

# Mental Health Outcomes Among Transgender Veterans and Active-Duty Service Members in the United States: A Systematic Review

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**Background:** It has been shown that veterans and active-duty service members may experience worse mental health outcomes compared with civilians and nonveterans. In addition, transgender veterans and service members face unique challenges. We conducted a systematic review of articles presenting data on mental health outcomes in transgender veterans and active-duty service members. Outcomes examined in this review include symptoms of depression, anxiety, and posttraumatic stress disorder, suicidality, substance use, and military sexual trauma.

**Observations:** In the military, transgender individuals face stigma and discrimination. Transgender veterans and service members have worse mental health outcomes and higher odds of suicidality

compared with their cisgender counterparts. Drug and alcohol use disorders are more prevalent among transgender veterans compared with cisgender veterans. Transgender veterans are also more likely to report military sexual trauma than cisgender veterans.

**Conclusions:** In the literature, evidence exists that transgender veterans and service members experience worse mental health outcomes than their cisgender counterparts. Additional research is required to measure the effect of gender-affirming care on health outcomes among transgender veterans and active-duty service members to better serve this population and provide optimal care.

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According to the United States Transgender Survey, 39% of respondents reported experiencing serious psychological distress (based on the Kessler 6 Psychological Distress Scale) in the past 30 days compared with 5% in the general population.<sup>1</sup> Additionally, 40% of respondents attempted suicide in their lifetime, compared with 5% in the general population.<sup>1</sup> Almost half of respondents reported being sexually assaulted at some time in their life, and 10% reported being sexually assaulted in the past year.<sup>1</sup>

Studies have also shown that veterans and active-duty service members experience worse mental health outcomes and are at increased risk for suicide than civilians and nonveterans.<sup>2-5</sup> About 1 in 4 active-duty service members meet the criteria for diagnosis of a mental illness.<sup>4</sup> Service members were found to have higher rates of probable anxiety and posttraumatic stress disorder (PTSD) compared with the general population.<sup>2,6</sup> In 2018, veteran suicide deaths accounted for about 13% of all deaths by suicide in the US even though veterans only accounted for about 7% of the adult population in that year.<sup>5,7</sup> Also in 2018, about 17 veterans committed suicide per day.<sup>5</sup> According to the Health Related Behaviors Survey of active-duty service members, about 18% reported thinking about attempting suicide some time in their lives compared with 4% of the gen-

eral population.<sup>2,3</sup> Additionally, 5% of service members reported previous suicide attempts compared with 0.5% in the general population.<sup>2,3</sup> It is clear that transgender individuals, veterans, and service members have certain mental health outcomes that are worse than that of the general population.<sup>1-7</sup>

Transgender individuals along with LGB (lesbian, gay, bisexual) individuals have long faced discrimination and unfair treatment in the military.<sup>8-11</sup> In the 1920s, the first written policies were established that banned gay men from serving in the military.<sup>9</sup> The US Department of Defense (DoD) continued these policies until in 1993, the "Don't Ask Don't Tell" policy was established, which had the façade of being more inclusive for LGB individuals but forced LGB service members to hide their sexual identity and continued the anti-LGBTQ messages that previous policies had created.<sup>8,10,11</sup> In 2010, "Don't Ask Don't Tell" was repealed, which allowed LGB individuals to serve in the military without concealing their sexual orientation and without fear of discharge based on their sexual identity.<sup>11</sup> This repeal did not allow transgender individuals to serve their country as the DoD categorized transgender identity as a medical and mental health disorder.<sup>8,11</sup>

In 2016, the ban on transgender individuals serving in the military was lifted, and service members could no longer be

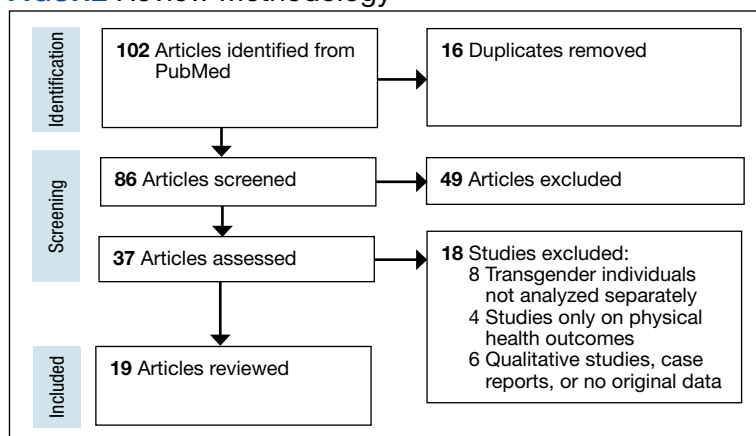
discharged or turned away from joining the military based on gender identity.<sup>8,12</sup> However, in 2018, this order was reversed. The new policy stated that new service members must meet requirements and standards of their sex assigned at birth, and individuals with a history of gender dysphoria or those who have received gender-affirming medical or surgical treatment were prohibited to serve in the military.<sup>8,13</sup> This policy did not apply to service members who joined before it took effect. Finally, in April 2021, the current policy took effect, permitting transgender individuals to openly serve in the military. The current policy states that service members cannot be discharged or denied reenlistment based on their gender identity and provides support to receive gender-affirming medical care.<sup>14</sup> Although transgender individuals are now accepted in military service, there is still much progress needed to promote equity among transgender service members.

In 2015, according to the Health Related Behaviors Survey of active-duty service members, 0.6% of service members identified as transgender, the same percentage as US adults who identify as transgender.<sup>2,15</sup> Previous research has shown that the prevalence of gender identity disorder among veterans is higher than that among the general US population.<sup>16</sup> Many studies have shown that worse mental health outcomes exist among LGBTQ veterans and service members compared with heterosexual, cisgender veterans and service members.<sup>17-24</sup> However, fewer studies have focused solely on mental health outcomes among transgender veterans and active-duty service members, and there exists no current literature review on this topic. In this article, we present data from the existing literature on mental health outcomes in transgender veterans and active-duty service members. We hypothesize, based on the current literature, that transgender veterans and service members have worse mental health outcomes than their cisgender counterparts. Key terms used in this paper are defined in the Key Definitions.<sup>25-27</sup>

## METHODS

We conducted a systematic review of articles presenting data on mental health outcomes in transgender veterans and active-duty service

**FIGURE** Review Methodology



members. The National Library of Medicine PubMed database was searched using the following search terms in various combinations: *mental health outcomes, transgender, veterans, military, active duty, substance use, and sexual trauma*. The literature search was performed in August 2021 and included articles published through July 31, 2021. Methodology, size, demographics, measures, and main findings were extracted from each article. All studies were eligible for inclusion regardless of sample size. Studies that examined the LGBTQ population without separating transgender individuals were excluded. Studies that examined mental health outcomes including, but not limited to, PTSD, depression, suicidality, anxiety, and substance use disorders (SUDs) in addition to sexual trauma were included. Studies that only examined physical health outcomes were excluded. Qualitative studies, case reports, and papers that did not present original data were excluded (Figure).

## RESULTS

Our search resulted in 86 publications. After excluding 65 articles that did not meet the inclusion criteria, 19 studies were included in this review. The Appendix shows the summary of findings from each study, including the study size and results. All studies were conducted in the United States. Most papers used a cross-sectional study design. Most of the studies focused on transgender veterans, but some included data on transgender active-duty service members.

We separated the findings into the following categories based on the variables measured: mental health, including depression,

## Key Definitions

- **Transgender:** a term used to describe individuals whose gender identity, role, and/or expression differs from the cultural expectations associated with their sex assigned at birth.<sup>25</sup>
- **Cisgender:** a term used to describe individuals whose gender identity matches their sex assigned at birth.
- **Gender dysphoria:** defined in the DSM-5 as “a marked incongruence between one’s experienced/expressed gender and assigned gender, of at least 6 months duration” and must be “associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning.”<sup>26</sup>
- **Gender-affirming care:** health care provided to individuals to affirm their gender identity. Gender-affirming care can include medical interventions such as gender-affirming hormone therapy or surgical interventions such as feminizing or masculinizing procedures or usage of correct name and pronouns.<sup>27</sup>

anxiety, PTSD, and serious mental illness; suicidality and self-harm; substance use; and military sexual trauma (MST). Many studies overlapped multiple categories.

## Mental Health

Most of the studies included reported that transgender veterans have statistically significant worse mental health outcomes compared with cisgender veterans.<sup>28-30</sup> In addition, transgender active-duty service members were found to have worse mental health outcomes than cisgender active-duty service members.<sup>31</sup> MST and discrimination were associated with worse mental health outcomes among transgender veterans.<sup>32,33</sup> One study showed a different result than others and found that transgender older adults with prior military service had higher psychological health-related quality of life and lower depressive symptoms than those without prior military service ( $P = .02$  and  $.04$ , respectively).<sup>34</sup> Another study compared transgender veterans with active-duty service members and found that transgender veterans reported higher rates of depression (64.6% vs 30.9%;  $\chi^2 = 11.68$ ;  $P = .001$ ) and anxiety (41.3% vs 18.2%;  $\chi^2 = 6.54$ ;  $P = .01$ ) compared with transgender service members.<sup>35</sup>

## Suicidality and Self-harm

Eleven of the 19 studies included measured suicidality and/or self-harm as an outcome. Transgender veterans and active-duty service members were found to have higher odds of suicidality than their cisgender counterparts.<sup>16,28,29,31</sup> In addition, transgender veterans may die by suicide at a younger age than cisgender veterans.<sup>36</sup> Stigma and gender-related discrimination were found to be associated with suicidal ideation.<sup>33,37-39</sup> Transgender vet-

erans were less likely than transgender nonveterans to report nonsuicidal self-injury (NSSI).<sup>40</sup>

## Substance Use

Two studies focused on substance use, while 5 other studies included substance use in their measures. One of these 2 studies that focused only on substance use outcomes found that transgender veterans were more likely than cisgender veterans to have any SUD (7.2% vs 3.9%;  $P < .001$ ), in addition to specifically cannabis (3.4% vs 1.5%;  $P < .001$ ), amphetamine (1.1% vs 0.3%;  $P < .001$ ), and cocaine use disorders (1.5% vs 1.1%;  $P < .001$ ).<sup>41</sup>

Another study reported that transgender veterans had lower odds of self-reported alcohol use but had greater odds of having alcohol-related diagnoses compared with cisgender veterans.<sup>42</sup> Of the other studies, it was found that a higher percentage of transgender veterans were diagnosed with an SUD compared with transgender active-duty service members, and transgender veterans were more likely than cisgender veterans to be diagnosed with alcohol use disorder.<sup>29,31</sup> Additionally, rural transgender veterans had increased odds of tobacco use disorder compared with transgender veterans who lived in urban areas.<sup>43</sup>

## Military Sexual Trauma

Five of the studies included examined MST, defined as sexual assault or sexual harassment that is experienced during military service.<sup>44</sup> Studies found that 15% to 17% of transgender veterans experienced MST.<sup>32,45</sup> Transgender veterans were more likely to report MST than cisgender veterans.<sup>28,29</sup> MST was found to be consistently associated with depression and PTSD.<sup>32,45</sup> A high percentage (83.9%) of transgender active-duty service members reported experiencing sexual harassment and almost one-third experienced sexual assault.<sup>46</sup>

## DISCUSSION

Outcomes examined in this review included MST, substance use, suicidality, and symptoms of depression, anxiety, and PTSD among transgender active-duty service members and veterans. To our knowledge, no other review on this topic exists. There is a review of the health and well-being of LGBTQ veterans and service members, but a majority of the included studies did not separate transgender individuals

from LGB persons.<sup>17</sup> This review of transgender individuals showed similar results to the review of LGBTQ individuals.<sup>17</sup> This review also presented similar results to previous studies that indicated that transgender individuals in the general population have worse mental health outcomes compared with their cisgender counterparts, in addition to studies that showed that veterans and active-duty service members have worse mental health outcomes compared with civilians and nonveterans.<sup>1-5</sup> The population of focus in this review faced a unique set of challenges, being that they belonged to both of these subsets of the population, both of which experienced worse mental health outcomes, according to the literature.

Studies included in our review found that transgender veterans and service members have worse mental health outcomes than cisgender veterans and service members.<sup>28-31</sup> This outcome was predicted based on previous data collection among transgender individuals, veterans, and active-duty service members. One of the studies included found different results and concluded that prior military service was a protective factor against poorer mental health outcomes.<sup>34</sup> This could be, in part, due to veterans' access to care through the US Department of Veterans Affairs (VA) system. It has been found that transgender veterans use VA services at higher rates than the general population of veterans and that barriers to care were found more for medical treatment than for mental health treatment.<sup>47</sup> One study found that almost 70% of transgender veterans who used VA services were satisfied with their mental health care.<sup>48</sup> In contrast, another study included in our review found that transgender veterans had worse mental health outcomes than transgender service members, possibly showing that even with access to care, the burden of stigma and discrimination worsens mental health over time.<sup>31</sup> Although it has been shown that transgender veterans may feel comfortable disclosing their gender identity to their health care professional, many barriers to care have been identified, such as insensitivity and lack of knowledge about transgender care among clinicians.<sup>49-51</sup> With this information, it would be useful to ensure proper training for health care professionals on providing gender-affirming care.

Most of the studies also found that trans-

gender veterans and service members had greater odds of suicidal thoughts and events than cisgender veterans and service members.<sup>16,28,29,35</sup> On the contrary, transgender veterans were less likely than transgender nonveterans to report NSSI, which could be for various reasons.<sup>40</sup> Transgender veterans may report less NSSI but experience it at similar rates, or veteran status may be a protective factor for NSSI.

Very few studies included SUDs in their measurements, but it was found that transgender veterans were more likely than cisgender veterans to have any drug and alcohol use disorder.<sup>29,41</sup> In addition, transgender veterans were more likely than transgender service members to be diagnosed with an SUD, again showing that over time and after time of service, mental health may worsen due to the burden of stigma and discrimination.<sup>31</sup> Studies that examined MST found that transgender veterans were more likely than cisgender veterans to report MST, which replicates previous data that found high rates of sexual assault experienced among transgender individuals.<sup>1,28,29</sup>

There is a lack of literature surrounding transgender veterans and active-duty service members, especially with regard to gender-affirming care provided to these populations. To the best of our knowledge, there exists only one original study that examines the effect of gender-affirming hormone therapy and surgery on mental health outcomes among transgender veterans.<sup>52</sup> Further research in this area is needed, specifically longitudinal studies examining the effects of gender-affirming medical care on various outcomes, including mental health. Few longitudinal studies exist that examine the mental health effects of gender-affirming hormone therapy on transgender individuals in the general population.<sup>53-60</sup> Most of these studies have shown a significant improvement in parameters of depression and anxiety following hormonal treatment, although long-term large follow-up studies to understand whether these improvements persist over time are missing also in the general population. However, as previously described, transgender veterans and service members are a unique subset of the transgender population and require separate data collection. Hence, further research is required to provide optimal care

for this population. In addition, early screening for symptoms of mental illness, substance use, and MST is important to providing optimal care.

### Limitations

This review was limited due to the lack of data collected from transgender veterans and service members. The studies included did not allow for standardized comparisons and did not use identical measures. Some papers compared transgender veterans with transgender nonveterans, some transgender veterans and/or service members with cisgender veterans and/or service members, and some transgender veterans with transgender service members. There were some consistent results found across the studies, but some studies showed contradictory results or no significant differences within a certain category. It is difficult to compare such different study designs and various participant populations. Additional research is required to verify and replicate these results.

### CONCLUSIONS

Although this review was limited due to the lack of consistent study designs in the literature examining the mental health of transgender veterans and active-duty service members, overall results showed that transgender veterans and service members experience worse mental health outcomes than their cisgender counterparts. With this knowledge and exploring the history of discrimination that this population has faced, improved systems must be put into place to better serve this population and improve health outcomes. Additional research is required to examine the effects of gender-affirming care on mental health among transgender veterans and service members.

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### Disclaimer

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### Appendix Summary of Findings From Included Studies

Authors, y	Method	Participants	Measures	Main findings
Blossnich et al, 2013 <sup>16</sup>	Retrospective chart review	3177 veterans with gender identity disorder	Suicide-related events	Individuals with gender identity disorder had > 20 × higher rate of suicide-related events vs all veterans
Brown et al, 2015 <sup>28</sup>	Case-control	138 transgender and 188 cisgender justice-involved veterans	Depression, PTSD, serious mental illness, suicidal ideation and attempts, MST	Transgender veterans more likely to be justice involved vs cisgender veterans Justice-involved transgender veterans more likely vs justice-involved cisgender veterans to have reported MST, depression, PTSD, serious mental illness, and suicidal ideation and attempts
Brown et al, 2016 <sup>29</sup>	Case-control	5135 transgender veterans; 15,405 cisgender veterans	10 mental health conditions	Transgender veterans more likely vs cisgender veterans to be diagnosed with psychiatric disorders Transgender veterans more likely vs cisgender veterans to have reported MST
Downing et al, 2018 <sup>30</sup>	Cross-sectional	320 transgender veterans; 1898 transgender civilians; 66,677 cisgender veterans; 448,644 cisgender civilians	Depression, mental distress, heavy episodic drinker	Transgender veterans had a greater unadjusted prevalence of depression and mental distress vs cisgender veterans Transgender civilians had a greater prevalence of depression and mental distress vs cisgender civilians Transgender civilians had higher adjusted odds of having depression and frequent mental distress vs cisgender civilians
Holloway et al, 2021 <sup>31</sup>	Cross-sectional	544 transgender and cisgender AD/SM 55 transgender active-duty service members; 51 transgender veterans	Depression, anxiety, PTSD, suicidality, alcohol use, cigarette smoking	Transgender AD/SM had higher odds of depression, anxiety, PTSD, and suicidality than cisgender AD/SM
Beckman et al, 2018 <sup>32</sup>	Cross-sectional	221 transgender veterans	MST, sexual assault and victimization, stigma-related factors	17.2% of transgender veterans experienced MST (15.2% of transgender women and 30% of transgender men) MST associated with distal minority stress during military service and adult sexual assault prior to military service <sup>a</sup> MST associated with current depression symptom severity, drug use within last year, and PTSD symptom severity within the last year
Blossnich et al, 2016 <sup>33</sup>	Cross-sectional	1640 transgender veterans	Mood disorders, PTSD, suicidal ideation or attempt, SUDs, state transgender identity hate crimes and employment nondiscrimination laws	Living in a state with transgender protections in employment nondiscrimination laws associated with 43% decreased odds of self-directed violence and 26% decreased odds of mood disorders Living in a state with transgender identity in hate crimes laws had no significant associations with diagnoses measured

Authors, y	Method	Participants	Measures	Main findings
Hoy-Ellis et al, 2017 <sup>34</sup>	Cross-sectional	183 transgender older adults	Psychological health-related quality of life, depressive symptomatology, identity stigma, prior military service	Transgender older adult veterans had significantly higher psychological health-related quality of life and lower depressive symptomatology Identity stigma significantly associated with greater depressive symptoms but prior military service significantly reduced this effect
Hill et al, 2016 <sup>35</sup>	Cross-sectional	55 transgender active-duty service members; 51 transgender veterans	Depression, anxiety, PTSD, substance abuse, psychological adjustment issues	64.5% of transgender veterans reported depression vs 30.9% of transgender ADSM 41.3% of transgender veterans reported anxiety vs 18.2% of transgender ADSM 15.9% of transgender veterans had SUD vs 1.8% of transgender ADSM
Blosnich et al, 2014 <sup>36</sup>	Retrospective chart review	1277 transgender veterans	Mortality	Crude suicide rate for transgender veterans was 82/100,000 person-years in a 10-year period Died by suicide mean age: 49.4 years
Carter et al, 2019 <sup>37</sup>	Cross-sectional	298 transgender veterans	Associations between discrimination, social support and connection, and suicidal ideation	Gender-related discrimination within the last year was positively associated with suicidal ideation With high and average levels of social support and connection, gender-related discrimination was associated with higher suicidal ideation With low levels of social support and connection, suicidal ideation was higher regardless of gender-related discrimination
Lehavot et al, 2016 <sup>38</sup>	Cross-sectional	212 transgender veterans	Past-year suicidal ideation, lifetime suicide plans and attempts	57% reported past-year suicidal ideation 66% reported history of suicide plan or attempt Current PTSD and depressive symptoms along with stigma related to being transgender experienced during military service associated with suicide outcomes
Tucker et al, 2018 <sup>39</sup>	Cross-sectional	201 transgender veterans	External and internal minority stress, <sup>a</sup> symptoms of depression, suicidal ideation	External minority stress in last year indirectly predicted increased suicidal ideation and increased internal minority in last year External minority stress in last year indirectly predicted increased frequency of suicidal ideation in last 2 weeks through increased internal minority stress in last year Military external minority stress in the last year indirectly predicted increased suicidal ideation in the last year through desire to hide gender identity, fear and anxiety related to gender identity during military service <sup>a</sup>
Abousouan et al, 2019 <sup>40</sup>	Cross-sectional	313 transgender veterans; 3972 transgender nonveterans	NSSI, suicidal ideation, suicide attempt, lifetime hospitalization, avoidance of care due to NSSI	Transgender veterans less likely to report a history of NSSI vs transgender nonveterans Transgender veterans more likely to report NSSI hospitalization Transgender veterans less likely to report avoiding medical care due to NSSI Veteran status may be protective against demographic differences that increase NSSI rates
Frost et al, 2021 <sup>41</sup>	Retrospective chart review	8619 transgender veterans	SUDs	Transgender veterans were more likely to have any SUD; cannabis, cocaine, and amphetamine use disorders vs cisgender veterans
Williams et al, 2021 <sup>42</sup>	Retrospective chart review	8619 transgender veterans	Alcohol use	52.8% of transgender veterans had any alcohol use, 6.6% had unhealthy alcohol use, 2.8% had high-risk use, 10.4% had heavy episodic drinking, 8.6% were diagnosed with alcohol use disorder, and 1.3% had alcohol-specific conditions Transgender veterans had lower odds of self-reported alcohol use but greater odds of alcohol-related diagnoses vs cisgender veterans
Bukowski et al, 2017 <sup>43</sup>	Retrospective chart review	5072 transgender veterans	PTSD, SUD, suicidal ideation or attempt	Rural transgender veterans who lived in small or isolated rural towns had increased odds of PTSD and tobacco use disorder compared with transgender veterans who lived in urban areas
Lindsay et al, 2016 <sup>45</sup>	Retrospective chart review	332 transgender veterans	MST, PTSD, mental health disorders	15% of transgender veterans experienced MST Transgender men: MST trauma associated with personality disorder and PTSD Transgender women: MST associated with PTSD, personality, depressive, and bipolar disorder diagnoses
Schuyler et al, 2020 <sup>46</sup>	Cross-sectional	56 transgender ADSM; 227 LGB ADSM; 276 non-LGBT ADSM	Sexual harassment, stalking, sexual assault	83.9% of transgender ADSM experienced sexual harassment, 30.4% experienced stalking, and 30.4% experienced sexual assault

Abbreviations: ADSM, active-duty service members; LGB, lesbian, gay, bisexual; LGBT, lesbian, gay, bisexual, transgender; MST, military sexual trauma; NSSI, nonsuicidal self-injury; PTSD, posttraumatic stress disorder; SUD, substance use disorder.

<sup>a</sup>External minority stress, transgender-specific discrimination and rejection; internal minority stress, shame related to gender identity; military external minority stress, punishment and/or investigation related to one's gender identity.