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RESEARCH ARTICLE

Suicide Attempts Among a Cohort of Transgender and Gender Diverse People

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Introduction: Transgender and gender diverse people often face discrimination and may experience disproportionate emotional distress that leads to suicide attempts. Therefore, it is essential to estimate the frequency and potential determinants of suicide attempts among transgender and gender diverse individuals.

Methods: Longitudinal data on 6,327 transgender and gender diverse individuals enrolled in 3 integrated healthcare systems were analyzed to assess suicide attempt rates. Incidence was compared between transmasculine and transfeminine people by age and race/ethnicity and according to mental health status at baseline. Cox proportional hazards models examined rates and predictors of suicide attempts during follow-up. Data were collected in 2016, and analyses were conducted in 2019.

Results: During follow-up, 4.8% of transmasculine and 3.0% of transfeminine patients had at least 1 suicide attempt. Suicide attempt rates were more than 7 times higher among patients aged <18 years than among those aged >45 years, more than 3 times higher among patients with previous history of suicide ideation or suicide attempts than among those with no such history, and 2−5 times higher among those with 1−2 mental health diagnoses and more than 2 mental health diagnoses at baseline than among those with none.

Conclusions: Among transgender and gender diverse individuals, younger people, people with previous suicidal ideation or attempts, and people with multiple mental health diagnoses are at a higher risk for suicide attempts. Future research should examine the impact of gender-affirming healthcare use on the risk of suicide attempts and identify targets for suicide prevention interventions among transgender and gender diverse people in clinical settings.

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INTRODUCTION

The term transgender and gender diverse (TGD) describes individuals who have gender identities, gender expressions, or behavior not traditionally associated with their sex assigned at birth.[1] Although TGD individuals self identify as men or women, a substantial proportion rejects binary gender categories.[2] To reflect the wide spectrum of gender identities, the terms transfeminine (TF) and transmasculine (TM) refer to an individual whose gender identity differs in any way from their male or female sex assigned at birth, respectively. Between 0.5% and 1% of adults in the U.S. identify as TGD,[3,4] and the proportion of TGD individuals in the U.S. has been increasing.[3,5] TGD people represent a sizable and growing population whose physical and mental health require more attention.

People who identify as TGD are more likely to experience depression and other mental health concerns than others.[6–8] In an online survey of the TGD population in the U.S., 44% of respondents were found to be clinically depressed.[6] Similarly, in a cohort study of more than 500 TGD individuals, nearly two thirds of TM and more than half of TF individuals were depressed.[9] The lifetime prevalence of suicide attempts is estimated to be between 32% and 41% for both TM and TF populations,[10–13] which is much higher than the average prevalence of 1.9%–8.7% in the U.S. population.[14]

Furthermore, previous research has found that TGD people who are younger, unemployed, have lower income, or have experienced sexual coercion or gender-based violence are at a higher risk for suicide attempts.[11,15,16] Though much of the previous literature on suicide attempts among TGD people is limited to qualitative studies, cross-sectional analyses, or studies that are based on small convenience samples,[11,17,18] a previous study of Veterans Health Administration records indicated that the prevalence of suicide-related behaviors was up to 20 times higher among transgender veterans than among cisgender veterans.[10] In addition, social stressors (housing instability, financial strain, and experiences of violence) were associated with a higher prevalence of suicidal ideation or a history of suicide attempts among transgender veterans.[19] Yet, studies utilizing health records for assessing incidence rather than prevalence of suicide attempts in the transgender population have not been conducted.

To address these knowledge gaps, suicide attempts were examined in a large longitudinal cohort of TGD people (n=6,287) enrolled in 3 large integrated health systems in the U.S., the largest longitudinal study of clinical experiences of TGD people conducted to date.[20] The purpose of this study is to evaluate the overall incidence of suicide attempts among TGD people and compare rates of these events across demographic groups and by mental health diagnoses at baseline.

METHODS

Study Sample

The data for this analysis originated from the Study of Transition Outcomes and Gender. This cohort was assembled from electronic medical records (EMRs) of individuals enrolled in 3 Kaiser Permanente Health Plan regions: Northern California, Southern California, and Georgia. The details of cohort ascertainment methodology are provided elsewhere.[20] Briefly, TGD individuals were identified from the 3 participating sites between 2006 and 2014 on the basis of relevant ICD-9 codes or the presence of specific keywords within the free-text sections of medical records, with follow-up extending through 2016. Each cohort member was assigned an index date—the first instance evidence of TGD status appeared on the EMR. Another free-text search was conducted to ascertain each person's TF or TM status. Once the cohort was validated,[20] patient identification numbers were linked to multiple data sources, including ICD-9 and ICD-10 diagnostic codes and healthcare utilization records. IRBs at the 3 Kaiser Permanente sites and Emory University, which served as the coordinating center, approved the study.

Measures

The main outcome variable in this analysis was EMR-based evidence of suicide attempt upon presentation to an emergency department. The event of interest was defined by ICD-9 or ICD-10 codes, which included self-inflicted injury, possibly self-inflicted injury, and self-inflicted injury/poisoning (Table 1), an approach to capturing suicide attempts that has been validated previously.[21,22]

The demographic variables of interest included age, TM or TF status, and race/ethnicity. With respect to age, patients were categorized as aged 3–17, 18–25, 26–35, 36–45, and >45 years. Because there were only 2 events of interest among individuals aged >65 years, further subcategorization of the oldest age group was not possible. Race/ethnicity was categorized as Hispanic; black, non-Hispanic; white, non-Hispanic; and other/unknown. A count of mental health diagnoses by category at baseline (i.e., on or before the index date) was calculated for each individual. The categories of mental health diagnoses included anxiety disorders, attention-deficit hyperactivity disorders, autism spectrum disorders, bipolar disorders, depressive disorders, schizophrenia spectrum disorders, substance use/abuse, and other disorders including conduct/disruptive disorders, eating disorders, dementia, other psychoses, and personality disorders. For each individual, the total number of mental health diagnoses by category was categorized as 0, 1–2, or more than 2. In addition, suicidal ideation (V62.84) and suicide attempts (E950–E958, E980–E988) before index date were ascertained and expressed as a binary (ever, never) variable. Mental health diagnoses at baseline were determined on the basis of ICD-9 codes only because cohort ascertainment was completed before 2015, that is, before ICD-10 codes were introduced at the participating sites in 2015. New events during follow-up were ascertained using both ICD-9 and ICD-10 codes through the end of 2016 (Table 1). ICD-9 codes for

Table 1. ICD 9th and 10th Edition Codes for Self-Inflicted Injury and Possibly Self-Inflicted Injury

Description	ICD-9 codes[a]	ICD-10 codes[b]
Self-inflicted injuries		
Self-inflicted poisoning by solid or liquid substances	E950.	T36.[a] X2A, T40.[a]X2A
Self-inflicted poisoning by gases and vapors	E951., E952.	T58.[a] X2A, T59.[a] X2A
Self-inflicted injury by hanging, strangulation, or suffocation	E953.	T71.1[a]2A
Self-inflicted injury by submersion or drowning	E954.	X71.[a]XXA
Self-inflicted injury by guns or explosives	E955.	X72.XXXA, X73.[a]XXA
Self-inflicted injury by cutting or piercing	E956.	X78.[a]XXA
Self-inflicted injury by jumping	E957.	X80.XXXA
Self-inflicted injury by other and unspecified means	E958.	X82.[a]XXA, X83.8XXA
Possibly self-inflicted injuries		
Possibly self-inflicted injury by solid or liquid poisoning	E980.	T36.[a]X4A, T40.[a]X4A
Possibly self-inflicted injury by gases and vapors	E981., E982.	T58.[a] X4A, T59.[a]X4A
Possibly self-inflicted injury by hanging, strangulation, or suffocation	E983.	T71.1[a] 4A
Possibly self-inflicted injury by submersion or drowning	E984.	Y21.9XXA
Possibly self-inflicted injury by guns or explosives	E985.	Y22.XXXA, Y23.[a]XXA
Possibly self-inflicted injury by cutting or piercing	E986.	Y28.[a]XXA
Possibly self-inflicted injury by jumping	E987.	Y30.XXA
Possibly self-inflicted injury by other and unspecified means	E988.	Y33.XXXA

[a]Represents any digit.
[b]Example codes for ICD-10 provided, complete list can be accessed from the Mental Health Research Network GitHub site (https://github.com/MHResearchNetwork/Diagnosis-Codes).

late effects of self-inflicted injury (E959 and E989) and ICD-10 codes reflecting a follow-up encounter for the initial event (marked by letter D as in T36.0 × 2D) were excluded.

The main parameter of interest was the rate of suicide attempts. Time under observation was based on health plan enrollment records; it started on the index date and ended at the time of disenrollment, death, or end of the study (December 31, 2016), whichever occurred first. Gaps in enrollment <90 days were likely due to delay in insurance renewal and did not actually result in interruption of healthcare services. Therefore, only gaps in coverage >90 days were considered as evidence of interrupted coverage, similar to previous studies.[23] All patients who had at least 1 day of enrollment were included.

Statistical Analysis

The analysis involved 2 approaches. A Cox proportional hazards model was used to examine time to first event, where the event of interest was the first suicide attempt after the index date. Baseline covariates were measured at the index date, and follow-up was extended until the first diagnosis of self-harm, disenrollment, death, or the end of the study. Proportional hazard assumptions were violated for race/ethnicity and study site; therefore, all models were stratified on these 2 variables.

An extended Cox model that incorporated the counting process approach was used to account for recurrent suicide attempts.[24] As the correlation of events for each cohort member is captured by specification of time-varying covariates, each study participant can contribute multiple follow-up periods with variable entry and with each follow-up extending until the next event, disenrollment, or the end of the study. The start of follow-up following each event was delayed by 1 week to exclude repeated encounters related to the same suicide attempt. Age and baseline history of suicide attempt or suicidal ideation were measured at the start of each follow-up interval. All other variables were assessed at the index date. Validity of the proportional hazard assumption was examined for each model by inspecting log–log curves. The results of all time-to-event analyses were expressed as hazard ratios (HRs) and the corresponding 95% CIs. All analyses were performed using SAS, version 9.4. Data analyses were completed in 2019.

RESULTS

Selected characteristics of the Study of Transition Outcomes and Gender cohort are shown in Table 2. A total of 6,327 TGD individuals were included in the analysis. Of those, 2,875 (45%) were TM, and 3,452 (55%) were TF (Table 2). The average follow-up period was 4.5 years (1,627 days) among TF and 4.1 years (1,502 days) among TM study participants. A total of 248 cohort members (117 TF and 131 TM) experienced at least 1 suicide attempt. The total number of attempts was 166 in the TF group and 208 in the TM group. The crude rate of suicide attempts in the TF and TM study population was 3.0 (95% CI=2.5, 3.4) and 4.8 (95% CI=4.2, 5.5) per 100,000 person-days of follow-up, respectively.

Tables 3 and 4 show the results of the multivariable Cox regression analyses. In the overall multivariable model for time to first event (Table 3), the hazard of attempting suicide at least once during follow-up did not differ between TM and TF cohort members (HR=0.95, 95% CI=0.73, 1.22). Relative to participants aged >45 years at baseline, the HR estimates were 3.26

Table 2. Characteristics of TM and TF Study Participants With and Without at Least 1 Episode of Self-Harm During Follow-Up (2006–2016) (N=6,327)

Participant characteristics	TF (N=3,452)		TM (N=2,875)	
	At least 1 self-harm event,[a] *n* (%)[b]	No self-harm events, *n* (%)	At least 1 self-harm event,[a] *n* (%)[b]	No self-harm events, *n* (%)
Age at index date, years				
3–17	45 (38.5)	542 (16.3)	79 (60.3)	663 (24.2)
18–25	25 (21.4)	622 (18.7)	25 (19.1)	718 (26.2)
26–35	15 (12.8)	577 (17.3)	15 (11.5)	689 (25.1)
36–45	21 (18.0)	551 (16.5)	7 (5.3)	339 (12.4)
>45	11 (9.4)	1,043 (31.3)	5 (3.8)	335 (12.2)
Race/ethnicity				
Hispanic	22 (18.8)	682 (20.5)	31 (23.7)	466 (17.0)
Black, non-Hispanic	15 (12.8)	226 (6.8)	12 (9.2)	242 (8.8)
White, non-Hispanic	67 (57.3)	1,755 (52.6)	74 (56.5)	1,589 (57.9)
Other/unknown	13 (11.1)	672 (20.2)	14 (10.7)	447 (16.3)
Study site				
KPNC	72 (61.5)	1,873 (56.2)	81 (61.8)	1,740 (63.4)
KPGA	2 (1.7)	93 (2.8)	0 (0)	79 (2.9)
KPSC	43 (36.8)	1,369 (41.1)	50 (38.2)	925 (33.7)
Count of mental health diagnoses at baseline[c]				
0	28 (23.9)	1,761 (52.8)	18 (13.7)	1,262 (46.0)
1–2	50 (42.7)	1,153 (34.6)	60 (45.8)	1,077 (39.3)
>2	39 (33.3)	421 (12.6)	53 (40.5)	405 (14.8)
History of suicidal ideation or self-harm at baseline[c]				
Yes	24 (20.5)	96 (2.9)	40 (30.5)	154 (5.6)
No	93 (79.5)	3,239 (97.1)	91 (69.5)	2,590 (94.4)
Total	117 (3.4)	3,335 (96.6)	131 (4.6)	2,744 (95.4)

[a]Includes any diagnosis of self-inflicted injury, possibly self-inflicted injury, and self-inflicted injury/poisoning.
[b]Column percentages within categories, row percentages for totals.
[c]Baseline refers to diagnoses or events that occurred on or before index date.
KPGA, Kaiser Permanente Georgia; KPNC, Kaiser Permanente Northern California; KPSC, Kaiser Permanente Southern California; TF, transfeminine; TM transmasculine.

(95% CI=1.77, 6.00) for those aged 36–45 years, 2.82 (95% CI=1.53, 5.20) for those aged 26–35 years, 3.25 (95% CI=1.84, 5.75) for those aged 18–25 years, and 7.33 (95% CI=4.32, 12.43) for those aged <18 years. The HR estimate per each additional year when age was used as a continuous variable was 0.96 (95% CI=0.95, 0.97). In addition, relative to those with no mental health diagnosis, the HR estimates were 2.34 (95% CI=1.65, 3.32) for those with 1–2 diagnoses and 3.68 (95% CI=2.47, 5.48) for those with more than 2 diagnoses. The HR estimate for those with a history of suicidal ideation or previous suicide attempt at index date was 3.62 (95% CI=2.58, 5.08). (Table 3).

Table 4 presents the model that considers repeated events with age and history of suicide attempt or suicidal ideation measured at the start of each follow-up interval. Overall, in the cohort, younger patients were more likely to attempt suicide than those aged >45 years, with HR estimates of 3.00 (95% CI=1.69, 5.32) for those aged 36–45 years, 3.75 (95% CI=2.00, 7.03) for those aged 26–35 years, 2.87 (95% CI=1.65, 4.97) for those aged 18–25 years, and 6.31 (95% CI=3.75, 10.62) for those aged 3–17 years. The HR estimate for each additional year of age was 0.97 (95% CI=0.96, 0.98). Participants with a history of suicidal ideation or suicide attempt were significantly more likely to attempt suicide than those who had no such history at baseline (HR=9.15, 95% CI=6.52, 12.83).

DISCUSSION

This longitudinal study examined factors associated with incidence of suicide attempts in a cohort of more than 6,000 TGD individuals across 3 integrated healthcare

Table 3. Multivariable Cox Proportional Hazards Regression Analysis of Factors Associated With Incidence of the First Self-Harm[b] in the Cohort: Overall and by TF or TM Status (N=6,327)

Participant characteristics	Overall cohort, HR (95% CI)	TF cohort, HR (95% CI)	TM cohort, HR (95% CI)
TF/TM status			
TF	1.00 (ref)	—	—
TM	0.95 (0.73, 1.22)	—	—
Age at index date, years			
>45	1.00 (ref)	1.00 (ref)	1.00 (ref)
36–45	3.26 (1.77, 6.00)	4.83 (2.34, 9.94)	1.56 (0.51, 4.80)
26–35	2.82 (1.53, 5.20)	3.65 (1.69, 7.88)	2.09 (0.76, 5.71)
18–25	3.25 (1.84, 5.75)	3.76 (1.79, 7.89)	2.57 (1.01, 6.55)
3–17	7.33 (4.32, 12.43)	6.84 (3.49, 13.41)	6.70 (2.76, 16.28)
Number of mental health diagnoses at baseline[c]			
None	1.00 (ref)	1.00 (ref)	1.00 (ref)
1–2	2.34 (1.65, 3.32)	2.13 (1.34, 3.40)	2.66 (1.55, 4.56)
>2	3.68 (2.47, 5.48)	3.05 (1.78, 5.22)	4.64 (2.53, 8.52)
History of suicidal ideation or self-harm at baseline[c]			
No	1.00 (ref)	1.00 (ref)	1.00 (ref)
Yes	3.62 (2.58, 5.08)	4.61 (2.75, 7.74)	3.01 (1.94, 4.69)

[a]Stratified on race/ethnicity and study site (KPNC versus Other).
[b]Includes any diagnosis of self-inflicted injury, possibly self-inflicted injury, and self-inflicted injury/poisoning.
[c]Baseline refers to diagnoses that occurred on or before index date.
HR, hazard ratio; KPNC, Kaiser Permanente Northern California; TF, transfeminine; TM, transmasculine.

systems. The incidence of suicide attempts among this large cohort of transgender patients was high, with 3.0% of TF and 4.8% of TM participants experiencing self-harm over the 10-year study period. Suicide attempts were especially common among individuals with a greater number of mental health diagnoses and those who had already experienced suicidal ideation or suicide attempts. The incidence also decreased with age.

Table 4. Counting Process Analysis[a] of Factors Associated With Incidence of Recurrent Self-Harm[b] in the Cohort: Overall and by TF or TM Status (N=6,327)

Participant characteristics	Overall cohort, HR (95% CI)	TF cohort, HR (95% CI)	TM cohort, HR (95% CI)
TF/TM status			
TF	1.00 (ref)	—	—
TM	0.93 (0.70, 1.25)	—	—
Age at the end of last event, years			
>45	1.00 (ref)	1.00 (ref)	1.00 (ref)
36–45	3.00 (1.69, 5.32)	4.53 (2.28, 9.02)	1.34 (0.50, 3.65)
26–35	3.75 (2.00, 7.03)	3.76 (1.78, 7.95)	3.40 (1.27, 9.12)
18–25	2.87 (1.65, 4.97)	3.57 (1.77, 7.21)	2.13 (0.90, 5.03)
3–17	6.31 (3.75, 10.62)	6.00 (3.11, 11.59)	5.66 (2.46, 12.98)
Number of mental health diagnoses at baseline[c]			
None	1.00 (ref)	1.00 (ref)	1.00 (ref)
1–2	2.43 (1.68, 3.51)	2.17 (1.36, 3.48)	2.92 (1.64, 5.22)
>2	2.46 (1.60, 3.77)	2.02 (1.14, 3.61)	3.25 (1.74, 6.05)
History of suicidal ideation or self-harm at baseline[d]			
No	1.00 (ref)	1.00 (ref)	1.00 (ref)
Yes	9.15 (6.52, 12.83)	10.89 (6.91, 17.14)	7.79 (4.95, 12.25)

[a]Stratified by race/ethnicity and study site (KPNC versus Other).
[b]Includes any diagnosis of self-inflicted injury, possibly self-inflicted injury, and self-inflicted injury/poisoning.
[c]Mental health diagnoses baseline refers to diagnoses that occurred on or before index date.
[d]Suicidal ideation or self-harm baseline refers to events that occurred before each event.
HR, hazard ratio; KPNC, Kaiser Permanente Northern California; TF, transfeminine; TM, transmasculine.

Although comparisons are difficult owing to differing timeframes, only 0.2% of patients in a general clinical population presented to the emergency department annually under similar circumstances in a recent national study[25]—a much lower rate than the patient population described here. By contrast, rates of suicide attempts that resulted in presentation to the emergency department among TGD youth in this study were 18–144 times higher among TGD youth than among reference male and female youth.[26] In addition, a recent study found that 18% of transgender veterans had documented suicidal ideation or attempts in their Veterans Health Administration records[19]—similar to the proportion of participants with suicidal ideation or suicide attempts before baseline found here. Though the overall proportions of individuals with a history of suicide attempt are substantially higher in previous studies than in this one, this difference could be an artifact of study design. Unlike previous studies that employed cross-sectional surveys, this study used longitudinal EMR data and examined factors associated with incidence rather than history of self-harm and related events. However, there may be other explanations for the lower suicide attempt rates found here. This study included people who may question their gender identity but experience no gender dysphoria and no desire to receive gender-affirming care. In addition, though diagnostic codes were used for outcome ascertainment, the majority of previous studies relied on self-report and were not limited to episodes of self-harm that warrant an emergency department visit. The differences between population surveys and real-world clinical data may also indicate that there is a need for improved identification and screening efforts with this population in clinical care settings, with accompanying protocols for mental health referrals. TGD patients may not always go to the emergency department for suicide attempts, and better efforts are needed to engage this vulnerable population in care.

Earlier surveys and one-on-one interview studies that recruited convenience samples of TGD participants also found that younger TGD people may be at a higher risk for suicide attempts than older TGD individuals.[11,27,28] In addition, these age differences were found among respondents to the 2008 cross-sectional National Transgender Discrimination Survey: participants who were aged ≤45 years had higher odds of ever attempting suicide than those who were older.[27] This trend was also evident among respondents to the 2015 U.S. Transgender Survey: 10% of respondents aged 18–25 years reported attempting suicide in the past year, and these rates steadily decreased with increasing participant age.[29] Although the incidence of suicide attempts did not differ among TM and TF participants in this study, other researchers who have conducted surveys have observed that TM individuals were at least slightly more likely to report such events.[15,17,30]

Self-inflicted injury diagnoses were used in this study as a surrogate for suicide attempts. Previous EMR-based studies addressing this issue in predominantly cisgender populations used more sophisticated algorithms that not only included data on self-inflicted injuries but also included combined data on suicidal ideation with information on any type of injury to ascertain suicide attempts more fully.[31] Yet, data used here represent real-world suicide attempts as viewed and recorded by health professionals. This approach has been previously validated by other clinical studies as an accurate way to capture suicide attempts.[21,22]

The study timeframe (2006–2016) saw numerous sociopolitical changes and events that likely impacted the mental health of transgender Americans in both positive and negative ways. Positive strides for sexual and gender minorities (SGMs) were made by the Obama administration during this time, including the signing of the Matthew Shepard and James Byrd, Jr. Hate Crimes Prevention Act (2009), the Don't Ask, Don't Tell Repeal Act (2010), and expansion of health care for many SGM Americans under the Patient Protection and Affordable Care Act (2010). Marriage equality, linked to more positive mental health among SGM individuals,[32] was also on center stage politically during this time. In particular, the State of California was a prominent battleground for marriage equality throughout the decade. California was also one of the first states to establish nondiscrimination protections for TGD people, including requirements of private insurance coverage for gender-affirming care, whereas the rest of the country was seeing challenges to transgender protections in the form of bathroom bills.[33,34] Although the State of California made progress in protecting transgender individuals, greater uncertainty was introduced nationally with the incoming Trump administration at the end of the study period, with SGM Americans reporting higher rates of minority stress, depression, and anxiety after the 2016 U.S. presidential election.[35] Suicide attempts may have been comparatively lower among transgender California residents during this time, who experienced relatively better legal protections than those in other geographic regions. Future studies should examine how suicide attempt rates among gender minorities are impacted by local, state, and national political climate and protections.

Limitations

This study has a number of limitations. Although TGD people enrolled in integrated healthcare systems represent a cohort of individuals with health insurance that

may not be representative of the TGD population in the U.S., this cohort did include patients enrolled in Medicaid plans, insuring at least some representation of patients with lower SES. In addition, the use of insured populations allows for better capturing of both within- and outside-system use, which would not be possible to capture among uninsured populations. Moreover, the vast majority of the cohort members resided in California. It is expected that some of the results may differ among TGD people in different socioeconomic strata and geographic locations. Weighing against this concern is the demonstrated ability to cost effectively identify and follow a large cohort of TGD subjects with a high degree of internal validity. This study also included both minors and adult patients. For individuals aged <18 years, emergency department visits and access are likely driven by parents or other caregivers, so comparing emergency department visits for self-harm across age groups should be done cautiously. In addition, subcategorization of patients aged >45 years was not possible, which limits the ability to draw conclusions about older age groups. Furthermore, TGD people who receive appropriate support and gender-affirming care may experience improvement in their mental health status and overall quality of life.[36–40] It follows that people who achieve greater congruence between their gender identity and appearance may also experience a reduction in suicidal ideation and suicide attempts. Future studies should explore whether and how the receipt of appropriate gender-affirming care influences suicide risk. Finally, suicide deaths were not examined in this study. Others have found that among transgender veterans, rates of suicide deaths are higher than among cisgender veterans as well as among the U.S. population.[41] Therefore, further research using EMR data is needed to determine the rate of suicide deaths among transgender individuals in the U.S.

CONCLUSIONS

The most powerful predictors of suicide attempts among TGD individuals are mental health diagnoses at baseline and history of suicidal ideation or suicide attempts. Younger TGD people may also be at a higher risk for suicide attempts than their older counterparts independently of other demographic characteristics or mental health status. Although these predictors also hold true for the general population,[42] what is unclear is the extent to which risk factors such as mental health diagnoses explain disparities in suicide attempt rates versus factors that are unique to TGD individuals. To that end, future studies should investigate the impact of gender-affirming care and the influence of specific mental health diagnoses on suicide risk among this population. These data will be important for risk stratification and the development and implementation of interventions aimed at preventing suicide among TGD people.

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