

Background

- Adverse childhood experiences (ACEs) contribute to significant health burden across the lifespan. ACEs include:
 - Physical, sexual, and emotional abuse
 - Domestic violence
 - Parental incarceration
 - Parental drug use
- Gender identity (personal sense of one's own gender) can be considered either as:
 - Transgender and gender diverse (genderqueer, gender fluid, unsure of their gender) (TGD), or
 - Cisgender (sex assigned at birth and gender identity match)
- TGD adolescents have higher ACEs than cisgender adolescents:
 - Abuse:
 - Physical (24.48% vs. 11.18%)
 - Sexual by family (9.23% vs. 2.11%)
 - Sexual by nonfamily (13.36% vs. 3.55%)
 - Emotional (32.09% vs. 12.83%)
 - Domestic violence (14.61% vs. 6.12%)
 - Parental incarceration (26.93% vs. 15.67%)
 - Parental drug use (12.25% vs. 4.79%)
- TGD adolescents have higher mental health problems than cisgender adolescents:
 - Depression (20% vs. 6.7%)
 - Suicidal ideation (33.37% vs. 18.85%)
 - Suicide attempts (37.8% vs. 3.4%)
- The impact of ACEs on mental health problems by gender identity in adolescents has not been examined.

Purpose

To examine the relationship among adolescents between ACEs, gender identity, and mental health problems (depression, suicidal ideation and suicide attempts), controlling for demographics (sex assigned at birth, poverty, race).

Hypothesis

TGD adolescents exposed to ACEs will have higher levels of mental health problems than cisgender adolescents.

Methods

Design

- Secondary data analysis of Minnesota Student Survey, 2016
 - Voluntary, anonymous, statewide, school-based survey
 - Measures students' health in primary and secondary public schools



Setting & Subjects

- 9th and 11th graders
- 80,929 students

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Methods, contd.

Measures

- Demographics
 - Age
 - Poverty (free/reduced price lunch, yes/no)
 - Race (American Indian/Alaskan Native non-Hispanic, Asian non-Hispanic, Black non-Hispanic, Pacific Islander non-Hispanic, white non-Hispanic, Multiracial non-Hispanic, Hispanic)
- Sex assigned at birth (male=1 female=2)
- Gender Identity (TGD=1, cisgender=2)
- ACEs
 - Physical abuse (no=0, yes=1)
 - Emotional abuse (no=0, yes=1)
 - Either parental or adult sexual abuse (no=0, yes=1)
 - Either household drug or alcohol abuse (no=0, yes=1)
 - Parental Incarceration (no=0, yes=1)
 - Domestic violence exposure (no=0, yes=1)
 - Scores range 0 to 6 ACES
- Mental Health
 - Depressive symptoms: Patient Health Questionnaire-2 (PHQ-2)
 - A screening test used in clinical practice
 - Two items querying anhedonia (little pleasure or interest) and depressed mood in the previous 2weeks (0=not at all to 3=nearly every day)
 - Score range 0-6, ≥3 clinical risk of depressive symptoms
 - Suicidal ideation (ever seriously considered attempting suicide, no=0, yes=1)
 - Suicide attempt (ever actually attempted suicide, no=0, yes=1)

Results

Demographics, Gender identity, Sex Assigned at Birth, Mental Health, and ACEs by TGD and Cisgender (N= 80,929)

	Total %	TGD (N=2,168) %	Cisgender (N =78,761) %	Risk Ratio
Sex assigned at birth				
Male	50.4	31.9	50.9	0.63
Female	49.6	68.1	49.1	1.39
Poverty	27.1	38.8	26.8	1.45
Race				
American Indian/ Alaskan Native non-Hispanic	1.0	2.0	1.0	2.00
Asian non-Hispanic	6.0	8.3	5.9	1.41
Black non-Hispanic	5.8	6.5	5.8	1.12
Pacific Islander non-Hispanic	0.2	0.5	0.1	5.00
White non-Hispanic	70.7	58.0	71.1	0.82
Multiracial non-Hispanic	6.9	11.6	6.8	1.71
Hispanic	8.7	11.8	8.7	1.36
Mental health				
PHQ-2 depressed	22.4	58.2	21.4	2.72
Suicidal ideation	21.0	61.3	20.0	3.07
Suicide attempt	7.7	31.0	7.1	4.37
ACEs, M (SD)	.60 (.94)	1.22 (1.19)	.58 (.93)	
Age, M (SD)	15.51 (1.13)	15.48 (1.16)	15.51 (1.12)	

TGD youth more likely to:

- Be assigned female at birth, experience poverty, be a person of color
- Have depressive symptoms, suicidal ideation, attempted suicide, and experienced ACEs

Results

Depressive Symptoms Regressed on Gender Identity, ACEs, Gender Identity/ACEs Interaction, Sex Assigned at Birth, Age, Poverty

	Exp (B)	95 % Confidence interval	p
Gender identity	.20	[0.18, 0.23]	.00
ACEs	1.09	[0.92, 1.28]	.33
Gender identity/ ACEs interaction	1.28	[1.17, 1.39]	.00
Sex assigned at birth	1.68	[1.62, 1.74]	.00
Age	1.06	[1.04, 1.07]	.00
Poverty	.85	[0.81, 0.89]	.00

-2 Log likelihood = 70273.48; Race/ethnicity included in model, not significant

- ACEs had a greater impact on depressive symptoms for TGD than for cisgender adolescents.

Suicide Attempts Regressed on Gender Identity, ACEs, Gender Identity/ ACEs Interaction, Sex Assigned at Birth, Age, Poverty, Race

	Exp (B)	95 % Confidence interval	p
Gender identity	2.00	1.16, 2.24	.00
ACEs	1.42	1.18, 1.70	.00
Gender identity/ACEs interaction	1.27	1.15, 1.39	.00
Sex assigned at birth	2.17	2.03, 2.31	.00
Age	1.15	1.12, 1.18	.00
Poverty	0.80	.75, .86	.00
Race/Ethnicity			
American Indian/ Alaska Native non-Hispanic	2.01	1.28, 3.15	.00
Asian non-Hispanic	0.75	.49, 1.14	.17
Black non-Hispanic	0.70	.46, 1.07	.10
Pacific Islander non-Hispanic	0.97	.45, 2.11	.94
White non-Hispanic	0.96	.64, 1.43	.84
Multiracial non-Hispanic	1.29	.85, 1.94	.23
Hispanic	1.31	.87, 1.98	.19

-2 Log likelihood = 32920.98

- ACEs had a greater impact on suicide attempt for TGD than for cisgender adolescents.

Conclusion

- TGD adolescents who have a history of ACEs are at higher risk for mental health problems than their cisgender peers
- This relationship remains robust even when sex assigned at birth, age, poverty, race are considered
- Reinforces importance of screening for ACEs among adolescents, particularly those who are TGD
- Prevention and intervention is vital for TGD youth who have experienced ACEs

Suicidal Ideation Regressed on Gender Identity, ACEs, Gender Identity/ACEs Interaction, Sex Assigned at Birth, Age, Poverty, Race

	Exp (B)	95 % Confidence interval	p
Gender identity	0.18	.16, .21	.00
ACEs	1.52	1.26, 1.82	.00
Gender identity/ACEs interaction	1.20	1.09, 1.32	.00
Sex assigned at birth	2.24	2.15, 2.33	.00
Age	1.13	1.11, 1.15	.00
Poverty	0.95	.91, 1.0	.05
Race/Ethnicity			
American Indian/Alaska Native non-Hispanic	1.56	1.12, 2.18	.01
Asian non-Hispanic	1.18	.88, 1.59	.27
Black non-Hispanic	0.75	.55, 1.01	.06
Pacific Islander non-Hispanic	0.99	.56, 1.76	.97
White non-Hispanic	1.19	.89, 1.58	.24
Multiracial non-Hispanic	1.57	1.18, 2.11	.00
Hispanic	1.28	.95, 1.71	.10

-2 Log likelihood = 64116.36

- ACEs had a greater impact on suicidal ideation for TGD than for cisgender adolescents.

