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Protective Environments, Health, and Substance Use Among Transgender and Gender Expansive Youth

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Purpose:

Transgender and gender expansive (TGE) youth experience elevated risk for substance use and other health inequities compared to cisgender peers. The purpose of this study was to examine associations between protective environments—perceived community tolerance, perceived family support, and housing stability—and recent binge drinking, lifetime high-risk substance use (HRSU; cocaine, methamphetamines, and/or heroin), and self-rated health in a sample of TGE youth.

Methods: This secondary analysis of 1567 TGE youth aged 13–24 years draws from the Centers for Disease Control and Prevention's 2018 web-based *Survey of Today's Adolescent Relationships and Transitions,* which used a nonprobabilistic recruiting strategy via social media. Logistic regression was used to test the associations between protective environments and substance use and health outcomes.

Results: Overall, 28.1% of participants reported that people who lived near them were tolerant of transgender people, 32.8% reported that their family was at least somewhat supportive of their TGE identity, and 77.0% were stably housed. In the logistic regression models, community tolerance and housing stability were associated with lower odds of self-rated poor health. Housing stability was associated with lower odds of recent binge drinking and lifetime HRSU.

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Authors' Contributions

K.S.K.: Author led the conceptualization, analysis, and writing of the article. C.R.H.: Author assisted in the conceptualization and writing of the article. J.L.: Author assisted in the conceptualization and editing of the article and confirmed the data analysis. N.A.S.: Author assisted in the conceptualization and editing of the article. M.M.J.: Author assisted in the conceptualization and writing of the article. Author was also part of the START project planning and implementation. All coauthors reviewed and approved the article before submission.

Author Disclosure Statement

No competing financial interests exist.

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Conclusion: Perceived community tolerance and housing stability were associated with several health outcomes among TGE youth in this study. Protective factors, including safe, stable, nurturing relationships and environments, are critical to youth health and wellbeing. The findings in this study highlight the need for prevention strategies to promote protective environments and reduce known substance use and overall health inequities among TGE youth.

Keywords

alcohol use; gender expansive youth; health inequities; protective environments; substance use; transgender youth

Introduction

TRANSGENDER AND GENDER EXPANSIVE (TGE) youth experience elevated risk for substance use and other health inequities compared to cisgender (nontransgender) peers.[1,2] Transgender youth are adolescents and young adults whose self-identified gender does not match their sex assigned at birth; gender expansive youth are those whose gender expression and identity expand beyond the gender binary. Gender expansive youth may identify as transgender.[3]

TGE youth experience inequities in physical, mental, and behavioral health, such as violence victimization, depression, and substance use.[1,4,5] For example, Day et al. found substance use among TGE youth was 2.5–4 times higher than among cisgender youth.[1] In addition, TGE people experience inequities in fundamental resources, including employment, health care, and housing compared to cisgender people.[6] TGE youth, specifically, have been to found to be at significantly greater risk of experiencing housing instability than their cisgender peers.[7]

These inequities may be attributed to stigma against transgender people—or transphobia—and discrimination by people, policies, and institutions, shaping both the social experience and the physical reality of young TGE people's lives.[6] Minority stress theory describes the excess stress experienced by individuals from stigmatized groups due to their treatment in society.[8] External events, such as violence victimization and internal responses, such as expecting rejection, constitute minority stressors. TGE people may engage in maladaptive coping behaviors to manage the excess burden of minority stressors, including avoidance, rumination, and substance use.[9]

Strengthening protective environments—socioeconomic and environmental factors and conditions that interrupt or mitigate health risks and hazards—is an important primary prevention strategy for the adverse health outcomes that TGE youth face.[10] Protective environments act across multiple levels of influence in TGE youths' lives and help them thrive (e.g., supportive school policies, peer and community acceptance, and affirmative health services).[10] Protective environments have been associated with positive health outcomes among TGE people, including lower rates of depression, self-harm, suicidality, sexual violence victimization, substance use, and higher life satisfaction.[4,11–15]

Gaps remain in assessing the relationships between various protective environments and substance use among TGE youth. The purpose of this study was to examine associations between protective environments and recent binge drinking, lifetime high-risk substance use (HRSU), and self-rated health in a sample of TGE youth aged 13–24 years.
Given the context of high rates of discrimination experienced within their communities, unsupportive families and familial rejection, and experiences of homelessness among TGE youth, this study examined perceived community tolerance, perceived family support, and housing stability as hypothesized protective environments for TGE youth.[10,16,17] Protective environments are hypothesized to be associated with lower odds of substance use and poor health.

Greater understanding of protective environments can contribute to the literature by not only identifying disparities for TGE youth, but shifting the focus to understanding factors that may mitigate them. This study supports this objective by looking at this specific set of protective environments, especially community tolerance and housing stability that have not been explored enough in this population or with this set of outcomes.

Methods

The Centers for Disease Control and Prevention (CDC) conducted the web-based *Survey of Today's Adolescent Relationships and Transitions* (START) with NORC at the University of Chicago and the Fenway Institute from January to April 2018. Cognitive interviews were conducted with eight youth and the survey was reviewed by a Youth Community Advisory Board to gather feedback and make improvements to the survey before data collection began.[18]

Youth were eligible to complete the survey if they lived in the United States, understood English, and were either (1) cisgender males aged 13–18 years who identify as gay, bisexual, pansexual, and queer or who report same sex attraction or behavior; or (2) TGE youth aged 13–24 years. These groups were chosen as they are currently underrepresented in research, in part, due to their relative lack of connection to a LGBTQ+ community, greater internalization of stigma, and lower likelihood to have disclosed their sexual or gender identity.[18]

Youth were recruited via Facebook, Snapchat, and Instagram with tailored ads.[18–20] The ads included static images and short videos designed to appeal to both target groups as well as the general youth population. They were also designed to include and appeal to youth of color to ensure the survey captured the experiences of diverse TGE youth. Participants were offered a $10 Amazon gift code upon completion of the survey.[18] People from the same IP address were prohibited from completing the survey multiple times, and data were checked to remove duplicate data with the same IP address.

Study procedures were approved by the Institutional Review Board (IRB) at NORC at the University of Chicago and the Office of Management and Budget (No. 0920-0840). Youth gave their consent to participate by clicking "continue" after reading a page describing their rights as a participant, confidentiality and voluntariness, and risks of participation in the

study. To protect youth privacy and protect youth who were not yet out, the IRB granted a waiver of documentation of consent and a waiver of parental permission. More information on the targeted recruitment strategy was published previously.[18] This study analyzed the subsample of 1567 TGE participants. IRB review was not required for this secondary analysis.

Measures

Gender identity was based on two questions: "What sex were you assigned at birth, on your original birth certificate?" and "How do you currently describe your gender?"[21,22] Participants were considered TGE if they identified as "transgender male-to-female" (MTF), "transgender female-to-male" (FTM), "gender queer/gender nonconforming," or "something else," or if their response to the gender identity question did not match their sex assigned at birth.[23] TGE identity was collapsed into MTF, FTM, and gender expansive (genderqueer/gender nonconforming or something else).

Protective environments.—Perceived community tolerance was measured by asking participants to rate their agreement with the statement: "Most people who live near where I do are tolerant of transgender or gender nonconforming individuals" on a five-point scale.[24] Responses were categorized as either agreeing (i.e., "agree" and "strongly agree") or disagreeing (i.e., "neither agree nor disagree," "disagree," and "strongly disagree").

For perceived family support, participants were first asked: "Have you told another person about being transgender or gender nonconforming?" If a participant answered "no," they were categorized as not out. If they answered "yes," they were then asked: "In general, how supportive is your family of you being transgender or gender nonconforming?" and asked to rate their level of support on a four-point scale. Responses were categorized as either supportive (i.e., "somewhat supportive" and "very supportive") or not supportive (i.e., "not very supportive" and "not at all supportive"). Perceived family support, therefore, included three categories: not out, out with no family support, and out with family support. Out with no family support was used as the reference category.

Housing stability was measured by the question: "where are you currently living or staying most of the time?"[25] Participants were categorized as stably housed if they responded "at a parent's house or apartment," "at another family member's house or apartment," or "at own house or apartment," and were categorized as not stably housed if they responded "at a nonfamily member's house or apartment," "foster home or group home," "rooming, boarding halfway house, or a shelter/welfare hotel," or "on the street." Participants who selected "some other place not mentioned" were asked to specify and were categorized based on their response.

Health outcomes.—The analysis included three health outcomes: recent binge drinking, lifetime HRSU, and self-rated health. Recent binge drinking was measured by three questions. Participants were first asked: "During your life, on how many days have you had at least one drink of alcohol?"[26] If a participant answered greater than "zero days," they were then asked: "During the past 30 days, on how many days, if any, did you have at least one drink of alcohol?"[26] If a participant answered any response greater than "zero days,"

they were then asked: “During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?”[26] Responses were categorized as either no binge drinking (i.e., “0 days” for any of the three questions) or recent binge drinking (i.e., “1 day” to “all 30 days”).

Lifetime HRSU was measured by participants’ responses to three parts of one question: “During your life, how many times have you used any of the following substances? 1) cocaine, 2) methamphetamines, and 3) heroin.”[26] If a participant answered “0 times” to all three parts, they were categorized as having no lifetime HRSU. If a participant answered any response from “1 or2times” to “40 or more times” to any of the three parts, they were categorized as having lifetime HRSU. Self-rated health was measured by asking: “In general, how is your health?” in which participants were asked to rate their health from “poor” to “excellent.”[27] Responses were categorized as either good (i.e., “excellent,” “very good,” and “good”) or poor (i.e., “fair” and “poor”).

Control variables.—Models included five variables to account for confounding, including age, TGE identity, race and ethnicity, metropolitan status, and a measure of health-related adversity.

Race and ethnicity were included with the recognition that structural racism is a root cause of health inequities and drives the inequitable distribution of social and structural determinants of health.[28] Race and ethnicity were measured by two questions: “Do you consider yourself to be Hispanic or Latino/a” and “Which racial group or groups do you consider yourself to be in?” Participants were categorized as either White, Hispanic (any race), Black, Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native (AIAN), or multiracial. Due to small cell sizes, TGE youth who identified as Asian, AIAN, Native Hawaiian or other Pacific Islander, and multiracial were combined into the other/multiracial category.

Social norms and antidiscrimination policies can differ by location, impacting TGE youths’ environments.[29] As such, metropolitan status was included to control for these differences. Participants were asked, “Would you say you live in”: and were provided with four options, which were then categorized into urban/big cities, small cities or suburbs, or rural areas.[30] Lack of health care coverage and access to affirmative and transition-related care is an additional risk factor for adverse health outcomes among TGE populations.[5] As such, ability to afford health costs was included as a measure of participants’ health-related adversity.[24] Ability to afford health costs was measured by the question: “During the past 12 months, was there any time when you needed medical care but didn’t get it because it costs too much money?” with response options of yes or no.

For all measures, “does not apply,” “don’t know,” and “prefer not to answer” responses were excluded.

Data analysis

Descriptive statistics and significance tests—bivariate *t*-tests, chi-squared tests of independence, and pairwise comparisons of categorical variables with three or more

categories—were used to describe the sample.[31,32] Logistic regression in the R statistical package was used to estimate the association between protective environments and health outcomes controlling for age, TGE identity, race and ethnicity, metropolitan status, and ability to afford health costs in the past 12 months.[33] For the protective environment variables and the ability to afford health costs variable, the negative response categories were used as the referents to explicitly examine the positive, protective nature of the variables.

For the control variables, the modal categories were used as the referents. All models used listwise deletion for missing data with significance level of $p < 0.05$ and were mutually adjusted. Due to the age range represented in the sample extending from age 13–24, additional models were run to test the moderating effect of age (13–17 vs. 18–24) on the effect of the protective environment variables.

Results

Overall, 28.1% of participants reported that people who lived near them were tolerant of transgender people, 32.8% reported that their family was at least somewhat supportive of their TGE identity, and 77.0% were stably housed. Participants identified as 44.6% MTF, 28.7% FTM, and 26.7% gender expansive. Twenty-two percent of participants had not told anyone about their TGE identity (Table 1).

Table 2 shows the adjusted odds ratios and the 95% confidence intervals (CI) for the protective environments model. Living in a tolerant community was associated with lower odds of self-rated poor health. Having a supportive family was not significantly associated with any of the outcomes compared to having an unsupportive family. TGE youth who had not told anyone about their TGE identity had higher odds of recent binge drinking and lifetime HRSU compared to those who had an unsupportive family. Having stable housing was associated with lower odds of recent binge drinking, lifetime HRSU, and self-rated poor health.

Table 2 also highlights significant relationships between the control variables and the health outcomes. Older age was associated with higher odds of recent binge drinking and lifetime HRSU. Identifying as FTM or gender expansive was associated with lower odds of recent binge drinking and lifetime HRSU, but higher odds of self-rated poor health. Identifying as another race and ethnicity or multiracial was associated with lower odds of recent binge drinking. Being able to afford health costs was associated with lower odds of self-rated poor health.*

Figure 1 shows the interaction findings, demonstrating the effect of age on the association between housing stability and recent binge drinking for the two age groups. The age effect for recent binge drinking among TGE youth was larger for stably housed youth compared to unstably housed youth. Unstably housed TGE youth, regardless of age, had higher predicted

*Sensitivity analyses were performed to test the categorization of living “at a nonfamily member’s house or apartment” as unstably housed, and no significant differences from the main analysis presented were observed. Similarly, sensitivity analyses were performed on the TGE identity variable, stratifying gender expansive youth by sex assigned at birth. The sensitivity analysis did not impact the statistical inferences presented.

probabilities of recent binge drinking than any stably housed youth. There was a 98% increase in the predicted probability of recent binge drinking in younger TGE youth (aged 13–17) with unstable housing (0.83) compared to stable housing (0.42).

Discussion

This study examined the relationship between protective environments of perceived community tolerance, perceived family support, and housing stability, and substance use and self-rated health among TGE youth aged 13–24 years in the United States. TGE youth reported low levels of perceived community tolerance and perceived family support, and a much lower proportion of stable housing compared to a national estimate for all U.S. youth (77% vs. 90%).[17]

Perceived community tolerance was associated with lower levels of self-rated poor health. Housing stability was associated with lower levels of recent binge drinking, lifetime HRSU, and self-rated poor health. Recent binge drinking and lifetime HRSU were significantly higher among TGE youth who had not told anyone about their TGE identity compared to youth who were out but had an unsupportive family. However, having a supportive family was not significantly associated with any of the outcomes.

These findings underscore the importance of creating safe, supportive environments for TGE youth—especially in housing and at the community level. This research is among the first to examine protective environments for substance use among TGE youth. Nevertheless, these findings are consistent with similar studies on protective environments among youth generally.[34–37]

Perceived community tolerance has previously been associated with lower rates of depression among TGE people.[15] Although stable housing as a protective environment for substance use has not been investigated among TGE youth, housing status has been identified as a risk factor for substance use among lesbian, gay, and bisexual youth.[38] However, stable housing may only be protective when the housing environment is accepting and safe; otherwise, homes can be a site of risk.[39] More research is needed to understand the complexities of family and community tolerance and housing, and their impact on TGE youth substance use and health.

Family support has been investigated extensively among TGE youth. Perceived family support has been found to be protective for TGE youth against depression, self-harm, suicidality, sexual violence victimization, and substance use, and associated with higher life satisfaction.[4,11–14] Although this present analysis of perceived family support garnered mixed findings, the direction of the results is consistent with these previous studies. The notable proportion of this sample of TGE youth who had not told anyone about their TGE identity may reflect fear of rejection and other forms of stigma.

These results highlight the importance of community and structural factors for the health of TGE youth, indicated by the finding that perceived community tolerance was associated with self-rated health, and housing stability was associated with all three outcomes. As such, these findings suggest that programs and policies that address social norms and promote

community acceptance and structural equity may be necessary to impact the health of TGE youth. More research should examine the protective nature of chosen family and other supportive relationships in TGE youths' lives. Future research could use longitudinal data to examine the nuances of the association between protective environments and health outcomes.

Limitations

The nonprobabilistic, social media recruiting strategy for this study means that results may not be generalizable to the general population of TGE youth, particularly youth without access to a computer or mobile device with internet access. The cross-sectional design means that causal and temporal relationships cannot be drawn. Although online data collection methods have been shown to garner greater reporting of risk behaviors compared to in-person surveys, the design of this study provides us with a strong look at TGE youth experiences with substance use and social experiences at a point in time.[40]

Youth who reported that they were currently staying "at a nonfamily member's house or apartment" were categorized as unstably housed to capture youth who are couch surfing or may not be stably housed long term. Although this may be an imperfect categorization, as it may incorrectly categorize youth who are staying with a chosen family member long term, the intention was to capture couch surfing as unstably housed to align with other surveys of youth homelessness.[17,41]

The present analysis of perceived family support did not measure the protective nature of chosen family, a critical consideration for TGE youth. Youth who were not out to anyone were not asked about their perceived family support. In addition, youth who were out to someone other than a family member but not a family member were still asked about family support, which may have resulted in a miscategorization or contributed to missing responses for the family support variable.

Conclusion

Protective factors, including safe, stable, nurturing relationships, and environments, are critical to children's health and wellbeing.[42] The findings in this study build upon research supporting the promotion of protective environments, as they can have important implications for prevention strategies to address known substance use and health inequities among TGE youth. Additional efforts are needed to address the root causes of TGE health inequities, including interventions to reduce stigma at all levels of social and structural influence.

Prevention strategies must contend with the social norms that perpetuate antitransgender stigma and discrimination through education, programs, and policy change. Efforts should include and uplift the perspectives of TGE youth and intervene to reduce factors associated with increased stressors.[6] Multidisciplinary involvement and action are needed to address the complex social and structural stigma that TGE youth experience to achieve health equity for all TGE youth.

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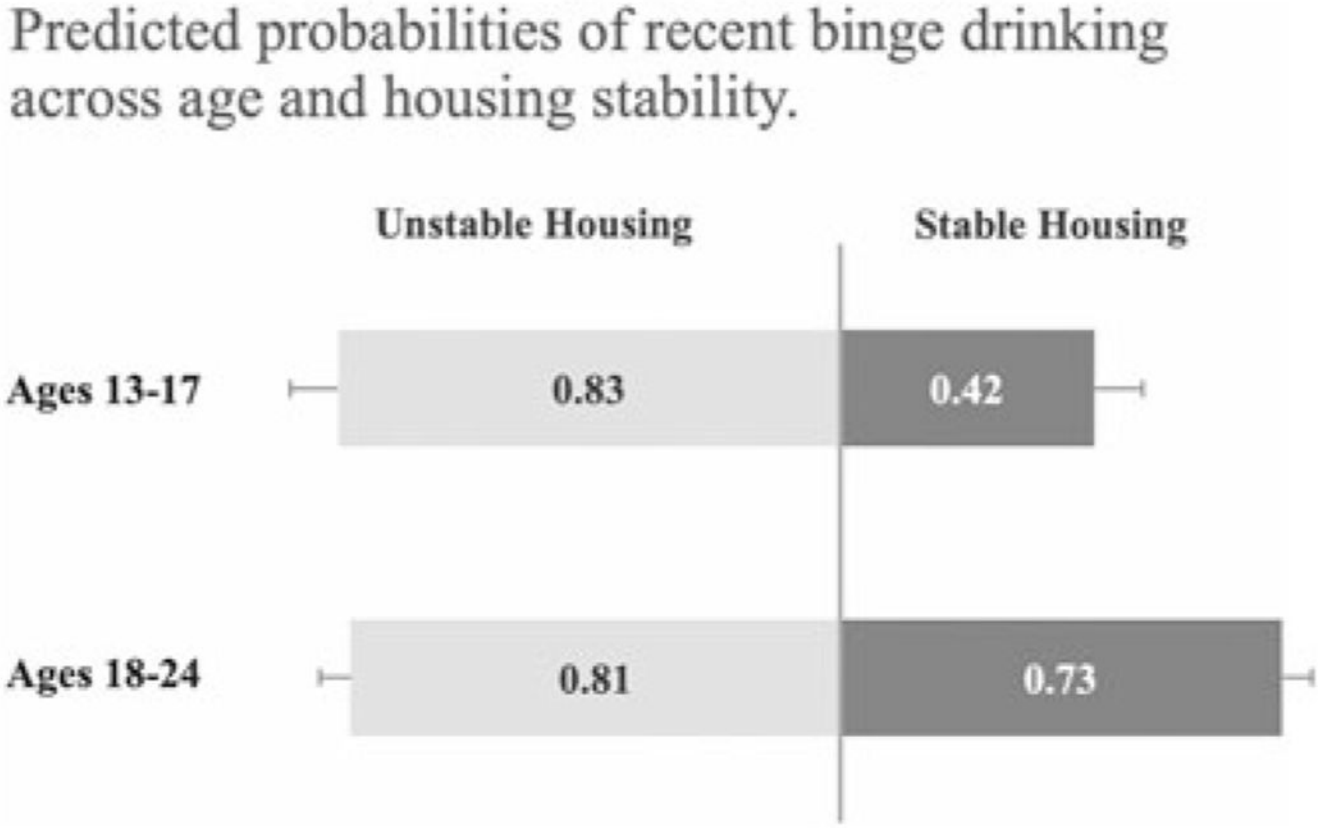

FIG. 1.

Interaction plot for age moderating the effect of housing stability on recent binge drinking.

Note: The predicted marginal probabilities presented in the figure display the differences in the predicted probability of recent binge drinking across age and housing stability, holding all covariates at their modal category. Predicted probabilities are calculated from a model testing the effect of age on all three protective environment variables. No other interactions between age and the protective environment variables were significant.

Table 1.

PARTICIPANT CHARACTERISTICS AND BIVARIATE ANALYSES FOR TRANSGENDER AND GENDER EXPANSIVE YOUTH AGED 13–24 YEARS (*N*= 1567)

			Recent binge drinking (0.5% missing)			Lifetime high-risk substance use (0.3% missing)			Self-rated health (4.7% missing)		
			Yes	No		Yes	No		Poor	Good	
	Overall n (% missing)	Overall %	Row %	Row %	p	Row %	Row %	p	Row %	Row %	p
Overall	1567		46.4	53.6		33.9	66.1		20.6	79.4	
Community tolerance	(2.1%)										
Yes	440	28.1	44.6	55.4	0.38	25.6	74.4	<0.001*	14.4	85.6	<0.001*
No	1095	69.9	47.3	52.7		37.1	62.9		22.8	77.2	
Family support	(14.2%)										
Yes	514	32.8	32.2[a]	67.8	<0.001*	13.7[a]	86.3	<0.001*	19.4[a,b]	80.6	0.006*
No	492	31.4	38.8[b]	61.2		20.8[b]	79.2		25.0[a]	75.0	
Not out	339	21.6	72.1[c]	27.9		69.8[c]	30.2		15.9[b]	84.1	
Housing stability	(4.3%)										
Yes	1207	77.0	35.7	64.3	<0.001*	18.6	81.4	<0.001*	21.6	78.4	0.06
No	292	18.6	80.1	19.9		83.2	16.8		16.4	83.6	
Age, mean (SD)	18.8 (2.8)		20.2 (2.3)	17.5 (2.6)	0.04*	20.1 (2.2)	18.1 (2.8)	0.03*	18.1 (2.6)	18.8 (2.8)	0.01*
TGE identity	(0%)										
Male-to-female	699	44.6	80.3[a]	19.7	<0.001*	63.3[a]	36.7	<0.001*	9.7[a]	90.3	<0.001*
Female-to-male	450	28.7	16.7[b]	83.3		8.7[b]	91.3		29.1[b]	70.9	
Gender expansive	418	26.7	22.1[b]	77.9		11.8[b]	88.2		28.0[b]	72.0	
Race and ethnicity	(1.1%)										
White	725	46.3	37.5[a]	62.5	<0.001*	22.8[a]	77.2	<0.001*	25.5[a]	74.5	<0.001*
Hispanic	373	23.8	57.1[b]	42.9		41.4[b]	58.6		16.9[b]	83.1	
Black	171	10.9	68.8[c]	31.2		54.1[c]	45.9		13.3[b]	86.7	
Other/multiracial	280	17.9	43.5[a]	56.5		42.1[b]	57.9		17.3[b]	82.7	
Metropolitan status	(0.9%)										
Small city or suburbs	1024	65.3	47.1[b]	52.9	<0.001*	35.5[a]	64.5	<0.001*	20.2[a]	79.8	<0.001*
Urban/big city	367	23.4	55.0[a]	45.0		37.3[a]	62.7		15.3[a]	84.7	

			Recent binge drinking (0.5% missing)			Lifetime high-risk substance use (0.3% missing)			Self-rated health (4.7% missing)		
			Yes	No		Yes	No		Poor	Good	
	Overall n (% missing)	Overall %	Row %	Row %	p	Row %	Row %	p	Row %	Row %	p
Rural	162	10.3	26.5[c]	73.5		19.8[b]	80.2		30.6[b]	69.4	
Afford health costs	(6.5%)										
Yes	964	61.5	43.2	56.8	0.11	30.5	69.5	0.24	16.6	83.4	<0.001 *
No	501	32.0	47.8	52.2		33.6	66.4		28.5	71.5	

* Significant p value, $p < 0.05$. All p values were estimated using chi-squared tests of independence except for the values for age, which use t-tests. Pairwise comparisons of categorical variables with three or more categories are denoted with lettered superscripts. Cells sharing the same letter do not significantly differ ($p < 0.05$). Overall percentages are calculated out of the overall $N = 1567$. Row percentages are calculated out of the row n for each outcome.

SD, standard deviation; TGE, transgender and gender expansive.

Table 2.

ADJUSTED ODDS OF ADVERSE HEALTH OUTCOMES FOR TRANSGENDER AND GENDER EXPANSIVE YOUTH BY PERCEIVED COMMUNITY TOLERANCE, PERCEIVED FAMILY SUPPORT, AND HOUSING STABILITY

	Recent binge drinking (n = 1220)		Lifetime high-risk substance use (n = 1218)		Self-rated poor health (n = 1214)	
	aOR	**95% CI**	**aOR**	**95% CI**	**aOR**	**95% CI**
Community tolerance	1.12	0.81–1.57	0.86	0.59–1.26	0.64*	0.44–0.90
Family support						
No	1	Reference	1	Reference	1	Reference
Yes	0.83	0.59–1.17	0.94	0.62–1.43	0.83	0.59–1.17
Not out	1.81**	1.19–2.75	6.20***	4.02–9.66	1.15	0.73–1.79
Housing stability	0.45***	0.30–0.68	0.09***	0.06–0.13	0.62*	0.40–0.98
Age	1.30***	1.22–1.38	1.19***	1.11–1.27	0.98	0.92–1.04
TGE identity						
Male-to-female	1	Reference	1	Reference	1	Reference
Female-to-male	0.12***	0.08–0.18	0.37***	0.23–0.61	4.26***	2.63–7.05
Gender expansive	0.16***	0.11–0.23	0.34***	0.21–0.54	3 91***	2.46–6.32
Race and ethnicity						
White	1	Reference	1	Reference	1	Reference
Hispanic	0.97	0.65–1.42	1.39	0.89–2.14	0.92	0.61–1.36
Black	0.98	0.58–1.65	1.39	0.79–2.43	0.85	0.45–1.54
Other race/multiracial	0.49**	0.30–0.77	1.66	0.99–2.77	1.00	0.65–1.51
Metropolitan status						
Small city or suburbs	1	Reference	1	Reference	1	Reference
Urban/big city	1.05	0.73–1.51	0.71	0.47–1.08	0.86	0.57–1.27
Rural	0.70	0.41–1.18	0.65	0.33–1.23	1.42	0.91–2.18
Afford health costs	0.79	0.57–1.09	0.79	0.55–1.14	0.54***	0.40–0.74

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$.

All models were mutually adjusted. For the protective environment variables and ability to afford health costs, the negative response categories were used as the referents. For the remaining controls, modal categories were used as the referents.

aOR, adjusted odds ratio; CI, confidence interval.