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Suicidal Ideation Among Transgender and Gender Expansive Youth: Mechanisms of Risk

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Abstract

Purpose: Suicide is a leading public health concern among transgender and gender expansive adolescents, although little research has examined mechanisms through which gender identity is associated with suicidal ideation. This study examined the indirect effects of peer victimization, dating violence, substance use (SU), SU problems, and depressive symptoms in the relationship between gender identity and suicidal ideation.

Methods: Secondary data analysis was conducted from a 2018 statewide survey, including 4464 adolescents who identified as male, female, transgender, or gender expansive ($n = 1116$ per gender). The sample was frequency matched on grade, race, geographic region, and free/reduced lunch status. Mediation analyses were performed.

Results: Reports of suicidal ideation were highest among transgender (49.29%) and gender expansive (41.31%) adolescents compared with male (10.82%) and female adolescents (19.08%). Using the Karlson, Holm, and Breen approach, 50.45% of the effect of being transgender on suicidal ideation was mediated through peer victimization, dating violence, and depressive symptoms, and 39.29% through SU, SU problems, and depressive symptoms. The mediation through the same pathways for being gender expansive was 46.37% and 39.89%, respectively. Across both models, depressive symptoms predominately accounted for the mediating effect.

Conclusion: Transgender and gender expansive youth are at alarming risk for suicidal ideation, which illustrates the critical need for suicide prevention within this population. Programs that promote mental health and work to prevent bullying, dating violence, SU, and SU problems are crucial; although longitudinal research is needed, targeting these mechanisms may play a critical role in reducing suicidal ideation and risk.

Keywords: nonbinary gender identity; substance use; suicide; transgender; violence

Introduction

One in five high school students have seriously considered attempting suicide in the past year,[1] and suicide remains a leading cause of death among youth ages 15 to 19 in the United States.[2] These statistics have driven communities to strategize ways to prevent suicide, including learning about what factors may place groups at a greater risk.[3] Sexual and gender diverse youth (e.g., Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Agender, Asexual, additional identities and expressions; LGBTQIA+) are at heightened risk for suicidal ideation.[4–6] Many researchers combine these identities into one group, failing to capture gender and sexual orientation as their own distinct identities.[7,8] To date, only a small body of work has examined suicidal risk specifically among gender

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diverse adolescent samples. The majority of this research has relied on small convenience samples of transgender youth (see Perez-Brumer et al.[9] as an exception) or are missing the experiences of gender expansive youth[10] (see Thomas et al.[11] and Toomey et al.[12] as exceptions).

Youth who identify as transgender (i.e., gender identity that is not congruent with the traits culturally associated with sex assigned at birth) and gender expansive (i.e., one who does not identify as male, female, or transgender; nonconformity to a purported male-female gender binary) are at a particularly high risk for suicidal ideation in comparison with male or female youth.[9,11] In a national survey, 43.9% of transgender youth reported past year suicidal ideation, compared with 20.3% of female and 11.0% of male cisgender youth (i.e., cisgender is a gender identity that is congruent with the traits culturally associated with the sex assigned at birth).[13] Another study found that transgender (84.8%) and gender nonbinary (72.1–82.4%) youth reported higher lifetime rates of suicidal ideation compared with cisgender adolescents (60.4%).[11]

This study aims to push forward from the framework of (1) merely identifying transgender and gender-expansive adolescents' risk for suicidal ideation to (2) better understanding *how* these youth are at risk. The study builds on the formative study of Perez-Brumer et al.,[9] who examined suicidal ideation among transgender and nontransgender adolescents in a representative, statewide survey. This study found disparities in rates of past year suicidal ideation when comparing transgender (34%) and nontransgender (19%) adolescents while also identifying two mediators between a transgender identity and suicidal ideation: higher levels of depressive symptoms and peer victimization. The current study builds on these findings while also including the experiences of gender expansive adolescents and examining additional potential mediators (i.e., dating violence victimization, substance use [SU], and SU problems).

In testing these mediator variables, we utilized the minority stress theory framework.[14] This theory posits that one's minority identity—such as transgender and gender expansive—can result in heightened adverse mental health symptoms not because of the identity but, rather, by way of societal stigmatization and a variety of intensified risk variables. Being a gender minority in a society that stigmatizes, rejects, and harms people of that identity can increase, for example, the likelihood of discrimination, victimization, gender-based violence, psychological distress, and SU, all of which can contribute to additional adverse health outcomes.[14,15] Researchers have found support for these risk processes in transgender adult samples,[15] and in LGBTQIA+ adolescent samples.[16]

The first set of variables we examined as mechanisms of risk include victimization within peer contexts or dating relationships. Transgender and gender expansive adolescents report significantly higher rates of peer and dating violence victimization compared with male and female adolescents.[17] Several researchers have linked these victimization experiences with suicidal ideation among transgender adolescents[18] and adults.[19] Peer victimization was also a significant mediator in a cross-sectional examination of transgender identity and suicidal ideation.[9] Experiencing disparate rates of victimization may help explain the relationship between a gender minority identity and suicidal ideation.

A second set of variables that we examined were SU and SU problems (e.g., getting into trouble or forgetting to do things while using substances, using substances while alone, and driving or riding in a car operated by someone under the influence). Transgender and gender expansive youth report higher rates of cigarette, alcohol, and illicit drug use compared with cisgender or non-transgender individuals.[20] A national survey also highlighted that U.S. transgender adolescents (70.0%) reported higher rates of lifetime alcohol use than cisgender male (53.3%) and female (62.8%) adolescents. Similar disparities were reported for marijuana and illicit SU.[13] Although more research testing the association between SU, SU problems, and suicidality among gender diverse youth is needed,[21] these variables are robust predictors of suicidal ideation among adolescents.[22]

The current study will examine these two sets of mediators (i.e., victimization, SU and SU problems) in the association between gender identity and suicidal ideation. In both models, we will include depressive symptoms, as research indicates that depressive symptoms and major depressive disorder are significant risk factors for suicidality.[22] It is estimated that $\sim$90% of adolescents who attempted suicide also have a psychiatric illness, mainly depression.[23] Furthermore, depressive symptoms are highest among transgender adolescents (53.1%) compared with cisgender male (20.7%) and female (39.3%) adolescents,[13] and depressive symptoms mediate the relationship between a transgender identity and suicidal ideation.[9] Therefore, the current study will include depressive symptoms in both models

to not only examine its mediating role, but to also examine the additional contributions of victimization, SU, and SU problems.

The current study addressed two research objectives. First, we examined prevalence rates of suicidal ideation among male, female, transgender, and gender expansive youth, using a statewide survey. Second, we examined two models to examine mechanisms of risk between gender identity and suicidal ideation: (1) the role of victimization, and (2) the role of SU and SU problems. We included depressive symptoms in both models to see if victimization, SU, and SU problems further contributed to suicidal ideation among transgender and gender expansive adolescents. It was hypothesized that these risk mechanisms would each mediate the association between gender identity and suicidal ideation.

Materials and Methods

Sample

Data from the 2018 Illinois Youth Survey (IYS) were utilized.[24] All schools in Illinois were eligible to participate in the IYS, which was administered biennially in the spring. These self-reported surveys were administered in classrooms, offered online or through paper, and available in English and Spanish. Parents/guardians were given opt-out forms. All protocols for the survey were approved through an Institutional Review Board.

In 2018, more than 900 schools participated (representing 96% of Illinois' counties), with 199,374 valid surveys from students in grades 8 to 12. Students self-identified their gender from the following responses: *Male* ($n = 95{,}575$, 47.94%), *Female* ($n = 100{,}117$, 50.22%), *Transgender* ($n = 1204$; 0.6%), or *I do not identify as male, female, or transgender* (i.e., here referred to as gender expansive; $n = 2478$, 1.24%). Given the imbalanced proportions among gender identities, frequency matching was performed to select a subsample based on four variables—grade, eligibility for free/reduced lunch, race, and geographic region—to create identical distributions of these variables across all gender identities, with equal sample sizes ($N = 4464$; $n = 1116$ per gender designation). Full description of frequency matching procedures is given in Garthe et al.[17]

Measurements

Gender identity. Dummy variables were created for transgender (0 = other identities; 1 = transgender) and gender expansive youth (0 = other identities; 1 = gender expansive).

Past year suicidal ideation. Suicidal ideation was assessed with one item, "During the past 12 months, did you ever seriously consider attempting suicide?" (no = 0; yes = 1).

Victimization. Students reported their past-year victimization experiences by responding to the following prompt "Has another student at school… (1) … bullied you by calling you names? (2)… bullied you by hitting, punching, kicking, or pushing you? (3)… bullied, harassed, or spread rumors about you on the Internet or through text messages?" Those who responded *yes* to any of the items were assigned 1 (*experienced peer victimization*) and the rest were assigned 0 (*no victimization experiences*). Past year dating violence victimization was assessed by responding *yes, no,* or *I have not begun to date* to the following: (1) "Have you been slapped, kicked, punched, hit, or threatened in a dating relationship?" and (2) "Has someone put you down or tried to control you in a dating relationship?" Those who responded *yes* to any of the above items were assigned 1 (*experienced dating victimization*), and those who responded *no* were assigned 0 (*no victimization experiences*).

Substance use. Alcohol, marijuana, nonprescribed prescription drugs, and other drug use were assessed by asking whether students had used one of these substances in the past year (0 = no; 1 = yes). Items were summed, such that a score of 0 indicated that no substances were used and 4 meant that the student had used all four substance categories.

SU problems. SU problems were determined by using the six-item (1 = yes, 0 = no) CRAFFT screener.[25] Items include: "During the past 12 months… (1) have you ever ridden in a Car driven by someone (including yourself) who was high or had been using alcohol or drugs?," (2) did you ever use alcohol or drugs to Relax, feel better about yourself, or fit in? (3) did you ever use alcohol or drugs while you were by yourself, Alone? (4) did you ever Forget things you did while using alcohol or drugs? (5) did your Family or friends ever tell you that you should cut down on your drinking or drug use? (6) have you gotten into Trouble while you were using alcohol or drugs?" The screener has excellent sensitivity and specificity for detecting SU disorders at a cutoff score of two or higher.[26] Items were summed; a dichotomous variable was created (0 = no SU problems, 1 = SU problems; 2–6 CRAFFT score).[26,27]

Depressive symptoms. Depressive symptoms were assessed with one item, "During the past 12 months did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?" (0 = no; 1 = yes).

Statistical analysis

To determine the total, direct, and indirect effect of gender identity on suicidal ideation, we used the Karlson, Holm, and Breen mediation method.[28] In the first model, the effect of gender identity on suicidal ideation by peer and dating violence victimization was examined. In the second model, the same effect through SU and SU problems was examined. In both models, we included the mediating effect of depressive symptoms and we adjusted for grade, eligibility for free/reduced lunch, race, and geographic region. In addition, we decomposed the total effect of gender identity on suicidal ideation into direct and indirect effects. The direct effect originates from gender identity and directly impacts suicidal ideation; the indirect effect stems from gender identity and impacts suicidal ideation through the aforementioned mediators. The indirect effect is further disentangled and a mediation percentage for each mediator is assessed for its contribution in both paths. Analyses were performed using Stata software.[29]

Results

Sample demographics

In the final matched sample of 4464, a little over one-half identified as White (56.81%). About 41% received free or reduced lunch. See Table 1 for a full description.

Table 1. Sociodemographic characteristics of the sample

	n	%
Race		
White	2536	56.81
Black/African American	248	5.56
Latino/Latina	476	10.66
Asian American	184	4.12
Native American/American Indian	52	1.16
Multiracial	784	17.56
Other	144	3.23
Missing	40	0.9
Geographic region[a]		
Suburban Chicago	2812	62.99
Chicago	140	3.14
Other urban/suburban	1000	22.4
Rural	512	11.47
Received free or reduced-price lunch	1812	40.92

[a]Types based on the State Board of Education's county and Census designations.

Disparities in suicidal ideation and risk variables

Transgender and gender expansive youth reported high levels of past-year suicidal ideation (49.29% and 41.31%, respectively), compared with male and female youth (10.82% and 19.08%, respectively). Similar gender disparities were seen for depressive symptoms, victimization, SU, and SU problems (Table 2).

Victimization and depressive symptoms

Overall, identifying as transgender ($\beta = 2.24$) and gender expansive ($\beta = 1.79$) significantly increased the risk for suicidal ideation. Identifying as transgender and gender expansive also directly increased the risk for suicidal ideation (not mediated by victimization and depressive symptoms). Furthermore, 50.45% of the total effect of a transgender identity on suicidal ideation was significantly mediated through peer and dating violence victimization and depressive symptoms, in comparison with 46.37% for a gender expansive identity. The largest percentage of the mediating effect was contributed by depressive symptoms (Table 3).

SU, SU problems, and depressive symptoms

Again, identifying as transgender ($\beta = 2.24$) or gender expansive ($\beta = 1.83$) was significantly associated with greater risk of suicidal ideation. A transgender and gender expansive identity had a significant direct effect on suicidal ideation (not mediated by SU, SU problems, and depressive symptoms). Moreover, $\sim$39% of the total effect was significantly mediated through SU, SU problems, and depressive symptoms. The largest percentage of the mediating effect was contributed by depressive symptoms (Table 3).

Discussion

Transgender youth reported the highest rates of suicidal ideation, followed by gender expansive adolescents, highlighting two groups at disparate risk. Transgender and gender expansive youth also reported high levels of depressive symptoms, victimization experiences, SU, and SU problems. Accounting for the role of depressive symptoms, peer and dating violence victimization (Model 1), using three or more substances, and SU problems (Model 2) partially mediated the association between transgender and gender expansive identities and suicidal ideation. These findings expand the study of Perez-Brumer et al.,[9] finding additional mediators while also examining a gender expansive identity in relation to suicidal ideation.

Table 2. Prevalence of selected characteristics by gender identity

	Overall ($N=4464$)		Male ($n=1116$)		Female ($n=1116$)		Transgender ($n=1116$)		Gender expansive ($n=1116$)			
Variables	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	χ^2	***p***
Suicidal ideation	931	30.03	84	10.82	150	19.08	381	49.29	316	41.31	248.69	<0.0001
Depressive symptoms	2079	47.36	279	25.34	450	41.06	696	63.33	654	59.78	215.32	<0.0001
Peer victimization	1822	42.83	288	27.14	396	36.73	620	58.27	518	49.29	137.35	<0.0001
Dating violence victimization[a]	654	20.63	98	12.37	143	18.01	236	28.82	177	23.14	62.07	<0.0001
SU[b]												
Did not use any	2297	51.71	654	58.87	587	52.74	522	47.07	534	48.15	18.93	0.0003
Consumed any 1 substance	1108	24.94	250	22.5	281	25.25	293	26.42	284	25.61	3.79	0.2850
Consumed any 2 substances	656	14.77	146	13.14	177	15.9	170	15.33	163	14.7	3.23	0.3573
Consumed any 3 substances	244	5.49	38	3.42	55	4.94	74	6.67	77	6.94	16.23	0.001
Consumed any 4 substances	137	3.08	23	2.07	13	1.17	50	4.51	51	4.6	32.31	<0.0001
SU problems	787	24.54	142	17.79	173	21.52	244	30.2	228	28.61	34.41	<0.0001

[a]Included dating adolescents.
[b]Substances include alcohol, marijuana, nonprescribed prescription drugs, and other substances.
SU, substance use.

In both models, there was a direct effect of a transgender and gender expansive identity on suicidal ideation. Although depressive symptoms, victimization, SU, and SU problems partially mediated this association, these factors do not fully explain the disparities in suicidal ideation experienced by transgender and gender expansive youth. It is possible that other risk factors not assessed, such as targeted victimization experiences and internalized transphobia,[14] family rejection,[30] and other violent experiences,[31] may also serve as mechanisms for suicidal risk.[32] Researchers should consider the role of potential protective factors as well. Fostering positive social relationships and supports at home, school, and in the community may be protective against suicidal ideation for transgender and gender expansive youth.[30,33]

Current findings support utilizing a minority stress framework to understand suicidal risk for transgender and gender expansive youth in conjunction with other theories of suicide (e.g., interpersonal psychological theory of suicide[31]). Although researchers have adopted the minority stress model to understand suicide

Table 3. Total, direct, and indirect effects of gender identification on suicidal ideation in Illinois youth

	Transgender			Gender expansive		
	β	**SE**	**Mediation, %**	β	**SE**	**Mediation, %**
Model 1						
Total effect	2.24**	0.15	—	1.79**	0.15	—
Direct effect	1.11**	0.14	—	0.95**	0.14	—
Indirect effect	1.13**	0.12	50.45	0.83**	0.11	46.37
Via						
DV victimization	0.10**	0.02	4.55	0.06*	0.02	3.35
Peer victimization	0.23**	0.04	10.32	0.13**	0.03	7.16
Depressive symptoms	0.80**	0.07	35.62	0.65**	0.07	36.13
Model 2						
Total effect	2.24**	0.13	—	1.83**	0.12	—
Direct effect	1.35**	0.12	—	1.1**	0.12	—
Indirect effect	0.88**	0.09	39.29	0.73**	0.09	39.89
Via						
Consumed any…						
…1 substance	0.004	0.01	0.20	0.001	0.01	0.08
…2 substances	−0.003	0.01	−0.14	−0.002	0.005	−0.13
…3 substances	0.02*	0.01	0.74	0.02*	0.01	1.02
…4 substances	0.02*	0.01	0.75	0.02*	0.01	0.93
SU problems	0.07**	0.02	3.11	0.6**	0.02	3.28
Depressive symptoms	0.78**	0.06	34.60	0.63**	0.06	34.58

Both models adjusted for grade, eligibility for free/reduced lunch, race, and geographic region.
**$p<0.0001$; *$p<0.05$.
DV, dating violence; SE, standard error.

risk among transgender adults,[34] research that adopts a developmental lens for transgender and gender expansive youth is wanting. Our results begin to explicate external stressors in the minority stress model (i.e., being targeted for abuse) that place transgender youth at risk for suicidal ideation, but more research is necessary to conceptualize the relationship between external stressors and internal stressors (e.g., internalized transphobia, individual responses to trauma) that contribute to gender identity-based disparities in depression and suicidal ideation.[34,35]

There are limitations to note. This study performed mediation analyses on cross-sectional data, of which limitations are well documented[36]; replications of these findings utilizing longitudinal data are warranted. Depressive symptoms and suicidal ideation were each measured using a single self-report screening question, and future studies should examine these factors using validated, clinician-administered measures to replicate findings. Although participants were able to select whether they identified as transgender, we were unable to confirm that students who indicated *male* or *female* were cisgender. It is possible that transgender youth selected that they were male or female if those labels aligned with their identity. In addition, a greater number of youths in the statewide sample selected *I do not identify as male, female, or transgender* compared with youth who selected *Transgender*. Future studies should examine differences in gender identity with more nuance[37] to better understand the experiences of gender minority youth.[31] Also, gender minority youth of various races and ethnic backgrounds might have different suicidal risk[31,38]; as such, work examining risk for youth of color, is warranted. Furthermore, future research could enrich findings from this study by testing its variables among youth in different geographic regions of the United States. Doing so could play a critical role in shaping policy and programming to support the mental health of transgender and gender expansive communities.

For marginalized populations, including transgender and gender expansive youth, multilevel interventions are needed that address both contextual risk factors stemming from stigma and the consequent intrapersonal mental health problems.[39] Doing so shifts the onus of addressing intrapersonal mental health problems from the marginalized individual—which may create further marginalization and which leaves the ecological risk intact—to a shared, community effort. Future research should develop and evaluate the efficacy and effectiveness of multilevel interventions that address anti-gender minority victimization, SU, and depressive symptoms on reducing suicidal ideation, being careful not to conflate the experiences and needs of sexual and gender minority youth.[40] Programs that promote mental health and work to prevent victimization and SU are needed, as targeting these mechanisms may play a critical role in reducing suicidal ideation. In addition, clinicians may consider screening for depression, SU and SU problems, and victimization among transgender and gender expansive youth given their high prevalence and associations with suicidal ideation.

Conclusion

This study found that transgender and gender expansive youth are at alarming risk for suicidal ideation, illuminating the critical need for suicide prevention within this population. In addition, we found that forms of victimization, using multiple substances, SU problems, and depressive symptoms were all mechanisms of risk in the relationship between transgender and gender expansive identities and suicidal ideation. Targeting these risk variables may be key for suicide prevention.

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Abbreviations Used

DV = dating violence
IYS = Illinois Youth Survey
SE = standard error
SU = substance use