2011), such that the populations most vulnerable to mental health concerns are often the least able to access services.

Disparities are particularly apparent in ED diagnosis and treatment, due in part to the social and historical context in which they were initially conceptualized. Once coined “the golden girl phenomenon,” EDs were believed to primarily affect young, White, middle-to-upper-class cisgender women (Root, 1990). This stereotype appeared to emerge from several sources, including early diagnostic criteria based on case studies of female European/European American patients with anorexia nervosa (AN) and bulimia nervosa (BN), theoretical models that emphasized the Western cultural context of EDs, and early data highlighting differences in ED prevalence across ethnicity and culture (rates undoubtedly biased by the Euro- and female-centric diagnostic criteria; Smolak & Striegel-Moore, 2004; Striegel-Moore & Smolak, 2000).

Since the early 2000s, researchers have emphasized the inaccuracy and potential implications of this stereotype (e.g., Smolak & Striegel-Moore, 2004). Indeed, not only is there now clear evidence that EDs affect individuals across diverse backgrounds and identities, but there are well-documented social inequities in ED risk, highlighting EDs as an important health equity issue. For instance, disordered eating and ED prevalence appear comparable or even higher in some racial and ethnic groups relative to White individuals (Cheng et al., 2019; Rodgers et al., 2018; Simone et al., 2022), and are increasing in men (Gorrell & Murray, 2019; Mitchison & Mond, 2015). Moreover, individuals identifying as LGBTQ+ are at heightened risk for developing body image concerns and disordered eating (Calzo et al., 2018; Diemer et al., 2018; Kamody et al., 2020; Meneguzzo et al., 2018; Witcomb et al., 2015). Not only is there no consistent evidence to support that EDs affect primarily those of higher socioeconomic status (SES; Huryk et al., 2021) some data suggest disordered eating is increasing more rapidly in those with lower versus higher incomes (Mitchison et al., 2014), and that those experiencing food insecurity might be at *heightened* risk (Hazzard et al., 2020, 2022). Although there are limited data on the prevalence of EDs in older adult men (Schaumberg et al., 2017), women over the age of 50 are increasingly seeking treatment for new-onset, chronic, and recurrent EDs (Samuels et al., 2019). Finally, a small, but growing body of research suggests individuals occupying multiple marginalized social identities are at elevated ED risk (Burke et al., 2020; Panza et al., 2021).

Nevertheless, most individuals with EDs do not receive treatment, and men, people of color, and gender diverse and transgender individuals are among those least likely to receive a diagnosis or appropriate care (Gorrell et al., 2021; Gorrell & Murray, 2019; Marques et al., 2011). Culturally incongruent diagnostic criteria and stereotypes about who EDs affect are widely considered to contribute to and perpetuate these disparities (Lee-Winn et al., 2014; Sonnevile & Lipson, 2018), which are particularly concerning given early intervention appears to be an important prognostic indicator for ED outcomes. A systematic review found that a shorter duration between ED symptom onset and treatment is associated with a greater likelihood of remission (Austin et al., 2021). Left untreated, ED symptoms often become chronic (Pearson et al., 2017), and are associated with considerable impairment, morbidity, and mortality

(Deloitte Access Economics, 2020; Fichter & Quadflieg, 2016; Striegel Weissman & Rosselli, 2017).

Behavioral and psychological treatments are the mainstays of ED treatment, as they address the behavioral, cognitive, emotional, and interpersonal factors underlying and maintaining EDs (Hilbert et al., 2017; Wilson & Shafran, 2005; Yager et al., 2014). However, given the “golden girl” myth informed research and practice for several decades (Root, 1990; Smolak & Striegel-Moore, 2004), it is unclear if prevailing “evidence-based” psychotherapeutic treatments have been informed by and thoroughly evaluated in samples that reflect the diversity of those affected by EDs. Because EDs often present differently (e.g., gender dysphoria, drive for muscularity; Hartman-Munick et al., 2021; Murray et al., 2017), and are associated with different sociocultural risk and maintenance factors across groups (e.g., appearance ideal internalization; Awad et al., 2015; Overstreet et al., 2010), it seems especially imperative to ensure ED treatments are evaluated in representative samples. Randomized controlled trials (RCTs) are generally considered best practices in intervention development and evaluation (Mercer et al., 2007; Sanson-Fisher et al., 2007). Unfortunately, disparities also extend to RCT enrollment. Not only are people of color underrepresented in United States (US)-based RCTs, race and ethnicity data are often not reported, within-group and moderator analyses seldom conducted, and limited generalizability is rarely acknowledged (Berger et al., 2009; Geller et al., 2011; Polo et al., 2019). The implications of inadequate representation are far-reaching, as treatments evaluated in RCTs can be considered “evidenced-based,” whereas those not subject to this level of rigor are rarely widely disseminated (Flay et al., 2005; Goodheart et al., 2006). Thus, “evidence-based” treatments might be recommended or applied without sufficient evaluation to ensure they are culturally congruent and efficacious within the groups underrepresented in RCTs.

A recent review of all articles published in the *International Journal of Eating Disorders* in the years 2000, 2010, and 2020 found that although racial/ethnic data reporting increased over time, the substantial majority of participants were White (Egbert et al., 2022). These results highlighted the importance of improving reporting and representation within ED literature broadly to help eliminate existing disparities. Although prior work has examined racial and ethnic diversity within ED prevention trials (Rodgers et al., 2019), there are no known studies of sociodemographic reporting, representation, or analytic practices within ED psychotherapeutic RCTs. Adequate reporting of sociodemographic data is a critical first step toward evaluating representation within RCTs, which is necessary to ensure results are appropriately generalized and existing disparities ultimately eliminated.

Therefore, this study aims to fill that gap by evaluating the reporting, inclusion, and analysis of gender identity, age, race/ethnicity, sexual orientation, and SES of participants enrolled in ED psychotherapeutic treatment RCTs in the US. Although not an exhaustive list, we chose sociodemographic variables where disparities or inadequate representation might be evident (and harmful) based on the literature reviewed in the preceding paragraphs. We also examined

recruitment methods, analyses, and discussion of limitations and generalizability to contextualize findings (Berger et al., 2009; Geller et al., 2011; Haughton et al., 2018; Polo et al., 2019). We perceived examining recruitment methods might highlight pathways through which representation could be hampered. For analyses, we evaluated whether sociodemographic variables were considered, such as the inclusion of covariates, predictors/moderators, or between- or within-group analyses. Accordingly, we extracted information on statistical power to assess whether any between- or within-group or moderator analyses were sufficiently powered. Finally, CONSORT guidelines for RCT reporting explicitly recommend papers acknowledge limitations that could bias findings and appropriately generalize findings based on the characteristics of the sample (Schulz et al., 2010). We restricted this review to RCTs with at least one study site located within the US, given the heterogeneity of the US population across sociodemographic factors (US Census Bureau, 2020), the growing awareness of the pervasive systemic inequities present within the US healthcare system (Bailey et al., 2021), and differences in the reporting practices of sociodemographic information internationally (Egbert et al., 2022; European Commission, 2017). Further, this review specifically focused on psychotherapeutic ED treatments, as they are explicitly recommended for all EDs, whereas evidence for pharmacological treatments outside of BN and binge-eating disorder (BED) is limited and/or mixed (Yager et al., 2014). Secondary aims included assessing whether reporting or representation changed over time (as found in Egbert et al., 2022), and whether representation differed across ED diagnostic categories. Disparities in RCT enrollment across diagnosis could highlight important areas of improvement for researchers planning RCTs.

To our knowledge, this is the first systematic review of reporting, representation, and analysis of sociodemographic factors in ED psychotherapeutic treatment RCTs in the US. Results will offer important future directions for improving ED RCT research, with the ultimate aim of increasing accountability and eliminating disparities.

## 2 | METHODS

The conduct and reporting of this review adhered to the Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA; Moher et al., 2009).

### 2.1 | Search strategy

We developed the search strategy based on PRISMA guidelines and similar systematic reviews within the ED treatment literature (Moher et al., 2009; Watson et al., 2016). We conducted comprehensive literature searches in August 2020, May 2020, and December 2021 of the electronic databases PubMed, Medline, and Web of Science. The following terms were used to search the titles and abstracts of articles: (“anorexia nervosa” OR “bulimia nervosa” OR AN OR BN OR “binge-eating disorder” OR “avoidant restrictive” OR “eating disorder” OR

ARFID OR EDNOS OR OSFED) AND (treatment OR intervention OR therapy OR psychotherapy) AND (RCT OR trial OR randomized). We filtered results to include clinical trials in English. Additionally, we scanned reference lists of systematic reviews, meta-analyses, and related articles for additional citations.

### 2.2 | Eligibility criteria

Inclusion criteria included psychotherapeutic treatment (i.e., non-pharmacological and focused on psychological, behavioral, and/or social factors; e.g., Barbui et al., 2020) RCTs for AN, BN, ARFID, BED, or EDNOS/OSFED published in English in peer-reviewed journals through 2020 with a US sample. Many studies provided an empirically-based rationale for enrolling participants with sub- and full-threshold diagnoses and were thus included. We limited our review to primary outcomes papers only to avoid redundant samples.

We excluded prevention trials, uncontrolled trials and/or those without randomization, pilot, feasibility, and single-arm studies, studies with any pharmacological component or intervention, studies with samples not meeting DSM ED diagnostic criteria (e.g., community sample with body image concerns), studies without a US site, secondary analyses published separately from the primary RCT, and trials published after 2020.

### 2.3 | Screening and data extraction

Two authors (CBB and JLL) each conducted an independent literature search and produced consistent results. Then, both authors independently screened titles and abstracts of all retrieved articles for inclusion, and when inclusion could not be determined, retrieved the full text. CBB and JLL engaged in ongoing discussions to verify inclusion criteria and assess eligibility, and the third author (CMW) was consulted to achieve consensus in the event of any disagreements. After completion of the search and screening, CBB created a data extraction template, which CBB, JLL, and CMW pilot tested with five articles. Once the template was finalized, two authors (CBB, JLL, or CMW) independently extracted the following data from each article: diagnoses, sample size, mean age and range, gender identity, race, ethnicity, sexual orientation, SES, recruitment methods, analyses, limitations addressed, and how authors generalized findings. The third rater verified any data extraction disagreements independently.

Because the purpose of this review was to quantify the reporting and representation of key sociodemographic variables in recent ED treatment RCTs, rather than evaluate the efficacy of particular interventions, we did not assess study quality or risk of bias. We focused on published studies exclusively, as these are more widely available to the broader scientific and clinical community and have an arguably greater impact on clinical research and practice than unpublished studies. For the same reasons, we did not request missing or unpublished data from published articles. Ethical clearance was not required as we used data from published articles.

## 2.4 | Data analysis

We evaluated reporting practices by calculating frequencies and providing descriptive data on types of data reported. For race/ethnicity, we calculated the number of studies providing full, incomplete, or no data. For gender, we noted the number of studies reporting: (1) the cisgender binary only, (2) data for only one gender identity, and (3) any gender diverse participants. For SES and recruitment methods, we calculated the number of studies providing data and frequencies of data collected (e.g., number of studies providing education information).

To assess representation, we aggregated data overall, by diagnosis, and by decade (before 1990, 1990–1999, 2000–2009, 2010–2020). Studies fell one of five categories based on diagnoses included or problem(s) treated: (1) AN, (2) BN, (3) BED, (4) treatment for binge eating (including individuals with BN and BED), and (5) transdiagnostic (including multiple ED diagnoses except the combination of BN and BED only). No studies assessed treatments for ARFID or EDNOS/OSFED specifically.

We calculated means and standard deviations for age. For gender and race/ethnicity, we calculated the total number and proportions of participants within each category, as well as the median proportion and range. Many studies provided no racial and ethnic data, and some provided only the % non-White, % White, or % minority. Thus, we examined racial and ethnic representation within studies providing full data separately from those providing incomplete data. Most studies did not report Multiracial participants, and many provided no detail on the races and ethnicities of individuals categorized as “other.” In Tables 2 and 4, we report representation of Multiracial and “other” identities separately, but do not compare representation of these categories across diagnosis or time.

When summarizing gender, it is important to note that 15 studies reported the percentage of male or female participants only, leading us to infer an assumption of the cisgender binary.

Given the heterogeneity of SES reporting, we were unable to precisely evaluate SES representation. For instance, we attempted to calculate the proportion of participants who had completed college; however, one study grouped participants who had completed some college with those who had a 2-year degree. Thus, it is unclear what proportion of those participants had completed the 2-year degree specifically. SES estimates should accordingly be interpreted with caution. The only SES index reported frequently enough to approximate representation was educational attainment. To assess the proportion of participants whose educational attainment was some college or higher, we included participants reported as current university students, parents who had attended some college for studies of younger populations, and participants with a college degree (when the proportion of some college was not reported). We did not include studies with adolescent participants who reported personal rather than parental education in these calculations, as many participants would not yet have the opportunity to attend college.

We conducted chi-square tests to evaluate whether reporting practices and representation differed by diagnosis or decade. One-

way analyses of variance (ANOVAs) with post hoc Tukey tests were conducted to assess whether average age differed across diagnosis or decade.

## 3 | RESULTS

Figure 1 shows a PRISMA flow diagram of article selection. The initial search retrieved 1194 articles, with 23 more retrieved from reference lists of relevant articles. After examining titles and abstracts for inclusion criteria and removing duplicates, we reviewed 78 articles in full. We determined 20 did not meet inclusion criteria, resulting in 58 articles included in this review.

Refer to Table 1 for key data extracted from each study. Table 2 displays aggregated age, gender, race, and ethnicity data overall and by diagnosis, and Table 3 representation by decade. Figure 2 displays race and ethnicity reporting practices by decade. Gender, race, and ethnicity representation by diagnosis are displayed in Figure 3, and by decade in Figure 4. Alternate figures are available in Supporting Information.

### 3.1 | Study descriptive information and reporting

#### 3.1.1 | Diagnosis

Nine studies (15.5%) examined treatments for AN, 19 for BN (32.8%), 16 for BED (27.6%), 6 for binge eating (10.4%), and 8 were transdiagnostic (13.8%).

Fifteen studies (25.8%) included participants with both sub- and full-threshold symptoms. No studies explicitly mentioned including individuals meeting criteria for ARFID. One transdiagnostic study did not report which EDs were represented (Stice et al., 2015).

#### 3.1.2 | Age

Most studies focused on adult ( $n = 45$ ; 77.6%) populations. Adult studies evaluated BN (34.8%), BED (34.8%), binge eating (13.0%), transdiagnostic (13.0%), and AN (4.3%) treatments. Five studies (8.6%) included adolescents only, and evaluated treatments for AN (60.0%) and BN (40.0%). The six studies including both adolescents and adults (10.3%) evaluated AN (60.0%) and transdiagnostic treatments (33.3%); four of which were conducted in an inpatient setting.

#### 3.1.3 | Gender

No studies reported any participants who identified as transgender or other gender identities, and no studies clarified that male/female participants were cisgender. One study did not report sex or gender (Wilson et al., 1991). Of the studies including male participants ( $n = 31$ ), 48.4% ( $n = 15$ ) reported the percentage of one gender only.

TABLE 1 Description of studies included in review

| Study                           | ED(s); setting; treatments  | N   | Gender identity         | Age (range)  | Race/ethnicity  | SES  | Recruitment methods   | Power/analyses   | Limitations   |
|---------------------------------|---|-----|-------------------------|--------------|---|--|---|--|---|
| Agras et al. (1989)             | BN (DSM-III-R)<br>Outpatient <sup>a</sup><br>SM<br>CBT<br>CBT + RP              | 77  | 100% female             | 29.2 (18–61) | NR  | Education (42% some college, 42% completed college);<br>employment (75% employed), marital status (50% never married)  | Referred from healthcare workers, media announcements   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Agras et al. (1995)             | BED (proposed criteria; BMI $\geq 27$ )<br>Outpatient<br>Group IPT<br>Group CBT | 50  | 86% female<br>14% male  | 47.6 (24–65) | NR  | NR   | Unspecified referrals, media advertisements   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Evaluated pretreatment characteristics and attrition differences, but unclear whether demographic variables assessed</li> </ul>   | No limitations related to sociodemographic characteristics reported   |
| Agras et al. (2000)             | BN (DSM-III-R)<br>Outpatient<br>CBT<br>IPT                                      | 220 | 100% female             | 28.1 (NR)    | 77% White<br>11% Hispanic<br>6% African American<br>5% Asian<br>1% American Indian        | NR   | Advertisements and clinic referrals   | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Evaluated pretreatment characteristics and attrition differences between conditions/sites, but unclear whether demographic variables assessed</li> </ul> | No limitations related to sociodemographic characteristics reported   |
| Agras et al. (2014)             | AN (DSM-IV w/o amenorrhea)<br>Outpatient<br>FBT<br>SyFT                         | 164 | 89% female <sup>a</sup> | 15.3 (12–18) | 79.1% White<br>5.1% Asian<br>10.1% Latinx<br>5.7% Multiracial                             | NR   | NR  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>   | No limitations related to sociodemographic characteristics reported   |
| Bloomgarden and Calogero (2008) | DSM-IV ED (AN-restricting type, BN, EDNOS)<br>Inpatient<br>ERP<br>TAU           | 86  | 100% female             | 24.6 (NR)    | 94% European American<br>2% Asian American<br>1% African American<br>3% Hispanic American | NR   | Residential treatment center admissions   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Evaluated whether conditions differed on age (nonsignificant)</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Cachelin et al. (2019)          | BED (DSM-5)<br>Outpatient<br>Culturally adapted CBT-gsh<br>Waitlist             | 40  | 100% female             | 27.0 (18–55) | 100% Latina   | Hollingshead two-factor index (37.4) which includes education (high school graduation average) and occupation (clerical/sales on average); income (25–49k average) | Advertisements in English/Spanish in community and mental health settings, local organizations, and urban university campus | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic analyses not reported</li> </ul>  | Comprehensive limitations acknowledged (e.g., generation status, SES) |

**TABLE 1** (Continued)

| Study                     | ED(s); setting; treatments  | N       | Gender identity        | Race/ethnicity   | SES   | Recruitment methods   | Power/analyses   | Limitations   |
|---------------------------|---|---------|------------------------|--|---|---|--|---|
| Chen et al. (2017)        | BED, BN (DSM-4-TR/ DSM-5)<br>Outpatient<br>CBTgsh<br>DBT<br>CBT+ (individual and group) | 109     | 100% female            | 73.4% White<br>17.4% African American<br>0.9% Asian<br>8.3% "Other"<br>10.1% Latinx    | Education (62% attended or completed college), employment (74% employed), marital status (55% single) | NR  | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Eldredge et al. (1997)    | BED (proposed criteria, BMI ≥ 27)<br>Outpatient<br>CBT<br>Waitlist                      | 46      | 96% female<br>4% male  | NR   | NR  | NR  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Evaluated pretreatment and attrition differences, but unclear whether demographic variables assessed</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Grilo and Masheb (2005)   | BED (DSM-IV research criteria, BMI ≥ 27)<br>Outpatient<br>CBTgsh<br>BWLgsh<br>SM        | 90      | 79% female*            | 77% Caucasian<br>10% African American<br>11% Hispanic American<br>2% "Other ethnicity" | Education (87% attended or finished college)  | Print advertisements for participants wanting to stop binge eating and lose weight      | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Grilo et al. (2011)       | BED with BMI 30–55 (DSM-IV)<br>Outpatient<br>CBT<br>BWL<br>BWL + CBT                    | 125     | 77% female*            | 45.8% White<br>35.4% African American<br>6.3% Latinx<br>12.5% "Other"                  | Education (82% attended or finished college)  | Advertisements in primary care offices; word-of-mouth; primary care physician referrals | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Grilo et al. (2013)       | BED with BMI 30–50 (DSM-5)<br>Outpatient<br>shCBT<br>TAU                                | 48      | 79% female*            | 77% White<br>16% African American<br>4% Latinx<br>3% "Other"                           | Education (49% college degree)  | Print advertisements  | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Hay et al. (2018)         | AN (DSM-5)<br>Outpatient<br>CBT-AN with LEAP<br>CBT-AN only                             | 10 (US) | 90% female<br>10% male | NR   | Education (17% University education), employment (13% employed), marital status (19% married)         | Clinics and community advertising   | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Hildebrandt et al. (2012) | DSM-IV ED (AN, BN, BED, EDNOS)<br>Unclear setting<br>A-MET<br>ND                        | 33      | 88% female*            | 100% Non-Hispanic<br>94% Caucasian<br>6% Asian   | NR  | Specialty ED treatment programs   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success; demographic variables (age, BMI) nonsignificant predictors of treatment success</li> </ul> | No limitations related to sociodemographic characteristics reported |

(Continues)

TABLE 1 (Continued)

| Study                     | ED(s); setting; treatments   | N   | Gender identity        | Age (range)         | Race/ethnicity   | SES  | Recruitment methods   | Power/analyses  | Limitations   |
|---------------------------|--|-----|------------------------|---------------------|--|--|---|---|---|
| Hildebrandt et al. (2017) | BED, BN (DSM-5)<br>Outpatient<br>CBTgsh+<br>Noom<br>CBTgsh alone   | 66  | 83% female<br>17% male | 32.11 ( $\geq 18$ ) | 37.9% Non-White<br>16.7% Latinx  | Education (74% college degree or higher), income (55% > \$50k annually), marital status (71% single)                               | Community advertisements and referrals  | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic analyses not reported</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Hildebrandt et al. (2020) | BED, BN (DSM-5; >14 purging episodes/week excluded)<br>Outpatient<br>CBTgsh+<br>Noom<br>TAU                | 225 | 75% female<br>25% male | 41.19 (18–55)       | 83.6% Caucasian<br>5.0% Asian<br>4.4% African American<br>7.6% self-reported as other<br>8.0% Hispanic or Latino | Education (72% college degree or higher), income (75% > \$50k annually), marital status (66% married)                              | Enrollment-targeted invitations through HMO, electronic medical records scanned | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic variables as moderators of treatment effects (men &gt; reductions in clinical impairment; married individuals with higher income and education reported &gt; quality-of-life in Noom condition; White, non-Hispanic individuals with high BMI &gt; improvements in eating concerns)</li> </ul> | No limitations related to sociodemographic characteristics reported |
| Hill et al. (2011)        | BN (sub- and full-threshold; DSM-IV); self-induced vomiting as purging<br>Outpatient<br>DBT-AF<br>Waitlist | 32  | 100% female            | 22.0 ( $\geq 18$ )  | 93.8% White<br>3.1% African American<br>3.1% Asian American  | Education (81% college student)  | Advertisements  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Hsu et al. (2001)         | BN (DSM-III-R)<br>Outpatient<br>CT<br>NT<br>CT + NT  | 100 | 100% female            | 24.5 (17–45)        | NR   | NR   | NR  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success; age and weight nonsignificant predictors of attrition and outcome</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Kelly et al. (2017)       | DSM-4-TR ED criteria (AN, BN, BED, EDNOS)<br>Outpatient<br>CFT (group)<br>TAU                              | 22  | 96% female*            | 31.9 ( $\geq 18$ )  | 100% Caucasian   | Education (23% some college, 55% completed college, 18% graduate degree), employment (45.5% employed), marital status (77% single) | Outpatient ED treatment center admissions                                       | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success; attrition differences (nonsignificant)</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Kirkley et al. (1985)     | BN (DSM-III)<br>Outpatient<br>CBT<br>ND  | 28  | 100% female            | 28.3 (18–46)        | NR   | NR   | Newspaper and television announcements  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported |



**TABLE 1** (Continued)

| Study                    | ED(s); setting; treatments  | N   | Gender identity       | Race/ethnicity  | SES   | Recruitment methods   | Power/analyses  | Limitations   |
|--------------------------|---|-----|-----------------------|---|---|---|---|---|
| Klein et al. (2013)      | BED, BN (DSM-III-R, sub- and full-threshold)<br>Outpatient <sup>a</sup><br>Diary card SM<br>DBT (group) | 36  | 100% female           | 19% "Non-White"   | NR  | Clinical referrals, university email, flyers                                | <ul style="list-style-type: none"> <li>Post hoc low power referenced, but unclear which outcome</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Kristeller et al. (2014) | BED (DSM-IV sub- and full-threshold, BMI ≥ 25)<br>Outpatient <sup>a</sup><br>MB-EAT<br>PECB<br>Waitlist | 150 | 12% men*              | 13% Minority (13% African American, 1% Hispanic)                | Education (15 M years), income (39% ≥50k)   | Advertisements for individuals who binge eat and are concerned about weight | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success; attrition differences (nonsignificant); reference comparative effects by race in discussion that were not reported in results</li> </ul> | No limitations related to sociodemographic characteristics reported, but authors suggest future research expand to other populations to increase generalizability |
| Lee and Rush (1986)      | BN (DSM-III criteria)<br>Outpatient <sup>a</sup><br>CBT (group)<br>Waitlist                             | 30  | 100% female           | NR  | Education (1.5 M yrs), marital status (57% divorced, 23% married)                     | Local newspaper article   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Le Grange et al. (2007)  | BN (DSM-IV sub- and full-threshold)<br>Outpatient<br>FBT<br>SPT   | 80  | 98% female<br>2% male | 64% White<br>20% Hispanic<br>11% African American<br>5% "Other" | Family status (58% intact)  | Advertisements to clinicians, organizations, and clinics treating EDs       | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Le Grange et al. (2015)  | BN (DSM-IV sub- and full-threshold)<br>Outpatient<br>FBT-BN<br>CBT-A<br>SPT                             | 130 | 95% female*           | 46% Minority  | Income (39% >100k), parent education (67% college degree), family status (59% intact) | Advertisements to clinicians, organizations, ED clinics                     | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic variables as moderators/predictors of treatment effects (male adolescents more likely to report abstinence)</li> </ul>                         | No limitations related to sociodemographic characteristics reported   |
| Leitenberg et al. (1988) | BN (DSM-III; > 2 self-induced vomiting episodes weekly)<br>Outpatient<br>EXRP<br>Waitlist               | 47  | 100% female           | NR  | Education (14.6 M years), marital status (60% never married)                          | Newspaper advertisements and professional referrals                         | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Levine et al. (1996)     | BED (proposed criteria)<br>Outpatient<br>Exercise<br>Delayed  | 77  | 100% female           | 84% Caucasian   | Education (81% at least some college); marital status (58% married)                   | Newspaper advertisements and PSAs   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>   | No limitations related to sociodemographic characteristics reported   |

(Continues)

TABLE 1 (Continued)

| Study                          | ED(s); setting; treatments   | N   | Age (range)       | Gender identity        | Race/ethnicity  | SES  | Recruitment methods   | Power/analyses   | Limitations  |
|--------------------------------|--|-----|-------------------|------------------------|---|--|---|--|--|
| Lock et al. (2005)             | AN (DSM-IV; sub- and full-threshold)<br>Outpatient<br>FBT (short-term)<br>FBT (long-term)  | 86  | 15.2 (12–18)      | 90% female<br>10% male | 9% Asian<br>74% White<br>12% Hispanic<br>1% Native American<br>4% "Other" | Income (51% > 100k, 9% < 50k), parent education (90% college or graduate degree), family status (78% intact)           | Referrals from pediatricians and therapists                             | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Assessed age, BMI, gender as moderators of treatment effects (greater weight change among those with higher obsessive thoughts in longer treatment)</li> </ul> | Reported SES and parental education higher on average than general community, but comparable to AN samples |
| Lock et al. (2010)             | AN (DSM-IV w/o amenorrhea)<br>Outpatient<br>FBT<br>AFT-AN  | 121 | 14.4 (12–18)      | 91% female*            | 76% White<br>1% African American<br>11% Asian<br>7% Latinx<br>5% "Other"  | Parent education (16.9 M years), family status (79% intact)  | Advertisements to clinicians, organizations, ED clinics                 | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>   | No limitations related to sociodemographic characteristics reported  |
| Loeb et al. (2000)             | BED, BN (DSM-IV sub- and full-threshold)<br>Outpatient <sup>a</sup><br>CBT <sup>gsh</sup><br>shCBT   | 40  | 41.5 (NR)         | 100% female            | 95% Caucasian<br>2.5% African American<br>2.5% Asian                      | Employment (85% employed), education (38% some college, 20% 4-year, 20% graduate degree), marital status (58% married) | Newspaper advertisements  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported  |
| Masheb et al. (2011)           | BED (DSM-IV TR) with BMI $\geq$ 30<br>Outpatient<br>CBT-ED<br>CBT-GN   | 50  | 45.8 (29–60)      | 76% female*            | 80% White<br>18% African American<br>2% Latinx                            | Education (26% some college, 58% college graduate)   | Print advertisements  | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>   | Reported results may not generalize to BED sample with different demographic composition                   |
| Mitchell et al. (1993)         | BN (DSM-III-R; > 2 binge/purge episodes weekly for 6 months)<br>Outpatient<br>Three CBT group conditions of varying intensities<br>CBT TAU | 144 | 25.9 (NR)         | 100% female            | NR  | NR   | Outpatient ED clinic, newspaper advertisements                          | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>   | No limitations related to sociodemographic characteristics reported  |
| Mitchell et al. (2008)         | BN (DSM-IV; sub- and full-threshold)<br>Outpatient<br>CBT in person<br>CBT telemedicine  | 128 | 29.2 ( $\geq$ 18) | 98% female*            | 96% Caucasian   | Education (87% post-high school)   | Mailings to local physicians and psychologists and media advertisements | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>   | No limitations related to sociodemographic characteristics reported  |
| Ordman and Kirschenbaum (1985) | BN (DSM-III)<br>Outpatient <sup>a</sup><br>Full intervention (CBT, EXRP, process-oriented therapy)<br>Brief intervention                   | 20  | 19.8 (18–30)      | 100% female            | NR  | Education (90% current university students), employment (5% employed full-time), marital status (5% married)           | Flyers and newspaper article  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Evaluated pretreatment differences, but unclear whether demographic variables assessed</li> </ul>   | No limitations related to sociodemographic characteristics reported  |

**TABLE 1** (Continued)

| Study                  | ED(s); setting; treatments   | N   | Gender identity        | Race/ethnicity  | SES  | Recruitment methods   | Power/analyses  | Limitations   |
|------------------------|--|-----|------------------------|---|--|---|---|---|
| Peterson et al. (1998) | BED (DSM-IV)<br>Outpatient <sup>a</sup><br>Three CBT groups<br>Waitlist                                    | 61  | 100% female            | 97% Caucasian   | Education (52% college degree), marital status (46% married)   | Newspaper advertisements  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Peterson et al. (2020) | BED (DSM-5)<br>Outpatient<br>ICAT-BEDCBTgsh  | 112 | 82% female             | 91.1% Caucasian   | Education (69% college degree), marital status (52% never married)   | ED clinics, community advertisements, social media  | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>  | Acknowledged predominantly female, White, well-educated sample      |
| Pike et al. (2003)     | AN (DSM-IV)<br>Outpatient<br>CBT<br>NT   | 33  | 100% female            | NR  | NR   | NR  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Richards et al. (2007) | DSM-IV ED (AN, BN, EDNOS)<br>Inpatient<br>Spirituality group<br>Cognitive group<br>Emotional support group | 122 | 100% female            | 98% Caucasian   | Marital status (86% single)  | Admissions to inpatient facility  | <ul style="list-style-type: none"> <li>Power not reported explicitly, though low power was referenced in the footnote</li> <li>Evaluated whether conditions differed on religious identity</li> </ul> | No limitations related to sociodemographic characteristics reported |
| Robin et al. (1999)    | AN (DSM-III-R)<br>Outpatient<br>BFSI<br>EOIT   | 37  | 100% female            | 95% White<br>5% Middle Eastern  | Hollingshead four-factor index (M = 46.8), family status (92% two-parent household)  | Clinic referrals, letters sent to physicians, psychologists, clergy, and schools, PSAs, media stories, presentations to schools/clinics | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Assessed whether age differed between conditions</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Safer et al. (2001)    | BN (DSM-IV; sub- and full-threshold)<br>Outpatient<br>DBT<br>Waitlist                                      | 31  | 100% female            | 87% White   | Education (23% students, 77% attended or completed college), employment (52% employed), marital status (39% single, 39% married) | Newspaper advertisements, clinical referrals  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Reported no baseline differences between conditions, but unclear whether demographic variables included</li> </ul>                 | No limitations related to sociodemographic characteristics reported |
| Safer and Jo (2010)    | BED (DSM-IV)<br>Outpatient<br>DBT-BED<br>ACGT  | 101 | 85% female<br>15% male | 77% White<br>13% Latina<br>5% Asian<br>3% African American<br>3% Unknown/Unreported | Education (94% attended or completed college), Employment (50% employed, 12% unemployed), marital status (60% married)           | Newspaper advertisements, flyers, clinic referrals  | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success;</li> <li>differences between completers and non-completers (nonsignificant)</li> </ul>       | Cited lack of ethnic diversity                                      |

(Continues)

TABLE 1 (Continued)

| Study                        | ED(s); setting; treatments   | N                      | Gender identity       | Race/ethnicity   | SES   | Recruitment methods   | Power/analyses   | Limitations   |
|------------------------------|--|------------------------|-----------------------|--|---|---|--|---|
| Sproch et al. (2019)         | AN; Atypical AN (DSM-5)<br>Inpatient<br>CRT<br>TAU   | 275                    | 91% female<br>9% male | 87.3% White<br>3.3% Black<br>4.4% Asian<br>1.8% "Mixed"  | Education (11.4 M years)  | Admissions on inpatient unit                                    | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Stein et al. (2013)          | AN, BN (DSM-IV sub- or full-threshold)<br>Outpatient<br>IIP<br>SPT   | 69                     | 100% female           | 75.4% White  | Education (13.9 M years)  | Provider referrals; community-based and internet advertisements | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>   | No limitations related to sociodemographic characteristics reported |
| Steinglass et al. (2014)     | AN (DSM-5)<br>Inpatient<br>AN-EXRP<br>CRT  | 32 randomized analyses | 93% female<br>7% male | NR   | NR  | Admissions on inpatient unit after reaching weight restoration  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Steinglass et al. (2018)     | AN (DSM-5)<br>Inpatient<br>ReaCH<br>SPT  | 23                     | 100% female           | NR   | NR  | Admissions on inpatient unit                                    | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Stice et al. (2015)          | DSM-5 ED (AN, BN, BED, sub- and full-threshold, OSFED, PD)<br>Outpatient<br>Counter-attitudinal therapy (group)<br>TAU | 72                     | 100% female           | 54% European American<br>15% Asian/Pacific Islander<br>23% Hispanic<br>6% African American<br>1% American Indian/Alaska Native | Highest parent education (38% college graduate, 34% advanced/professional degree) | Universities based on web-screener for eating pathology         | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Stice, Rohde, et al. (2019)  | DSM-5 ED (AN, BN, BED, sub- and full-threshold, OSFED, PD)<br>Outpatient<br>BPT<br>SPT                                 | 84                     | 100% female           | 11% Hispanic<br>3% American Indian or Alaskan Native<br>11% Asian<br>1% Black or African American<br>84% White or Caucasian    | Parent education (36% college degree, 27% advanced degree)                        | Universities and surrounding communities                        | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success; attrition differences (nonsignificant)</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Stice, Yokum, et al. (2019)  | DSM-5 ED (AN, BN, BED, sub- and full-threshold, OSFED, PD)<br>Outpatient<br>BPT<br>Waitlist                            | 100                    | 100% female           | 61% Caucasian<br>13% Hispanic<br>3% Black<br>16% Asian<br>4% Multiracial<br>1% "Other"   | Parent education (30% college graduate, 47% advanced degree)                      | Universities and surrounding communities                        | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success; attrition differences (nonsignificant)</li> </ul>  | No limitations related to sociodemographic characteristics reported |
| Striegel-Moore et al. (2010) | BED, BN (DSM-IV TR, sub and full-threshold)<br>Outpatient<br>CBTgsh<br>TAU   | 123                    | 92% female*           | 96.7% White<br>3.3% Latinx ethnicity   | Education (82% attended or completed college); income collected but not reported  | Online, via mail, self-referrals from advertisements within HMO | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success; sociodemographic variables nonsignificant moderators/predictors of treatment effects</li> </ul> | Cited demographic homogeneity                                       |

**TABLE 1** (Continued)

| Study                          | ED(s); setting; treatments   | N  | Gender identity | Race/ethnicity  | SES  | Recruitment methods  | Power/analyses   | Limitations   |
|--------------------------------|--|--|-----------------|---|--|--|--|---|
| Telch et al. (1990)            | BED (DSM-III-R; binge eating without purging)<br>Outpatient<br>CBT (group)<br>Waitlist   | 44                                       | 100% female     | 91% White<br>5% Hispanic<br>2% Black<br>2% Asian                                      | Education (63% college degree, 23% some college), employment (64% employed), marital status (59% married)    | Newspaper advertisements   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Telch et al. (2001)            | BED (DSM-IV research criteria)<br>Outpatient<br>DBT (group)<br>Waitlist  | 44                                       | 100% female     | 94% Caucasian   | Education (>70% completed college, 100% high school completion), marital status (47% married)                | Newspaper advertisements   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | Noted sample included only women with mean age of 50, which might limit generalizability  |
| Thompson-Brenner et al. (2016) | BN with BPD symptoms (DSM-IV, modified criteria)<br>Outpatient <sup>a</sup><br>CBT-Eb<br>CBT-Ef  | 50                                       | 100% female     | 82% White<br>8% Asian<br>6% Latinx<br>2% African American<br>2% American Indian       | NR   | Fliers, online advertisements, ED clinic   | <ul style="list-style-type: none"> <li>Powered for "medium-sized effects" but unclear which outcome/analysis</li> <li>Randomization success</li> </ul> | No limitations related to sociodemographic characteristics reported; notes small sample precludes wider generalizability                    |
| Wifley et al. (1993)           | BN (DSM-III-R)<br>Outpatient<br>CBT (group)<br>IPT (group)<br>Waitlist   | 56                                       | 100% female     | 86% White<br>5% Hispanic<br>5% African American<br>2% Pacific Islander<br>1% "Indian" | Education (88% college graduates, 50% some college), employment (73% employed), marital status (59% married) | Newspaper advertisements   | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported   |
| Wifley et al. (2002)           | BED (DSM-IV, BMI 27-48)<br>Outpatient<br>CBT (group)<br>IPT (group)  | 162                                      | 100% female     | 93% White<br>4% African American<br>3% Hispanic<br>1% Native American                 | NR   | Media advertisements for "compulsive overeating" treatment   | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success</li> </ul>                                     | Notes BED treatment research should examine generalizability across different samples given most research with well-educated, White samples |
| Wilson et al. (1986)           | BN (DSM-III; binge/purge weekly, year duration)<br>Outpatient <sup>a</sup><br>Cognitive restructuring + EXRP<br>Cognitive restructuring only | 17                                       | 100% female     | NR  | Education (77% current college students), marital status (100% single)                                       | Newspaper announcements of the treatment program at ED clinic  | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>                                   | No limitations related to sociodemographic characteristics reported   |
| Wilson et al. (1991)           | BN (DSM-III; binge/purge weekly, year duration)<br>Outpatient <sup>a</sup><br>CBT<br>CBT + EXRP  | 22 (sample size not explicitly reported) | NR              | NR  | Education (64% current college students)   | Campus and community newspaper announcements of treatment program, referrals from local health professionals | <ul style="list-style-type: none"> <li>Power not reported</li> <li>Sociodemographic analyses not reported</li> </ul>                                   | No limitations related to sociodemographic characteristics reported   |

(Continues)

TABLE 1 (Continued)

| Study                    | ED(s); setting; treatments  | N                                 | Gender identity | Age (range)  | Race/ethnicity  | SES  | Recruitment methods  | Power/analyses  | Limitations   |
|--------------------------|---|-----------------------------------|-----------------|--------------|---|--|--|---|---|
| Wilson et al. (2010)     | BED (DSM-IV, BMI 27–45)<br>Outpatient<br>IPT<br>BWL<br>CBTgsh                           | 208                               | 15% male*       | 48.4 (19–77) | 77% White<br>17% Black<br>4% Latinx<br>1% American Indian   | Education (34% college degree)   | Advertisements, clinic referrals   | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Sociodemographic differences between conditions/completers and non-completers; baseline variables as moderators/predictors of treatment effects (racial and ethnic minorities &gt; dropout; higher education &gt; remission)</li> </ul> | Cited small proportions of men and those from racial and ethnic minority groups |
| Wonderlich et al. (2014) | BN (DSM-IV, DSM-5, sub. and full-threshold)<br>Outpatient <sup>a</sup><br>ICAT<br>CBT-E | 80                                | 90% female*     | 27.3 (≥18)   | 87.5% White<br>6.3% Asian<br>2.5% Latinx<br>1.3% African American<br>1.3% Native American<br>1.3% "Other"                       | Education (45% college degree), marital status (69% never married)   | Community advertisements, referrals from ED treatment clinics and other health professionals   | <ul style="list-style-type: none"> <li>Powered to detect effect size of 0.49, but unclear which outcome/analysis</li> <li>Randomization success</li> </ul>  | No limitations related to sociodemographic characteristics reported             |
| Zerwas et al. (2017)     | BN (DSM-IV)<br>Outpatient <sup>a</sup><br>CBT4BN<br>CBTF2F                              | 196 randomized<br>179 in analyses | 98% female*     | 28.0 (≥18)   | 84.9% White<br>6.1% Black or African American<br>2.8% Asian<br>.5% Native Hawaiian or Pacific Islander<br>4.5% Latinx ethnicity | Education (39% some college, 40% college degree, 16% postgraduate degree), employment (67% employed), marital status (21% married) | Advertisements in university listservs, print, radio, social media, local counseling centers, physician offices, and mental health organizations | <ul style="list-style-type: none"> <li>Powered for main treatment effect</li> <li>Randomization success;</li> <li>Sociodemographic differences between completers and non-completers (higher education, lower BMI in treatment completers)</li> </ul>   | No limitations related to sociodemographic characteristics reported             |

Note. Genders marked with asterisks (\*) indicate only one gender was reported. Races and ethnicities are reported as reported in the original study. No studies reported sexual orientation. Recruitment was paraphrased from the exact language in manuscript or Supporting Information. Sociodemographic analyses not reported indicates the paper did not report any analyses that accounted for sociodemographic differences between participants. Randomization success indicates the paper assessed whether sociodemographic characteristics differed between conditions. Limitations reference whether authors acknowledged limitations to the generalizability of findings based on sociodemographic characteristics of the sample.

Abbreviations: ACGT, active comparison group therapy; A-MET, acceptance-based mirror exposure; AN, anorexia nervosa; BED, binge-eating disorder; BFST, behavioral family systems; BN, bulimia nervosa; BPT, body project treatment; BWL, behavioral weight loss; CBT, cognitive behavioral therapy; CBT-A, CBT adapted for adolescents; CBT-Eb, CBT for EDs (broad); CBT-Ef, CBT for EDs (focused); CBT + ED, CBT + low-energy-density diet; CBT + GN, CBT + general nutrition counseling; CBTgsh, guided self-help CBT; CBT4BN, therapist-moderated chat group for BN; CBTF2F, face-to-face CBT; CFT, compassion-focused therapy; CRT, cognitive remediation therapy; CT, cognitive therapy; DBT, dialectical behavioral therapy; ED, eating disorder; EDNOS, eating disorder not otherwise specified; EOIT, ego-oriented individual; EXRP, exposure and response prevention; FBT, family-based treatment; ICAT, integrative cognitive-affective therapy; IIT, identify intervention program; IPT, interpersonal psychotherapy; LEAP, compulsive Exercise Activity therapy; MB-EAT, mindfulness-based eating awareness training; NR, not reported; NT, nutrition therapy; OSFED, other specified feeding or eating disorder; PD, purging disorder; PECB, psychoeducational/cognitive-behavioral intervention; REaCH, regulating emotions and changing habits; RP, response prevention; SPT, supportive psychotherapy; shCBT, self-help CBT; SvFT, systemic family therapy; TAU, treatment as usual.

\*Assumption of outpatient setting.

**TABLE 2** Age, gender, race, and ethnicity representation, overall and by diagnosis

|                         | Overall (n = 58) | AN (n = 9)      | BN (n = 19)    | BED (n = 16)    | Binge (n = 6)   | Transdiagnostic (n = 8) |                |               |                |                |                |                 |
|-------------------------|------------------|-----------------|----------------|-----------------|-----------------|-------------------------|----------------|---------------|----------------|----------------|----------------|-----------------|
| M Age (SD)              | 31.50 (10.59)    | 22.62 (8.32)    | 25.85 (6.21)   | 44.24 (5.89)    | 37.52 (3.63)    | 24.89 (3.38)            |                |               |                |                |                |                 |
|                         | Median (range)   | Median (range)  | Median (range) | Median (range)  | Median (range)  | Median (range)          |                |               |                |                |                |                 |
| Gender <sup>a</sup>     | %                | %               | %              | %               | %               | %                       |                |               |                |                |                |                 |
| Female                  | 100% (67–100%)   | 90.9% (89–100%) | 100% (90–100%) | 85.7% (67–100%) | 95.9% (75–100%) | 100% (85–100%)          |                |               |                |                |                |                 |
| Male                    | 8.4% (0–33%)     | 9.1% (0–11%)    | 0.0% (0–10%)   | 14.3% (0–33%)   | 4.1% (0–25%)    | 0% (0–33%)              |                |               |                |                |                |                 |
| Full data (64.4%)       | Overall (n = 31) | AN (n = 5)      | BN (n = 7)     | BED (n = 10)    | Binge (n = 3)   | Transdiagnostic (n = 6) |                |               |                |                |                |                 |
| Race/ethnicity          | %                | %               | %              | %               | %               | %                       |                |               |                |                |                |                 |
| Asian                   | 4.3%             | 3.4% (0–16%)    | 6.4%           | 5.4% (4–11%)    | 4.1%            | 3.4% (0–8%)             | 1.0%           | 0% (0–5%)     | 3.5%           | 2.5% (1–5%)    | 10.2%          | 8.6% (0–16%)    |
| Black                   | 6.3%             | 3.1% (0–35%)    | 1.5%           | 0% (0–3%)       | 5.4%            | 3.1% (1–11%)            | 11.1%          | 11.6% (0–35%) | 8.0%           | 4.4% (3–17%)   | 2.3%           | 1.2% (0–6%)     |
| Latinx                  | 8.0%             | 5.4% (0–100%)   | 5.2%           | 7.4% (0–12%)    | 8.0%            | 4.5% (0–20%)            | 8.8%           | 4.9% (1–100%) | 8.0%           | 8.4% (0–10%)   | 10.6%          | 7.1% (0–24%)    |
| Multiracial             | 0.6%             | 0% (0–6%)       | 2.1%           | 0% (0–6%)       | –               | –                       | –              | –             | –              | –              | 1.0%           | 0% (0–4%)       |
| “Other”                 | 2.4%             | 0.9% (0–8%)     | 1.5%           | 0% (0–5%)       | 2.8%            | 2.0% (0–6%)             | 1.4%           | 0.6% (0–5%)   | 7.0%           | 7.6% (0–8%)    | 1.8%           | 0.7% (0–4%)     |
| White                   | 80.0%            | 82.0% (0–100%)  | 82.1%          | 79.1% (74–95%)  | 82.2%           | 87.5% (64–94%)          | 77.8%          | 78.4% (0–93%) | 81.8%          | 83.6% (73–95%) | 76.7%          | 88.9% (54–100%) |
| Incomplete data (20.7%) | Overall (n = 12) | AN (n = 0)      | BN (n = 3)     | BED (n = 4)     | Binge (n = 3)   | Transdiagnostic (n = 2) |                |               |                |                |                |                 |
|                         | %                | %               | %              | %               | %               | %                       |                |               |                |                |                |                 |
| White                   | 85.5%            | 89.1% (54–98%)  | –              | 87.1% (54–96%)  | 87.1%           | 87.1%                   | 92.1% (84–97%) | 84.0%         | 80.6% (62–97%) | 89.5%          | 86.5% (75–98%) |                 |
| “Non-White”             | 14.5%            | 10.9% (3–25%)   | –              | 12.9% (4–46%)   | 12.9%           | 12.9%                   | 7.9% (3–16%)   | 16.0%         | 19.4% (3–38%)  | 10.5%          | 13.5% (3–25%)  |                 |

Note: Fifteen studies (25.9%) did not report race or ethnicity (4 = AN, 9 = BN, 2 = BED).

<sup>a</sup>One study did not report gender.

### 3.1.4 | Sexual orientation

No studies provided data on sexual orientation.

1980s (100%) to the 1990s (44.4%) and from the 1990s to the 2010s (10.0%),  $\chi^2(3) = 23.50, p < .001$ . The proportion of studies providing full race/ethnicity data increased from the 1990s (33.3%) to the 2010s (70.0%),  $\chi^2(3) = 12.00, p < .01$ .

### 3.1.5 | Race and ethnicity

Over a quarter of studies (n = 15, 25.9%), and 100% of those published before 1990, did not provide any race or ethnicity data. The proportion of studies providing no racial/ethnic data decreased from the

### 3.1.6 | Socioeconomic status

Fifteen studies (25.9%) did not report any SES data. Approximately two-thirds (67.2%) of studies reported education (personal or parental),

**TABLE 3** Age, gender, race, and ethnicity representation, by decade

| Studies (n = 58)            | Before 1990 (n = 6) |                | 1990–1999 (n = 9) |                | 2000–2009 (n = 13) |                | 2010–2020 (n = 30) |                 |
|-----------------------------|---------------------|----------------|-------------------|----------------|--------------------|----------------|--------------------|-----------------|
| M Age (SD)                  | 25.26 (4.08)        |                | 35.49 (12.16)     |                | 30.85 (11.59)      |                | 31.83 (10.39)      |                 |
| Gender                      | %                   |                | %                 |                | %                  |                | %                  |                 |
| Female                      | 100%                | 100% (100%)    | 98.3%             | 100% (86–100%) | 95.2%              | 100% (80–100%) | 89.3%              | 91.4% (67–100%) |
| Male                        | 0%                  | –              | 1.8%              | 0% (0–14%)     | 4.8%               | 0% (0–20%)     | 10.7%              | 8.6% (0–33%)    |
| n = 31                      | Before 1990 (n = 0) |                | 1990–1999 (n = 3) |                | 2000–2009 (n = 7)  |                | 2010–2020 (n = 21) |                 |
| Race/ethnicity (full data)  | %                   | Median (range) | %                 | Median (range) | %                  | Median (range) | %                  | Median (range)  |
| Asian                       | –                   | –              | 3.6%              | 3.6% (2–5%)    | 2.9%               | 2.4% (0–9%)    | 4.8%               | 4.9% (0–16%)    |
| Black                       | –                   | –              | 2.9%              | 3.8% (2–5%)    | 5.1%               | 3.7% (0–14%)   | 6.9%               | 3.1% (0–35%)    |
| Latinx                      | –                   | –              | 3.6%              | 5% (5%)        | 8.9%               | 10.9% (0–25%)  | 7.9%               | 6.3% (0–100%)   |
| Multiracial                 | –                   | –              | –                 | –              | –                  | –              | 0.8%               | 0% (0–6%)       |
| Other                       | –                   | –              | –                 | –              | 1.7%               | 2.2% (1–6%)    | 2.8%               | 2.2% (0–8%)     |
| White                       | –                   | –              | 89.8%             | 90.9% (86–95%) | 81.4%              | 80.0% (74–95%) | 79.0%              | 82.0% (0–100%)  |
| n = 12                      | Before 1990 (n = 0) |                | 1990–1999 (n = 2) |                | 2000–2009 (n = 4)  |                | 2010–2020 (n = 6)  |                 |
| Race/ethnicity (incomplete) | %                   | Median (range) | %                 | Median (range) | %                  | Median (range) | %                  | Median (range)  |
| White                       | –                   | –              | 89.8%             | 90.6% (84–97%) | 91.7%              | 91.5% (75–98%) | 79.8%              | 85.8% (54–97%)  |
| Non-White                   | –                   | –              | 10.1%             | 9.3% (3–16%)   | 8.3%               | 8.5% (3–25%)   | 20.2%              | 14.2% (3–46%)   |

Note: No studies published prior to 1990 reported data on race or ethnicity.

20.7% reported employment status, and 10.3% reported income. Two studies (3.5%) used a validated SES measure, the Hollingshead Two and Four-Factor indices (Hollingshead, 1957, 1975). Twenty-two studies (37.9%) reported marital status (which we considered an index of SES given its inclusion in the Hollingshead indices); 83.3% of studies reported marital status in the 1980s, 44.4% in the 1990s, 30.8% in the 2000s, and 30.0% since 2010,  $\chi^2(3) = 6.50, p = .09$ .

SES and income reporting were heterogeneous. Highest education was reported as the average of an ordinal variable, % completed at each level of education (e.g., high school, college degree, graduate degree), % attended or completed college, % college degree, and number of years of education. Two studies reported annual household income by bracket (i.e., <\$25,000, \$25,000–\$49,999, \$50,000–\$99,999, and  $\geq$ \$100,000; <\$50k, \$50–100k, >\$100k), three over/under \$50,000, and another over/under \$100,000. One reported an average annual household income of \$25–49k (Cachelin et al., 2019).

### 3.1.7 | Recruitment

Over half of studies (58.6%) reported recruiting via clinical referrals, though it was often unclear whether these involved direct provider referrals or advertisements posted within clinical settings. Among studies mentioning clinical referrals, 10.3% were recruited from inpatient unit admissions specifically and 8.6% from patients already receiving care in ED treatment programs.

The next most common method of recruitment was media advertisements (50.0%), which included newspaper, nonspecific print media, public service announcements, radio, and online and social

media postings. Newspaper and print media were more commonly mentioned prior to 2000, with online and social media postings reported in studies published since 2010.

Other recruitment sources included flyers (31.0%), community advertisements (generally nonspecific; 22.4%), universities (10.3%), electronic medical records (3.5%), and word-of-mouth (1.7%). Four (6.9%) did not mention how participants were recruited and another 6.9% referenced “advertisements” generally, but did not specify the type (e.g., online), content, or location (e.g., universities).

### 3.1.8 | Between- and within-group analyses

Just under half of the papers (48.3%) reported examining differences between treatment conditions on demographic variables to ensure randomization success. Six (10.3%) examined differences in attrition. A minority examined sociodemographic variables as predictors (6.9%; age, BMI, income, education, gender, race) and moderators (8.6%; income, race, BMI) of treatment outcomes, though moderator analyses were underpowered and exploratory. Over a quarter (27.6%) did not report evaluating any differences. Six (10.3%) provided insufficient information to evaluate whether sociodemographic differences were considered. No papers reported within-group analyses.

Across studies, when sociodemographic differences were assessed, researchers often did not specify which variables were evaluated. For instance, although six studies assessed attrition differences, only three specified they evaluated attrition differences across race/ethnicity specifically. There were no significant differences across decades in the likelihood of reporting the evaluation of group differences,  $\chi^2(3) = 4.71, p = .21$ .



**TABLE 4** Suggestions to increase representation and improve reporting in ED treatment RCTs

| Researchers  |  |
|--|--|
| <i>Representation</i>                                |  |
| Clarify target population                            | <ul style="list-style-type: none"> <li>• Ensure target population determined during study design</li> <li>• When wider dissemination desirable/appropriate, plan evidence-based recruitment strategies to reach diverse groups</li> <li>• Report rationale when targeting specific group(s)</li> <li>• Acknowledge limitations when sample is homogeneous</li> </ul>   |
| Recruitment  | <ul style="list-style-type: none"> <li>• Avoid relying solely on clinician referrals, passive recruitment</li> <li>• Use evidence-based strategies to reach underrepresented and diverse groups</li> <li>• Anticipate and problem-solve participation barriers during study design</li> <li>• Involve community members in study development</li> <li>• Clearly communicate direct, immediate benefits of participation</li> </ul>   |
| Power  | <ul style="list-style-type: none"> <li>• Plan for within-group analyses (at minimum) when doing sample size calculations</li> <li>• Consider between-group analyses, particularly after pilot phase</li> <li>• Be explicit on specific effects study is powered to detect</li> <li>• Exert caution in interpreting exploratory, underpowered analyses</li> </ul>   |
| Generalize appropriately and acknowledge limitations | <ul style="list-style-type: none"> <li>• Follow CONSORT guidelines</li> <li>• Contextualize findings to study sample</li> <li>• When sample is homogeneous or within and/or between-group analyses were not conducted: (1) avoid broad generalizations, (2) acknowledge as a limitation, (3) discuss implications of homogeneity, and (4) include recommendations to increase power, representation</li> <li>• Consider diversity of samples when making recommendations for dissemination of evaluated treatment(s)</li> </ul>  |
| <i>Analysis</i>                                      |  |
| Within-/between-group analyses                       | <ul style="list-style-type: none"> <li>• Plan within-group analyses a priori to ensure adequate sample size</li> <li>• Consider between-group analyses, particularly in later stage trials when planning for broader dissemination</li> <li>• Do not compare results of within-group analyses across groups</li> <li>• Consult literature on best-practice approaches to avoid common pitfalls of such analyses</li> <li>• Seek consultation to ensure analytic practices are not introducing additional bias (e.g., controlling for SES)</li> <li>• Incorporate analyses to evaluate intersectionality when possible</li> </ul>   |
| <i>Reporting</i>                                     |  |
| General guidelines                                   | <ul style="list-style-type: none"> <li>• Report sociodemographic data by diagnosis when including multiple diagnoses in RCT</li> <li>• Explicitly report treatment setting (e.g., hospital, ED outpatient clinic, general mental health clinic)</li> <li>• Consider including contingency tables or cross-tabulations to provide information on the intersections of sample demographics</li> <li>• With ethics approval, consider providing de-identified comprehensive sociodemographic data in an open science data repository (e.g., <a href="https://osf.io">https://osf.io</a>)</li> </ul>   |
| Gender identity                                      | <ul style="list-style-type: none"> <li>• Do not conflate sex-at-birth and gender identity</li> <li>• Do not report gender identity as a binary</li> <li>• Consider whether the collection of sex-at-birth is necessary for reporting and whether it could cause harm to participants (Ruberg &amp; Ruelos, 2020)</li> <li>• Follow current, expert guidelines when assessing sex-at-birth (female, intersex, male) and gender identity (woman, man, transgender, nonbinary, genderqueer)</li> <li>• Assess gender identity and expression separately and be explicit in reporting</li> <li>• Consistent with Ruberg and Ruelos (2020), consider allowing participants to select all identities that apply</li> </ul> |
| Sexual orientation                                   | <ul style="list-style-type: none"> <li>• Always assess sexual orientation</li> <li>• Consider assessing each dimension (sexual attraction, sexual, behavior, self-identification)</li> <li>• Be explicit on domain(s) assessed</li> <li>• Avoid collapsing across categories (e.g., LGB) given differential ED risk across groups</li> <li>• Consistent with Ruberg and Ruelos (2020), consider allowing participants to select all identities that apply</li> </ul>   |
| Race/ethnicity                                       | <ul style="list-style-type: none"> <li>• Stay current on best-practice approaches, reporting standards from expert sources</li> <li>• Collect detailed versus broad data (e.g., East Asian, Hawaiian, Pacific Islander, Southeast Asian vs. Asian)</li> <li>• Also, provide an opportunity to self-identify</li> <li>• Do not report % White, non-White, minority, or any other practice centering the majority group</li> </ul>   |
| SES  | <ul style="list-style-type: none"> <li>• Always assess SES</li> <li>• Use objective (e.g., education level, income, occupation, family size) and subjective experience measures (e.g., MacArthur Scale of Subjective Status)</li> </ul>  |
| Recruitment  | <ul style="list-style-type: none"> <li>• Be explicit about research setting (e.g., ED outpatient clinic, research clinic)</li> </ul>   |

(Continues)

TABLE 4 (Continued)

|                                      |   |
|--------------------------------------|---|
| Researchers                          | <ul style="list-style-type: none"> <li>• Provide detailed information on specific recruitment strategies/sources</li> <li>• Detail how the study was advertised to potential participants</li> </ul>  |
| Administrative and organizing bodies |   |
| Journal Editors/Reviewers            | <ul style="list-style-type: none"> <li>• Require rationale for target population</li> <li>• Require RCTs to follow CONSORT (Schulz et al., 2010) reporting standards and recommendations by Egbert et al. (2022)</li> <li>• Specifically require <i>comprehensive</i> sociodemographic reporting and prohibit reporting practices violating evidence-based standards (e.g., % White, reporting gender identity as cisgender binary)</li> <li>• Require authors report specific effect for which they were powered</li> <li>• Offer sufficient room within manuscript to report comprehensive sociodemographic data, or request authors include in Supporting Information</li> <li>• Provide checklists for reviewers to improve reporting practices and create accountability for increasing representation</li> <li>• Require transparency on whether within-group, between-group, moderator, and/or mediator analyses were planned a priori or conducted post hoc; require rationale when not conducted; acknowledge lack of power as limitation</li> </ul> |
| Funders                              | <ul style="list-style-type: none"> <li>• Require clear, empirically supported rationale for recruiting target population, with recruitment plan that demonstrates likelihood of success</li> <li>• Support proposals that seek to increase representation in RCT enrollment and/or evaluate evidence-based treatment in a population underrepresented in the research</li> <li>• Require that funded RCTs follow CONSORT (Schulz et al., 2010) guidelines in annual reports, with strong encouragement to adhere to guidelines in publications</li> <li>• For fully-powered RCTs (i.e., analogous to phase III clinical trials), require valid results of sex/gender and race/ethnicity analyses (National Institutes of Health, 2017)</li> </ul>   |

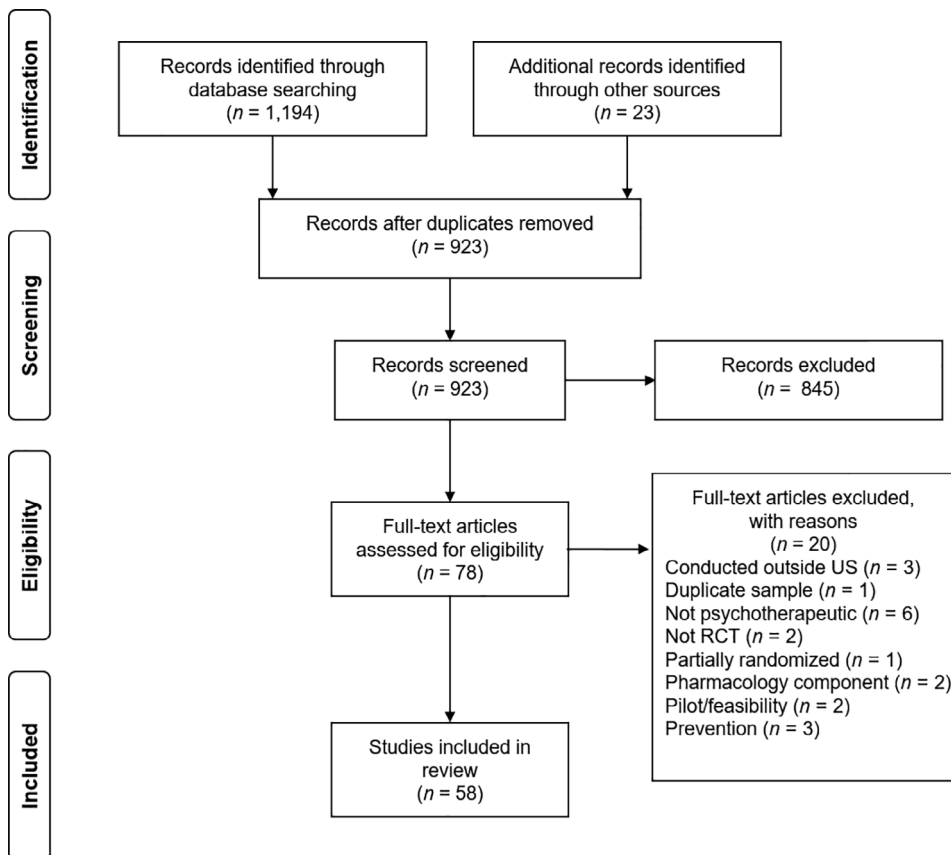
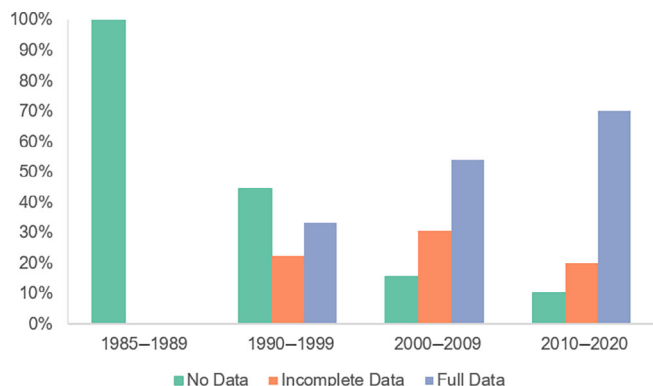


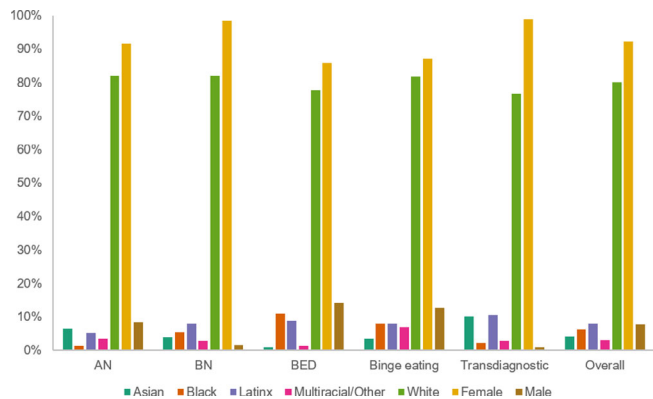
FIGURE 1 PRISMA flow diagram of study inclusion

### 3.1.9 | Power

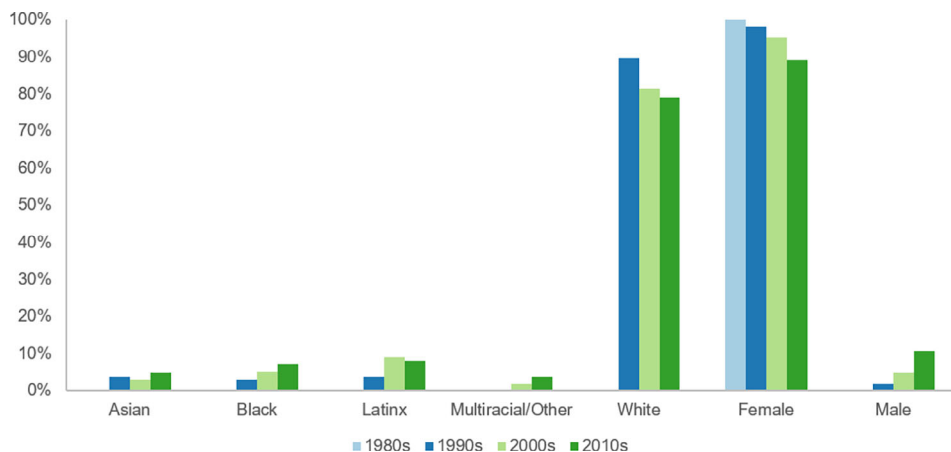
Researchers did not report power analyses in 43.1% of papers. Authors referenced power in 29.3% of papers but did not specify for which effect they were powered. Over a quarter (27.6%) reported being powered to detect changes in their primary outcome measure. None reported being powered to conduct within-group analyses or



**FIGURE 2** Race and ethnicity reporting by decade



**FIGURE 3** Race, ethnicity, and gender representation, overall and by diagnosis



**FIGURE 4** Race, ethnicity, and gender representation by decade

detect between-group differences. Studies published between 2010 and 2020 were significantly more likely to reference power than in any preceding decade,  $\chi^2(3) = 30.82, p < .001$ .

### 3.1.10 | Limitations

Nine papers (15.5%) cited limitations related to sample characteristics (i.e., age, race, ethnicity, gender, SES). Sometimes these limitations conflicted with other statements in the Discussion (e.g., references to a “diverse” sample with 85% White participants). When citing sample characteristic limitations, 10.3% referenced specific limitations (e.g., small male sample), 5.2% made general references (e.g., a “lack of diversity”), and 8.6% made indirect references, such as noting future research should expand to other populations to increase generalizability.

No papers referenced limitations related to sample characteristics before 2000. However, the proportion of studies referencing limitations did not differ significantly between the 2000s and since 2010,  $\chi^2(1) = 0.50, p = .82$ .

### 3.1.11 | Generalizations

Quantifying generalizations proved challenging, as papers were sometimes inconsistent (e.g., tentative interpretations in the Discussion, but broad in the Abstract or conclusion). Thus, we coded studies as generalizing findings broadly (43.1%), keeping generalizations specific and nuanced (20.7%), or doing both (20.7%). Examples of broad generalizations included noting a particular treatment is effective for symptom reduction (e.g., “this treatment results in binge eating reduction”) or should be considered a first-line approach, without accounting for the sample’s characteristics or the stage of evaluation. Tentative or nuanced generalizations included suggesting a treatment is worthy of further evaluation or has promise in symptom reduction. For instance, one paper highlighted that participants in both treatments reported symptom reduction, but did not claim either treatment was broadly efficacious (Peterson et al., 2020).

## 3.2 | Representation

### 3.2.1 | Age

Average age significantly differed across study type,  $F(4, 57) = 31.02$ ,  $p < .001$ ,  $\eta^2 = .70$  (large). AN samples were significantly younger ( $M = 22.62$ ) than BED ( $M = 44.24$ ) and binge eating samples ( $M = 37.52$ ; both  $p < .001$ ). BN samples were significantly younger ( $M = 25.85$ ) than in BED ( $p < .001$ ) and binge eating trials ( $p = .001$ ). Finally, transdiagnostic samples were significantly younger ( $M = 24.89$ ) than those in BED ( $p < .002$ ) and binge eating trials ( $p = .002$ ). Average age did not differ significantly by publication decade,  $F(3, 57) = 1.16$ ,  $p = .34$ .

### 3.2.2 | Gender

Almost half of the studies included only female participants ( $n = 27$ , 46.6%). No studies included only male participants. Significantly more BED trials included male participants (68.8%) than BN (27.8%),  $\chi^2(1) = 5.53$ ,  $p = .02$ . There were significantly fewer studies including only female participants since 2010 (33.3%) than in the 1990s (75.0%),  $\chi^2(3) = 11.90$ ,  $p < .01$ .

A significantly greater proportion of men were included in BED (14.2%) than AN (8.4%;  $\chi^2(1) = 15.74$ ,  $p < .001$ ), BN (1.6%;  $\chi^2(1) = 154.45$ ,  $p < .001$ ), and transdiagnostic trials (1.0%;  $\chi^2(1) = 78.14$ ,  $p < .001$ ). The proportion of male participants increased across the decades; marginally from the 1980s (0%) to the 1990s (1.8%,  $\chi^2(1) = 3.88$ ,  $p < .05$ ), with steeper increases from the 1990s to the 2000s (4.8%,  $\chi^2(1) = 8.93$ ,  $p < .01$ ) and from the 2000s to since 2010 (10.7%,  $\chi^2(1) = 34.21$ ,  $p < .001$ ).

### 3.2.3 | Race/ethnicity

More Asian participants were included in AN (6.4%) than BED trials (1.0%),  $\chi^2(1) = 39.03$ ,  $p < .001$ . Conversely, fewer Black participants were included in AN (1.5%) than BN (5.4%),  $\chi^2(1) = 15.59$ ,  $p < .001$ , or BED trials (11.1%),  $\chi^2(1) = 55.64$ ,  $p < .001$ . A similar pattern emerged for Latinx participants, with fewer represented in AN (5.2%) than BED trials (8.8%),  $\chi^2(1) = 7.74$ ,  $p < .01$ . Nevertheless, there were more Latinx participants enrolled in AN trials than Black participants,  $\chi^2(1) = 14.30$ ,  $p < .001$ .

Among studies providing full racial and ethnic data, the proportion of White participants decreased from the 1990s (89.8%) to the 2000s (81.4%),  $\chi^2(1) = 5.72$ ,  $p = .02$ , but not from the 2000s to the last decade (79.1%),  $\chi^2(1) = 2.03$ ,  $p = .16$ . More Asian participants were included in studies published during the last decade (4.8%) than those in the 2000s (2.9%),  $\chi^2(1) = 4.99$ ,  $p = .03$ . The proportion of Latinx participants included increased from the 1990s (3.6%) to the 2000s (8.9%),  $\chi^2(1) = 4.38$ ,  $p = .04$ , but not from the 2000s to the last decade (6.9%),  $\chi^2(1) = .76$ ,  $p = .38$ . There were no significant differences in the proportion of Black participants across decades ( $ps = .07-.27$ ).

Across studies providing any racial or ethnic data, there were significantly fewer White participants in studies published since 2010 (79.1%) than in the 2000s (84.6%),  $\chi^2(1) = 15.38$ ,  $p < .001$ , or the 1990s (89.8%),  $\chi^2(1) = 17.93$ ,  $p < .001$ .

### 3.2.4 | Socioeconomic status

Refer to Table 1 for SES data reported by each study.

#### Education

Among studies ( $n = 19$ ; 32.8%) reporting some college or higher, 84.2% of participants (or their parents) had attended or completed college. We did not include studies reporting *only* college completion in that calculation, as it would likely omit participants who had attended but not completed their degree. Among studies reporting college completion or higher ( $n = 19$ , 32.8%), 60.3% of participants had completed college.

## 4 | DISCUSSION

The purpose of this review was to evaluate the reporting, representation, and analysis of key sociodemographic variables within ED psychotherapeutic RCTs conducted in the US and published through 2020. We found 58 studies meeting inclusion criteria dating back to 1985. Below, we present an overview of findings by category, and conclude with suggestions for future work.

### 4.1 | Key findings

#### 4.1.1 | Diagnosis

There were considerably fewer studies evaluating treatments for AN than BN or BED, which is consistent with past findings, but concerning given the marked morbidity and mortality, high rates of relapse, and modest treatment response associated with AN (Bulik, 2021; Murray et al., 2018; van Hoeken & Hoek, 2020; Watson & Bulik, 2013). AN treatment RCTs are challenging to conduct for myriad reasons, including difficulties in recruitment and medical sequelae that can preclude randomization to a control condition (Watson & Bulik, 2013); yet, continued development and evaluation of treatments for AN is urgently needed (Bulik, 2021).

Most studies used DSM criteria for AN (which requires maintaining a low body weight), and only one included participants with “atypical” AN (i.e., higher-weight AN). Given the prevalence of higher weight in those with restrictive EDs (Lebow & Sim, 2017; Neumark-Sztainer, 2015), it is important that future work include participants with higher-weight AN. This step might also help increase representation of groups who are less likely to be diagnosed with an ED (likely due to the “golden girl” myth), such as those of lower SES, people of color, and LGBTQ+ and gender-expansive individuals (Marques et al., 2011; Sonnevile & Lipson, 2018).

No studies included participants with ARFID, likely due to its relatively new introduction to the DSM. However, the treatment literature is burgeoning, with several recent case series and pilot/feasibility studies published, and fully-powered randomized-controlled trials underway (Bourne et al., 2020; Thomas et al., 2018).

#### 4.1.2 | Age

Studies included in this review included adolescent and adult samples (together and separately). The majority of studies included primarily young adults (i.e., 18–30 years). Children were not included in any trials and no studies focused specifically on treating EDs in pediatric samples. Only three studies focused specifically on adolescent populations (vs. 46 adult studies), and these evaluated treatments for AN and BN exclusively. Trials including older adults were generally limited to individuals with BED or binge eating, resulting in an underrepresentation of older adults with AN and BN. Because EDs occur across the lifespan, evaluating treatments in pediatric, adolescent, midlife, and older adult populations in ED-treatment RCTs is needed.

#### 4.1.3 | Gender

All RCTs included in this review conflated sex with gender identity by reporting gender within the cisgender binary (female vs. male). None described providing participants the opportunity to self-identify as another gender. This is a meaningful omission, as ~0.6% of US adults and 2% of US high school students identify as transgender (Flores et al., 2016; Johns et al., 2019) and ~0.3% of US adults identify as nonbinary (Wilson & Meyer, 2021). These estimates are increasing over time (particularly in younger groups) as assessment methods improve and public awareness and acceptance grow (Meerwijk & Sevelius, 2017). As transgender and gender nonbinary people are at higher risk for EDs than their cisgender peers (Gordon et al., 2021), it is vital they be represented in treatment research. This is especially true given that ED treatments for transgender and gender nonbinary individuals will likely need to incorporate a specific focus on gender dysphoria, social stigma, and oppression related to gender, which are not standard components of psychotherapeutic ED interventions generally accepted as evidence-based (Ålgars et al., 2012; Vocks et al., 2010).

Men comprised just 8% of participants overall, with more men included in BED (11%) than BN trials (<2%). Whereas many studies focused exclusively on women, none focused exclusively on men. Although the proportion of men included increased across the decades, they remain substantially under-represented relative to the conservative estimate that one-quarter to one-third of ED cases are in men (Galmiche et al., 2019). Although data on help-seeking in men is scant, available evidence suggests men seek help for eating pathology at even lower rates than women (Coffino et al., 2019; Mitchison & Mond, 2015), which could result in prolonged illness course and greater complications. Moreover, EDs often present

differently in men (Dakanalis, Timko, Favagrossa, et al., 2014), and sociocultural influences vary from other genders (Dakanalis, Timko, Clerici, et al., 2014; Dryer et al., 2016). Because ED treatments often address symptom presentations and sociocultural factors, it is important that men are included in treatment evaluation and development.

#### 4.1.4 | Sexual orientation

Sexual orientation was not reported in any studies included in this review. This omission is concerning, as lesbian, gay, and bisexual individuals show different disordered eating patterns than their heterosexual peers. For instance, a recent meta-analysis found that relative to heterosexual women, lesbian women reported greater binge eating, bisexual women reported greater restriction and purging, and women identifying as “mostly heterosexual” reported greater restriction, bingeing, and purging (Dotan et al., 2021). Further, cisgender gay men and boys report greater ED rates than their heterosexual peers (Parker & Harriger, 2020). Importantly, recent research highlights that proximal and distal risk factors differ across sexual orientation (Parker & Harriger, 2020), and minority stress contributes to disordered eating in LGBTQ+ individuals (Brewster, 2019; Convertino et al., 2021; Mason et al., 2018). Thus, researchers need to consider sexual orientation in RCT design to ensure appropriate risk and maintenance factors are accounted for and treatments are effective.

#### 4.1.5 | Race/ethnicity

Slightly over half of the studies overall reported full race/ethnicity data, and a quarter reported none. Consistent with Egbert et al. (2022), reporting of race/ethnicity data increased over time. Yet, 10% of studies published in the last decade did not report race or ethnicity and 20% reported only % White, non-White, or minority. Although a substantial improvement, the persistence of these practices is concerning because they perpetuate the centering of White individuals and experiences within ED treatment and literature.

According to the 2020 US Census, 60.1% of the population identified as non-Hispanic/Latinx White (US Census Bureau, 2020), a proportion projected to further decline in upcoming decades (Vespa et al., 2020). Nevertheless, across studies providing full racial and ethnic data, four out of five participants were White. Although the proportion of White individuals was comparable across diagnoses, differences emerged in other groups. One of the most striking findings was the low representation of Black participants in AN trials, where nine of only 10 Black participants were from one inpatient trial. Considerably more Black individuals were included in BED trials, though they still comprised just 11% of participants. Although some data suggest AN prevalence might be lower in Black individuals than other groups, these data are likely biased by prevailing stereotypes that contribute to disparities in diagnosis and help-seeking (Striegel-Moore et al., 2003; Udo & Grilo, 2018). A similar pattern emerged for Latinx

individuals, with significantly more included in BED than AN trials. Within BN trials, just 5% of participants were Black and 8% Latinx, despite some evidence BN prevalence is higher among these groups (Marques et al., 2011). Representation of Asian individuals displayed an inverse pattern, with more Asian participants included in AN than BED trials. These results suggest bias could be affecting who receives treatment for what condition. It is well-documented that average BMIs are higher in Black and Latinx populations and lower in Asian populations than non-Latinx/Hispanic White populations (Krueger et al., 2014), and research shows individuals with EDs are more likely to receive help for a perceived weight problem than ED treatment (Hart et al., 2011). As 56% of studies for BED included a weight loss component or outcome, it is possible groups with higher BMIs were more likely to seek or be referred to treatments focused on binge and weight reduction, versus Asian populations, for example, who might be referred more often to AN versus BED treatment. Multiracial and “other” racial and ethnic identities were too infrequently and inconsistently reported to accurately evaluate representation.

Some progress was made in increasing racial and ethnic diversity over time, though this varied between groups and appeared to stall in the last decade among all groups except Asian individuals. Given the racial and ethnic heterogeneity of the US, and comparable or even elevated ED prevalence among people of color, it is concerning to see them comprise a substantial minority of participants in ED treatment RCTs (Cheng et al., 2019; Rodgers et al., 2018). Some caution should be exerted when interpreting racial/ethnic representation, given the identified inadequacies in reporting. However, it seems reasonable to extrapolate that the true representation across trials would be comparable (or even more unbalanced) to the observed disparities, as older studies were the least likely to provide full data and had the highest proportions of White female participants.

Only one study in this review evaluated a culturally adapted intervention (Cachelin et al., 2019). Because sociocultural influences vary across racial and ethnic groups (Capodilupo, 2015; Cheng et al., 2019), adaptations to existing interventions and the development of new approaches are likely needed. When researchers are interested in developing an intervention for wide dissemination, full reporting of racial and ethnic data and sufficient diversity to generate adequate power to assess between- and within-group efficacy will be crucial. Conversely, developing and evaluating a culturally adapted intervention within a racially or ethnically homogenous sample, like Cachelin et al. (2019), may be an important goal, though rationale and generalizability should be explicitly acknowledged.

#### 4.1.6 | Socioeconomic status

Most studies reviewed in this analysis reported some SES-related data, with education the most commonly measured variable. A small percentage of studies assessed employment and income, and only two used a standardized SES measure. Given the inconsistency in SES reporting, we could only approximate representation for educational attainment in a minority of studies. Educational

attainment appeared higher than national averages in this study, with 84% college attendance and 60% completion relative to 63% college attendance and 32% completion among US adults  $\geq 25$  years in 2020 (US Census Bureau, 2021). However, these estimates should be interpreted with caution given the paucity of available data and inconsistent reporting. SES is a primary social determinant of health that has a profound impact on one's ability to access high-quality, affordable, and timely treatment (Fiscella & Williams, 2004; Walker et al., 2015). Thus, although the accurate assessment of SES in health research is challenging (Braveman et al., 2005), it is vital that comprehensive and consistent reporting be established to elucidate how SES influences treatment access, retention, and response.

#### 4.1.7 | Recruitment

Clinical referrals and advertisements were the most common recruitment methods cited, but further details were rarely available. Providing sufficient detail about recruitment is not only important for reproducibility but also to enhance understanding of how recruitment affects reach and inclusion. For instance, clinical referrals can introduce bias if recruitment relies on non-ED specialist providers identifying potential study participants. In particular, EDs are less likely to be identified in men, individuals at higher weights, and people of color (Feeney et al., 2007; Gordon et al., 2006; MacCaughely et al., 2016). Moreover, relying on clinical referrals will likely exclude the un- and underinsured who present less often to outpatient clinical settings (Blackwell et al., 2009; Walker et al., 2015), thereby exacerbating opportunities for those of lower SES and persons disproportionately impacted by healthcare disparities to enroll. Similarly, although inpatient ED treatment is an important area of investigation, recruiting exclusively from inpatient admissions will narrow RCT access to those with sufficient insurance coverage and resources to cover costly hospital stays. Details on advertisements are also needed to inform who was targeted and the likely reach of such methods. Advertising exclusively on college campuses, for instance, will narrow the potential participant pool. These are important considerations, as a well-designed recruitment strategy is a primary way researchers can help decrease disparities in ED treatment RCTs (Eakin, 2018), which is vital to assessing treatment efficacy in diverse groups.

#### 4.1.8 | Between- and within-group analyses and power

A minority of papers reported examining demographic variables as predictors or moderators of treatment outcomes, and when conducted, these analyses were underpowered and exploratory. No papers conducted between- or within-group analyses, nor employed analytic methods to investigate intersectionality. Moreover, the authors did not consistently identify *which* demographic variables they included in analyses. Papers included in this review were generally

powered to detect a main treatment effect, with none reporting sufficient power to conduct between or within-group analyses.

In 2017, the National Institutes of Health (NIH; National Institutes of Health, 2017) published updated guidelines on the inclusion of women and minorities, requiring NIH-funded phase III clinical trials report valid analyses of group differences (i.e., sex/gender, race/ethnicity) to [clinicaltrials.gov](http://clinicaltrials.gov). Prior to this update, the guidelines strongly encouraged these analyses. Nevertheless, the NIH and other funding bodies lack the authority to require these results to be reported in publications, and many RCTs do not receive NIH funding. The rationale for evaluating within- and between-group differences is straightforward: overall treatment effects can obscure important group effects, particularly when the majority of participants are from the same background (e.g., White women). Therefore, treatments can be deemed efficacious and recommended as first-line approaches based on overall results, but actually demonstrate differential effects across groups. Between- and within-group analyses can elucidate if interventions need adaptation or refinement for particular groups or identities. Without these analyses, researchers risk perpetuating disparities by prescribing treatments that might not be culturally congruent.

#### 4.1.9 | Limitations and generalizations

Despite the relative lack of gender and racial/ethnic diversity, few papers cited sample demographics as a limitation, and almost half of papers generalized broadly, without contextualizing their findings to the sample and setting from which data were drawn. It was also common for papers to draw nuanced and contextualized generalizations in the discussion, but then generalize broadly in the abstract or conclusions. However, some papers were exemplary in their identification of limitations and nuanced and contextualized generalizations. For instance, one study provided comprehensive information about *how* their sample demographics limited the generalizability of their results, and then generalized their findings specifically to the sample, setting, protocol, and diagnosis (Cachelin et al., 2019).

We want to emphasize broad generalizations *can* be warranted when a treatment has undergone rigorous evaluation across diverse, representative samples. However, CONSORT guidelines still encourage findings be interpreted in light of the sample characteristics of both current and previous RCTs (Schulz et al., 2010).

#### 4.1.10 | Suggestions for future research

Based on this review's findings, we offer suggestions for researchers, journal editors and reviewers, and grant funders on improving representation, reporting, and analytic practices. Suggestions are based on current best practice guidelines published by US-based funding bodies, government agencies (e.g., the US Census Bureau), advocacy groups (e.g., The Williams Institute), and peer-reviewed literature, and are summarized in Table 4. It is important to emphasize that best

practices will continue to evolve over time, and researchers should update their methodology accordingly. Additionally, these recommendations are tailored toward US-based researchers; we refer readers to Egbert et al. (2022) for additional recommendations relevant to research conducted internationally and welcome dialogue from international experts and researchers.

#### 4.1.11 | Representation—Researchers

##### *Clarify the target population*

Efforts to increase representation should start at the study design stage by clarifying the target population for the specific goals of the study. For instance, if researchers are evaluating a treatment previously tested in primarily White, female samples with the aim of wider dissemination, recruiting sufficient samples of people of color and other genders will be important to evaluate the treatment's efficacy within and across groups. Targeted recruitment might also be desired and/or warranted, such as when adapting an intervention for a specific group (e.g., Cachelin et al., 2019). Regardless, researchers should clearly explain the limitations of their conclusions and recommendations resulting from sampling decisions.

##### *Recruitment*

Recognizing barriers to equitable RCT access and participation is integral to the responsible conduct of research. Common barriers include negative lived experiences with health and academic institutions, systemic and historical health disparities, variations in medical literacy, presence of other medical conditions and high disease burden, and logistic and economic barriers to engagement (e.g., transportation, time off work; Ejiogu et al., 2011). Lack of information about RCT availability, potential stigma of participation, and limited knowledge about the value of RCT participation also reduce RCT access and engagement (Clark et al., 2019). Recruitment relying on clinician referrals will likely reflect inequitable access to healthcare and introduces potential bias, particularly when non-ED specialists are responsible for identifying potential participants. Moreover, passive recruitment via print or internet advertisements fails to address many barriers to RCT engagement (e.g., negative lived experience, stigma).

To increase representation within RCTs, experts recommend intentionally considering and problem-solving potential participation barriers, involving the community in study planning and development, clearly communicating research hypotheses, focusing on direct benefit for participants, providing incentives, and linking research hypotheses to community benefits (Ejiogu et al., 2011; Yancey et al., 2006). Although more resource-intensive, recruitment and retention of diverse participants is more likely when targeted toward the individual and tailored to that participant's knowledge, needs, personal health, and safety concerns (Clark et al., 2019). This can be especially helpful in addressing issues related to mistrust, a major barrier to RCT enrollment (Clark et al., 2019).

### Power

In the US, the NIH now requires the inclusion and reporting of within-group analyses in phase III RCTs. Therefore, after the pilot phase, it would be prudent to plan for within- and/or between-group analyses during sample size calculations to permit evaluation of intervention efficacy across diverse sociodemographic populations when wider dissemination is desired. In general, researchers should be explicit on the exact effect(s) they were powered for in publications, and cautiously interpret exploratory and/or underpowered results.

### *Generalize appropriately and acknowledge limitations*

When RCTs lack adequate representation across sociodemographic variables and/or power to evaluate between- or within-group effects, generalizations and recommendations for dissemination should be made with caution, and steps to increase power or representation should be considered.

## 4.1.12 | Representation—Journals, reviewers, and funders

Reviewers, journal editors, and funding agencies can support increased representation by ensuring researchers provide sufficient detail on the rationale for their target population. Reviewers and editors should carefully evaluate whether manuscripts have appropriately generalized findings and acknowledged limitations, consistent with CONSORT guidelines (Schulz et al., 2010), and request overgeneralizations are corrected before publication.

To align with NIH guidelines, journal editors could consider making within- or between-group analyses mandatory for phase III RCT publications conducted in the US; other grant funders could require these analyses. Reviewers can support this aim by asking authors to report whether they were powered for any within- or between-group analyses, and associated results, if applicable.

## 4.1.13 | Reporting—Researchers

Because regulations on the disclosure of sensitive information and ethics guidelines vary by country, recommendations on the reporting of sociodemographic information are specific to studies conducted in the US.

Although reporting occurs at publication, it should be considered at the study design stage, as researchers must thoughtfully design demographics surveys and questionnaire batteries. There is increasing recognition that the discrete categories often employed to assess identity data fail to appropriately capture the spectrum of gender, sexual orientation, racial, and ethnic identities (Garcia et al., 2015; Hart et al., 2019; Saperstein, 2012; Savin-Williams, 2014). Moreover, as terminology evolves, it is essential researchers stay current on best practice approaches to assessing demographic data (Hughes et al., 2016). We provide a brief overview of specific recommendations below. In addition to categorical questions (e.g., male, female, or

intersex), we suggest including text boxes for self-identification of background and identity data, which can enrich quantitative results and provide researchers more complete data about the diversity of their sample's identities and experiences. Additionally, as recommended by Ruberg and Ruelos (2020), it may be prudent to allow participants to choose all categorical options that apply, as identities can overlap and evolve.

To assess sex and gender in adults, experts recommend a two-step approach, first assessing sex-at-birth (i.e., female, intersex, male) and then gender identity (i.e., woman, man, transgender, nonbinary, genderqueer; Hart et al., 2019; The GenIUSS Group, 2014). Gender should never be assessed as a binary (Hart et al., 2019; The GenIUSS Group, 2014). Given the assessment of sex-at-birth may cause discomfort for some participants, researchers may choose to omit it when indicated (Ruberg & Ruelos, 2020). Nevertheless, sex-at-birth, gender identity, and gender expression should not be conflated.

Sexual orientation is dimensional, including three primary domains (sexual attraction, sexual behavior, and self-identification), which each provide unique information about the sample (Almazan et al., 2009; Beaulieu-Prévost & Fortin, 2015). When researchers choose not to assess each dimension, the specific dimension(s) assessed should be explicitly reported (e.g., sexual behavior only).

Best practice approaches to assessing race and ethnicity continually evolve as research focused on equity and inclusion proliferates (Hughes et al., 2016; Saperstein, 2012). We encourage researchers to stay current on expert recommendations relevant to their countries (e.g., Connelly et al., 2016; Roth, 2017) and, in the US, consult reporting standards issued by the NIH, American Psychological Association (APA), and US Census Bureau (American Psychological Association, 2020; National Institutes of Health, 2015; Olmsted-Hawala & Nichols, 2020). Current recommendations generally suggest collecting detailed racial and ethnic data versus broad categories. These data not only provide greater specificity about the sample, but also increase participant feelings of representation and inclusion (Olmsted-Hawala & Nichols, 2020). For instance, instead of including "Asian" as one category, researchers should provide multiple categories (e.g., "East Asian," "Hawaiian," "Pacific Islander," "Southeast Asian"). For analyses, it will often not be possible to conduct within-group analyses at this level due to small cell sizes, necessitating broader groupings. Nevertheless, researchers can still report full demographic data to provide specificity about the sample's characteristics. If researchers opt for an "other" category, they should be explicit on the operationalization of this term. Race and ethnicity should never be reported as % White, non-White, or minority. If more granular data were not collected, researchers should be transparent about this in the Method and cite it as a major limitation that hampers interpretability and generalizability. As many individuals identify with multiple racial and ethnic groups, we recommend researchers allow participants to choose all categories that apply. Finally, race reflects a social, rather than biological, construct (Duggan et al., 2020). Consistent with the recommendations of Duggan et al. (2020), researchers should: (1) be explicit on the method of race measurement, (2) avoid making biologic inferences for any found differences between groups,



and (3) consider other social determinants (e.g., experienced discrimination, SES) of health contributing to disparities across groups.

SES is challenging to assess, but has a profound impact on health (e.g., healthcare access). Accordingly, it should be assessed as a key demographic variable. The two best practice approaches to SES measurement encompass objective measures and subjective experience, and are easily integrated into demographic questionnaires. The National Committee on Vital and Health Statistics recommends assessing education level, income (individual, family, household), occupation, and family size and relationships (Carr, 2012). The MacArthur Scale of Subjective Status (Adler, 2000) is an empirically validated measure on perceived SES's psychosocial impact.

Providing explicit information about recruitment methods, how the study was described, and the research setting will be valuable for reproducibility and enhancing understanding of how setting and recruitment affected representation. When journal space limitations are prohibitive of reporting comprehensive data, we recommend providing this information in Supporting Information so it is readily available to readers (precluding the need to make requests to authors directly), or through open science data repositories (e.g., Open Science Framework; <https://osf.io>). Finally, when evaluating a transdiagnostic treatment, we strongly urge researchers to provide demographic data by diagnosis.

#### 4.1.14 | Reporting—Journals, reviewers, and funders

We recommend journals require comprehensive gender, sexual orientation, SES, and racial and ethnic data reporting, and when not collected, consider whether such omissions are grounds for rejection for publication. Consistent with CONSORT guidelines (Schulz et al., 2010), transparency about any omissions in collection and reporting, rationale (if available), and appropriate limitations to interpretability and generalizability should also be mandatory. Journals could offer sufficient room within the Method section, increase the table limit, or suggest information be included in Supporting Information so that space limitations do not lead to valuable data being omitted. Further, providing a checklist to guide reviewers to evaluate reporting might strengthen accountability. Journal reviewers could then carefully examine sociodemographic data reporting and request more data or rationale for omissions. An important avenue for future research will be to evaluate whether instating such requirements ultimately yields improvements in representation over time.

#### 4.1.15 | Analysis—Researchers

Within- and between-group analyses can be challenging, given the added resources (e.g., time, money) necessary to recruit sufficient samples and the risks of misleading results due to inadequate power or multiple comparisons (Burke et al., 2015; Wang et al., 2007). However, the NIH asserts that cost alone is never a sufficient rationale for

exclusion, and requires that within-group analyses be integrated into research plans (National Institutes of Health, 2017).

Because analytic problems most often arise when within-group analyses are done post hoc, with inadequate power or inflated alpha values due to multiple comparisons (Burke et al., 2015; Petticrew et al., 2012; Wang et al., 2007), they should be integrated into a priori power analyses. It is important to emphasize that within-group results should not be compared, as significant results within one group and not in another could reflect issues of power or error versus true group differences (Deeks et al., 2021). Although requiring larger samples to achieve adequate power, between-group analyses can elucidate whether treatments display differential effects (e.g., greater remission in men), which could inform future intervention development/refinement and might be necessary when an intervention has undergone sufficient pilot testing and is ready for effectiveness trials. There is considerable literature available on analytic approaches that avoid some of the common pitfalls of within-group analyses (Burke et al., 2015; Deeks et al., 2021; Petticrew et al., 2012; Wang et al., 2007). Beyond issues of power, certain analytic techniques can introduce further bias. For instance, controlling for SES can obscure how SES mediates associations between race/ethnicity and outcomes (Washington State Department of Health, 2010). Thus, any within- or between-group analyses should be planned thoughtfully and the literature consulted *during* the design phase. Finally, to assess intersectionality, we refer readers to recent publications by scholars in the field (Bauer et al., 2021; Burke et al., 2020; Guan et al., 2021); in particular, Guan et al. (2021) provide an overview of various analytic methods to assess intersectionality, including strengths, limitations, and uses, which should be incorporated into a priori power planning.

#### 4.1.16 | Analysis—Journals, reviewers, and funders

Journal editors and reviewers can support these recommendations by requiring transparency on whether within-group or between-group analyses were planned a priori or conducted post hoc. When not conducted, editors and reviewers should require rationale, and inadequate power should be acknowledged.

## 4.2 | Strengths and limitations

This is the first known systematic review to examine reporting, representation, and analysis of sociodemographic variables within ED psychotherapeutic treatment RCTs in the US. These data are important because they elucidate growth areas and can guide future work to increase representation and reporting, and improve analytic practices.

We want to acknowledge this review's limitations. First, we included main outcomes papers only to prevent sample redundancy. Although reporting and representation should be comparable, it is possible researchers chose to publish more comprehensive moderator, mediator, and within-group analyses in separate papers. Nevertheless,

it seems prudent for researchers to avoid broad generalizations of their findings within main outcomes papers when diversity factors were not considered in the published analyses. Second, this review was restricted to studies conducted in the US because of the heterogeneity of the US population across sociodemographic factors, the pervasive systemic inequities in US healthcare, and differing regulations on the collection and reporting of sociodemographic data globally (Bailey et al., 2021). Nevertheless, omitting studies conducted internationally limits generalizability. Therefore, it will be vital to examine representation in ED treatment literature beyond the US to avoid perpetuating the centering of the US and its population's experiences in ED research. Third, we were unable to examine intersectional representation because these data were not published (e.g., papers did not provide race/ethnicity by gender). However, it is likely there is underrepresentation of certain groups not apparent in this review (e.g., transgender Black men). Thus, we again refer readers to recent scholarship on quantitative intersectional methods (Bauer et al., 2021; Burke et al., 2020; Guan et al., 2021). Fourth, we did not include weight status as a variable in this review; however, given very few studies included individuals with higher-weight AN and many BED trials included weight loss components or outcomes, it seems evaluating weight status reporting and representation is an important future direction. Finally, we restricted this review to RCTs because they are the most likely to lead to wider dissemination; however, it is possible (or even likely) that pilot, single-arm, and feasibility studies would display different reporting and representation results.

## 5 | CONCLUSION

This review revealed omissions in reporting and disparities in the inclusion of underrepresented groups in US-based ED psychotherapeutic treatment RCTs published from 1985 to 2020. Reporting was at times incomplete (e.g., % male only), absent (e.g., no data on sexual orientation), or centered on the racial majority group (e.g., % White). No trials reported any participants identifying as gender nonbinary or transgender, and men and people of color were underrepresented generally, with differences noted across diagnoses. SES reporting was heterogeneous, which precluded accurate evaluation of SES representation. Very few papers considered sociodemographic variables in their analyses (e.g., within-group treatment effects), and these analyses were underpowered when conducted. A minority of studies acknowledged limitations related to sample characteristics. Some progress was made across the decades. Studies increasingly provided full racial and ethnic data, and more men were included over time. Although racial and ethnic diversity improved somewhat, progress appeared to stall in the last decade and the inclusion of Black individuals did not change. Improving reporting, inclusion, and analytic practices are necessary before we can evaluate whether our evidence-based ED treatments are effective within and between groups, and ultimately whether intervention refinement or development are needed. Consideration of these issues should begin at the trial design

stage, as researchers thoughtfully consider the demographic data collected, recruitment methods, and power/statistical analyses. Reporting should be full and transparent, findings generalized appropriately, and limitations acknowledged. Researchers, journals editors and reviewers, and funders share the responsibility for increasing reporting and representation in US-based ED psychotherapeutic treatment RCTs, and can collaborate to help eliminate existing treatment disparities.

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## CONFLICT OF INTEREST

The authors have declared no conflicts of interest for this article.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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## SUPPORTING INFORMATION

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