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# Risk and Resilience Factors for Mental Health among Transgender and Gender Nonconforming (TGNC) Youth: A Systematic Review

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**Abstract**
In recent years, there has been a proliferation of research regarding transgender and gender nonconforming (TGNC) people. The stigma and legal discriminations that this population faces have obvious and documented repercussions for mental health. In 2015, the American Psychological Association (APA) published Guidelines for Psychological Practice with TGNC People. The APA noted that due to the nuances of working with TGNC youth and the dearth of related literature, the guidelines focus primarily on TGNC adults. To date, there has not been a systematic review of risk and resilience factors for mental health among TGNC children, adolescents, and young adults under the age of 25. Forty-four peer-reviewed articles met inclusion criteria for this systematic review, and were evaluated for their methodological rigor and their findings. Common risk factors for negative mental health variables included physical and verbal abuse, exposure to discrimination, social isolation, poor peer relations, low self-esteem, weight dissatisfaction, and age. Across studies, older children and adolescents tended to report higher rates of psychological distress. Resilience-promoting factors for mental health were also documented, including parent connectedness, social support, school safety and belonging, and the ability to use one's chosen name. By synthesizing the existing literature using a resilience-focused and minority stress framework, the present review provides clinicians and researchers with a coherent evidence-base to better equip them to promote psychological adaptation and wellbeing among TGNC youth.

**Keywords** TGNC · Risk · Resilience · Mental health · Youth

## Introduction

At gender reveal parties, expecting parents find increasingly innovative methods—from cutting into pink or blue cakes, to firing miniature smoke cannons—to announce whether they will be having a boy or a girl. But for some children, this early label will not fit. While precise prevalence estimates are not available, a large population-based study of over 80,000 Minnesotan high school students found that 2.7% of the population identified as transgender, genderqueer, genderfluid, or unsure about their gender identity (Rider et al. 2018). Indeed, Generation Z, colloquially known as Gen Z (youth born from 1996 to the early 2010′s), are more likely to identify as transgender or gender nonconforming (TGNC) than any prior generation (Parker and Igielnik 2020).

Transgender people have a gender identity that does not align with the sex they were assigned with at birth, whereas gender nonconforming people do not adhere to the gender binary. Although sex and gender are distinct—the former being biological, and the latter being socially constructed—these terms are often conflated and used interchangeably. The TGNC label encompasses people who are labeled female at birth who identify as boys/men, people who are labeled male at birth who identify as girls/women, people who identify as neither a man nor a woman (i.e., non-binary, genderqueer, gender nonconforming), people who identify as both, and people who identify as fluid. It is possible for a gender nonconforming person to identify with the sex they

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were assigned with at birth (e.g., female), but not the gender identity (e.g., girl).

Even when children and adolescents find the language to comprehend and articulate their gender identity, they must then face the daunting task of whether to disclose their TGNC status to others. Disclosure can be perilous for youth, and can result in threats to their physical safety including expulsion from their homes (Keuroghlian et al. 2014), bullying from peers (Earnshaw et al. 2016), and dating violence (Dank et al. 2014). Being openly TGNC only becomes more dangerous with age; in 2019, the Human Rights Campaign tracked that at least 26 TGNC people were murdered (Human Rights Campaign 2020). The majority were Black transgender women.

Despite these unique challenges, elements of the young TGNC person's experience can be conceptualized as an amplified version of typical adolescence. Transgender and gender nonconforming youth are trying to understand who they are, mustering the courage to be their authentic selves, hoping to find acceptance, (sometimes) experiencing discomfort in their bodies, and feeling highly vigilant to peer feedback.

Like adolescence, recognizing and accepting one's gender identity is an unfolding process. Gender-questioning youth, for example, are still discovering which gender identity suits them best. While gender identity and sexual orientation are distinct, some TGNC youth may initially believe that they are gay, lesbian, bisexual, pansexual, or queer (Bockting, Benner, & Coleman, 2009); this may be due to a lack of exposure to TGNC as a concept, or because being a sexual minority feels less stigmatizing than being a gender minority.

## The Role of Psychologists

The mental health field's complex history with TGNC people has been compared to its treatment of homosexuality, which was classified as a diagnosable mental illness until 1973. When the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; American Psychiatric Association 2013) was released in 2013, Gender Identity Disorder (GID) was removed and replaced with Gender Dysphoria (GD). Critically, not all TGNC people meet DSM-5 criteria for Gender Dysphoria. The diagnosis is intended to capture clinically significant *distress or impairment* accompanying the incongruence between one's assigned sex and identified gender, rather than the mere incongruence itself. In spite of this, insurance companies, endocrinologists, and surgeons often require a diagnosis of Gender Dysphoria from a psychologist in order for a TGNC person to receive gender-affirming medical care (e.g., puberty blockers, hormone replacement therapy, and/or surgery). Consequently, mental health professionals become gatekeepers for TGNC clients (Budge 2015), and must provide a letter attesting to the client's readiness for gender transition in order for them to be eligible for medical intervention.

In addition to this ethically dubious gate-keeping role, psychologists are also critically important for TGNC youth, as they face increased risk of depression, self-harm, and suicidality (Valentine and Shipherd 2018). A 2009 survey revealed that less than one third of psychologists and graduate students were familiar with the challenges that this population faces, which prompted the publication of the American Psychological Association Guidelines for Psychological Practice with Transgender and Gender Nonconforming People in 2015.

## The Minority Stress Model

The Minority Stress Model (Meyer 2003) posits that stigma, prejudice, and discrimination create stressful environments that damage mental health. Meyer (2003) organizes the stressors that minoritized populations face into three levels: distal stressors (i.e., external, observable, environmental), interactive proximal stressors (i.e., expectation of and vigilance for environmental threats), and internalized proximal stressors (i.e., internalized negative attitudes). This conceptual framework was originally developed for sexual minority populations (e.g., gay, lesbian, bisexual, pansexual, etc.) to explain their comparatively higher prevalence of psychopathology; it has since been expanded to other groups, including gender minorities. Some of these discriminations, which ultimately trickle-down to deteriorate mental health, are codified into law.

Meyer (2003) noted that minority members are not resigned to psychological harm, and that they have the ability to respond to these stressors with coping and resilience. The American Psychological Association (2017) defines resilience as "the process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress," (para. 4) while Luthar, Cicchetti, and Becker (2000) define it as the "dynamic process encompassing positive adaptation within the context of significant adversity" (p. 1). Notably, Meyer (2003) cautioned researchers not to view the oppression that minorities face as a "subjective stressor" (p. 24) that they must learn to cope with and overcome.

Utilizing the Minority Stress Model framework, Valentine and Shipherd (2018) conducted a systematic review of social stress and mental health among TGNC people in the US. The 77 included studies revealed that anxiety, depression, substance abuse, interpersonal trauma exposure, suicidality, and exposure to social stressors were elevated among adults, while social support, community connectedness, and effective coping strategies were protective (Valentine and Shipherd 2018). While this review was remarkably comprehensive, studies had to include participants from the US,

have been published within the last 20 years, and conduct a quantitative data analysis to be eligible for inclusion. Furthermore, while Valentine and Shipherd (2018) discussed the methodological strengths and weaknesses of the included studies, they did not administer a quality assessment tool to formally evaluate the internal validity and methodological rigor of the studies. Eighteen of the included studies pertained to children, adolescents, and young adults.

### The Present Review

The APA (2015) guidelines focus primarily on TGNC adults and note that future revisions of the guidelines will aspire to focus more on children and adolescents. The guidelines also encourage psychologists working with TGNC and gender-questioning youth to "regularly review the most current literature in this area" (APA 2015, p. 843). Given the recent proliferation of peer-reviewed journal articles in this field, the current systematic review aims to aid psychologists in efficiently consuming the evidence. The present review also includes international studies, to investigate whether mental health varies by nationality, and to aid psychologists in understanding how culture and gender intersect (APA 2015). Valentine and Shipherd's (2018) attention paid to the percentage of ethnic and racial minorities in each of their included studies should be applauded, and this metric was likewise assessed in the present review. This review emphasizes risk and resilience factors related to mental health rather than focusing on prevalence rates of various mental health concerns.

The aim of this systematic review was to identify risk and resilience-promoting variables related to mental health among TGNC youth. While transgender and nonbinary people are often grouped together under the umbrella of "gender minority" or TGNC, there are important distinctions between their lived experiences which are often overlooked by researchers; this review attempts to acknowledge and underscore these distinctions. In the spirit of the Minority Stress Model (Meyer 2003), risk variables are organized into distal, interactive, and internalized levels of stress. Resilience variables are also included, both to emphasize that mental health challenges are not an inevitability in this population, and to provide clinicians with an evidence-based roadmap for how to foster psychological wellbeing for young TGNC clients. As noted by Meyer (2003), the onus should not only fall on the individual to overcome adversity. In order to protect the mental health of TGNC young people, environmental threats must be eradicated. To begin, this review aspires to endow clinicians with a coherent narrative of the current evidence so that they may better understand, treat, and advocate for their young transgender and gender nonconforming clients.

## Method

This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Shamseer et al. 2015) and was registered with PROSPERO (Centre for Reviews and Dissemination 2019)—an international database of systematic review protocols that are registered prospectively to increase transparency and avoid duplication. PROSPERO is funded by the National Institute of Health Research. The present review was not redundant with any other registered PROSPERO studies, as of July 15th, 2020. This review was designed using the Assessing the Methodological Quality of Systematic Reviews—2 (AMSTAR 2; Shea et al. 2017) Checklist to insure methodological rigor and quality.

### Search Methods and Eligibility Criteria

The search strategy was developed in consultation with Dr. Erin M. Smith, who serves as the Health Sciences Research Librarian at Virginia Tech. In June 2019, a standardized search method was applied to PubMed/MEDLINE, PsycINFO/APA PsycNET, Web of Science (Core Collection), and Google Scholar databases without any publication date restrictions. Searches were restricted to peer-reviewed articles and human studies. Only the first 200 results of the Google Scholar search were included, because the number of results rendered by Google Scholar outperform the numbers reported by traditional databases (Bramer 2016) and because the search results became progressively less relevant after the first 200 articles. Medical Subject Headings (MeSH) and other controlled search terms were used to capture articles pertaining to four relevant concepts: TGNC, youth, mental health, and risk and/or resilience. The following search terms were applied to PubMed/MEDLINE; the formatting was modified to meet the requirements for the other databases: ((Transgender Persons[Mesh] OR transfeminin*[tiab] OR transmasculin*[tiab] OR transgender*[tiab] OR transsex*[tiab] OR "gender-variant"[tiab] OR genderqueer[tiab] OR "gender minority"[tiab] OR gender dysphor*[tiab] OR "gender nonconforming"[tiab] OR "gender non-conforming"[tiab] OR "TGNC"[tiab] OR "female-to-male"[tiab] OR "male-to-female"[tiab] OR "two-spirit"[tiab] OR "two spirit"[tiab] OR gender identity disorder*[tiab] OR (intersex*[tiab] AND gender*[tiab]) OR gender identit*[tiab] OR gender disturb*[tiab] OR gender-disturb*[tiab] OR cross-gender*[tiab]) AND (Resilience, Psychological[Mesh] OR Resilien*[tiab] OR Protective Factors[Mesh] OR Risk factors[Mesh] OR Adaptation, Psychological[Mesh] OR risk factor*[tiab] OR protective factor*[tiab] OR trajector*[tiab] OR pathway*[tiab] OR mechanism*[tiab] OR support*[tiab]

OR predict*[tiab] OR cope*[tiab] OR coping[tiab] OR Emotional Adjustment[Mesh]) AND (Adolescent[Mesh] OR Child[Mesh] OR Children[Mesh] OR child*[tiab] OR Adolescents[tiab] OR Adolescence[tiab] OR Teen[tiab] OR Teens[tiab] OR Teenagers[tiab] OR Teenager[tiab] OR Youth[tiab] OR Youths[tiab] OR Psychology, Adolescent[Mesh] OR Adolescent Development[Mesh] OR Young Adult[Mesh] OR Emerging Adult*[tiab]) AND (Mental Health[Mesh] OR "mental health"[tiab] OR mental illness*[tiab] OR Stress, Psychological[Mesh] OR Psychological Trauma[Mesh] OR psychological*[tiab] OR Emotions[Mesh] OR anxiety[tiab] OR anxious[tiab] OR depress*[tiab] OR traum*[tiab] OR suicid*[tiab] OR PTSD[tiab] OR "posttraumatic stress disorder"[tiab] OR "post-traumatic stress disorder"[tiab] OR "posttraumatic growth"[tiab] OR "post-traumatic growth"[tiab]) OR Posttraumatic Growth, Psychological[Mesh])).

Articles were only included if they were published in English in peer-reviewed journals, included transgender and/or gender-nonconforming persons (and separated the results for the population if non-TGNC participants were also included), included youth under the age of 25 (and separated the results for the population if participants > 24 were also included), assessed a mental health variable, and assessed a risk and/or resilience variable (which had to be integrated with the mental health variable to demonstrate their relationship to one another, e.g., correlation, regression). Assessments were permitted to extend beyond diagnostic interviews, and include self-report measures, parent measures, and other assessment tools. Although the review was not restricted to quantitative measures, qualitative assessments were only included if they explicitly aimed to assess mental health and risk/resilience variables a priori. Studies that included open-ended interviews or focus groups and summarized findings pertaining to these topics, but did not intentionally assess these variables, were not included. A number of studies subsumed the TGNC population within a larger LGBTQ + (Lesbian, Gay, Bisexual, Transgender, Queer, or Questioning) sample; these studies were only included if the TGNC participants' results were reported separately. Review studies, commentaries, errata, scale development studies (which were designed to assess psychometric validity rather than correlates of mental health variables), books, book chapters, replies, addenda, corrections, indices, book reviews, one film review, and letters to the editor were not included. One article was deemed ineligible because the data were not reported. Finally, unpublished studies were not included. The details of the systematic search process can be found in Fig. 1.

### Data Collection and Analysis

Zotero (Roy Rosenzweig Center for History and New Media 2016) software was utilized to identify and remove duplicates between databases and organize citations. Microsoft Excel was used to code individual studies across inclusion and exclusion domains, and to input data for the results table. AT assessed titles, abstracts, and full-text articles. Decisions regarding articles that did not definitively meet inclusion criteria were adjudicated in consultation with two co-authors (RJ and EG). 10% of non-duplicate article titles and abstracts was independently reviewed by a Masters-level laboratory member and co-author, JD; inter-rater reliability ($\kappa = 0.99$) was high. The three discrepancies in eligibility determinations were adjudicated via discussion between AT and JD, and all final decisions were unanimous. Data were manually extracted using a data extraction sheet designed to meet PRISMA guidelines.

### Quality Assessment

The National Institute of Health (NIH 2014) developed Study Quality Assessment Tools that were used to score and rate the quality of included studies. The Cochrane Risk of Bias 2.0 Tools (Higgins et al. 2019) were not utilized because they were designed for randomized controlled trials (RCTs) only and the vast majority of studies included in this systematic review were cross-sectional. The Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies assesses 14 domains to evaluate the internal validity of the study, which can be scored as yes, no, not reported, not applicable, and cannot determine. The Quality Assessment of Case–Control Studies assesses 13 domains and utilizes the same scoring strategy. The Quality Assessment scores found in Table 3 represents the sum of the number of "yes" ratings.

## Results

Detailed information regarding sample characteristics, study design, assessment tools, results, and quality assessment ratings can be found in Tables 1, 2, 3.

### Study Design Characteristics

Overall, 44 studies were included in the systematic review. All of the studies were cross-sectional in design or retrospective chart reviews; all but 3 chart reviews did not specify when variables were measured relative to one another.

A number of studies included in this review were secondary analyses of preexisting datasets; therefore, multiple included studies drew from the same participant pool. Five

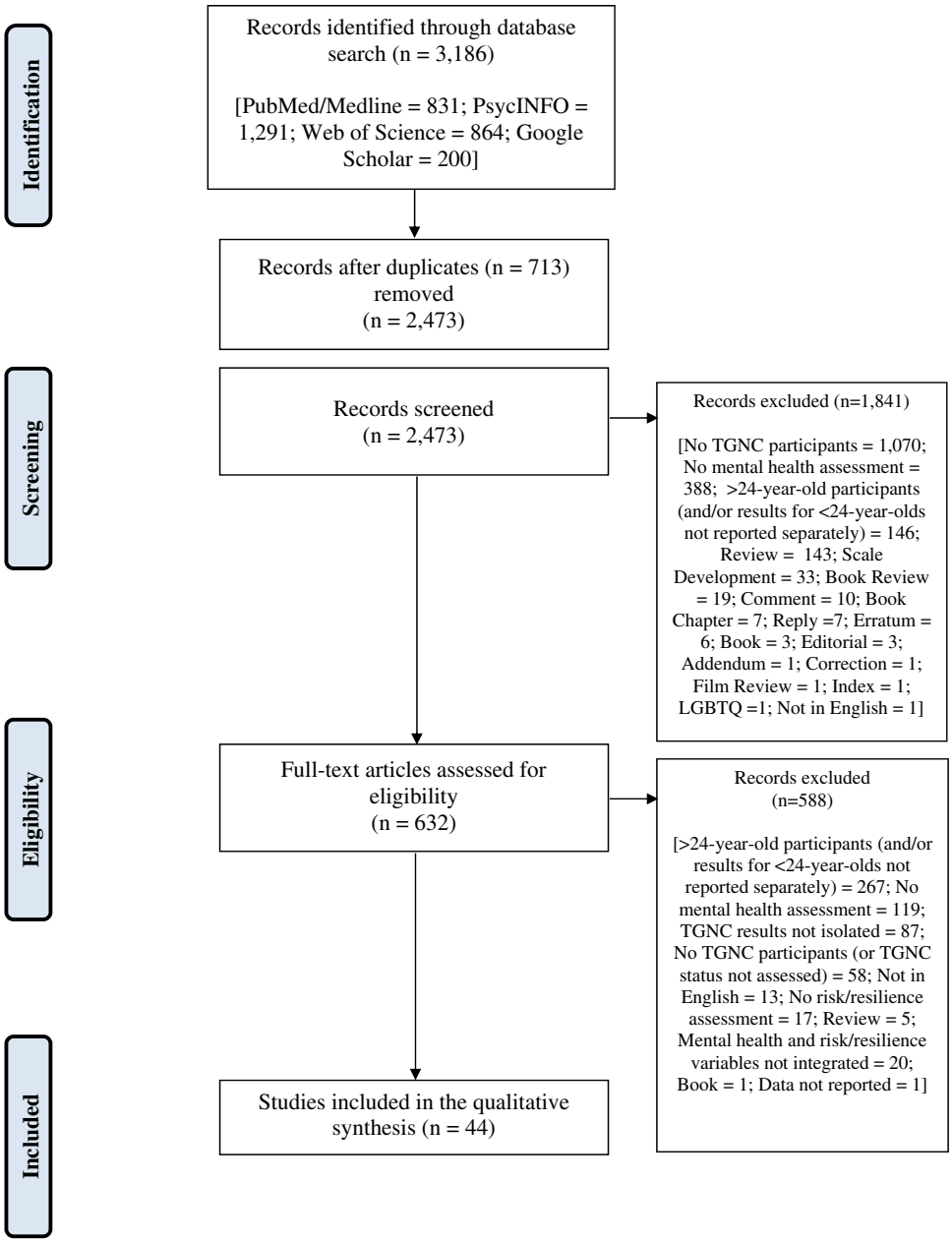


**Fig. 1** Flowchart of the literature search and study selection process in a systematic review of the literature on risk and resilience factors for mental health among TGNC youth published between November 1959 and June 2019

of the studies in this review (11.36%) analyzed data from the 2016 Minnesota Student Survey, while 2 (4.55%) examined findings from the California Healthy Kids Survey. These studies provide major insights into the central questions of this review because their sample sizes were the largest of all the included studies (ranging from 1635 to 7653 TGNC youth), and the youth were assessed in schools and therefore represented a true community sample with a range of psychological functioning (as compared to a treatment-seeking sample). No studies were excluded due to drawing from the same participant pools of other studies.

## Location

Twenty-six of the included studies (59.09%) were conducted in the USA, six were cross-national (13.64%), five were in Canada (11.36%), two were in Germany (4.55%), two were in Finland (4.55%), one was in Australia (2.27%), one was in Mainland China (2.27%), and one was in the United Kingdom (2.27%). Thus, western and English-speaking countries were disproportionately represented by this review. The exclusion of non-English articles may have contributed to this trend.

**Table 1** Characteristics of studies included in the systematic review ($N = 44$)

| Study | Location | TGNC sample size | (Age range) Mean Age, SD | % Racial or Ethnic minorities | Sample description (response rate) |
|---|---|---|---|---|---|
| (1) Aitken et al. (2016) | U.S., Australia, England | 572 | 3–12 (nr, nr) | nr | Gender clinic-referred (95.28%) |
| (2) Arcelus et al. (2016) | U.K | 268 | 17–24 (19.9, 2.17) | 10.1% | Gender clinic-referred (89.7%) |
| (3) Bechard et al. (2017) | Canada | 50 | 13–20 (16.9, nr) | 26% | Gender clinic-referred (nr) |
| (4) Chodzen et al. (2019) | U.S. (Midwest) | 109 | 12–18 (15.46, 1.55) | 22.9% | Gender clinic-referred (nr) |
| (5) Cohen-Kettenis et al. (2003) | Canada, Netherlands | 488 | 4–12 (nr, nr) | nr | Gender clinic-referred (nr) |
| (6) de Vries et al. (2016) | Canada, Netherlands | 316 | 13–18 (~15.8, 1.3) | nr | Gender clinic-referred (78.78%) |
| (7) Dowshen et al. (2016) | U.S., Puerto Rico | 66 | 18–24 (21.07, 2.2) | nr | HIV + transgender women (nr) |
| (8) Edwards-Leeper et al. (2017) | U.S. (Boston) | 56 | 8.9–17.9 (nr, nr) | "largely Caucasian" | GD, endocrinology-seeking (nr) |
| (9) Eisenberg et al. (2019) | U.S. (Minnesota) | 2168 | Approx. 14–17 (nr, nr) | 41.3% | TGNC high school students (nr) |
| (10) Gower et al. (2018) | U.S. (Minnesota) | 2168 | Approx. 14–17 (nr, nr) | 41.3% | TGNC high school students (nr) |
| (11) Grossman et al. (2007) | U.S. (New York City) | 55 | 15–21 | 40% Hispanic; 25.45% racial | TGNC, social service-seeking (nr) |
| (12) Grossman et al. (2011) | U.S. (New York City) | 55 | 15–21 | 40% Hispanic; 25.45% racial | TGNC, social service-seeking (nr) |
| (13) Grossman et al. (2016) | U.S | 129 | 15–21 (18, 1.74) | 31.8% Hispanic; 67.4% racial | TGNC college students (nr) |
| (14) Hatchel et al. (2018) | U.S. (California) | 4778 | 10–18 (14.71, nr) | 44.9% Latinx; 61% racial | Transgender public school students (nr) |
| (15) Heard et al. (2018) | Canada (Manitoba) | 174 | 4.7–17.8 (13.9, nr) | 26% First Nation | Gender clinic-referred (26%) |
| (16) Hill et al. (2010) | U.S., Canada | 31 | 4–7.5 (13.9, nr) | 48% | Gender variant, affirmative tx seeking (nr) |
| (17) Jones et al. (2013) | Australia | 91 | 14–21 (nr, nr) | 10% Aboriginal/Torres Strait Islander | Trans-spectrum youth (nr) |
| (18) Kaltiala-Heino et al. (2015) | Finland | 47 | nr (~16.35) | nr | Gender clinic-referred for surgery (nr) |
| (19) Kaltiala-Heino et al. (2019) | Finland | 99 | 14–18 (16.09, 0.9) | nr | Gender clinic-referred for surgery (nr) |
| (20) Katz-Wise et al. (2018) | U.S. (New England) | 33 | 13–17 (15.18, 1.24) | 26.7% | TGNC youth (nr) |
| (21) Kuvalanka et al. (2017) | U.S | 45 | 6–12 (8.5, 1.8) | 4.4% | TGNC children, community-based (nr) |
| (22) Le et al. (2016) | U.S. (San Francisco) | 301 | 16–24 (nr, nr) | 63.5% | Transfemale youth (nr) |
| (23) Levitan et al. (2019) | Germany (Hamburg) | 180 | 11–18 (15.53, 1.35) | nr | Gender clinic-referred (nr) |
| (24) Perez-Brumer et al. (2017) | U.S. (California) | 7653 | nr (15.23, 1.70) | 49.15% Latinx; 70.29% racial | Transgender public school students (nr) |
| (25) Peterson et al. (2017) | U.S. (Cincinnati) | 96 | 5–24 (17.1, 2.3) | nr | Gender clinic-seeking (nr) |
| (26) Reisner et al. (2016) | U.S. (Chicago, Boston) | 201 | 16–24 (nr, nr) | 63.5% | Transfemale youth (nr) |
| (27) Reisner et al. (2019) | U.S | 172 | 16–24 (20.7, 2.2) | 69% | Transgender and other gender minority (nr) |
| (28) Rider et al. (2018) | U.S. (Minnesota) | 2168 | Approx. 14–17 (nr, nr) | 41.3% | TGNC high school students (nr) |
| (29) Röder et al. (2018) | Germany (Hamburg) | 126 | 11.6–18.2 (15.61, 1.42) | nr | Transgender, psychiatry-referred (58%) |

**Table 1** (continued)

| Study | Location | TGNC sample size | (Age range) Mean Age, SD | % Racial or Ethnic minorities | Sample description (response rate) |
|---|---|---|---|---|---|
| (30) Rowe et al. (2015) | U.S. (San Francisco) | 292 | 16–24 (21.2) | 63% | TGNC, assigned male at birth (nr) |
| (31) Russell et al. (2015) | U.S | 129 | 15–21 (nr, nr) | 76% of chosen-name users | TGNC youth (nr) |
| (32) Simons et al. (2013) | U.S. (L.A.) | 66 | 12–24 (19.06, 2.88) | 48.5% | GNC care-seeking at hospital (nr) |
| (33) Steensma et al. (2014) | Canada, Netherlands | 509 | nr (8.97, 3.69; 9.99, 3.35;) | 21.5%; 4.3% | Gender-clinic referred (~70%) |
| (34) Taliaferro et al. (2018) | U.S. (Minnesota) | 2168 | Approx. 14–17 (nr, nr) | 42% | TGNC high school students (85%) |
| (35) Taliaferro et al. (2019) | U.S. (Minnesota) | 1635 | Approx. 14–17 (nr, nr) | 41.3% | TGNC high school students (85%) |
| (36) Toomey et al. (2018) | U.S | 721 | 11–19 (~15.2, 1.7) | 45.23% | TGNC public school students (nr) |
| (37) VanderLaan et al. (2015) | Canada | 49 | < 12 (7.19, 2.71) | nr | Gender clinic-seeking (nr) |
| (38) VanderLaan et al. (2018) | Canada | 360 | < 13 (6.86, 2.31) | 20.30% | Gender clinic-referred, natal males (nr) |
| (39) Veale et al. (2017) | Canada | 300 | 14–18 (nr, nr) | 28% | TGNC youth (nr) |
| (40) Von Donge et al. (2019) | U.S | 53 | 9–24 (14.5, 3.2) | 35.8% | TGNC military dependents (nr) |
| (41) Wei et al. (2019) | Mainland China | 46 | > 16 (20.4, 1.96) | nr; majority Chinese | Transgender students (nr) |
| (42) Weinhardt et al. (2017) | U.S. (Midwest) | 120 | 13–20 (17.2, 1.8) | 39.4% | TGNC youth (nr) |
| (43) Wilson et al. (2009) | U.S. (L.A., Chicago) | 151 | 15–24 (nr, nr) | 95% | Transgender females (nr) |
| (44) Wilson et al. (2016) | U.S. (San Francisco) | 216 | 16–24 (nr, nr) | 65.7% | Trans*female HIV-negative youth (nr) |

## Demographics

Across studies, the mean age ranged from 6.86 to 21.07, and ages ranged from 3 to 24. Only five studies (11.36%) were restricted to children 12 years old or younger, while the remaining studies included teenagers and later adolescents/emerging adults up to the age of 24 ($n = 39$; 88.64%). Racial and ethnic minorities comprised 0–95% of the study samples, with nine studies (20.45%) not providing any demographic information regarding ethnicity or race. The included studies utilized an array of terminology and assessments to capture the gender identity of participants, including but not limited to: transgender, gender nonconforming, TGNC, genderqueer, perceived that their gender did not match their body, trans*female, gender variant, gender dysphoric, and youth with Gender Dysphoria or Gender Identity Disorder symptoms or diagnoses. Youth with ambiguous genitalia at birth or disorders of sexual development were not included in this study, because they face unique challenges and may require medical intervention from an early age. Notably, Jones and Hillier (2013) included nine participants within their "trans-spectrum" sample that identified as androgynous, no gender, hermaphrodite, or endorsed multiple labels.

## Sampling Strategies

All of the studies included in this review utilized convenience sampling or variations of convenience sampling: secondary analysis of a preexisting dataset, retrospective chart review, purposive sampling, snowball sampling, respondent-driven sampling, and a voluntary state-wide school survey.

## Response Rate

Of the studies that reported response rates ($n = 10$; 22.73%), figures ranged from 26 to 95.92%. The dearth of reported response rate was likely attributable to the high volume of secondary analyses and chart reviews.

**Table 2** Characteristics of studies included in the systematic review ($N = 44$): assessment tools

| Study | Mental Health (MH) Assessment(s) | Exposure type | Risk and/or Resilience (RR) Assessment(s) (timing relative to MH Assessment) |
|---|---|---|---|
| (1) Aitken et al. (2016) | Child behavior checklist (CBCL) | Risk | CBCL (Items 28, 38, 48; peer relations); Age (same) |
| (2) Arcelus et al. (2016) | SCL-90-R; self-injury questionnaire | Risk | Rosenberg self-esteem scale (RSEI); experiences of transphobia scale; inventory of interpersonal problems (same) |
| (3) Bechard et al. (2017) | Youth self-report (YSR); CBCL | Risk | 15 dichotomous vulnerability factors (before) |
| (4) Chodzen et al. (2019) | Youth inventory—4 (YI-4) | Both | Gender Minority Stress and Resilience Measure (same) |
| (5) Cohen-Kettenis et al. (2002) | CBCL | Risk | CBCL (Peer Relations Scale) (same) |
| (6) de Vries et al. (2016) | CBCL; YSR | Risk | CBCL (Peer Relations Scale); Study Location (same) |
| (7) Dowshen et al. (2016) | Brief symptom inventory (BSI) | Risk | HIV viral load level from medical record (nr) |
| (8) Edwards-Leeper et al. (2017) | CBCL; YSR; children's depression inventory (CDI) | Risk | Age (same) |
| (9) Eisenberg et al. (2019) | Patient health questionnaire-2 (PHQ-2); suicide and self-injury screeners | Both | RSEI; Multidimensional Scale of Social Support (MPSS); coping inventory for stressful situations (CISS) (same) |
| (10) Gower et al. (2018) | PHQ-2; suicide and self-injury screeners | Resilience | Parent connectedness; perceived school safety; perceived community safety (same) |
| (11) Grossman et al. (2007) | Suicidal ideation, attempt, and lethality questions | Risk | Child and adolescent psychological abuse measure; body esteem scale for adolescents and adults; verbal and physical abuse items (same) |
| (12) Grossman et al. (2011) | Beck depression inventory II (BDI-II); YSR; BSI; trauma symptom checklist (TSC-40) | Both | CISS; MPSS; RSEI; mastery scale |
| (13) Grossman et al. (2016) | Self-harm behavior questionnaire (SHBQ) | Risk | Interpersonal needs questionnaire; painful and provocative events; acquired capability suicide scale |
| (14) Hatchel et al. (2018) | Depression and suicide in last year; Missing school due to distress in last month (three items) | Both | Perceived peer victimization (12 items); School Belonging (five items) (same) |
| (15) Heard et al. (2018) | Mental health diagnoses from chart review | Risk | Age of referral (same) |
| (16) Hill et al. (2010) | CBCL | Neither | Genderism and transphobia scale (same) |
| (17) Jones et al. (2013) | Self-harm and suicide questions | Risk | Homophobic/cissexist abuse (same) |
| (18) Kaltiala-Heino et al. (2015) | Psychiatric history records | Risk | Social isolation (before, during, or after gender dysphoria) (nr) |
| (19) Kaltiala-Heino et al. (2019) | Psychiatric history records | Neither | Sexual experience questions (yes/no format) (after) |
| (20) Katz-Wise et al. (2018) | Center for epidemiological studies depression scale (CES-D); spence children's anxiety scale (SCAS); mental health diagnoses reported by parent; self-harm | Resilience | Resilience Scale for adolescents (READ); family adaptability and cohesion evaluations (FACES IV) communication and satisfaction subscales; rosenberg self-esteem scale (same) |
| (21) Kuvalanka et al. (2017) | CBCL | Risk | Peer relations scale; state–trait anxiety inventory for adults (for caregivers) (same) |
| (22) Le et al. (2016) | BSI-18 | Neither | Social support; parental acceptance; lifetime history of sex work (same) |
| (23) Levitan et al. (2019) | YSR | Risk | McMasters' Family Assessment Device (MFAD) General Family Functioning (GFF) scale; Poor Peer Relations (YSR); Age (same) |
| (24) Perez-Brumer et al. (2017) | Dichotomous suicide and depression screener (past year) | Risk | School-based victimization (nine items) (same) |
| (25) Peterson et al. (2017) | Yes/no psychosocial assessment | Risk | Weight change: desires loss, desires gain, none (same) |
| (26) Reisner et al. (2016) | Mini-International Neuropsychiatric Interview (MINI-6) | Risk | Age (same) |

**Table 2** (continued)

| Study | Mental Health (MH) Assessment(s) | Exposure type | Risk and/or Resilience (RR) Assessment(s) (timing relative to MH Assessment) |
|---|---|---|---|
| (27) Reisner et al. (2019) | PHQ-2; Generalized Anxiety Disorder-7-item scale (GAD-7); CRAFFT | Neither | STI-related outcomes |
| (28) Rider et al. (2018) | Mental health, behavioral, or emotional problems lasting at least 6 months (1 item) | Both | Estimation of peer perception of gender appearance (same) |
| (29) Röder et al. (2018) | YSR (internalizing) | Risk | YSR (peer relations) (same) |
| (30) Rowe et al. (2015) | Primary Care PTSD Screen (PC-PTSD); BSI-18 | Risk | Drug use questions (same) |
| (31) Russell et al. (2015) | BDI; SHBQ | Resilience | Chosen name use question (same) |
| (32) Simons et al. (2013) | BDI-II | Resilience | MSPSS family subscale (same) |
| (33) Steensma et al. (2014) | Teacher report form (TRF) | Risk | Location; TRF (peer relations); age (some before, some after) |
| (34) Taliaferro et al. (2018) | Past year non-suicidal self-injury (NSSI) question | Both | Parent connectedness; Connections to non-parental adults; School safety; Gender-based bullying victimization; Physical bullying victimization questions (same) |
| (35) Taliaferro et al. (2019) | Past year NSSI question; Suicidal attempt question | Both | Several risk factors, protective factors, and health-risk behaviors (see paper) (same) |
| (36) Toomey et al. (2018) | Lifetime suicide attempt question | Neither | Highest parental education (same) |
| (37) VanderLaan et al. (2015) | Social responsiveness scale | Risk | Birth weight (before) |
| (38) VanderLaan et al. (2018) | Separation anxiety interview | Risk | Parental marital status (same) |
| (39) Veale et al. (2017) | Past year NSSI, suicide attempt; Past month extreme stress, extreme despair | Both | Enacted Stigma Index; School Connectedness Scale (same) |
| (40) Von Donge et al. (2019) | PHQ-2; Current anxiety, suicidal ideation, self-harm; history of provider diagnoses, counseling visits, and hospitalizations | Resilience | Subjective parental support rating (nr) |
| (41) Wei et al. (2019) | Depressive feelings; Suicidal thoughts; Subjective well-being | Neither | Inclusive school climate questions (same) |
| (42) Weinhardt et al. (2017) | Dichotomous past year anxiety problems questions | Risk | Bathroom safety question (same) |
| (43) Wilson et al. (2009) | Yes/no history of inpatient program placement | Risk | Sex work history question (same) |
| (44) Wilson et al. (2016) | BSI-18; CES-D; Brief New York PTSD Risk Score; distress related to suicidal thoughts | Both | Connor-Davidson Resilience Scale (CD-RISC); MSPSS; Parental acceptance; Parental closeness; Absence of barriers to transgender-specific care; Experiences of Discrimination Measure; Experiences of transgender-based discrimination (same) |

**Table 3** Characteristics of studies included in the systematic review ($N = 44$): results and quality assessment ratings

| Study | Results summary | Inclusion of control group | NIH quality assessment rating |
|---|---|---|---|
| (1) Aitken et al. (2016) | Linear relationship between age and suicidal ideation; little SI in very young children; SI present in ~ 30% of the 10–12-year-olds; most important correlate of suicidal ideation and behavior was presence of general behavior problems | Controlled | 6 |
| (2) Arcelus et al. (2016) | Transphobia experiences, low self-esteem, and interpersonal problems predicted psychopathology (62% of variance); patients with lifetime NSSI scored significantly lower on self-esteem compared with patients without NSSI; patients with lifetime presence of NSSI were more likely to report transphobic experiences than those with a lifetime absence of NSSI; patients with NSSI reported more interpersonal problems than those without NSSI | Non-controlled | 8 |
| (3) Bechard et al. (2017) | Total number of vulnerability factors was correlated with sum of behavioral problems on the YSR and CBCL | Non-controlled | 6 |
| (4) Chodzen et al. (2019) | Higher levels of internalized transphobia were associated with higher likelihood of problems on the YSR and CBCL MDD or GAD diagnosis; high appearance congruence was associated with lower likelihood of MDD diagnosis | Non-controlled | 6 |
| (5) Cohen-Kettenis et al. (2002) | Poor peer relations predicted behavior problems | Non-controlled | 6 |
| (6) de Vries et al. (2016) | Peer Relations Scale was the strongest predictor of the CBCL and YSR total Problem Score; Toronto adolescents had more behavioral and emotional problems than Amsterdam adolescents | Non-controlled | 7 |
| (7) Dowshen et al. (2016) | 19% increase in the probability of having a detectable viral load among those who met clinical criteria for depression | Controlled | 7 |
| (8) Edwards-Leeper et al. (2017) | Depression, social concerns, and self-reported clinically significant symptoms increased with age; parent-reported clinically significant symptoms, freedom from anxiety, and happiness/satisfaction decreased with age | Non-controlled | 6 |
| (9) Eisenberg et al. (2019) | Participants in cities had the lowest rates of suicide attempts and self-harm; rural youth had the highest rates; suburban youth had the highest rates of depression and suicidal ideation | Non-controlled | 5 |
| (10) Gower et al. (2018) | Higher parent connectedness scores were significantly related to lower odds of all emotional distress items; feeling safe at school and connected to adults in one's community protected against depression and suicidality | Non-controlled | 5 |
| (11) Grossman et al. (2007) | Past parental verbal and physical abuse and lower body esteem (especially weight satisfaction and thoughts of how others evaluate the youths' bodies) were related to suicide attempts | Non-controlled | 7 |
| (12) Grossman et al. (2011) | Personal mastery, self-esteem, perceived social support, and emotion-oriented coping accounted for > 50% of the variance in relation to depression, trauma symptoms, mental health symptoms, and internalizing and externalizing problems; emotion-oriented coping predicted negative mental health; personal mastery was significantly negatively related to depression and trauma symptoms; social support was significantly negatively related to depression and internalizing problems | Non-controlled | 7 |
| (13) Grossman et al. (2016) | Perceived burdensomeness and thwarted belongingness were significantly related to suicidal ideation and/or suicide attempts; experiences of harmful events and acquired capability predicted suicide attempts | Non-controlled | 7 |
| (14) Hatchel et al. (2018) | Victimization predicted mental health issues; school belonging was associated with better mental health and may affect the relationship between victimization and mental health issues | Non-controlled | 6 |
| (15) Heard et al. (2018) | Anxiety and depression diagnoses were more common among youth referred at an older age | Non-controlled | 5 |

**Table 3** (continued)

| Study | Results summary | Inclusion of control group | NIH quality assessment rating |
|---|---|---|---|
| (16) Hill et al. (2010) | Parental attitudes towards gender variance did not predict CBCL pathology ratings, internalizing scores, or externalizing scores; GNC children seeking affirming care were less pathological than a matched clinical control group | Controlled | 5 |
| (17) Jones et al. (2013) | 46.15% self-harmed and 27.47% attempted suicide due to homophobic/cissexist abuse | Controlled | 5 |
| (18) Kaltiala-Heino et al. (2015) | Social isolation was the strongest factor predicting membership to the "identity confused group" (characterized by adolescent-onset GD; social anxiety, depression and self-harm in adolescence) | Non-controlled | 6 |
| (19) Kaltiala-Heino et al. (2019) | Specialist-level psychiatric treatment history was not associated with intimate sexual experiences with a partner | Non-controlled | 6 |
| (20) Katz-Wise et al. (2018) | Better family communication (as perceived by youth—not parents) was associated with less self-harm, fewer depressive and anxious symptoms, and greater self-esteem and resiliency | Non-controlled | 7 |
| (21) Kuvalanka et al. (2017) | Poorer peer relations were positively associated with internalizing, externalizing, and total problems (CBCL); caregiver state anxiety was positively associated with child internalizing and total problems | Non-controlled | 7 |
| (22) Le et al. (2016) | No significant association was found between parental primary social support and psychological distress | Non-controlled | 6 |
| (23) Levitan et al. (2019) | Youth with more advanced age, poorer peer relations, and poorer family functioning showed more behavioral and emotional problems | Non-controlled | 8 |
| (24) Perez-Brumer et al. (2017) | Victimization was significantly associated with higher odds of suicidal ideation | Non-controlled | 5 |
| (25) Peterson et al. (2017) | Higher frequency of suicide attempts in youth with a desire for weight change | Non-controlled | 3 |
| (26) Reisner et al. (2016) | Pattern of increasing comorbidity by age | Non-controlled | 7 |
| (27) Reisner et al. (2019) | Mental health conditions were not associated with STI-related outcomes | Non-controlled | 6 |
| (28) Rider et al. (2018) | Participants with gender presentation were perceived as highly congruent with their birth-assigned sex were less likely to report poorer health and long-term mental health problems compared with those with non-congruent gender presentations | Controlled | 6 |
| (29) Röder et al. (2018) | Internalizing problems and poor peer relations were correlated | Non-controlled | 8 |
| (30) Rowe et al. (2015) | Youth with PTSD had increased odds of drug use; youth with psychological distress had increased odds of using multiple heavy drugs | Non-controlled | 5 |
| (31) Russell et al. (2015) | Chosen name use in more contexts was associated with lower depression, suicidal ideation, and suicidal behavior (with lowest rates among youth using their chosen name in all 4 contexts) | Non-controlled | 6 |
| (32) Simons et al. (2013) | Parental support was associated with higher life satisfaction, lower perceived burden of being transgender, and fewer depressive symptoms | Non-controlled | 7 |
| (33) Steensma et al. (2014) | Poor peer relations predicted other TRF behavioral problems; participants from Canada reported more emotional and behavioral problems and poorer quality of peer relations than participants from the Netherlands; greater TRF problems for adolescents than for children, across clinics | Non-controlled | 7 |

**Table 3** (continued)

| Study | Results summary | Inclusion of control group | NIH quality assessment rating |
|---|---|---|---|
| (34) Taliaferro et al. (2018) | Gender-based bullying victimization, physical bullying victimization, parent connectedness, and other non-parental adult connectedness were associated with self-harm; parent connectedness and school safety were associated with repetitive self-harm; among those bullied due to their gender identity, youth who reported stronger connections to non-parental adults were significantly less likely to report self-harm (interaction) | Non-controlled | 6 |
| (35) Taliaferro et al. (2019) | Identified factors distinguishing transgender/gender non-conforming (GNC) adolescents across three groups: no self-harm, non-suicidal self-injury (NSSI) only, and NSSI and suicide attempt (NSSI + SA); see paper for more details | Non-controlled | 6 |
| (36) Toomey et al. (2018) | Having parents with higher education levels and living in urban spaces were not associated with lower odds of suicidal behavior | Controlled | 7 |
| (37) VanderLaan et al. (2015) | High birth weight was associated with high gender nonconformity and autistic traits | Non-controlled | 9 |
| (38) VanderLaan et al. (2018) | Degree of separation anxiety was related to parental marital status | Non-controlled | 5 |
| (39) Veale et al. (2017) | Experiences of discrimination, harassment, and violence (enacted stigma) were positively related to mental health problems; social support was negatively associated with mental health problems; family connectedness was strongly negatively associated with mental health problems; youth with low levels of enacted stigma experiences and high levels of protective factors reported favorable mental health outcomes; youth with high levels of enacted stigma and low levels of protective factors reported adverse mental health outcomes | Non-controlled | 6 |
| (40) Von Donge et al. (2019) | Strongly supportive parents were associated with recognizing, disclosing and seeking treatment for gender nonconformity at an earlier age | Non-controlled | 3 |
| (41) Wei et al. (2019) | Impact of an inclusive school climate on mental health not found | Non-controlled | 5 |
| (42) Weinhardt et al. (2017) | Feeling unsafe in bathrooms was associated with a greater level of problematic anxiety in the past year | Non-controlled | 3 |
| (43) Wilson et al. (2009) | Having ever been in an inpatient program was positively associated with sex work | Non-controlled | 6 |
| (44) Wilson et al. (2016) | Transgender-based discrimination was associated with PTSD, depression, and stress related to suicidal thoughts; high racial discrimination was associated with greater odds of psychological stress and stress related to suicidal thoughts; parental closeness was related to lower odds of mental health outcomes; intrinsic resiliency was associated with lower psychological stress, PTSD, and stress related to SI | Non-controlled | 7 |

## Intervention

None of the included studies were psychological interventions administered uniformly across participants. However, 19 studies (43.18%) included clinic-referred youth who were already at various stages of receiving an array of gender-affirming services (e.g., hormone therapy, surgery, counseling, etc.).

## Mental Health Assessments

Mental health assessments varied widely, and included validated parent (e.g., the CBCL) and child (e.g., YSR) self-report instruments, subjective interpretations of medical records, and questions developed for individual studies (including dichotomous yes/no questions). Depression, suicidality, self-harm, and behavior problems were among the most common variables assessed by these instruments.

## Risk and Resilience Assessments

Due to the prevalence of cross-sectional study designs, in order to be considered a risk or resilience assessment, the variable had to be integrated with, or demonstrate a relationship with, the mental health variable in some manner (most commonly, via a statistical correlation or regression). While the original intent of this review was not to exclude qualitative data, this approach to the inclusion of risk and resilience assessments favored quantitative designs. Consequently, while mixed-methods studies were eligible for inclusion, exclusively qualitative studies were not.

## Timing of Assessments

Thirty-seven of the included studies (84.09%) assessed the mental health variable and the risk or resilience variable during the same session, limiting this review's ability to infer causal relationships. Three studies (6.82%) did not specify the timing of the assessments relative to one another, two studies (4.55%) assessed the risk or resilience variable before the mental health variable, and one study assessed the risk or resilience variable after the mental health variable.

### Risk Variables

In keeping with the Minority Stress Model (Meyer 2003), variables associated with "negative" mental health variables are organized into three levels: distal stressors (i.e., external, observable, environmental), interactive proximal stressors (i.e., expectation of and vigilance for environmental threats), and internalized proximal stressors (i.e., internalized negative attitudes). Additional variables that do not fall into this framework are also reviewed.

### Distal Stressors

**Peer Relations** Poor peer relations were the most documented risk factor ($n=5$; 11.36%) for deleterious mental health variables. Difficulty with peer relationships was associated with behavior problems (Cohen-Kettenis et al. 2003; Levitan et al. 2019; Steensma et al. 2014), emotional problems (Levitan et al. 2019), internalizing problems (Röder et al. 2018), externalizing problems (Kuvalanka et al. 2017), and total problems (Kuvalanka et al. 2017). Among transgender students in Mainland China, inclusive school climate (which was measured by several items, including whether people at their school are friendly to LGBT students) was not associated with self-reported symptoms of depression, suicidal thoughts, wellbeing, or self-esteem (Wei and Liu 2019).

**Victimization, Discrimination, and Abuse** Victimization (including bullying, peer victimization, school-based victimization, and painful and provocative events; $n=5$; 11.36%), discrimination ($n=3$; 6.82%), and abuse (including verbal, physical, and sexual; $n=3$; 6.82%) emerged as the next most common risk factors for poor mental health. Victimization was associated with self-harm (Taliaferro et al. 2018, 2019), suicidal ideation (Hatchel et al. 2018; Perez-Brumer et al. 2017), suicide attempts (Grossman et al. 2016; Taliaferro et al. 2019), depressive symptoms (Hatchel et al. 2018), and missing school due to distress (Hatchel et al. 2018). Discrimination experiences were associated with psychopathology (Arcelus et al. 2016), mental health problems (extreme stress, extreme despair, NSSI, and suicide attempts; Veale et al. 2017), posttraumatic stress disorder (PTSD), depression, stress related to suicidal thoughts, and more general psychological stress (Wilson et al. 2016). Abuse was associated with suicide attempts (Grossman and D'Augelli 2007; Jones and Hillier 2013; Taliaferro et al. 2019) and self-harm (Jones and Hillier 2013).

**Location** Eisenberg et al. (2019) found that TGNC youth residing in suburban areas had the highest rates of depression and suicidal ideation as compared to those living in rural and urban neighborhoods. By contrast, among transgender and non-binary students attending public middle and high schools, living in urban neighborhoods (compared to rural or small cities) was not associated with reduced odds of engaging in suicidal behavior (Toomey et al. 2018). A sample of transgender youth in Canada reported more emotional, behavioral, and peer relation problems than a sample of transgender youth from the Netherlands (Steensma et al. 2014).

**Family** Parental marital status was related to the degree of separation anxiety in a cohort of young TGNC children who were labeled male at birth (VanderLaan et al. 2018). In an adolescent sample, youth with poorer reported family functioning demonstrated more behavioral and emotional problems (Levitan et al. 2019). There was not a statistically significant association between whether transfemale youth identified their parents (versus non-parents) as their primary source of social support and symptoms of psychological distress (Le et al. 2016). Among a small sample of young gender-variant children whose parents sought out affirmative services, parental attitudes towards gender variance did not predict psychopathology, internalizing symptoms, or externalizing symptoms (Hill et al. 2010). The researchers noted that this was a particularly tolerant sample of parents, and that the gender-variant youth demonstrated less psychopathology than the matched clinical control group.

**Sexual History Related** Within an older adolescent sample of transgender females, a history of sex work was correlated with a history of having ever been in an inpatient program (Wilson et al. 2009). Among HIV + transgender young women, having a detectable viral load was associated with meeting clinical criteria for major depressive disorder (Dowshen et al. 2016). Intimate sexual experiences with a partner were not associated with psychiatric treatment history among adolescents referred for an assessment for gender-affirming surgery (Kaltiala-Heino et al. 2019). In a later adolescent sample, mental health conditions were not related to sexually transmitted infection (STI)-related outcomes (Reisner et al. 2019).

#### Interactive Proximal Stressors

Within the interactive proximal stressor domain, there was less thematic coherence to results. Among a cross-national sample of young children referred to gender identity clinics, the presence of general behavior problems correlated with suicidal ideation and behavior (Aitken et al. 2016). In an older adolescent sample of clinic-referred youth, interpersonal problems predicted psychopathology (Arcelus et al. 2016). For TGNC youth seeking social and recreational services from LGBT centers, perception that others disliked their bodies was associated with having made a suicide attempt (Grossman and D'Augelli 2007). For adolescents referred to a clinic for gender-affirming surgery, social isolation predicted membership to a group that experienced social anxiety, depression, self-harm, and suicidality in adolescence (and who did not experience gender dysphoria in childhood; Kaltiala-Heino et al. 2015). Among TGNC adolescents, feeling unsafe in bathrooms was associated with greater levels of problematic anxiety in the past year (Weinhardt et al. 2017). Finally, running away from home was associated with self-harm and suicide attempts (Taliaferro et al. 2019).

#### Internalized Proximal Stressors

Two studies included in this review (4.55%) found evidence of a connection between suicidality and TGNC youth's relationship with their weight. Body esteem, and specifically weight satisfaction, was associated with having made a suicide attempt and suicidal ideation (Grossman and D'Augelli 2007). Transgender youth who desired weight change endorsed a higher frequency of suicide attempts than those who did not wish to change their weight (Peterson et al. 2017). For TGNC adolescents presenting for care at a gender clinic, higher levels of internalized transphobia were associated with increased likelihood of meeting diagnostic criteria for major depressive disorder and for generalized anxiety disorder (Chodzen et al. 2019). Among another sample of clinic-referred adolescents, low self-esteem predicted psychopathology (Arcelus et al. 2016). For older adolescents and college-aged TGNC people, perceived burdensomeness was associated with suicidal ideation and attempts (Grossman et al. 2016).

#### Other Risk Factors

Nine studies (20.45%) found associations between risk factors and mental health that do not appear to fall within the Minority Stress Model framework. Age was identified as a risk factor for mental health in six studies (13.64%). A linear relationship was found between age and suicidal ideation, with approximately 30% of 10–12-year-old clinic-referred children reporting suicidal thoughts (Aitken et al. 2016). Among gender dysphoric adolescents seeking endocrinology services, as age increased, depression and social concerns increased, clinically significant symptoms increased, and total self-concept, freedom from anxiety, and happiness decreased (Edwards-Leeper et al. 2017); notably, parent reports did not align with these trends, and their report of their child's total problems and fraction of responses in the clinical range decreased. In a chart review study, anxiety and depression diagnoses were more common among youth referred to a Gender Dysphoria program at an older age (Heard et al. 2018). A clinic-referred sample also endorsed more behavioral and emotional problems with more advanced age (Levitan et al. 2019). Among sexually active young transgender women, comorbidity of mental illness increased with age (Reisner et al. 2016). One study (Taliaferro et al. 2019), found contradictory evidence; 12th graders were less likely to endorse self-harm than 9th graders.

A significant relationship was found between drug use and PTSD, and between using multiple heavy drugs and psychological distress (Rowe et al. 2015) Among gender dysphoric children, high birth weight was associated with autistic traits (VanderLaan et al. 2015). High school students receiving free or reduced-price lunch were more likely to report self-harm than those who did not receive free or reduced-price lunch (Taliaferro et al. 2019); within this same sample, substance use and lower grades were also associated with self-harm and suicide attempts. Finally, using emotion-oriented coping as the primary coping style was a significant predictor of mental health problems, trauma symptoms, depression, externalizing problems, and internalizing problems among transgender youth (Grossman et al. 2011).

### Resilience Variables

Resilience is a dynamic process of psychological adaptation that unfolds over time. All of the included studies in this review were cross-sectional and/or retrospective chart

reviews; thus, causality cannot be determined, and the following variables are proposed as potential resilience-promoting factors due to their associations with positive mental health variables or the absence of negative mental health variables.

### Parent and Family Relationships

Seven of the included studies (15.91%) reported that the relationship between a TGNC youth and their parent and/or family member(s) promotes psychological resilience, in both treatment-seeking and non-treatment-seeking populations. Among a large sample of transgender and gender-diverse Midwestern high school students, higher parent connectedness was associated with lower odds of depression, suicidal ideation, and suicide attempts (Gower et al. 2018). Gower et al. (2018) also found that a single unit increase on their measure of parent connectedness was associated with a 23% reduction in the odds of depression symptoms. In a subsample of the same Minnesota Student Survey, parent connectedness was identified as a critical differentiating factor between adolescents who engaged in non-suicidal self-injury (NSSI) only, and those who engaged in NSSI and had made a suicide attempt (Taliaferro et al. 2019); i.e., among youth engaging in NSSI, higher parent connectedness was associated with a reduced likelihood of making a suicide attempt. Among transgender youth presenting for hormone therapy in Los Angeles, parental support was positively associated with life satisfaction, and negatively associated with depressive symptoms and the child's perceived burden of being transgender (Simons et al. 2013). In a small sample of TGNC teenagers, better family functioning (including communication and satisfaction) from the youth's perspective was negatively associated with self-harm, anxiety, and depression, and positively associated with self-esteem and resiliency (as measured by the Resilience Scale for Adolescents; Hjemdal et al. 2006; Katz-Wise et al. 2018). Notably, caregiver and sibling reports of family functioning were *not* significantly associated with any mental health variables among the TGNC participants (Katz-Wise et al. 2018). Among Canadian transgender teenagers, family connectedness was more protective against negative mental health problems (e.g., stress, despair, self-harm, suicide attempts) than school connectedness or their perception of friends caring. Among transgender females in the San Francisco Bay Area, self-reported parental closeness was associated with lower odds of psychological distress, depression, posttraumatic symptoms, and stress related to suicidal thoughts (Wilson et al. 2016). Among transgender and non-binary students attending public middle and high schools, having parents with higher education levels did not reduce the odds of engaging in suicidal behavior (Toomey et al. 2018). Finally, among transgender and gender-diverse youth who were dependents of members of the USA military (active duty, reserve, or retired), strong parental support (subjectively derived from medical records) was associated with recognizing, disclosing, and seeking medical treatment for gender nonconformity at an earlier age (Von Donge et al. 2019); however, strong parental support was not associated with current symptoms of depression, anxiety, self-harm, and suicidal ideation in this sample.

### Social Support

Five studies (11.36%) found that other (non-parent-specific) forms of social support were also associated with psychological resilience. Among transgender youth seeking social and recreational services from LGBT centers, social support was negatively associated with symptoms of depression and internalizing problems (Grossman et al. 2011). Within a large cohort of transgender high school students, feeling connected to an adult in one's community protected against depression and suicidality (Gower et al. 2018). Among TGNC youth who were bullied because of their gender identity and/or expression, those who reported stronger connections to non-parental adults were significantly less likely to report self-harm than those who endorsed weaker connections to non-parental adults (Taliaferro et al. 2019). In a Canadian sample of transgender adolescents, social support was negatively associated with self-harm, suicide attempts, extreme stress, and extreme despair (Veale et al. 2017).

### School

Five of the included studies (11.36%) reported that school-related variables were associated with psychological resilience. Among TGNC high school students, perception of school safety was protective against depression and suicidality (Gower et al. 2018). In this same sample, school safety was also found to protect against repetitive self-injury (Taliaferro et al. 2018) and suicide attempts (Taliaferro et al. 2019). By contrast, in Mainland China, inclusive school climate (which included measures of perceived school safety) was not associated with self-reported symptoms of depression, suicidal thoughts, wellbeing, or self-esteem (Wei and Liu 2019). Among transgender public school students, more school belonging was associated with fewer mental health concerns (i.e., depression symptoms, suicidal ideation, and missing school due to distress; Hatchel et al. 2018). Hatchel et al. (2018) also reported that school belonging mediated the relationship between victimization and mental health problems in their sample; however, the study was cross-sectional in design and causality and directionality could

not be inferred. Finally, among Canadian transgender adolescents, school connectedness was negatively associated with extreme stress and extreme despair (Veale et al. 2017).

### Appearance

Two studies (4.55%) found conflicting relationships between physical appearance and mental health. Among TGNC adolescents presenting for care at a gender identity clinic, those with higher levels of appearance congruence (AC; i.e., self-perception that one's gender identity aligns with one's physical and/or anatomical appearance) were less likely to meet diagnostic criteria for major depressive disorder than those with low levels of AC (Chodzen et al. 2019). Conversely, a large cohort of TGNC high school students who reported that their physical gender presentation was perceived as highly aligned with the sex they were assigned at birth were less likely to report long-term mental health problems (Rider et al. 2018). This discrepancy was possibly accounted for by the fact that this high school sample also included gender-questioning youth who may not have strongly aligned with a particular gender identity yet, and thus may have benefited from perceived gender conformity.

### Other Resilience Variables

Transgender and gender nonconforming students in cities reported lower rates of suicide attempts and self-harm than TGNC students residing in the suburbs or in rural areas (Eisenberg et al. 2019). A sense of personal mastery was significantly and negatively related to depression and trauma symptoms among American transgender youth (Grossman et al. 2011). Chosen name use in more contexts was associated with lower depression, suicidal ideation, and suicidal behavior; these symptoms were lowest for youth who could use their chosen names at home, at work, at school, and with friends (Russell et al. 2018). Finally, among transgender female youth, higher scores on the Connor-Davidson Resilience Scale (CD-RISC; Connor and Davidson 2003) were associated with reduced risk for psychological stress, posttraumatic stress disorder symptoms, and stress related to suicidal thoughts (Wilson et al. 2016).

## Cultural Considerations

Nine of the studies (20.45%) in this review did not report on the racial or ethnic demographics of their participants. These studies were conducted in the Netherlands, Canada, the USA, Puerto Rico, Finland, and Germany. Only one study included a non-Western, collectivistic country (Mainland China; Wei and Liu 2019). While no association was found between inclusive school environment and depressive symptoms, suicidal thoughts, subjective well-being, or self-esteem for transgender Chinese students, an inclusive school environment was associated with being more likely to "come out" (i.e., publicly disclose their gender identity). Bechard et al. (2017) reported that their sample included 36% "visible minorities," which raises questions about their method of demographic assessment. Racial and/or ethnic identity is not always visible.

By contrast, a number of studies recruited samples that were majority racial and/or ethnic minority. Sixty-five percent of Reisner et al.'s (2019) sample was black or African-American, while over 70% of Perez-Brumer et al.'s (2017) sample identified as a racial minority. Hatchel et al. (2018) sought to investigate whether ethnic minority status moderated the relationship between peer victimization, school belonging, and mental health, and did not find significant differences for youth of color.

Reisner et al.'s (2016) study was the baseline assessment for a culturally sensitive HIV prevention intervention (Project Life Skills) for a diverse cohort of transgender young women. Wilson et al. (2016) inquired as to whether trans*female youth exposed to both racial and transgender discrimination demonstrated unique mental health profiles as compared to those who endorsed exposure to only one form of discrimination. Over one quarter of their sample endorsed high racial discrimination, nearly half endorsed high transgender-based discrimination, and 15.9% endorsed high exposure to both. Wilson et al. (2016) found that African Americans, heterosexuals, unstably housed youth, youth who had moved 2 or more times as a child, and youth who had been in foster care as children were disproportionately affected by trans-racial discrimination. Those with higher exposure to racial discrimination were more likely to experience psychological distress, PTSD symptoms, and stress related to thoughts of suicide as compared to those with lower exposure (Wilson et al. 2016).

The military has a specific institutional culture that has been well documented (e.g., Hall 2011; Soeters et al. 2006; Wilson 2008). Van Donge et al. (2019) examined health care service utilization among transgender and gender-diverse youth who were the dependents of active-duty military, reservists, and veterans. Through their retrospective chart review analysis, Van Donge and colleagues (2019) ascertained that having strongly supportive parents was significantly associated with recognizing, disclosing, and seeking gender-related treatment at an earlier age.

## Discussion

### Methodological Review

All of the included studies in this systematic review were cross-sectional, retrospective chart reviews, or "comprehensive assessment periods" that did not specify the temporal order of assessments, which hindered the ability to infer causality and the direction of relationships between variables. For example, it is possible that transgender and gender nonconforming youth who are suffering from symptoms of depression may be more inclined to report a weaker connection to their parents, rather than that poor parent connectedness drives symptoms of depression. At this stage, the risk and resilience variables outlined herein are best conceptualized as *correlates* of mental health variables, which should be investigated in future longitudinal studies.

Although the present review included studies with both transgender and gender nonconforming youth, these groups are not always amenable to being conceptualized as a collective, and have important conceptual distinctions. This review was unable to capture the unique challenges and strengths of these populations because none of the included studies included gender nonconforming youth exclusively. In fact, at least one study (Simons et al. 2013) used the two terms interchangeably. These terms reflect critical differences in the lived experiences of the people who identify with them, and should not be used as synonyms unless the population identifies as both (which does occur).

Six (13.64%) of the studies in this systematic review included at least one control group for comparison (Aitken et al. 2016; Dowshen et al. 2016; Hill et al. 2010; Jones and Hillier 2013; Rider et al. 2018; Toomey et al. 2018). Aitken et al. (2016) compared a group of gender-referred children to 3 (non-TGNC) control groups: siblings of the gender-referred children, clinic-referred children, and non-referred children. Although the gender-referred group reported higher rates of suicidality than their siblings or the non-referred sample, they also reported *less* suicidality than the non-TGNC clinic-referred group`. This investigation illustrates an essential methodological concern in the study of TGNC mental health; studies often include a self-selecting sample of youth who are seeking care from gender identity clinics and hospitals, and thus may be more psychologically distressed than those not seeking care. In fact, a diagnosis of Gender Dysphoria (which connotes a significant level of distress and impairment) is often a prerequisite in order for youth to seek medical intervention from these clinics. Within this systematic review, 20 of the included studies (45.45%) recruited clinic-referred youth. Notably the 2 datasets with the largest samples, the California Healthy Kids Survey ($n = 2168$) and the Minnesota Student Survey ($n = 7653$), assessed TGNC high school students (in addition to non-TGNC high school students) rather than youth seeking gender identity-related services.

The National Institute of Health (2014) Quality Assessment Tools were applied to the studies included in this systematic review to assess their internal validity. Scores ranged from 3 to 9 out of a possible 14 points for the non-controlled, cross-sectional studies, and from 5 to 7 out of a possible 13 points for the controlled studies. Common weaknesses included not reporting the response rate of the assessed sample (which was partially attributable to many studies being retrospective chart reviews or secondary analyses), not reporting a sample size justification (with the exception of Levitan et al. 2019), insufficient time transpiring between the risk or resilience variables and the mental health variables to expect to see an association, the use of non-validated assessment tools that were developed specifically for the study or derived partially from another instrument, only measuring the risk or resilience variables at one time point, and (in the case of the controlled studies) the use of non-concurrent controls. Overwhelmingly, these studies included youth and parent self-report measures to assess the variables of interest, rather than clinician-administered interviews or more objective assessment instruments.

### Risk and Resilience Factors

In spite of the methodological limitations of the included studies, a number of themes emerged in the realm of risk and resilience. Social support, particularly from parents, was associated with reduced symptoms of anxiety, depression, self-harm, suicidal ideation, and suicide attempts. Parents may be the first people that the youth discloses their gender identity to, which may be part of what makes this relationship uniquely consequential to their mental wellness. Parents may also have authority over to what degree their child is permitted to express their gender identity (e.g., their name, gender pronouns, clothing, extracurricular activities, etc.), which may have an outsize impact on their mental health. TGNC youth's perceptions of school safety and school belonging were negatively associated with symptoms of depression, self-harm, suicidality, and missing school due to emotional distress. This dovetails with Weinhardt et al.'s (2017) finding that feeling unsafe in bathrooms was associated with greater levels of problematic anxiety in the past year. The experience of being unable to safely use a bathroom in school may cause or exacerbate anxiety, absenteeism, and a lack of belonging for TGNC students.

Regrettably, mental health was often operationalized as the presence or absence of clinical symptoms rather than as the presence of positive psychological phenomena (e.g., happiness, wellbeing, optimism, etc.). Thus, this review

disproportionately captured correlates of negative mental health variables.

Studies reported conflicting findings regarding the degree to which a young person living in their affirmed gender implicated their mental health. In a sample of 109 American adolescents seeking care at a gender identity clinic, those that perceived that their gender identity aligned with their physical appearance were less likely to have major depressive disorder than those who did not perceive this alignment between their appearance and their identity (Chodzen et al. 2019). However, among 2168 transgender and gender-diverse high school students in Minnesota, those that reported that their physical gender presentation was perceived as highly aligned with the sex they were assigned at birth were less likely to report long-term mental health problems (Rider et al. 2018). This discrepancy may be accounted for by peer victimization and the youth's level of disclosure to peers. It is possible that clinic-referred youth are more likely to have disclosed their TGNC status to peers than the non-referred high school sample and thus, they may be experiencing comparable levels of bullying; therefore, their own satisfaction with their appearance has more bearing on their mental health. This could also reflect discrepancies in assessment strategies; Rider et al. (2018) utilized as yes/no question about long-term mental health problems, while Chodzen et al. (2019) used a more sensitive instrument (Youth Inventory –4). Given Russell et al.'s (2018) finding that among TGNC later adolescents, chosen name use across all contexts (at home, at work, at school, and with friends) was associated with the lowest rates of depression, suicidal ideation, and suicidal behavior, it appears as though living openly in one's affirmed gender is the most advantageous for mental health. Alternatively, given that the participants were asked "are you able to go by your preferred name," chosen name use may be a proxy for the positive psychological effects of social acceptance and environmental safety, rather than merely of openly expressing one's gender identity. These conflicting findings elucidate a painful calculus that TGNC youth feel they have to make: whether they want to live authentically and openly as themselves, or whether they want to maintain social support and physical and emotional safety.

A number of risks also emerged from this literature, the vast majority of which fit within Meyer's (2003) Minority Stress Model framework. The stressors can have a trickle-down effect, in that external, observable environmental threats (such as verbal abuse, physical abuse, discrimination, victimization, and violence) may promote hypervigilance and anticipation of future harm, which may then dysregulate interpersonal interactions (precipitating social isolation or interpersonal problems), and then ultimately become internalized by the young person in the form of self-hatred and low self-esteem. The evidence rendered by this systematic review is consistent with this conceptual framework. Notably, a number of variables fell outside of this model, including age, drug use, academic achievement, high birth weight, and emotion-oriented coping.

Upon second-glance, Grossman et al.'s (2011) finding that transgender youth implementing emotion-oriented coping strategies as their primary method of coping was positively associated with a number of problematic mental health variables (e.g., depression, trauma symptoms, externalizing problems, etc.) may reaffirm the central premise of the Minority Stress Model (Meyer 2003)—that minorities live in stressful environments full of stigma, prejudice, and discrimination, which harm their mental health. It is unsurprising that employing a coping strategy focused on reducing emotions that may be entirely appropriate and valid in the context of their environmental stressors is not an effective method of improving one's symptom burden. Instead, a safety planning, problem-solving, and/or help-seeking approach may be more effective for transgender and gender nonconforming young people struggling with mental distress.

Overall, the findings of this review suggests that if a child's clinical symptoms are rooted in stresses associated with their gender minority status, then it may be more advantageous for the child's mental health to proceed with gender-affirming care than to attempt to resolve their mental health concerns in a vacuum.

## Cultural Considerations

One fifth of the studies in the present review did not report the race or ethnicity of their samples. Given that intersecting minority identities may exacerbate psychological distress, this is an omission that must be remedied in future studies. TGNC youth should be met at the intersections of their many identities rather than approached solely within the context of their gender.

## Proposed Developmental Trajectories

Seven of the studies included in this review (15.55%) reported results specifically for children ages 12 and younger. Increasing age was associated with increased odds of negative mental health variables such as depression and suicidality. Notably, this is also the case for non-TGNC youth. Parental support and positive peer relationships in early to late adolescence were the two protective factors with the most robust support. Von Donge et al.'s (2019) finding that TGNC youth with strongly supportive parents were more likely to recognize, disclose, and seek treatment related to their TGNC identity at an earlier age may point to a possible mechanism for the relationship between parent connectedness and reduced rates of depression, suicidality,

and self-harm. Finally, in late adolescence and emerging adulthood, concerns related to sexual health (e.g., a history of sex work, HIV viral load) were related to negative mental health variables. TGNC youth may engage in sex work as a mode of survival (i.e., surivival sex) when they are ejected from their homes, which can consequently increase the risk of contracting a sexually transmitted infection. While gender identity and sexual orientation are distinct constructs, TGNC status nonetheless necessitates comprehensive sexual education that directly speaks to what transgender or gender nonconforming sexual experiences might look like.

Despite the unique stressors and discriminations that this population face, the developmental appropriateness of the aforementioned trajectories is striking. Puberty and adolescence can be a period of upheaval, strong relationships with parents and peers are protective, and sexually transmitted infections and survival sex can pose risks to mental health. These findings support the notion that in some regard, TGNC youth can be understood to be experiencing a heightened version of typical adolescent development. Conversely, their relationships with their parents may be uniquely important during their post-pubescent years, which can be characterized by more parent–child distance and autonomy-seeking for cisgender youth. While a distant or tumultuous parent–child bond might be typical for a cisgender youth, this disrupted relationship may have an exponentially more deleterious impact on a transgender or gender nonconforming young person. Guardians can function as gatekeepers who determine whether TGNC children are permitted to use their name, pronouns, and preferred clothing. Parents can also function as protectors and advocates, mobilizing resources for their TGNC youth and insulating them from harm.

## Strengths and Limitations

To the authors' knowledge, this study is the first systematic review of risk and resilience factors for mental health among TGNC youth specifically. Although Valentine and Shipherd (2018) conducted a remarkably comprehensive systematic review of social stress and mental health among TGNC people, their review was restricted to studies conducted in the US, published in the last 20 years, and that included quantitative data analysis. Notably, none of the studies that were ultimately included in the present review synthesis were published prior to 2003, and the vast majority ($n = 38$; 84.44%) were published within the last 5 years. This trend suggests that research and public interest is this field is rapidly proliferating, and that clinical knowledge concerning this population will deepen in the coming years.

While the present review attempted to reduce the "file-drawer" problem by including studies that did *not* find evidence of a significant relationship between potential risk and resilience variables and mental health variables, journals continue to have a significant bias against publishing null findings. Furthermore, unpublished studies were not included, which may have further limited the comprehensiveness of the present review.

While the National Institute of Health (2014) Quality Assessment Tools were implemented to assess the internal validity of the included studies, these tools were not designed to merely generate a score that is then compared. Due to the dearth of quality assessment tools for non-RCT, cross-sectional studies, these instruments were implemented to provide a snapshot of the methodological rigor (or lack thereof) of the included studies, and to highlight the methodological strengths and shortcomings of this body of research.

Due to the dearth of studies that assessed very young children separately, and the high volume of studies that assessed large age ranges, precise critical windows cannot be proposed with confidence. However, the large volume of studies rendered (2.5 times as many as Valentine and Shipherd 2018 for this same age range) provides the most comprehensive picture yet of factors associated with the mental health of TGNC youth.

Finally, the term "gender expansive" has become increasingly popular since this review was conducted. This language is considered more inclusive than "gender nonconforming." Future reviews of this research are encouraged to include "gender expansive" in their search terms.

## Implications for Treatment

Mental health professionals working with TGNC youth are encouraged to take stock of what their role is for their client. Are their sessions a mandatory prerequisite before the client can pursue gender-affirming medical intervention (Budge 2015)? Is the client seeking psychological support specifically? Or is it the parent who is distressed?

Providing psychological treatment to gender minority children and adolescents poses ethical challenges. As articulated by the Minority Stress Model (Meyer 2003) and supported by the findings of this systematic review, this population is exposed to an array of environmental stressors (e.g., discrimination, physical and verbal abuse, stigma, bullying, poor peer relations) that are associated with negative mental health variables that can ultimately become internalized, in the form of low self-esteem and transphobia. Clinicians are encouraged to remember that it is often the *environment* that is disturbed, and the TGNC young person is merely having an appropriate response to chronic stress and mistreatment.

As demonstrated by a large cross-national study, when gender clinic-referred youth (who may be more distressed than TGNC youth not seeking services) were compared to cisgender youth referred for mental health services, the TGNC sample demonstrated comparatively lower rates of

suicidality (Aitken et al. 2016). Consistent with the findings of this review that parent relationships represent one of TGNC youth's greatest potential resilience-promoting factors, Olson et al. (2016) found that a community-based sample of prepubescent children who had socially transitioned (i.e., lived openly as the gender they identified with) and were supported in their identities demonstrated typical rates of depression and slightly elevated rates of anxiety as compared to matched cisgender controls. This study challenges the APA's (2015) stance that "consensus does not exist regarding best practice with prepubertal children" (p. 842). Twenty of the included studies (44.44%) in this review were derived from gender clinic-referred samples, and only 6 (13.64%) included some form of control group. While the emphasis of this review was not the prevalence of mental health concerns among TGNC youth, but rather the risk and resilience factors that protect against or exacerbate them, care providers are nonetheless encouraged to approach the premise that TGNC youth are at significantly greater risk of anxiety, depression, and suicide with evidence-based skepticism.

One of the central premises of Cognitive Behavioral Therapy (CBT) is that the client has adopted cognitive distortions and maladaptive avoidance patterns that must be remedied via cognitive challenges and exposure to the feared situations. However, for TGNC youth, these upsetting thoughts and interfering behaviors (e.g., "Strangers look at me funny," "It's not safe for me to use the bathroom at school") may be solidly grounded in reality. Therefore, the clinician for a TGNC client must find a way to provide the child with coping strategies while also maintaining and advocating for their client's physical and psychological safety. Increasing parent connectedness and support via family based sessions may be an effective starting point. Regrettably, some TGNC youth (like LGBTQ youth more broadly) are expelled from their homes when they disclose their identity to their families, and become homeless. Indeed, disclosure to a guardian may become part of the therapeutic process. In these instances, clinicians are encouraged to share with the parent what a powerful relationship there is between their child's psychological wellbeing and their parent–child connection. Gender transition can also be a daunting experience for caretakers, who may go through their own grieving process. Consequently, guardians of TGNC youth may require their own mental health support.

In a study of over 200 adolescents with Gender Dysphoria, those who received puberty-suppressing hormones concurrently with psychological support (ranging from individual to group and family therapy) demonstrated greater improvements in global psychosocial functioning than those who received psychological support alone (Costa et al. 2015). For families who are reticent to begin masculinizing or feminizing hormone therapy, puberty suppressors can both "buy" the family time to make a decision regarding medical intervention and provide psychological relief for the TGNC youth.

This systematic review also found that a desire to lose weight and weight dissatisfaction were associated with suicidal ideations and attempts. Given that the weight dissatisfaction may be linked to dissatisfaction with sexual characteristics (e.g., hips, breasts), rather than broaching this issue as a standard eating disorder or Body Dysmorphic Disorder, clinicians are encouraged to investigate whether the weight issue is linked to the incongruence between the child's gender identity and their physical appearance. If so, medical intervention (e.g., puberty suppression, hormone replacement therapy, etc.) may be a more effective treatment approach.

There has been some evidence to suggest that youth with Autism Spectrum Disorder (ASD) are more likely to identify as TGNC. In a retrospective chart review study, children and adolescents with ASD were over seven times as likely to endorse gender variance (i.e., variability between assigned sex and experienced/expressed gender) as non-ASD matched controls (Janssen et al. 2016). Clinicians working with ASD youth are encouraged to assess gender identity, and consider the unique risks (particularly in the domain of bullying) that these youth may face due to their intersecting identities as autistic and as a gender minority.

Mental health professionals are urged to approach treatment in an interdisciplinary manner, coordinating with any medical doctors, endocrinologists, school counselors, and other care providers in the child's life. The clinician may need to concurrently function as an advocate if other care providers are not informed about the unique needs of TGNC youth.

Finally, clinicians are encouraged to remember that TGNC youth are human beings. While these children and adolescents are exposed to a number of environmental challenges, not all of their mental health concerns may be directly related to their gender identity. For example, if a transgender boy presents to treatment wishing to conquer his fear of spiders, the recommendations outlined herein may be less relevant and a standard course of CBT with an emphasis on exposure may be clinically indicated. It is important to remember that the gender identity *itself* is not the treatment target, nor is it the central defining characteristic of a person.

## Implications for Assessment

Several evidence-based child and adolescent assessments, ranging from IQ testing to clinical self-report questionnaires, are normed on groups of boys and girls, and scored accordingly. This poses challenges for the assessment of TGNC youth. Some studies opt to score the assessment based on the child's assigned sex at birth. In a review of the role of

hormones on the transgender brain, Nguyen et al. (2019) found that the majority of included studies indicated that the brains of transgender people are more similar to their identified gender in terms of cerebral matter volume, gray matter volume, and performance on verbal and spatial tasks; they further found that gender-affirming hormone therapy can enhance this neurological similarity to a transgender person's identified gender. Even if clinicians take an affirming stance and score and interpret assessments based on the child's identified gender, this does not elucidate a solution for gender nonconforming youth who do not identify as a boy or as a girl.

As demonstrated by Edwards-Leeper et al. (2017), parent and TGNC youth reports can diverge and even conflict with one another. While adolescents seeking endocrinology services reported increasing psychological distress with age, their parents were reporting a decrease in their child's psychopathology. While divergent child and parent reporting are not unique to TGNC research (De Los Reyes and Kazdin 2005), future investigations are encouraged to implement a variety of assessment tools from multiple reporters, and to prioritize youth reports when possible. TGNC youth's perceptions may be more consequential to their mental health than that of their parents, particularly if they do not perceive their parent as supportive and/or are not being forthcoming about their psychological health.

Regrettably, none of the studies included in this systematic review employed the ICD-11 Gender Incongruence diagnosis rather than the DSM-based diagnoses (Gender Dysphoria and Gender Identity Disorder); therefore, assessment methods in this domain cannot be compared. In a detailed case study, Budge (2015) documented how to discuss the Gender Dysphoria diagnosis with a transgender adolescent client in the context of letter writing. This sort of language is recommended to ensure that clients do not believe their clinician is pathologizing their gender identity,

> "I thought it would be important to bring this up, because I want you to know that I do not believe that being trans means you have a mental disorder. Instead, in the letter, I will indicate that you meet criteria for the diagnosis, since you have given me information that fits enough of the criteria to provide this diagnosis. How do you feel about working with me after I have given you this diagnosis as part of the letter?" (p. 289, Budge 2015).

## Conclusion

The experiences of transgender and gender nonconforming youth are, in many respects, akin to typical adolescent development. They are wrestling with issues of identity formation, peer relationships, parental conflict, substances, body confidence, and sexual activity. They must also endure a number of distinct challenges, including exposure to abuse, violence, stigma, difficulties accessing affirmative medical care, and legal discriminations. Some gender minority youth must perform the calculus each morning about whether they can muster the courage to attend a school where people may call them by a name they do not recognize, harass them for attempting to use a bathroom, bar them from participating on the sports teams that feel like the right fit for them, and possibly verbally or physically assault them. But this does not have to be, and is not, the experience of every gender minority young person. As demonstrated by the findings of this review, when TGNC youth are permitted to be themselves and find acceptance (both in life, and in treatment), they have the ability to thrive.

## Future Directions

A high volume of studies was excluded from this review because they included LGBTQ+ samples and did not analyze TGNC participants separately, included 25-year-olds, and/or assessed a mental health variable and a potential risk or resilience variable but did not statistically test whether they were associated. Thus, there are likely rich, preexisting data relevant to study of TGNC mental health that has yet to be isolated, analyzed, and reported. Researchers are encouraged to make use of these datasets, and form cooperatives with other research teams to increase the statistical power of their analyses.

As demonstrated by Steensma et al. (2014), mental health problems for TGNC youth may be variable by country of origin, and as demonstrated by Eisenberg et al. (2019), suicidality can vary by location (e.g., city vs. suburb). The more that diverse samples can be integrated and compared, the better able clinical researchers will be to disentangle specific environmental stressors from universal psychological processes. In order to study healthy psychological development among TGNC youth, it is recommended that future studies make an effort to include non-treatment-seeking youth as well as treatment-seeking youth, and to include cisgender treatment-seeking and non-treatment-seeking control groups as a means of comparison.

Historically, clinical psychological research has treated mental illness as residing within the individual. While external

stressors and life events are taken into account, ultimately the onus falls on the client to change their behaviors, thoughts, and emotions. Mental health professionals working with transgender and gender nonconforming youth are encouraged to view the environment as disordered, and the client as experiencing a valid human reaction to chronic stress and adversity. In order to abolish this "objective evil" (Meyer 2003), clinicians must begin with themselves and strive to provide culturally oriented, evidence-based, affirmative, and ethical mental health care to gender minority youth.

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## Compliance with Ethical standards

**Conflict of interest** Dr. Thomas Ollendick served as a preliminary examination committee member for Amelia P. Tankersley, M.S.

**Ethical approval** This research did not involve human subjects, therefore it did not require approval from the Virginia Tech Institutional Review Board.

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