Social Connectedness Factors that Facilitate Use of Healthcare Services: Comparison of Transgender and Gender Nonconforming and Cisgender Adolescents

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Objective To compare social connectedness factors that facilitate use of primary, dental, and mental healthcare services among transgender and gender nonconforming (TGNC) and cisgender adolescents.

Methods Data from the cross-sectional 2016 Minnesota Student Survey were used to examine protective social connectedness factors associated with use of different healthcare services among matched samples of 1916 TGNC and 1916 cisgender youth. Stratified, logistic regression analyses were used to examine background characteristics and social connectedness factors (parent connectedness, connections to other nonparental adults, teacher–student relationships, and friend connections) associated with use of each healthcare service within the last year.

Results For TGNC youth, but not for cisgender youth, higher levels of parent connectedness were associated with receipt of primary (OR, 2.26; 95% CI, 1.40-3.66) and dental (OR, 3.01; 95% CI, 1.78-5.08) care services, and lower levels of connectedness to nonparental adults was associated with receipt of mental healthcare (OR, 0.55; 95% CI, 0.33-0.93). Among cisgender youth, no protective factors were significantly associated with receipt of primary care services, higher levels of friend connections were associated with receipt of dental services (OR, 1.85; 95% CI, 1.10-3.09), and lower levels of parent connectedness were associated with receipt of mental healthcare (OR, 0.20; 95% CI, 0.10-0.40).

Conclusions To promote the health of TGNC youth, clinicians should understand the distinct factors associated with obtaining healthcare among this population such as the need for tailored efforts focused on strengthening connectedness between TGNC youth and their parents to facilitate receipt of needed care. *(J Pediatr 2019;211:172-8)*.

The healthcare needs of transgender and gender nonconforming (TGNC) individuals are often neglected within the U.S. healthcare system.[1,2] The National Academy of Medicine called for TGNC-specific research on health needs among adolescents.[3] TGNC youth are those for whom gender identity does not match their birth-assigned sex and/or whose gender identification may transcend the binary gender classification system.[4] Cisgender youth are those for whom gender identity is congruent with their birth-assigned sex.[4] Approximately 3.0% of adolescents identify as TGNC or are unsure of their gender identity.[5] Much evidence suggests that TGNC youth demonstrate greater mental health problems, compared with cisgender individuals.[4-10] In addition, TGNC adolescents experience significant physical health disparities,[3,5,11] report higher rates of general health concerns,[11] and are more likely to rate their health as fair or poor,[12,13] compared with cisgender youth. Thus, TGNC adolescents possess distinct healthcare needs. However, TGNC individuals experience barriers to obtaining high-quality healthcare owing in part to inadequate knowledge of transgender health issues, discrimination, and transphobia among clinicians.[2,11,14,15] For example, 33% of TGNC adults reported at least 1 negative experience with a medical provider owing to their gender,[14] and 1 in 5 were denied care.[3] Also, we previously reported that TGNC adolescents are less likely than cisgender youth to receive preventive primary and dental healthcare checkups,[13] which may delay receipt of needed services.

From a healthy youth development perspective, enhancing protective connectedness factors represents an important aspect of improving adolescent health outcomes.[16,17] We previously found that TGNC youth report lower levels of protective social connections, including family connectedness (eg, ability to talk with mother/father about problems and feeling cared for by parents and

TGNC	Transgender and gender nonconforming

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other adult relatives), teacher connectedness (eg, treated fairly by adults at school, feel cared for by teachers/adults at school), and community safety (eg, feeling safe going to/from school and feeling safe in one's community), compared with cisgender youth.[5] To our knowledge, researchers have not examined the role of social connectedness factors, except parent connectedness, in facilitating the use of healthcare services. Researchers found that adolescents with greater parent connectedness were less likely to have unmet physical or mental health needs.[18] However, researchers have not specifically examined the association between parent connectedness and the use of different healthcare services among TGNC youth. Further, a gap in the literature exists regarding the role of other protective social connectedness factors in facilitating receipt of healthcare among this population, or how significant factors may compare with those associated with receipt of care for cisgender youth.

We sought to address these gaps in the literature using matched, population-based samples of TGNC and cisgender youth, which builds on previous work examining prevalence rates of health indicators and preventive primary and dental care service use among TGNC youth.[11] One research question guided the primary analyses in the current study: What protective social connectedness factors (connections to parents, other nonparental adults, teachers/school adults, and friends) are associated with receipt of primary, dental, and mental healthcare during the past year for TGNC compared with cisgender youth?

Methods

The Minnesota Student Survey, an anonymous population-based survey, served as the data source for the current analyses. The development of the Minnesota Student Survey is a coordinated effort by the Departments of Education, Health, Human Services, and Public Safety.[19] The Minnesota Student Survey is administered every 3 years to students in grades 5, 8, 9, and 11. All public school districts in the state are invited to participate. In 2016, 85% of the invited districts had at least 1 eligible grade participate.[19] A question about gender identity only appeared on the high school survey; thus, our analysis was limited to students in grades 9 and 11. In 2016, 71% of 9th-grade and 61% of 11th-grade students statewide participated (n = 81,885). Parents provided passive consent, and students voluntarily agreed to participate. The University of Central Florida's Institutional Review Board approved this secondary data analysis.

Measures

Consistent with our previous work with this population-based data,[5,11] students' birth-assigned sex was assessed with the item: "What is your biological sex?" (male/female), and gender identity was determined by the question: "Do you consider yourself transgender, genderqueer, genderfluid, or unsure about your gender identity?" (yes/no). This 2-item approach is based on recommended, validated measures,[20,21] with modifications appropriate for population-based adolescent health surveys and to include newer terms used by adolescents reflecting a gender identity outside of the gender binary.[22]

The American Academy of Pediatrics' recommendations for preventive pediatric healthcare includes annual physical examinations for all adolescents.[23] Healthcare service variables were assessed with 3 items. A primary care visit was measured with: "When was the last time you saw a doctor or nurse for a check-up or physical examination when you were not sick or injured?" Dental care was measured with: "When was the last time you saw a dentist or dental hygienist for a regular check-up, examination or teeth cleaning or other dental work?" Response options for both were rated on a 4-point scale from during the last year to never. Students were categorized as either obtaining each service during the last year or not. Using the primary care and dental care variables,[11] we also added a measure for receipt of mental healthcare ("Have you ever been treated for a mental health, emotional or behavioral problem?"). Students who responded "yes, during the last year" were categorized as receiving mental healthcare.

To address significant gaps in the literature, we assessed 4 different protective social connectedness factors that could be associated with receipt of healthcare among youth—connections to parents, other nonparental adults, teachers/school adults, and friends—out of interest in these diverse social supports. Three items were used to create a composite parent connectedness variable: how often students could talk with their mother and their father about problems they were having, and how much they believed their parents cared about them ($\alpha = 0.67$). Connectedness to other nonparental adults was assessed using 2 items asking how much students believed other adult relatives and adults in your community cared about them ($\alpha = 0.71$). Teacher/school adult relationships were assessed with 6 items from the School Engagement Inventory[24] (eg, how much adults at their school treat students fairly, listen to students, care about students; $\alpha = 0.87$). Finally, friend connections were assessed with an item asking about how much students believed friends cared about them.

Demographic factors included sex assigned at birth (female vs male), grade (9th grade vs 11th grade), race/ethnicity (dichotomized to non-Hispanic white vs non-white), geographic location of one's school (Twin Cities Metropolitan area vs other, more rural areas in Minnesota), and food or housing insecurity (ie, during the last 30 days, had to skip meals because family did not have enough money to buy food and/or during the last 12 months, stayed in a shelter, somewhere not intended as a place to live, or someone else's home with or without a parent/adult family member because they had no other place to stay) as a proxy for socioeconomic status. Control variables included a physical disability or long-term health problem lasting 6 months or more (eg, asthma, cancer, diabetes, epilepsy; yes vs no) and perceived general health ("How do you describe your health in general?"; dichotomized to fair or poor vs excellent, very good, or good).

Data Analyses

We used a case-control matching procedure[25] to ensure any significant differences found between cisgender (n = 78 761) and TGNC (n = 2168) students represented actual differences, rather than having too much power owing to the very large sample of cisgender students.[13] Case-control matching allows for use of a quasi-experimental design method,[25,26] which served two main purposes in our case: (1) equaling the sample sizes to produce a sample with an exact amount of cisgender to TGNC students and (2) matching each TGNC student with a cisgender student on several important key variables to account for other potential sociodemographic factors besides gender and reduce selection bias[25] of cisgender students chosen for comparative analyses. Case-control matching requires defined tolerance levels or "fuzz factors" be entered that determine match tolerances (values range between 0 and 1) on key variables. We set all tolerance levels to zero or near zero, demanding an equal/near equal match on key variables.[25,26] We chose match selection without replacement to produce a matched sample with a 1:1 ratio of cisgender with TGNC students, where each respondent was only paired with 1 respondent from the other group. This procedure selected 1 cisgender student for each TGNC student in the dataset that met the stated tolerance levels for matching. Selected variables for matching included birth-assigned sex, race/ethnicity, grade, school location, and food/housing insecurity. We limited matching to variables that would allow us to examine the independent and dependent variables without influencing the effects of the independent variables on dependent variables (eg, issues of multicollinearity) and ensure we could interpret any differences observed between TGNC and cisgender youth as an effect of gender identity rather than a result of other potential differences in sociodemographic factors between the 2 groups and their effects.

After we secured our matched sample, we performed stratified analyses using SAS 9.4 (SAS Institute, Cary, North Carolina) to address the primary research question. Preliminary analyses were conducted using χ^2 tests to examine differences between TGNC and cisgender students regarding receipt of primary, dental, and mental healthcare services. Primary analyses were performed in 2 stages separately for the matched samples of TGNC and cisgender students. First, χ^2 and independent samples t tests were performed to examine bivariate relationships between each of the protective factors and demographic variables, and health service outcomes. In the second stage, variables that were significantly or marginally associated with an outcome in the first stage ($P < .10$) were entered together into logistic regression models to determine factors most strongly associated with obtaining each healthcare service. Continuous variables entered into logistic regression models were standardized on a 0-1 scale to make interpretations of ORs more comparable on the same metric. Thus, ORs for nondichotomous variables represented the likelihood of reporting a health service outcome for those at the highest end of the scale, compared with those at the lowest end. All regression models controlled for a physical disability or long-term health condition and perceived general health.

Results

The final matched sample (n = 3832) included 1916 matches of cisgender with TGNC students. In both the TGNC and cisgender samples, 29.4% were assigned male, 61.5% were non-Hispanic white, 59.0% were in grade 9, 54.2% attended school in the Minneapolis Twin Cities area, and 19.8% were food/housing insecure. In total, 252 TGNC students (11.6%) were unable to be matched with cisgender students.

Compared with cisgender students,[13] TGNC students were significantly less likely to receive primary (65.0% vs 60.6%, respectively; $\chi^2 = 7.76$; $P < .01$) and dental (76.5% vs 72.2%, respectively; $\chi^2 = 9.49$; $P < .01$) healthcare services during the past year. Conversely, and a new finding from this study, TGNC youth were significantly more likely to obtain mental healthcare during the preceding year, compared with cisgender adolescents (35.7% vs 15.7%, respectively; $\chi^2 = 196.8$; $P < .001$).

Table I presents findings from bivariate tests examining demographic factors associated with each health service outcome. Compared with TGNC and cisgender youth who did not obtain mental healthcare, those who did

Table I. Among youth who saw or did not see a healthcare provider, different demographic characteristics

	Primary care			Dental care			Mental healthcare		
Demographic characteristics	**Yes**	**No**	**χ^2**	**Yes**	**No**	**χ^2**	**Yes**	**No**	**χ^2**
TGNC									
Biological sex, female	71.8	68.6	2.31, $P = .128$	71.1	69.1	0.72, $P = .395$	**80.5**	**65.1**	**50.03, $P < .001$**
Race, non-Hispanic, white	61.2	62.1	0.14, $P = .707$	**65.6**	**51.4**	**32.52, $P < .001$**	**67.8**	**58.0**	**17.60, $P < .001$**
Grade, 9	59.9	57.8	0.84, $P = .361$	58.9	59.3	0.03, $P = .865$	58.1	59.2	0.22, $P = .636$
School location, Twin Cities Metro	**55.9**	**51.8**	**3.12, $P = .077$**	**55.7**	**50.7**	**3.93, $P = .048$**	**57.2**	**52.5**	**3.89, $P = .049$**
Food/housing insecure	**16.9**	**24.0**	**14.60, $P < .001$**	**16.6**	**27.5**	**29.09, $P < .001$**	**23.5**	**17.7**	**9.30, $P = .002$**
Cisgender									
Biological sex, female	**72.6**	**66.9**	**6.90, $P = .009$**	**71.8**	**66.5**	**5.40, $P = .034$**	**81.4**	**68.5**	**20.17, $P < .001$**
Race, non-Hispanic, white	61.7	61.6	0.00, $P = .948$	**66.9**	**45.5**	**65.97, $P < .001$**	**66.6**	**60.7**	**3.61, $P = .058$**
Grade, 9	**61.6**	**53.4**	**11.80, $P < .001$**	59.2	57.2	0.51, $P = .475$	59.1	58.6	0.03, $P = .874$
School location, Twin Cities Metro	55.2	52.0	1.74, $P = .187$	**52.4**	**59.3**	**6.39, $P = .012$**	54.1	54.3	0.01, $P = .942$
Food/housing insecure	**18.2**	**22.5**	**5.22, $P = .022$**	**15.1**	**31.2**	**49.09, $P < .001$**	**32.4**	**17.4**	**35.67, $P < .001$**

Bolded results were significant at $P < .10$.

were more likely to identify as non-Hispanic white. Being assigned female was associated with receipt of all services among cisgender students, yet was only associated with receipt of mental health services for TGNC adolescents. Among both samples, being food/housing secure was associated with primary and dental care; however, those who obtained mental health services were more likely to be food/housing insecure. Among TGNC youth, those attending school in the Twin Cities Metro area were significantly more likely to obtain primary, dental, and mental healthcare, yet school location was only associated with receipt of dental care among cisgender students.

Table II presents findings regarding the associations between the protective social connectedness factors and health service outcomes in bivariate tests. TGNC and cisgender students who obtained primary care services were significantly more likely to report higher levels of connectedness to parents, other nonparental adults, teachers/school adults, and friends than students who did not obtain primary care services. The relationships between the protective factors and receipt of dental care were the same as those for receipt of primary care services for both samples, except that levels of teacher–student relationships were not significantly different for TGNC youth who did and did not receive dental care. All of the social connectedness factors were significantly related to receipt of mental healthcare among both samples, but in the opposite direction as those for receipt of primary and dental care. Specifically, TGNC and cisgender students who did not receive mental healthcare reported higher levels of all the social connectedness factors than those who did receive mental healthcare.

Findings from logistic regression analyses examining factors most strongly associated with obtaining each health service are provided in Tables III and IV. For TGNC youth, higher levels of parent connectedness were associated with greater odds of obtaining primary care services (OR, 2.26; 95% CI, 1.40-3.66; $P < .001$); being food/housing insecure was inversely associated with receipt of these services (OR, 0.74; 95% CI, 0.58-0.95; $P < .05$). For cisgender youth, being assigned female (OR, 1.24; 95% CI, 1.00-1.54; $P < .05$) and younger age (OR, 1.37; 95% CI, 1.12-1.67; $P < .01$) were associated with receiving primary care services, yet parent connectedness and food/housing security were not.

Among TGNC students, receiving dental care was associated with identifying as non-Hispanic white (OR, 1.76; 95% CI, 1.42-2.19; $P < .001$), school location in the Twin Cities area (OR, 1.35; 95% CI, 1.09-1.67; $P < .01$), and higher levels of parent connectedness (OR, 3.01; 95% CI, 1.78-5.08; $P < .001$). However, being food/housing insecure was inversely associated with dental care (OR, 0.70; 95% CI, 0.54-0.90; $P < .01$). Factors associated with receipt of dental services among cisgender students were identifying as non-Hispanic white (OR, 2.03; 95% CI, 1.60-2.57; $P < .001$) and higher levels of friend connections (OR, 1.85; 95% CI, 1.10-3.09; $P < .05$). Food/housing insecurity was associated with lower odds of receiving dental care (OR, 0.60; 95% CI, 0.45-0.79; $P < .001$). Neither school location nor parent connectedness were significantly related to receipt of dental care among cisgender youth.

Finally, for TGNC youth, mental healthcare was associated with being assigned female (OR, 2.00; 95% CI, 1.58-2.54; $P < .001$), identifying as non-Hispanic white (OR, 1.60; 95% CI, 1.29-1.99; $P < .001$), attending school in the Twin Cities area (OR, 1.27; 95% CI, 1.04-1.56; $P < .05$), being food/housing insecure (OR, 1.40; 95% CI, 1.26-2.36; $P < .05$), and lower levels of connectedness to nonparental adults (OR, 0.55; 95% CI, 0.33-0.93; $P < .05$). For cisgender students, mental healthcare was associated with being assigned female (OR, 1.80; 95% CI, 1.89-2.52; $P < .001$), identifying as non-Hispanic white (OR, 1.77; 95% CI, 1.32-2.37; $P < .001$), being food/housing insecure (OR, 1.72; 95% CI, 1.26-2.36; $P < .001$), and lower levels of parent connectedness (OR, 0.20; 95% CI, 0.10-0.40; $P < .001$).

Discussion

We addressed gaps in the literature by identifying protective social connectedness factors that facilitate the use of

Table II. Among youth who saw and did not see a healthcare provider, the mean level (SD) of protective social connectedness factors

	Primary care			Dental care			Mental healthcare		
Social connectedness factors	**Yes**	**No**	***t* Test**	**Yes**	**No**	***t* Test**	**Yes**	**No**	***t* Test**
TGNC									
Parent connectedness	**3.67 (0.92)**	**3.41 (0.97)**	**5.79, $P < .001$**	**3.66 (0.92)**	**3.33 (0.97)**	**6.98, $P < .001$**	**3.44 (0.93)**	**3.64 (0.95)**	**4.39, $P < .001$**
Nonparental adult connections	**3.00 (1.09)**	**2.77 (1.09)**	**4.59, $P < .001$**	**2.97 (1.10)**	**2.77 (1.08)**	**3.51, $P < .001$**	**2.69 (1.01)**	**3.03 (1.12)**	**6.90, $P < .001$**
Teacher–student relationships	**2.73 (0.59)**	**2.64 (0.65)**	**3.18, $P = .009$**	2.70 (0.62)	2.67 (0.62)	0.83, $P = .409$	**2.59 (0.61)**	**2.75 (0.61)**	**5.49, $P < .001$**
Friend connections	**3.78 (1.17)**	**3.54 (1.23)**	**4.25, $P < .001$**	**3.76 (1.17)**	**3.51 (1.24)**	**4.13, $P < .001$**	**3.55 (1.27)**	**3.77 (1.15)**	**3.71, $P < .001$**
Cisgender									
Parent connectedness	**4.11 (0.83)**	**4.02 (0.89)**	**2.22, $P = .027$**	**4.15 (0.82)**	**3.85 (0.90)**	**6.09, $P < .001$**	**3.66 (0.92)**	**4.16 (0.81)**	**8.69, $P < .001$**
Nonparental adult connections	**3.57 (1.00)**	**3.40 (1.04)**	**3.50, $P < .001$**	**3.60 (0.99)**	**3.23 (1.06)**	**6.69, $P < .001$**	**3.07 (0.99)**	**3.59 (1.00)**	**8.02, $P < .001$**
Teacher–student relationships	**2.83 (0.58)**	**2.76 (0.58)**	**2.60, $P = .009$**	**2.83 (0.57)**	**2.74 (0.58)**	**2.81, $P = .005$**	**2.64 (0.58)**	**2.84 (0.58)**	**5.47, $P < .001$**
Friend connections	**3.99 (1.04)**	**3.85 (1.10)**	**2.68, $P = .007$**	**4.03 (1.01)**	**3.66 (1.17)**	**5.94, $P < .001$**	**3.62 (1.12)**	**4.00 (1.04)**	**5.61, $P < .001$**

Bolded results were significant at $P < .10$.
Ranges for parent connectedness, nonparental adult connections, and friend connections were 1-5; range for student–teacher relationships was 1-4.

Table III. Factors associated with seeing a healthcare provider among TGNC youth

Independent variables	Primary care	Dental care	Mental healthcare
Biological sex, female	—	—	**2.00 (1.58-2.54)***
Race, non-Hispanic, white	—	**1.76 (1.42-2.19)***	**1.60 (1.29-1.99)***
School location, Twin Cities Metro	1.18 (0.97-1.43)	**1.35 (1.09-1.67)†**	**1.27 (1.04-1.56)‡**
Food/housing insecure	**0.74 (0.58-0.95)‡**	**0.70 (0.54-0.90)†**	**1.40 (1.08-1.81)‡**
Parent connectedness	**2.26 (1.40-3.66)***	**3.01 (1.78-5.08)***	0.92 (0.55-1.53)
Nonparental adult connections	1.08 (0.66-1.76)	0.80 (0.48-1.32)	**0.55 (0.33-0.93)‡**
Teacher–student relationships	1.17 (0.68-2.03)	—	0.69 (0.39-1.23)
Friend caring	1.40 (0.97-2.02)	1.37 (0.92-2.04)	0.89 (0.61-1.30)

Continuous social connectedness variables were put on a 0-1 scale to make ORs more comparable. Thus, ORs for nondichotomous variables represented the likelihood of reporting a health service outcome for those at the highest end of the scale, compared with those at the lowest end.
All models controlled for a physical disability or health condition and perceived general health. Factors without a result were not significant in the bivariate test.
Values are OR (95% CI).
Bolded results are significant at $P < .05$.
*$P < .001$.
†$P < .01$.
‡$P < .05$.

healthcare services among TGNC youth, as compared with cisgender youth. Higher levels of parent connectedness were associated with receipt of primary and dental care for TGNC adolescents. In contrast, parent connectedness did not emerge as an important factor associated with obtaining these services among cisgender youth. For TGNC youth, lower levels of connectedness to nonparental adults and, for cisgender youth, lower levels of parent connectedness, were related to receiving mental healthcare. Clinicians working with TGNC young people should ensure parents understand the valued role they play in their children's lives and facilitating receipt of healthcare for their children.[27] Clinicians should provide resources to parents that discuss gender identity, TGNC youth health, and lesbian, gay, bisexual, and transgender-friendly organizations/health centers in their local area. Informing parents about Parents and Friends of Lesbians and Gays chapters also could prove beneficial.[28] Further, if parents cannot show their children needed support and care, clinicians are encouraged to explore with TGNC adolescents other prosocial adults within their lives who could help to facilitate their use of healthcare services and decrease the likelihood of experiencing mental health problems. TGNC youth might create "families of choice" that provide greater support and stronger feelings of connectedness than their families of origin.[28] Clinicians should respect and encourage these relationships, while attempting to improve parent–child relationships, when appropriate.

Table IV. Factors associated with seeing a healthcare provider among cisgender youth

Independent variables	Primary care	Dental care	Mental healthcare
Biological sex, female	**1.24 (1.00-1.54)***	1.15 (0.89-1.47)	**1.80 (1.89-2.52)†**
Race, Non-Hispanic, white	—	**2.03 (1.60-2.57)†**	**1.77 (1.32-2.37)†**
Grade, 9	**1.37 (1.12-1.67)‡**	—	—
School location, Twin Cities Metro	—	0.88 (0.69-1.11)	—
Food/housing insecure	0.87 (0.67-1.13)	**0.60 (0.45-0.79)†**	**1.72 (1.26-2.36)†**
Parent connectedness	1.09 (0.62-1.93)	1.85 (0.98-3.48)	**0.20 (0.10-0.40)†**
Nonparental adult connections	1.48 (0.83-2.65)	1.45 (0.75-2.79)	0.54 (0.25-1.14)
Teacher–student relationships	1.49 (0.82-2.72)	1.07 (0.53-2.15)	0.80 (0.36-1.79)
Friend caring	1.17 (0.74-1.85)	**1.85 (1.10-3.09)***	0.72 (0.40-1.27)

Continuous social connectedness variables were put on a 0-1 scale to make ORs more comparable. Thus, ORs for nondichotomous variables represented the likelihood of reporting a health service outcome for those at the highest end of the scale, compared with those at the lowest end.
Values are OR (95% CI).
Factors without a result were not significant in the bivariate test.
Bolded results are significant at $P < .05$.
*$P < .05$.
†$P < .001$.
‡$P < .01$.

TGNC youth who were food/housing insecure were significantly less likely to obtain primary and dental care than those who were food/housing secure. Among cisgender youth, this association was only evident for receipt of dental care. Consistent with existing research, these findings suggest that poverty represents a barrier to using preventive healthcare services,[29] particularly for low-income and racial/ethnic minority transgender people.[30] However, food/housing insecurity was actually associated with receipt of mental healthcare among TGNC and cisgender youth. Thus, the relationship between poverty and receipt of healthcare services might depend on the type of services sought. Co-located primary, dental, and mental health services might facilitate use of all services among young people.

TGNC youth who attended school in the Twin Cities Metro area were significantly more likely than those in more rural areas to receive dental and mental health services. In contrast, school location did not emerge as an important factor in the receipt of care for cisgender students. TGNC students living in more rural areas might not have access to trans-friendly services where they feel comfortable obtaining specialty care. TGNC young people report experiencing discrimination within healthcare settings, resulting in them delaying or avoiding physical preventive and mental healthcare.[2] Health systems and clinics are encouraged to implement policies and procedures that help ensure TGNC youth receive high-quality care.[31] Further, clinical training programs should systematically implement and evaluate structured curricula[32] that ensures clinicians possess the requisite skills to provide appropriate care to TGNC adolescents. Resources exist through the World Professional Association for Transgender Health,[33] Physicians for Reproductive Health,[34] and the National LGBT Health Education Center,[35] as well as documents such as the Fenway Guide to Lesbian, Gay, Bisexual, and Transgender Health,[36] and Australian Standards of Care

and Treatment Guidelines for Trans and Gender Diverse Children and Adolescents.[37]

This study also built on our previous research showing TGNC youth were significantly less likely to obtain primary and dental care services[13] by demonstrating they are more likely to obtain mental health care, compared to cisgender youth. Healthcare providers might need to engage in intentional, proactive outreach efforts to connect with TGNC youth to help ensure their healthcare needs are met. Healthcare clinics and systems of care should remove barriers that preclude TGNC adolescents from obtaining needed care, and ensure safe, appropriate, and sensitive care is provided to all TGNC patients.[31,38]

This study included several strengths and weaknesses. A strength involved the very large sample size, which allowed us to create matched samples of an adequate number of TGNC and cisgender adolescents to compare the receipt of different healthcare services during the past year, and factors that facilitate use of each service, between these groups. Although findings are only generalizable to youth in Minnesota, the population-based nature of these data provides much-needed insight into factors associated with healthcare service use among TGNC adolescents. In addition, the breadth of social connectedness factors allowed for analyses to identify factors that were most strongly associated with receipt of primary, dental, and mental healthcare, which fills an important gap in the literature. One limitation involved the measure assessing TGNC identity, which did not permit us to distinguish between students who were unsure of their gender identity and those who actively identify as TGNC. We also did not account for effects of family living arrangements or health insurance status on relationships between social connectedness variables and healthcare service use outcomes. In addition, data were obtained through self-report and originated from a cross-sectional survey, precluding us from making causal inferences. Further, our sample may have included fewer TGNC youth than actually attend Minnesota schools, given that these youth are more likely to be absent from school on any given day owing to experiences of harassment and bullying.[39] Finally, we were unable to find suitable matches for 252 TGNC students. Compared with a random sample of TGNC eligible students, ineligible students were significantly more likely to be assigned male and significantly less likely to identify as non-Hispanic white.

Future research should evaluate interventions that seek to facilitate the use of primary and dental care services among TGNC adolescents. Studies also are needed to determine how best to strengthen connections to parents and nonparental adults among TGNC youth and evaluate related interventions on the use of healthcare services in this population. In addition, factors related to the healthcare system, such as provider interactions with TGNC patients, trans-friendly clinic environments, the use of gender-inclusive medical forms, and the range of services offered, also should be evaluated as means of facilitating use of healthcare services among TGNC youth.

We found few consistent relationships between the TGNC and cisgender samples. Those engaged in efforts to facilitate the receipt of healthcare services among TGNC adolescents should incorporate TGNC youth into the development and evaluation of their programming to ensure efforts are appropriately tailored to benefit this population. Not understanding or considering distinct factors associated with obtaining healthcare among TGNC youth could result in missing opportunities to facilitate use of needed services, wasting/inefficiently using valuable resources, and contributing to health disparities between TGNC and cisgender adolescents. Findings suggest that tailored outreach efforts should focus on facilitating care among TGNC youth who are food/housing insecure and live in more rural areas. Finally, findings strongly support the need to strengthen connections between TGNC adolescents and parents and other prosocial adults who could assist in navigating healthcare services. ■

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Data Statement

Data sharing statement available at www.jpeds.com.

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