HB 377 – M. Blackburn Testimony Against

Dear Members of the New Hampshire House Health, Human Services, and Elderly Affairs Committee-

I am an attorney, a resident of Rochester, NH, and a New Hampshire voter writing to voice my opposition to HB 377, which makes it a felony for a licensed medical provider to prescribe puberty blockers, testosterone, and estrogen as part of gender-affirming medical care. I am opposed to this bill for the following reasons:

1. **"Sex" is poorly defined.** "Sex" for this statute is defined as "the biological state of being male or female, based on the individual's sex organs, chromosomes, and endogenous hormone profiles." This definition attempts to shoe horn a wide range of biological factors into a neat binary definition of male and female. Having studied evolutionary biology, I can tell you that biology is **never** so black and white. For example, this definition fails to acknowledge and account for the existence of intersex people, who have chromosomal variations, genitals, and hormone variations that do not fall into male or female.[1] I frequently hear legislators dismiss the existence of intersex people as an anomaly. However, intersex people are born more frequently than twins are,[2] and deserve the same respect and consideration from their legislators as a person born with binary sex characteristics. Because the premise of this bill relies on a binary definition of sex that does not comport with science or current medical practice, I cannot support it and urge the Committee to reject this bill.

2. **Puberty Blockers are safe**. Numerous studies, including a recent 2024 study conducted by medical professionals at Boston Children's Hospital and Harvard Medical School, demonstrate that puberty blockers are a) safe; b) effective at delaying onset of puberty until a minor can make an informed decision; c) and result in "less anxiety, depression, stress, total problems, internalizing difficulties, and suicidal ideation than [transgender] peers who had been through more of a nonaffirming puberty."[3] As with nearly every medical treatment, there are some risks, including reduced fertility and height, but overall, puberty blockers are generally well-tolerated. Moreover, puberty blockers have been safely used to treat early onset puberty in cisgender children since the 1980s. The medical use of puberty blockers and the decision-making process between a child's parent and the child's doctor was not questioned until transgender people became the latest political target. To make it a felony to provide well-accepted, safe, and effective medical care is preposterous.

3. **The exemption for intersex genital surgery is EGREGIOUS.** Although the bill purports to protect vulnerable children, it exempts "disorders of sex development," as defined in RSA 332-M:2. A "disorder of sex development," includes non-binary chromosomes, ambiguous or co-existing genitalia, etc. In short, the bill makes an exception for genital mutilation of intersex minors which

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[1] American Society for Reproductive Medicine, *Just the Facts: Biological Sex*, https://www.asrm.org/advocacy-and-policy/reproductive-rights/advocacy-resources/just-the-facts-biological-sex/?_t_id=Asq90LYDtJ5E2TAVh5kRrA==&_t_uuid=KWE9FQcDT32drxDjY5SqwA&_t_q=intersex&_t_tags=siteid:01216f06-3dc9-4ac9-96da-555740dd020c,language:en,andquerymatch&_t_hit.id=ASRM_Models_Pages_ContentPage/_8a6c2ce3-eceb-4897-a51e-47204545c21a_en&_t_hit.pos=2 (attached).

[2] InterACT, *FAQs,* https://interactadvocates.org/faq/#definition.

[3] McGregor et al., *Association of Pubertal Blockade at Tanner 2/3 With Psychosocial Benefits in Transgender and Gender Diverse Youth at Hormone Readiness Assessment* (attached); see also Chen et al., *Psychosocial Characteristics of Transgender Youth Seeking Gender-Affirming Medical Treatment: Baseline Findings from the TYC Study* (attached).

is **abhorrent**. Unlike transgender youth, who seek medical intervention to affirm their gender identity, "intersex youth are subjected to medical interventions to "normalize" their bodies without their consent–including surgeries that create a vaginal opening, reduce the size of a clitoris, and remove hormone-producing gonads–often before the age of 2. In the vast majority of cases, these procedures are **not urgently necessary** and could safely be delayed until the intersex individual could make their own decision about what (if any) procedures are right for them. Instead, doctors can offer irreversible surgeries to parents with no opportunity for the patient to consent or refuse. Many, many intersex people grow up to wish they could have participated in the decision making around these procedures, which come with risks like chronic pain, scarring, loss of sexual function, urinary incontinence, sterilization, PTSD, and a surgically enforced sex assignment that does not match their gender."[4]

Banning patient-initiated care that reduces the risk of depression and suicide for trans youth while allowing the non-consensual surgeries on intersex infants–which have been denounced as a human rights violation by the United Nations, the World Health Organization, the American Academy of Family Physicians, and more–**is exactly the opposite of legislation to protect vulnerable children.** Because I find the exception for intersex non-consensual genital surgery to be a violation of human rights, I do not support this bill and urge the Committee to reject it.

For the above-stated reasons, as a New Hampshire voter, I am **opposed** to HB 377 and urge the Committee to decline to submit it to the legislature.

Thank you for your time.

Best,
Madeline Blackburn

[4] InterACT, *Anti-Transgender Legislation Affects Intersex Kids Too*, https://interactadvocates.org/transgender-legislation-intersex/.

Just the Facts: Biological Sex

The National Institutes of Health defines biological sex ("assigned sex") as "a multidimensional biological construct based on anatomy, physiology, genetics, and hormones," also referred to by some as "sex traits." All animals, including humans, have a sex.

Ideologically Driven Attempts to Redefine Biological Sex

Ideologically driven policymakers have introduced or enacted legislation and policies defining legal sex based on biological characteristics at birth, such as genitalia, chromosomes, or reproductive anatomy.

For example, a 2023 Kansas law defines males and females based on reproductive anatomy at birth, stating that females are individuals whose reproductive systems are developed to produce ovaries, and males are those whose systems are developed to "fertilize the ova" of a female. A 2023 Tennessee statute defines sex as a person's immutable biological sex as determined by anatomy and genetics at birth.

Such proposals to define sex into two easily determined categories are unsupported by science and oversimplify the intricate nature of human biology. It is crucial to understand that biological sex is determined by biology, not politics.

Medical and Scientific Facts About Biological Sex

- Biological sex is a label assigned by a medical professional at birth based on physical characteristics (genitalia) and other biological determinants. Gender, a sociological and legal construct that varies by culture, is a complex topic that goes beyond the scope of this resource.
- Sexual differentiation occurs during fetal development and is driven by genetic and hormonal factors. This process determines the development of male or female physical traits but can result in a spectrum of outcomes due to variations in genetic and hormonal influences.
- Chromosomal and genetic factors matter. While XX and XY chromosomes are often associated with female and male sexes, variations such as XXY, XYY, and others also occur in an estimated 1 in 1,500 to 1 in 2,000 live births, which amounts to approximately 200,000 to 330,000 Americans based on the current population.
- Primary sex characteristics (genitalia and reproductive organs) and secondary characteristics (e.g., body hair and breast development) are shaped by genetics and hormones. These traits can vary widely among individuals, even within the same chromosomal sex.
- It is not uncommon for individuals to have atypical combinations of chromosomes (e.g., those with Kleinfelter syndrome, a common condition that results when a person assigned male at birth has an extra copy of the X chromosome instead of the typical XY), hormones, or anatomy, challenge the binary model of sex assignment. Such natural variation, which is neither a disease nor a disorder requiring medical intervention, illustrates the complexity of biological sex.

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Psychosocial Characteristics of Transgender Youth Seeking Gender-Affirming Medical Treatment: Baseline Findings from the TYC Study

Diane Chen, PhD[a,b,c,d], **Mere Abrams, MSW**[e,f], **Leslie Clark, PhD**[g,h], **Diane Ehrensaft, PhD**[e,f], **Amy C. Tishelman, PhD**[i,j,k], **Yee-Ming Chan, MD, PhD**[i,j], **Robert Garofalo, MD, MPH**[a,d], **Johanna Olson-Kennedy, MD**[g,h], **Stephen M. Rosenthal, MD**[e,f], **Marco A. Hidalgo, PhD**[g,h]

[a]Gender & Sex Development Program, Potocsnak Family Division of Adolescent and Young Adult Medicine, Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL

[b]Pritzker Department of Psychiatry and Behavioral Health, Ann & Robert H. Lurie Children's Hospital of Chicago

[c]Department of Psychiatry and Behavioral Sciences, Northwestern University Feinberg School of Medicine, Chicago, IL

[d]Department of Pediatrics, Northwestern University Feinberg School of Medicine, Chicago, IL

[e]Child & Adolescent Gender Center, Benioff Children's Hospital, University of California, San Francisco

[f]Department of Pediatrics, Division of Pediatric Endocrinology, University of California San Francisco, San Francisco, CA

[g]Center for Transyouth Health and Development, Division of Adolescent and Young Adult Medicine, Children's Hospital Los Angeles, Los Angeles, CA

[h]Department of Pediatrics, Keck School of Medicine, University of Southern California, Los Angeles, CA

[i]Division of Endocrinology, Boston Children's Hospital, Boston, MA

[j]Harvard Medical School, Boston, MA

[k]Department of Psychiatry, Boston Children's Hospital, Boston, MA

Abstract

Corresponding Author: Diane Chen, PhD, 225 E. Chicago Ave, Box 161B, Chicago, IL 60611-2605; Phone: 312-227-2939; Fax: 312-227-9564; DiChen@luriechildrens.org.

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Purpose: To characterize two developmental cohorts of transgender and non-binary (TNB) youth enrolled in the Trans Youth Care (TYC) Network Study and describe their gender identity-related milestones and baseline mental health and psychosocial functioning.

Methods: TYC participants were recruited from four pediatric academic medical centers in the United States prior to initiating medical treatment for gender dysphoria either with (a) gonadotropin releasing hormone agonists (GnRHa) or (b) gender-affirming hormones (GAH). GnRHa cohort data were collected from youth and a parent; GAH cohort data were collected from youth only.

Results: A total of 95 youth were enrolled in the GnRHa cohort. Mean age was 11.22 years (*SD*=1.46), and the majority were white (52.6%) and designated male at birth (51.6%). Elevated depression symptoms were endorsed by 28.6% of GnRHa cohort youth, and 22.1% endorsed clinically significant anxiety. About a quarter (23.6%) endorsed lifetime suicidal ideation, with 7.9% reporting a past suicide attempt. A total of 316 youth were enrolled in the GAH cohort. Mean age was 16.0 years (*SD*=1.88), and the majority were white (62%) and designated female at birth (64.9%). Elevated depression symptoms were endorsed by 51.3% of the GAH cohort, and 57.3% endorsed clinically significant anxiety. Two-thirds (66.6%) endorsed lifetime suicidal ideation, with 24.6% reporting a past suicide attempt. Life satisfaction was lower amongst both cohorts compared to population-based norms.

Conclusions: GnRHa cohort youth appear to be functioning better from a psychosocial standpoint than GAH cohort youth, pointing to possible benefits of accessing gender-affirming treatment earlier in life.

Keywords

gender dysphoria; gender diversity; gender expansive adolescents; gender-affirming hormones; pubertal suppression; gender-affirming care

Gender dysphoria (GD) refers to affective distress stemming from incongruence between one's gender identity and their designated sex at birth. Over the last decade, youth with GD (including transgender (T) and non-binary (NB) youth) have been presenting in increasing numbers for medical treatment.[1,2] It is well-documented that TNB youth experience disproportionally high rates of depression, anxiety, suicidality, and non-suicidal self-injury.[3–6] A handful of studies suggest that gender-affirming medical treatment—i.e., gonadotropin releasing hormone agonists (GnRHa) and gender-affirming hormones (GAH)—reduces GD and improves overall mental health.[7–11] Most of these studies, however, were conducted in European clinics that initiate GnRHa or GAH at older ages, on average, than clinics in the United States (US) within a "watchful waiting" model in which children are discouraged from engaging in social gender transitions until adolescence.[7–9] Furthermore, two of these studies follow a single cohort of youth through different stages of treatment (i.e., GnRHa[8]; GAH and surgery[9]). Thus, it is not possible to isolate the effects of GAH on mental health from other medical and surgical interventions.

Only two studies have examined psychosocial outcomes of gender-affirming medical treatment among US-based youth. One describes a sample of 47 TNB youth seeking GAH;[10] the other examines a single cohort comprised of 148 youth receiving GAH and 25 youth

receiving GnRHa.[11] Thus, many questions remain regarding the psychosocial outcomes of early medical treatment for GD. Understanding these outcomes is especially important given the evolving standard of care which recommends initiating GnRHa shortly after the onset of puberty (Tanner 2) and recognizes the potential benefit of GAH prior to age 16 years.[12] Despite these guidelines, however, gender-affirming care remains contentious and is not universally accepted.[13]

In 2015, the National Institutes of Health (NIH) funded four pediatric academic medical centers to conduct a prospective, longitudinal study to provide a critical evidence base to inform medical treatment of youth GD.[14] These centers formed the Trans Youth Care (TYC) network and include Children's Hospital Los Angeles/University of Southern California, Ann & Robert H. Lurie Children's Hospital of Chicago/Northwestern University, Boston Children's Hospital/Harvard Medical School, and Benioff Children's Hospital/University of California San Francisco.[14] The current study characterizes two distinct cohorts of TNB youth enrolled in TYC (95 participants initiating GnRHa; 316 participants initiating GAH) and describes their baseline psychosocial functioning.

Methods

Participants and recruitment

TYC is an ongoing, multisite, observational study evaluating mental health, well-being, and metabolic/physiologic parameters in two developmental cohorts of TNB youth initiating medical treatment for GD as part of their clinical care either with (a) GnRHa administered for puberty suppression in early puberty (e.g., Tanner stage 2-3) (hereon, "GnRHa cohort") or (b) GAH (i.e., testosterone or estrogen) administered for phenotypic gender transition in later puberty (e.g., Tanner stage 4-5) (hereon, "GAH cohort") between July 2016 and September 2018. Eligibility for TYC enrollment included: (1) presence of GD as determined by a clinician, (2) appropriate and ready to initiate GnRHa or GAH as determined by the primary treatment team, (3) ages 8-20 years, (4) English proficiency, and (5) seeking services at one of the four study site clinics. The current study presents data on gender identity-related milestones, mental health and well-being, and gender-specific experiences. GnRHa cohort data were collected from youth and one parent; GAH cohort data were collected from youth only. A more comprehensive description of TYC study methods is published elsewhere.[14] Researchers received institutional review board approval from all study sites.

Measures

Demographics. Both cohorts self-reported age, race/ethnicity, gender identity, and designated sex at birth. For gender identity, youth either selected from eight response options or indicated "other" and specified. Responses were recoded into three categories: transmasculine, transfeminine, and non-binary. Household income was estimated based on the median household income for participants' reported home zip code extracted from US Census data.

Gender development milestones. Both cohorts self-reported the age at which they first recognized there was something different about their gender, and responded “yes”/“no” to the item: “Are you living full time as your affirmed gender now?”

Mental health and well-being. Both cohorts completed the Revised-Children’s Manifest Anxiety Scale (RCMAS-2).[15] Forty-nine items were rated “yes”/“no”. “Yes” responses were summed and transformed into *T* scores for four scales: Total, Physiological, Worry, and Social Anxiety. *T* scores >60 were considered clinically significant.

GnRHa cohort youth completed the 20-item Beck Depression Inventory for Youth (BDI-Y)[16] to assess presence and severity of depressive symptoms. Each item was rated on a 4-point scale. Scores were summed and compared to standardized cutoffs reflecting minimal, mild, moderate, or severe depression. GAH cohort youth completed the 21-item Beck Depression Inventory-II (BDI-II).[17] Each item was rated on a 4-point scale. Similar to the BDI-Y, scores were summed and compared to standardized cutoffs reflecting minimal, mild, moderate, or severe depression.

Both cohorts completed up to six “yes”/“no” items pertaining to lifetime and recent (i.e., past 6 months) suicidal ideation (SI), SI with plan, and suicide attempts. Sample items include: “Have you ever thought about killing yourself?” and “Have you thought about killing yourself in the last 6 months?” Participants were asked about suicidality in the past 6 months only if they endorsed corresponding lifetime items.

Life satisfaction was assessed in both cohorts using the General Life Satisfaction measure from the NIH Toolbox - Emotion Battery.[18] Ratings for the GnRHa cohort were collected by parent proxy because this measure is available only as a parent proxy-report for youth ages 3-12 years. GAH cohort youth completed a self-report version. Sample items are “My child’s life is going well.” (parent proxy) and “My life is going well.” (youth self-report). For both versions, raw scores were summed and converted to *T* scores, with higher scores indicating greater life satisfaction.

Gender-specific experiences. Both cohorts completed the 22-item Body Esteem Scale for Adolescents and Adults (BES).[19] Items assess general perceptions about appearance (“I’m pretty happy with the way I look.”), weight (“I am satisfied with my weight.”), and how others view one’s body or appearance (“Young people my age like my looks.”). Each item was rated on a 4-point scale and summed, with higher scores indicating greater body esteem.

The GAH cohort completed the Body Image Scale (BIS).[20] Youth rated their satisfaction with 30 body parts on a 5-point scale from “very satisfied” to “very dissatisfied”. Mean scores were calculated to reflect overall body image and three subscales: primary sex characteristics (e.g., penis/vagina), secondary sex characteristics (e.g., hips), or neutral (i.e., hormonally unresponsive) body parts (e.g., nose). Higher scores reflect greater body dissatisfaction.

GAH cohort youth completed the Transgender Congruence Scale (TCS),[21] a 12-item measure of comfort related to gender identity and appearance. Each item was rated on a 5-point scale and averaged to reflect two subscales: appearance congruence (9 items; e.g., “My

outward appearance represents my gender identity.") and identity acceptance (3 items; e.g., "I am happy that I have the gender identity that I do."). A total congruence score was also calculated. Higher scores reflect greater congruence/acceptance.

GAH cohort youth completed the Gender Minority Stress and Resilience Measure for Adolescents[22] (GMSR-A) assessing social stigma and psychosocial resilience related to gender minority identity. The GMSR-A is comprised of nine subscales, six of which were employed in this study. Included were four minority stress subscales (i.e., gender identity non-affirmation; internalized transphobia; negative expectations for the future; non-disclosure of gender identity/history) and two resilience subscales (i.e., pride in being a gender minority individual; community connectedness). Items were rated on a 5-point scale. Sample items include "People don't respect my gender identity because of my appearance or body" (non-affirmation), "If I express my gender history, I could be a victim of crime or violence" (non-disclosure), "It is a gift that my gender identity is different from my designated sex at birth" (pride), and "I feel connected to other people who share my gender identity" (community connectedness). Subscale item responses were summed, with higher scores indicating greater minority stress or resilience. Statistical Analysis

Descriptive statistics are reported for all variables. Means (M) and standard deviations (SD) summarize continuous variables; frequencies and percentages summarize categorical variables. Counts and scale scores for variables reflecting demographics, gender development milestones, mental health outcomes and gender-specific experiences were compared using χ^2 tests for categorical measures and independent samples t tests for continuous measures. Instead of χ^2 tests, Fisher's Exact Probability Test was conducted for any dichotomous comparisons involving a cell frequency of less than 5.

Results

GnRHa Cohort

A total of 95 youth comprised the GnRHa cohort (Table 1). Youth were 11.2 years on average (range 8-16, SD=1.46), and the cohort was majority white (52.6%) and designated male at birth (51.6%). Almost half (47.4%) reported a gender identity on the female spectrum (i.e., transfeminine), 43.2% reported a gender identity on the male spectrum (i.e., transmasculine), and 9.5% reported a non-binary gender identity. Youth designated male at birth were older than youth designated female at birth, t (93) = 3.11, p=.002. Average estimated household income was $85,585 ($SD$ = $31,743).

Youth recognized their gender was different than their sex designation at age 6.4 years on average (SD=3.35); this age did not differ by designated sex at birth, t (87) =0.630, p=0.53. The majority (74.7%) were living full-time in their affirmed gender, and this also did not differ by designated sex at birth, χ^2 (1) = 0.86, p=.77.

Table 2 depicts mental health, well-being, and gender-specific experiences for the GnRHa cohort. Elevated depression was endorsed by 28.6%, and nearly a quarter (23.6%) endorsed lifetime SI, with 7.9% endorsing a past attempt. Just over one-fifth of the cohort scored in the clinical range for total anxiety (22.1%); 16.8% endorsed clinical-range physiological

anxiety, 21.1% endorsed clinical-range worry, and 15.8% endorsed clinical-range social anxiety. Life satisfaction was lower than reported for the general population. There were significant differences in anxiety scores based on designated sex at birth, with youth designated male at birth reporting both greater total anxiety, $t(82) = 2.020$, $p = .047$, and worry, $t(82) = 2.226$, $p=.029$, than youth designated female at birth, but there were no differences in depression, life satisfaction, or suicidality (lifetime or recent) by sex designation. Youth reported levels of body-esteem (M=45.78, SD=10.80, range 19-68) in the "moderate" range, and there were no significant differences by designated sex at birth.

GAH Cohort

A total of 316 youth comprised the GAH cohort, the vast majority (93%) of whom were naive to gender-affirming medical treatment; i.e., 7% had a history of GnRHa treatment. GAH cohort youth were 16.0 years on average (range 11-20, SD=1.88), with the majority white (62%) and designated female at birth (64.9%). Sixty percent of youth reported a transmasculine gender identity, 34% a transfeminine gender identity, and 6% reported a non-binary gender identity. There were no differences in age or racial/ethnic background by designated sex at birth (Table 1). Average estimated household income was $81,697 ($SD$ = $29,879).

GAH cohort youth recognized they were a gender different than their sex designation at age 10.7 years on average (SD=4.16), which did not differ by designated sex at birth, $t(179.54) = -0.69$, p=0.49. The majority (80.4%) were living full-time in their affirmed gender, with a significantly greater proportion of youth designated female at birth living in their affirmed gender (88.3%) compared to youth designated male at birth (65.8%), $\chi^2(1) = 24.42$, $p<.000$.

Table 3 depicts mental health, well-being, and gender-specific experiences for the GAH cohort. More than half of the youth endorsed elevated depression. Two-thirds (66.6%) endorsed lifetime SI, with 24.6% endorsing a past suicide attempt. Over half the cohort scored in the clinical range for total anxiety (57.3%), with 35.1% endorsing clinical-range physiological anxiety, 60.4% endorsing clinical-range worry, and 47.5% endorsing clinical-range social anxiety. Life satisfaction was over a standard deviation lower than the general population. There were no differences in depression, anxiety, life satisfaction, or recent suicidality based on designed sex at birth. In terms of lifetime suicidality, there were no differences in SI and SI with plan by designated sex at birth; however, a significantly greater proportion of youth designated female at birth had a past suicide attempt (19.7%) compared to youth designated male at birth (4.9%), $\chi^2(1) = 12.01$, p=.001.

GAH cohort youth had low levels of body esteem (M=36.0, SD=9.1, range 17-67). In terms of body image, youth were most dissatisfied with their primary sex characteristics, followed by secondary sex characteristics and hormonally-unresponsive "neutral" body parts. Youth endorsed high levels of identity acceptance and low levels of appearance congruence. There were no significant differences in BES and TCS scores by designated sex at birth, but there were significant differences on some BIS and GMSR-A subscales. Specifically, youth designated male at birth were significantly more dissatisfied with "neutral" body parts compared to youth designated female at birth, $t(311) = 3.34$, p=0.001. In terms of minority stress, youth designated female at birth experienced more non-affirmation of gender identity

compared to youth designated male at birth, $t(306) = -2.34$, $p=0.02$. Youth designated female at birth also endorsed more non-disclosure compared to youth designated male at birth, $t(185.63) = -4.52$, $p=0.000$. Regarding resilience, youth designated male at birth expressed more identity-related pride than youth designated female at birth, $t(308) = 3.19$, $p=0.002$. There were no differences in overall satisfaction with primary or secondary sexual characteristics, internalized transphobia, negative expectations for the future or community connectedness by designated sex at birth.

Cross-cohort comparisons

In comparing the two cohorts, GnRHa cohort youth appear to be functioning better from a psychosocial standpoint than GAH cohort youth. A smaller proportion of GnRHa cohort youth endorsed elevated rates of depression (28.6%) and lifetime suicidality (23.6%) compared to GAH cohort youth (51.3% and 66.6%, respectively). Similarly, average anxiety scores among GnRHa cohort youth are either below or just above the population average, whereas among GAH cohort youth, average anxiety scores are one half to a full standard deviation higher than population averages. Furthermore, a much larger proportion of GAH cohort youth endorsed clinically significant total anxiety (57.3%) and worries (60.4%) compared to GnRHa cohort youth (22.1% and 21.1%, respectively). It is also notable that life satisfaction was, on average, lower amongst both the GnRHa and GAH cohorts compared to population-based norms; however, youth in the GAH cohort reported relatively lower life satisfaction. GAH cohort youth also reported lower body esteem, on average, than GnRHa cohort youth.

Discussion

This study examined baseline mental health, well-being, and gender-specific experiences among two TYC cohorts: youth initiating GnRHa and youth initiating GAH treatment. GnRHa cohort youth recognized their gender as different from their designated sex at birth, on average, at an age approximately four years younger than GAH cohort youth and were able to access gender-affirming medical treatment earlier in development. It is possible that early access to medical treatment, which prevents an unwanted puberty in the GnRHa cohort, alleviates psychological distress and accounts for the better picture of mental health and well-being in the GnRHa cohort compared to the GAH cohort. Additionally, it may be that access to GnRHa treatment for prevention of endogenous pubertal changes is a proxy for parental support, a factor that is well-known to be protective.[23] It is also possible that differences in mental health functioning between the two cohorts reflect the older average age of onset for depression and anxiety more broadly. In general, mental health findings in the GAH cohort are consistent with the relatively high rates of depression, anxiety, and suicidality reported in previous studies,[3,24,25] whereas GnRHa cohort youth findings are consistent with those from other studies of younger transgender youth where, in the majority of cases, internalizing symptoms were close to average and below the clinically significant range.[26]

In the GAH cohort, youth designated female at birth attempted suicide at significantly higher rates (19.7%) than youth designated male at birth (4.9%), consistent with past research

documenting higher rates of attempted suicide among transmasculine versus transfeminine youth.[4] It is notable that youth in our sample endorsed lower rates of past suicide attempt compared to rates reported by transgender youth from a population-based survey (transmasculine: 50.8%; transfeminine: 29.9%).[4] Lower suicide attempt rates in our sample may reflect a buffering effect of parental support, as the majority of youth in the GAH cohort were accessing medical treatment for gender affirmation as minors. These lower rates may also reflect a changing environment that is more accepting of transgender experiences, especially within the four urban areas represented in this study. Despite this being a lower rate than previously documented, a 24.6% suicide attempt rate is still 4-5 times higher than the adolescent population at large.[27] Disproportionate suicidality in TNB adolescents may reflect high rates of discrimination, rejection, and non-affirmation experienced inside or outside the home.[28]

In terms of minority stress, GAH cohort youth designated female at birth experienced significantly more external (non-affirmation) and internal (non-disclosure) stressors and significantly lower resilience (identity pride) compared to youth designated male at birth. It is possible that these differences by designated sex at birth reflect differences in socialization practices. For instance, being socialized as female within US culture may sharpen transmasculine youths' attention to social and affective responses in others.[29,30] Similarly, transfeminine youths' greater sense of pride may reflect previous male socialization, as past studies have indicated a gender difference in imbued self-assertiveness and confidence.[31]

Specific to body image, greater dissatisfaction with "neutral sex characteristics" was reported by GAH cohort youth designated male at birth. This is likely because this domain included body parts responsive to testosterone exposure (e.g., Adam's apple; face; shoulders) and thus were not truly "neutral." The categorization of hormonally-responsive body parts in such a subscale underscores a need for re-analyzing the factor structure of the BIS among TNB youth, which some research teams have already started to explore.[32,33]

In the last several decades, research examining health and well-being among TNB youth has largely focused on GD, its psychiatric sequelae and outcomes related medical interventions. Findings from studies of this kind have certainly informed and advanced the treatment of GD in youth. However, TNB youth present for medical care with a range of cultural perspectives, having experienced varying levels of support, acceptance, and understanding from family, peers, local community, and society at large. Therefore, the evaluation of gender-affirming medical treatments on psychosocial well-being among TNB youth must account for the dynamic set of factors relevant to gender health, all of which have the potential to influence mental health, gender dysphoria, body esteem, overall life satisfaction, and levels of gender minority stress. Our findings suggest that baseline gender-related and psychosocial factors are important to consider in developing longitudinal models aiming to account for the effects of early medical intervention to treat GD in TNB youth enrolled in studies such as TYC. With these findings in mind, adolescent TNB health research may extend beyond GD to also examine variables associated with gender health and identity development. This model of gender health is likely multifaceted, including the assessment of individual factors such personal identity, body image and esteem, as well as ecological

variables such as social support and community connectedness, interpersonal interactions, and sociocultural norms.

With 10% of youth in the GnRHa cohort and 6% of youth in the GAH self-reporting a non-binary gender identity at baseline, it is evident that non-binary gender identities need to be included in research about gender-affirming interventions. As has been suggested, core sense of self, gender dysphoria, body esteem, and social experience may differ between non-binary and binary transgender youth.[34] A model for understanding the gender health, gender-related distress, and goals for gender affirmation of youth across the entire gender spectrum is critical for further advancing the field of adolescent TNB health.

Limitations of our study include the relative lack of racial/ethnic diversity, as the majority of youth were white across both cohorts. It is possible that youth embodying multiple marginalized and minoritized identities may be at greater risk for poor mental health functioning. Also, this study focuses on individual mental health functioning and gender-specific experiences. Factors not directly addressed, including parental and peer support and community acceptance more broadly, are likely to affect mental health and well-being and can be explored in future research with TYC data. Additionally, it is possible that there are site-specific differences in youth mental health functioning owing to differing political and cultural climates in Boston, Chicago, Los Angeles, and San Francisco—this also can be explored in future research. Last, the current study was cross-sectional in nature, so while it provides an important snapshot of baseline functioning in TNB youth seeking medical care, it does not answer key questions related to treatment outcomes.

While findings from this baseline analysis of youth seeking gender affirming services demonstrate better mental health and well-being among younger patients seeking pubertal suppression, there are still significant concerns about these vulnerable youth, particularly those who are further along in their pubertal development seeking GAH treatment. Longitudinal follow-up of these cohorts as they embark on their interventions will be critical to understanding the impact of medical care on mental health and well-being. Findings from the TYC study have the potential to significantly advance evidence-based practice for TNB youth and justify the need for gender-affirming care.

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Abbreviations:

BDI-II	Beck Depression Inventory-II
BDI-Y	Beck Depression Inventory for Youth
BES	Body Esteem Scale
BIS	Body Image Scale

GAH	Gender-affirming Hormones
GD	Gender Dysphoria
GMSR-A	Gender Minority Stress and Resilience Measure for Adolescents
GnRHa	Gonadotropin-releasing Hormone Agonists
M	Mean
NB	Non-binary
NIH	National Institutes of Health
RCMAS-2	Revised-Children's Manifest Anxiety Scale
SD	Standard Deviation
SI	Suicidal Ideation
T	Transgender
TCS	Transgender Congruence Scale
TNB	Transgender/Non-binary
TYC	Trans Youth Care
US	United States

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Implications and Contribution

Youth presenting for medical treatment of gender dysphoria at earlier developmental stages (i.e., early versus late puberty) endorse lower rates of depression, anxiety, and suicidality, and higher body esteem and life satisfaction. This highlights the need to improve access to early medical treatment to attenuate mental health risk.

Table 1.

Demographic Characteristics Based on Designated Sex at Birth

	Total Sample	Designated Female at Birth	Designated Male at Birth	*t* or χ^2 (df)	*p*-value
GnRHa Cohort (N=95)					
Total n (%)	95	46 (48.4)	49 (51.6)		
Age *M (SD)*	11.22 (1.46)	10.76 (1.43)	11.65 (1.36)	3.11 (93)	.002
Gender Identity					
Transmasculine/Male	41 (43.2)	40 (87)	1 (2) [+]	78.28 (2)	0.000
Transfeminine/Female	45 (47.4)	1 (2.2) [+]	44 (89.8)		
Non-binary	9 (9.5)	5 (10.9)	4 (8.2)		
Race/Ethnicity					
White	50 (52.6)	31 (67.4)	19 (38.8)	10.01 (5)	.075
Latinx	21 (22.1)	8 (17.4)	13 (26.5)		
Black/African-American	3 (3.2)	1 (2.2)	2 (4.1)		
Multiracial	13 (13.7)	5 (10.9)	8 (16.3)		
Other	4 (4.2)	-	4 (8.2)		
Unreported	4 (4.2)	102	3 (6.1)		
GAH Cohort (N=316)					
	Total Sample	**Designated Female at Birth**	**Designated Male at Birth**	***t* or χ^2 (df)**	***p*-value**
Total n (%)	316	205 (64.9)	111 (35.1)		
Age *M (SD)*	16 (1.88)	15.87 (1.76)	16.23 (2.08)	1.57 (195.29)	0.12
Gender Identity					
Transmasculine	191 (60.4)	191 (93.72)	-	293.64 (2)	0.000
Transfeminine/Female	106 (33.5)	1 (0.5) [+]	105 (94.6)		
Non-binary	19 (6.0)	13 (6.3)	6 (5.4)		
Race/Ethnicity					
White	196 (62.0)	127 (62.0)	69 (62.2)	2.17 (4)	0.71
Latinx	70 (22.2)	49 (23.9)	21 (18.9)		
Black/African-American	14 (4.4)	10 (4.9)	4 (3.6)		
Multiracial	10 (3.2)	5 (2.4)	5 (4.5)		
Other	23 (7.3)	14 (6.8)	9 (8.1)		
Unknown/unreported	3 (0.9)	-	3 (2.7)		

Note. GnRHa = gonadotropin releasing hormone agonists. GAH = gender-affirming hormones. *M* = mean; *SD* = standard deviation

[+] Participant's designated sex at birth was concordant with their reported gender identity at the point of baseline.

Table 2.

GnRHa Cohort Mental Health, Well-Being, and Gender-specific Experiences Based on Designated Sex at Birth

GnRHa Cohort (N=95)					
	Total Sample	**Designated Female at Birth**	**Designated Male at Birth**	***t* or χ^2 (df)**	***p*-value**
Beck Depression Inventory-Y (n=91) n (%)					
Minimal Depression	65 (71.4)	32 (74.4)	33 (68.8)	1.14 (3)	0.767
Mild Depression	9 (9.9)	4 (9.3)	5 (10.4)		
Moderate Depression	10 (11.0)	5 (11.6)	5 (10.4)		
Severe Depression	7 (7.7)	2 (4.7)	5 (10.4)		
Revised Children's Manifest Anxiety Scale 2 (n=84) *M (SD)*					
Total Anxiety T-score	48.37 (12.75)	45.67 (11.65)	51.2 (13.38)	2.02 (82)	0.047*
Physiological Anxiety T-score	47.27 (11.42)	45.49 (10.6)	49.15 (12.07)	1.48 (82)	0.143
Worry T-Score	50.08 (12.80)	47.11 (11.57)	53.2 (13.42)	2.23 (82)	0.029*
Social Anxiety T-score	47.65 (11.88)	45.53 (10.57)	49.88 (12.87)	1.69 (82)	0.094
NIH Toolbox Life Satisfaction T-Score - Parent Report (n=94) *M (SD)*	45.91 (11.23)	45.97 (9.61)	45.85 (12.64)	−0.05 (88.983)	0.959
Lifetime SI (n=89)^					
No	68 (76.4)	35 (39.3)	33 (37.1)	2.12 (1)	0.146
Yes	21 (23.6)	7 (7.9)	14 (15.7)		
Lifetime SI with plan (n=21)^					
No	13 (14.6)	4 (4.5)	9 (10.1)	0.10 (1)	1.000
Yes	8 (8.9)	3 (3.4)	5 (5.6)		
Lifetime Suicide Attempt (n=18)^					
No	11 (12.4)	3 (3.4)	8 (44.4)	0.42 (1)	1.000
Yes	7 (7.9)	1 (1.1)	6 (33.3)		
Past 6 months SI (n=20)^					
No	8 (8.9)	3 (3.4)	5 (5.6)	0.36 (1)	0.642
Yes	12 (13.5)	3 (3.4)	9 (10.1)		
Past 6 months SI with plan (n=8)^					
No	4 (4.5)	2 (2.2)	2 (2.2)	0.53 (1)	1.000
Yes	4 (4.5)	1 (1.1)	3 (3.4)		
Past 6 months Suicide Attempt (n=8)^					
No	6 (6.7)	2 (2.2)	4 (4.5)	0.89 (1)	1.000
Yes	2 (2.2)	-	2 (2.2)		
Body Esteem Scale (n=91) *M (SD)*					

GnRHa Cohort (N=95)					
	Total Sample	**Designated Female at Birth**	**Designated Male at Birth**	***t* or χ^2 (df)**	***p*-value**
Total Scale Score	45.78 (10.80)	45.53 (11.74)	46.01 (9.97)	0.30 (89)	0.834

Note. GnRHa = gonadotropin releasing hormone agonists. *M* = mean; *SD* = standard deviation

* $p < 0.05$

^ percentages do not add up to 100% due to N/A responses due to preprogrammed skip patterns.

Table 3.

GAH Cohort Mental Health, Well-Being, and Gender-Specific Experiences Based on Designated Sex at Birth

GAH Cohort (N=316)					
	Total Sample	**Designated Female at Birth**	**Designated Male at Birth**	***t* or χ^2 (df)**	***p*-value**
Beck Depression Inventory-II (n=308) n (%)					
Minimal Depression	150 (48.7)	101 (50.8)	49 (44.9)	2.83 (3)	0.419
Mild Depression	53 (17.2)	35 (17.6)	18 (16.5)		
Moderate Depression	57 (18.5)	37 (18.6)	20 (18.3)		
Severe Depression	48 (15.6)	26 (13.1)	22 (20.2)		
Revised Children's Manifest Anxiety Scale 2 (n=309) *M (SD)*					
Total Anxiety T-score	59.97 (11.50)	40.32 (11.52)	59.12 (11.47)	−0.96 (307)	0.340
Physiological Anxiety T-score	55.10 (11.01)	55.66 (11.51)	54.05 (9.99)	−1.22 (307)	0.223
Worry T-Score	61.72 (11.66)	61.89 (11.53)	61.41 (11.94)	−0.35 (307)	0.729
Social Anxiety T-score	58.05 (11.07)	58.41 (10.74)	57.36 (11.69)	−0.80 (307)	0.729
NIH Toolbox Life Satisfaction T Score (n=313) *M (SD)*	39.82 (10.89)	40.37 (9.18)	38.82 (13.47)	−1.07 (165.09)	0.285
Lifetime SI (n=305)^					
No	102 (33.4)	67 (22.0)	35 (11.5)	0.001 (1)	0.977
Yes	203 (66.6)	133 (43.6)	70 (23.0)		
Lifetime SI with plan (n=204)^					
No	115 (37.7)	70 (23.0)	45 (14.8)	1.70 (1)	0.192
Yes	89 (29.1)	62 (20.3)	27 (8.9)		
Lifetime Suicide Attempt (n=207)^					
No	132 (43.3)	74 (24.3)	58 (19.0)	12.01 (1)	0.001*
Yes	75 (24.6)	60 (19.7)	15 (4.9)		
Past 6 months SI (n=207)^					
No	99 (32.5)	69 (22.6)	30 (9.8)	1.35 (1)	0.246
Yes	108 (35.4)	67 (22.0)	41 (13.4)		
Past 6 months SI with plan (n=89)^					
No	57 (18.7)	42 (13.8)	15 (4.9)	1.21 (1)	0.271
Yes	32 (10.5)	20 (6.6)	12 (3.9)		
Past 6 months Suicide Attempt (n=74)^					
No	63 (20.7)	50 (16.4)	13 (4.3)	0.04 (1)	0.852
Yes	11 (3.6)	9 (3.0)	2 (0.7)		
Body Esteem Scale *M (SD)*					
Total Scale Score	36.01 (9.13)	35.88 (8.19)	36.23 (10.71)	0.30 (177.40)	0.765
Body Image Scale *M* (SD)					

GAH Cohort (N=316)					
	Total Sample	**Designated Female at Birth**	**Designated Male at Birth**	***t* or χ^2 (df)**	***p*-value**
Total Scale Score	3.24 (0.80)	3.19 (0.72)	3.33 (0.93)	1.39 (174.45)	0.167
Primary Sexual Characteristics	4.44 (0.73)	4.39 (0.72)	4.53 (0.74)	1.44 (302)	0.152
Secondary Sexual Characteristics	3.10 (0.84)	3.09 (0.77)	3.12 (0.97)	−0.22 (178.94)	0.825
Neutral (Hormonally Unresponsive)	2.71 (0.79)	2.60 (0.70)	2.93 (0.90)	3.34 (311)	0.001*
Transgender Congruence Scale *M* (*SD*)					
Total Scale Score	2.82 (0.75)	2.85 (0.68)	2.78 (0.85)	−0.81 (185.78)	0.422
Appearance Congruence Subscale	2.37 (0.88)	2.42 (0.78)	2.27 (1.03)	−1.38 (178.18)	0.170
Identity Acceptance Subscale	4.20 (0.86)	4.14 (0.87)	4.30 (0.85)	1.55 (308)	0.123
Gender Minority Stress and Resilience					
Non-affirmation of Gender Identity	15.17 (6.18)	15.78 (5.86)	14.07 (6.60)	−2.34 (306)	.020*
Internalized Transphobia	13.23 (8.49)	13.49 (8.23)	12.77 (8.97)	−0.71 (309)	0.478
Negative Expectations for the Future	19.09 (8.41)	19.41 (8.09)	18.49 (8.98)	−0.92 (307)	0.358
Non-disclosure	13.71 (4.99)	14.66 (4.51)	11.97 (5.41)	−4.52 (185.63)	0.000*
Pride	17.50 (8.05)	16.43 (8.05)	19.43 (7.72)	3.19 (308)	0.002*
Community Connectedness	13.56 (3.98)	13.58 (3.93)	13.39 (4.12)	−0.40 (306)	0.691

Note. GAH = gender-affirming hormones. *M* = mean; *SD* = standard deviation

*$p < 0.05$.

^percentages do not add up to 100% due to N/A responses due to preprogrammed skip patterns.

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Original article

Association of Pubertal Blockade at Tanner 2/3 With Psychosocial Benefits in Transgender and Gender Diverse Youth at Hormone Readiness Assessment

Kerry McGregor, Psy.D. [a,b,c], John L. McKenna, Ph.D. [a,b,c], Coleen R. Williams, Psy.D. [a,b,c], Ellis P. Barrera [c], and Elizabeth R. Boskey, Ph.D., M.P.H., M.S.S.W. [c,d,e]

[a] *Department of Psychiatry, Boston Children's Hospital, Boston, Massachusetts*
[b] *Department of Psychology, Harvard Medical School, Boston, Massachusetts*
[c] *Gender Multispecialty Service, Division of Endocrinology, Boston Children's Hospital, Boston, Massachusetts*
[d] *Harvard T.H. Chan School of Public Health, Boston, Massachusetts*
[e] *Division of Gynecology, Boston Children's Hospital, Boston, Massachusetts*

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A B S T R A C T

Purpose: Compare psychosocial function at the time of hormone readiness assessment for transgender and gender diverse (TGD) youth who received pubertal blockade to prevent a nonaffirming puberty with those who did not.
Methods: Retrospective cohort study of psychological assessment data from hormone readiness evaluations conducted at a multispecialty gender clinic. Participants include all TGD youth between the ages of 13 and 17 assessed for hormone readiness between 2017 and 2021.
Results: Our cohort consisted of 438 TGD youth, 40 who were prescribed pubertal blockade at Tanner stage 2 or 3, and 398 who had not. The blocker population was younger, more likely to be assigned male and affirming a female identity, and had a different racial/ethnic identity distribution. Having puberty blocked was associated with significantly lower T-scores on the Youth Self Report for internalizing problems ($\beta = -7.4$, $p < .001$), anxiety problems ($\beta = -4.6$, $p = .003$), depressive problems ($\beta = -6.5$, $p < .001$), stress problems ($\beta = -4.0$, $p = .01$), and total problems ($\beta = -4.9$, $p = .003$). The blocker population was also significantly less likely to report any suicidal thoughts (odds ratio = 0.38, $p = .05$). With the exception of increased risk of suicidal thoughts, these associations remained significant when adjusted for gender.
Discussion: At the time of hormone readiness evaluation, TGD youth who received pubertal blockade at Tanner 2 or 3 were found to have less anxiety, depression, stress, total problems, internalizing difficulties, and suicidal ideation than TGD peers who had been through more of a nonaffirming puberty.

IMPLICATIONS AND CONTRIBUTION

Pubertal blockade for transgender and gender diverse (TGD) youth has been associated with improved mental health outcomes, but little is known about the specific beneficial associations of blockade initiated during early stages of puberty. This retrospective cohort analysis demonstrates that pubertal blockade started at Tanner stages 2 and 3 is associated with significantly better psychosocial outcomes for TGD youth compared to TGD youth who did not receive this intervention at time of hormone readiness assessment.

Data from the Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance System indicate that approximately 2% of adolescents in the United States identify as

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Address correspondence to: The Journal of Adolescent Health. E-mail address: journalofadolescenthealth@chop.edu

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transgender, or as someone whose gender does not align with their assigned sex at birth (ASAB) [1–3]. Transgender and gender diverse (TGD) youth are at greater risk for a variety of mental health challenges, including internalizing psychopathology such as anxiety and depression, as well as substance use and suicidality [4,5]. Such mental health disparities have been attributed to the intersection of gender dysphoria (i.e., the distress from the incongruence between one's internal sense of their gender and ASAB [6,7]) and the minority stress of having to consistently navigate a cultural context that marginalizes TGD individuals [8–11]. Research has also indicated that the onset of puberty and accompanying physical changes likely intensify and exacerbate psychological distress for TGD young people [12].

To best support this population of young people, the World Professional Association for Transgender Health, along with other professional organizations such as the Endocrine Society, have developed standards of care and clinical practice guidelines for gender-affirming medical interventions [13,14]. One such intervention is the use of gonadotropin-releasing hormone agonists, or puberty blockers, which are typically administered after a young person has reached the Tanner 2 stage of puberty [14] and following a careful clinical assessment that takes into account patient goals and family readiness. Tanner stages 2 and 3 are considered earlier phases of pubertal development, while stages 4 and 5 are achieved when the majority of pubertal changes have taken place [13]. Youth with testicles typically enter into Tanner two between the ages of 9 and 14 years with testicular enlargement occurring on average at age 11. Youth with ovaries usually begin puberty between the ages of 8 and 11 years old with average breast development taking place at 10 years old [13]. As youth progress through puberty, many changes occur that are irreversible.

However, pubertal blockade halts the production of gonadal sex hormones, inhibiting endogenous puberty [15]. Specifically for TGD youth, puberty blockers can prevent the development of unwanted and irreversible secondary sex characteristics associated with the ASAB, such as breast development from estrogen-driven puberty or deepening of the voice from testosterone-driven puberty. For individuals who experience dysphoria related to these characteristics, access to puberty blockers in early puberty may remove the need for invasive surgical procedures later in life (e.g., voice feminization surgery, facial feminization surgery, masculinizing chest surgery, etc.). In addition, the development of unwanted secondary sex characteristics can significantly exacerbate gender dysphoria and psychological distress for TGD individuals [16,17].

Multiple studies have found that pubertal blockade has been associated with positive mental health and social-emotional outcomes among TGD youth. For example, studies have found that general psychological wellbeing [18–20] and self-reported symptoms of depression [21,22] significantly improved from baseline following pubertal suppression for TGD adolescents. Pubertal blockade has also been associated with less self-harm [20,21]. One study found that TGD adolescents who underwent puberty suppression had similar rates of self-harm and suicidality as cisgender adolescents (i.e., those whose gender identity aligns with their ASAB) [20]. A retrospective study found that TGD adults who received pubertal suppression when they were younger reported significantly lower odds of lifetime suicidal ideation compared to TGD adults who wanted blockade as youth but did not receive it [23].

It is important to note, however, that the majority of existing research examining associated psychosocial outcomes of puberty blockers came from relatively small samples with a large range of participant ages at the time of gonadotropin-releasing hormone agonist initiation. For example, there is often a 7-to-9-year age difference between the youngest and oldest participant at time of beginning pubertal blockade within a single sample [19,23–25]. This difference in age is noteworthy because the purpose and potential impact of pubertal blockade can shift depending upon where an individual is in their pubertal development at the time of medication initiation. Participants in the early stages of puberty who receive a puberty blocker will likely experience few aspects of a nonaffirming puberty. This is in contrast to older participants who have already undergone some, if not all, nonaffirming pubertal changes at the time of receiving pubertal blockade (i.e., have already developed unwanted secondary sex characteristics). It is possible that age at time of pubertal blockade initiation may be associated with different psychosocial functioning outcomes for TGD young people.

Additionally, much of the existing research has relied on single-factor global assessments of child well-being and/or specific symptoms scales, such as self-reports about only depression and anxiety symptoms. The use of well-established and validated measures of general youth wellbeing that contain various empirically-based subscales will allow for a more nuanced understanding of psychosocial outcomes associated with pubertal blockade for TGD young people. Access to this data will allow researchers to better understand which specific dimensions of wellbeing are most affected by access to gender-affirming pubertal blockade.

The present study aims to make three major contributions to the existing literature. The first is to retrospectively explore the psychosocial implications of pubertal blockade among a sample of participants who began pubertal blockade at Tanner 2 or 3, excluding those who began later in puberty at time of hormone readiness assessment. It is possible that this range limitation will strengthen the field's understanding of the associated psychosocial outcomes from this intervention for youth at this specific stage of development. A second aim is to examine the generalizability and replicability of existing research by using a large sample size of TGD young people who have undergone pubertal suppression at Tanner 2 or 3. Third and finally, a unique contribution of this study is the use of a widely used and well-established measure of youth psychosocial functioning to analyze differences between TGD youth that received pubertal blockade and TGD youth that did not receive any pubertal blockade at the time of gender-affirming hormone readiness evaluation. We argue that the use of this comparison group allows for a more effective analysis of the possible psychosocial outcomes associated with pubertal blockade.

Methods

This retrospective cohort study received approval from Boston Children's Hospital's Institutional Review Board (IRB-P00041135). Data were collected during routine clinical assessment for hormone readiness as part of the Gender Multispecialty Service's (GeMS) standard protocol; more specifically, data are from the assessment when patients were being evaluated as to whether they were ready to start gender-affirming estrogen or testosterone. All individuals seeking gender-affirming hormones at our clinic undergo the same,

standardized evaluation before being able to access hormones, even if they have been previously assessed for access to puberty blockers. All participants and caregivers consented to this evaluation, which included responding to measures assessing general child wellbeing. All identifying information was removed for the purposes of analysis.

Measure

The Youth Self Report (YSR) is considered to be one of the leading self-report measures of child and adolescent emotional and behavioral functioning with robust empirical support [26]. Specifically, the YSR consists of 112 questions for youth ranging in ages from 11 to 18 years old. Youth are asked to consider their functioning over the past 6 months, and questions are scored on a 3-point Likert scale (0 = "not true", 1 = "somewhat or sometimes true", and 2 = "very true or often true"). Raw scores were transformed into T-scores using the Achenbach System of Empirically Based Assessment software and online scoring systems. These standardized scores allow individual patient data to be compared to generalized and normed youth data. T-scores have a mean of 50 and a standard deviation of 10 points. YSR T-scores in the 65–70 range are considered to be in the "borderline clinical" range, and scores above 70 are classified as reaching clinical severity.

The YSR contains multiple subscales, including two higher-order factors (internalizing and externalizing behaviors), as well as DSM-oriented scales (e.g., anxiety, depression, and somatic problems) and syndrome-based scales (e.g., thought, attention, social, and stress problems). Additionally, critical item scores regarding self-harm and suicidality were dichotomized and analyzed as yes/no (i.e., scores of 1 or 2 = yes; scores of 0 = no). The self-harm question (#18) is phrased as "I deliberately try to hurt or kill myself." The suicidality question (#91) reads, "I think about killing myself."

Sociodemographics

Demographic data were collected from the YSR, which asks participants to denote age and ethnic group or race. Gender is also collected on the YSR but was not nuanced enough for the purposes of this study (options are limited to "boy" and "girl"). Affirmed gender was thus obtained via chart review from the psychosocial notes written by the mental health clinicians who interviewed the patients. Participants were sorted into three categories of identified affirmed gender: male, female, and nonbinary. Within the GeMS program, youth are typically only referred for a hormone readiness evaluation when there is parental support for this intervention, and they meet regularly with an outpatient therapist. Additionally, medical interventions (i.e., puberty blockers and/or gender affirming hormones [GAH]) are only started when there is assent from the youth and consent provided from all parents and/or legal guardians. Therefore, it is very likely that, because this sample is comprised entirely of youth who are undergoing hormone readiness evaluation, participants have significantly more parental support than the larger TGD community.

Patients who received pubertal blockade were also identified based on chart review. The pubertal blockade group only included participants at Tanner 2 or 3 at the time of puberty blocker initiation. Any patients who received puberty blockers at Tanner 4 or later were excluded from the analysis, and participants in the nonblocker group did not have any exposure to pubertal blockade prior to the time of assessment. As, given our assessment process, most individuals who are seen for hormone assessment at Tanner stage 2 or 3 would be seen for a blocker assessment rather than a hormone assessment, it is likely that the majority of patients in the unblocked group would be at Tanner 4 or above. The overall analytical population was restricted to individuals between the ages of 13 and 17 at the time of hormone assessment.

Statistical analysis

All statistical analyses were performed using Stata 16.0 (College Station, TX: StataCorp LP). Population demographics were compared using Pearson χ^2. Linear regression was used to determine the effects of exposure to puberty blockers on clinically relevant YSR T-scores. Logistic regression was used to determine the effects of puberty blockers on endorsing "I think about killing myself" and "I deliberately try to hurt or kill myself" after the variables were dichotomized from "very often/sometimes/never" to "yes/no". Due to the high level of collinearity between age and puberty blocker exposure, age-adjusted analyses were not run; however, a sensitivity analysis was run looking only at individuals aged 13–15 in both populations to determine if differences in the blocked and unblocked cohorts were explainable by the older age distribution of the unblocked cohort. In addition, adjusted analyses for all variables significant in the univariate analyses were run using affirmed gender as a categorical variable in order to adjust for the expected confounding effects of gender on many of the evaluated constructs. Affirmed male gender was used as the base category for that analysis.

Results

Descriptive characteristics

Our analytical population consisted of all individuals 13–17 years old who underwent an assessment for GAH between January 2017 and December 2021. In all, 438 individuals were included: 40 who had been prescribed a pubertal blockade prior to being assessed for GAH and 398 who had not. These two groups were significantly different across all assessed demographic domains. The blocker population was significantly younger, more likely to be assigned male at birth, more likely to affirm a female gender, and more likely to identify as white (Table 1). The mean time between blocker initiation and hormone assessment was approximately 18 months (17.75, standard deviation 14.2). The median age at the time of blocker initiation was 12 years old.

Pubertal blockade

In the univariate analyses, having been prescribed puberty blockers before the hormone assessment was associated with significantly lower T-scores for internalizing problems ($\beta = -7.4$, $p < .001$), anxiety problems ($\beta = -4.6$, $p = .003$), depressive problems ($\beta = -6.5$, $p < .001$), and stress problems ($\beta = -4.0$, $p = .01$). Having a pubertal blockade was also associated with fewer total problems ($\beta = -4.9$, $p = .003$), which captures a range of problematic youth behaviors (Table 2). Logistic regression indicated that youth who received pubertal blockade also

Table 1
Sample demographics

Variable	No blocker (N = 398)	Blocker (N = 40)	χ^2
	N (%)	N (%)	$p\leq$
Age at time of hormone readiness assessment			.001
13	19 (5)	24 (60)	
14	59 (15)	12 (30)	
15	97 (24)	4 (10)	
16	106 (27)	0 (0)	
17	117 (29)	0 (0)	
Assigned sex at birth (ASAB)			.001
Male	78 (20)	27 (68)	
Female	320 (80)	17 (32)	
Gender			.001
Male	290 (73)	14 (35)	
Female	71 (18)	24 (60)	
Nonbinary	37 (9)	2 (5)	
Race			.001
White	268 (67)	28 (70)	
African American	1 (0.25)	1 (2)	
Latino/a/x	19 (5)	1 (2)	
Asian	11 (3)	2 (5)	
Native American	0 (0)	1 (2)	
Other	21 (5)	4 (10)	
Unknown	78 (20)	2 (5)	

Age distribution reflects age at time of hormones readiness assessment, not age at time of pubertal blockade. All participants included in the blocker sample began pubertal blockade at Tanner two or 3.

reported fewer suicidal thoughts (odds ratio = 0.38, $p = .05$). Specifically, only 12.5% of participants with pubertal blockade reported thoughts of suicide compared to 27.2% of participants who did not receive this type of intervention (Table 3).

In order to address the gender differences between the blocked and unblocked populations, we ran multivariate models adjusting for gender on all the associations that were significant in the univariate analyses. With the exception of suicidal thoughts, in the model adjusted for gender, all previously statistically significant changes in T-scores of the YSR remained statistically significant, although internalizing problems ($\beta = -7.0$, $p < .001$), anxiety problems ($\beta = -4.3$, $p = .009$), depressive problems ($\beta = -5.8$, $p < .001$), and total problems score differences ($\beta = -4.5$, $p = .009$) were modestly attenuated, but associations with stress problems ($\beta = -4.1$, $p = .013$), were modestly strengthened (Table 2). This suggests that while some of the differences seen between the blocked and unblocked populations can be explained by gender differences in the two groups, significant differences remain when gender is held constant within the analysis. A sensitivity analysis was run comparing the blocked population to only the unblocked population aged 13–15 to address possible confounding effects of age, and all differences remained significant with the exception of stress problems and thoughts of suicide. This suggests that the differences between the blocked and unblocked populations cannot be explained by the age discrepancy, with the exception of thoughts of suicide. When age was restricted to 13–15 years old, it was revealed that there was no significant difference in risk of suicidal thoughts between the blocked and unblocked youth (odds ratio = 0.44; $p = .10$).

Discussion

This study sought to better understand the role of pubertal blockade in mental health outcomes for TGD youth. While many previous studies have shown the positive impact of pubertal blockade for TGD youth, this study sought to examine psychosocial outcomes in youth who received pubertal blockade, specifically in Tanner stages 2 or 3, at the time of hormone readiness assessment. Placing a puberty blocker at this point in pubertal development may allow TGD youth to largely avoid the development of discordant, distressing, or nonaffirming secondary sex characteristics. Some studies have shown that pubertal blockade in youth who have already been through most or all of an endogenous puberty associated with ASAB is still psychosocially beneficial [18,19]. However, these youth have experienced considerable development of secondary sex characteristics that can contribute substantially to gender dysphoria and associated psychosocial distress. Therefore, in order to better understand the specific effects of puberty blockade in early puberty, differences in psychosocial outcomes were examined between TGD youth that received pubertal blockade in Tanner stage 2 or 3 and TGD peers who had not received any pubertal blockade at the time of assessment for GAH.

Results from this study indicate that pubertal blockade introduced in early puberty may be an important predictor of positive psychosocial functioning for TGD youth. Specifically, individuals in our sample between the ages of 13 and 17 who

Table 2
Univariate and multivariate regressions assessing the effects of exposure to puberty blockers on Youth Self Report T-Scores

YSR scale	Univariate regression	T-score		Multivariate regression		
	Agonist	Not blocked	Blocked	Agonist	Affirmed female-gender	Affirmed nonbinary gender
	B ($p\leq$)	Mean (SD)	Mean (SD)	β ($p\leq$)	Mean (SD)	Mean (SD)
Total problems	**−4.9 (.003)**	60.0 (9.6)	55.2 (10.6)	**−4.5 (.009)**	−0.73 (0.54)	1.0 (0.54)
Internalizing problems	**−7.4 (.001)**	62.9 (11.0)	55.4 (11.1)	**−7.0 (.001)**	−0.81 (0.55)	2.4 (0.19)
Externalizing problems	−2.0 (0.17)	51.0 (8.5)	49.0 (8.1)			
Anxiety problems	**−4.6 (.003)**	63.2 (9.2)	57.2 (9.6)	**−4.3 (.009)**	−0.81 (0.48)	−0.08 (0.96)
Depressive problems	**−6.5 (.001)**	63.8 (10.0)	56.6 (9.1)	**−5.8 (.001)**	−1.5 (0.23)	2.3 (0.17)
Thought problems	−2.4 (.11)	61.4 (9.0)	58.9 (10.4)			
Attention problems	−2.8 (.11)	62.4 (10.5)	59.5 (9.7)			
Social problems	−0.7 (.64)	59.6 (7.9)	58.9 (9.1)			
Somatic problems	−1.6 (.19)	56.4 (7.7)	54.7 (5.2)			
Stress problems	**−4.0 (.01)**	63.1 (9.2)	59.1 (9.5)	**−4.1 (.013)**	0.06 (0.96)	−0.73 (0.64)

Multivariate analyses are adjusted for affirmed gender, using affirmed male gender as the base category. Score mean and SD also included for both populations.
Values in bold are statistically significant at $p < .05$.
SD = standard deviation; YSR = youth self report.

Table 3
Univariate and multivariate logistic regression assessing the effects of exposure to puberty blockers on single YSR items

YSR scale	Univariate regression	Proportion endorsing		Multivariate regression		
	Odds ratio	Not blocked	Blocked	Agonist	Affirmed female	Affirmed nonbinary
	OR ($p<$)	%	%	OR ($p<$)	OR ($p<$)	OR ($p<$)
Thinks Suicide	**0.38 (.05)**	27.2	12.5	0.44 (.10)	0.73 (.28)	1.4 (.49)
Harms Self	0.69 (.56)	10.7	7.7			

Affirmed male gender is the base category for multivariate analysis
Values in bold are statistically significant at $p < .05$.
OR = odds ratio; YSR = youth self report.

received pubertal blockade in Tanner stages 2 or 3 were able to prevent the development of many secondary sex characteristics and were found to also have reported significantly less anxiety, depression, stress, total problems, and internalizing difficulties after adjusting for affirmed gender when compared to their nonblocked peers.

Furthermore, the majority of these differences between these two groups of young people remained significant even when a sensitivity analysis was run restricting the age of unblocked individuals to 13–15, although the association between receiving pubertal blockade and internalization attenuated. These findings resemble those of existing research that included a sample of youth who went through some or all of a nonaffirming endogenous puberty and found a reduction in self-reported internalization and total problems between the time before and after a puberty blocker was initiated [19]. Our findings suggest that earlier suppression of puberty may be associated with additional psychosocial benefits and may serve as an important protective factor against the multiple mental health challenges TGD youth face such as anxiety, depression, and suicidality [4,5]. Similar positive psychosocial outcomes were also seen in a recent study that investigated changes in mental health over the first year of receiving GAH and/or pubertal blockade [27].

The possible beneficial psychological outcomes associated with pubertal blockade highlight the well-established correlations between development of secondary sex characteristics, gender dysphoria, and associated psychosocial distress, like depression, anxiety, and suicidal ideation [13,28,29,30]. When TGD youth can avoid developing nonaffirming, discordant, and dysphoria-inducing secondary sex characteristics, they may be better able to be perceived as their affirmed and authentic gender [31]. In turn, this may allow TGD youth to experience less minority stress in their day-to-day lives, which likely contributes to better psychosocial functioning and quality of life. However, it is important to remember that although important correlations between pubertal blockade and positive psychosocial functioning have been discovered, causation cannot and should not be assumed.

Beyond the possible protective and positive associations between pubertal suppression and better psychosocial functioning for TGD youth, use of pubertal blockade might also be one of multiple important predictors of individuals' future life experiences and care. Individuals who choose to start GAH after pubertal blockade may be less likely to require surgical procedures (e.g., voice feminization surgery, facial feminization surgery, masculinizing chest surgery) to address dysphoria in the future because they did not develop nonaffirming secondary sex characteristics from endogenous pubertal development. The combination of pubertal suppression and GAH may also increase the concordance of youths' appearance with cisgender norms [17,32]. Although not all TGD youth may want to appear as cisgender or to fit within cisgender norms, the ability to do so can have substantial implications for the reduction of experiences of discrimination and minority stress as well as the enhancement of physical and psychological safety [33].

While there are many potential positive implications associated with the use of pubertal blockade, it is important for physicians and clinicians to discuss potential unwanted side effects. One consideration is that it may be distressing for some youth to not undergo pubertal development at the same time as their cisgender peers. Given that many clinics do not initiate GAH until the age of 13 with parental consent, it is possible that some TGD youth may feel as though their development is delayed; this may be particularly pertinent among transfeminine youth as many cisgender female peers start and develop through an estrogen-driven puberty in the pre-teen years. Another important consideration is that blockade impairs hormone-driven development of the ovaries or testes, and this may substantially reduce or eliminate future fertility potential in the absence of experimental options [32,34–37]. This is not necessarily as salient a concern as gender affirmation for most TGD youth and should not be used as a reason to deny GnRH agonists. Rather, youth and families should be educated about the fertility implications of this care.

In addition, the lack of growth of primary sexual characteristics during testosterone-driven puberty may increase the difficulty of penile-inversion vaginoplasty for transgender women and nonbinary individuals, although there are surgical techniques that can effectively address this limitation if individuals lack sufficient tissue to achieve desired vaginal depth [36]. It is strongly encouraged that youth and their families engage in thoughtful, ongoing conversations about the benefits and limitations of pubertal blockade with medical and mental health professionals to best determine if this intervention is a safe and viable option of care.

Limitations

There are several limitations to this study worth noting. The first set of limitations pertains to this specific sample. All patients and families within our clinic interested in pursuing GAH undergo an assessment for hormone readiness in a gender affirmative care model. Within our program, this requires a substantial level of parent or guardian support, and in order to access a hormone readiness assessment, the youth and family must have attended several appointments with the clinic, and the family must be willing to consider hormonal treatment. As such, all youth in this study may experience a higher level of

parental support than TGD youth in general. Most youth who reach the step of a formal hormone readiness assessment in the GeMS clinic go on to start GAH, and all parents/guardians are required to consent to that treatment. Given that family support has been found to be significantly protective for TGD youth mental health outcomes [38,39], it is likely that families that facilitate their child's access to gender-affirming care are more supportive of their child's gender journey, which can impact a youth's emotional wellbeing. Thus, experiences of youth who endure unsupportive families were likely not reflected in this study. With this in mind, it is possible that having supportive and affirming parents may have also contributed to the positive psychosocial functioning outcomes beyond early intervention with pubertal blockade alone. It is therefore strongly recommended that future research aim to more directly assess the potential impact variables such as parent support and access to care may have on this population.

Additionally, data used in this study were abstracted retrospectively from electronic medical records and, therefore, information about pubertal development could not be determined among the comparison group of TGD young people who did not receive a puberty blocker intervention. Future research may benefit from systematically assessing pubertal development and Tanner staging of both groups to control for how these factors may impact associations between pubertal blockade and psychosocial functioning.

Limitations in the demographics of the sample may also limit potential generalizability of findings as well. For example, a majority of the sample identified as White, and therefore, the experiences of TGD youth in this sample are likely not representative of the broader racially and ethnically diverse TGD community [40]. Additionally, participants in this sample were predominately from the New England area, which is often considered an especially liberal area of the United States, due to families in this region having easier access to pediatric gender-affirming care and that there is often insurance coverage for these services. Participants included in the present study who received pubertal blockade were also more likely to be assigned male at birth and affirm a female gender, whereas the majority of participants who did not receive such medical intervention were assigned female at birth and affirmed a male gender. It is possible that Western culture may be quicker to identify gender diversity among children assigned male sex at birth who present in more conventionally feminine manner [40]. We strongly recommend that future research aim to replicate the present study's findings using more diverse samples of youth in terms of racial and ethnic identities, geographic location, as well as sex assigned at birth and affirmed gender.

Finally, the individuals who received blockers were younger than those who did not at time of hormone readiness assessment. A sensitivity analysis comparing only 13- to 15-year-olds was conducted to account for this difference, and the majority of the associations remained present. However, there was no longer a statistically significant difference in reported thoughts of suicide between the two groups. There are two potential hypotheses to explain these differences. First, the difference may be a reflection of the specified time frame of 6 months for the suicidal thoughts question, as individuals who were able to access blockers almost certainly had substantially more family support in that period. It could also be the result of age effects, with older children being more likely to report suicidal thoughts, and those who are able to access GAH prior to age 16 are also more likely to come from highly supportive families.

Conclusions

This study demonstrates that, at the time TGD youth are seeking to initiate GAH, those who were able to access pubertal blockade during Tanner stages 2 and 3 of puberty tended to also report significantly better psychosocial functioning than those who were not. Compared to their nonblocked peers, TGD youth who had pubertal blockade reported measurably less anxiety, depression, stress, total problems, and internalizing difficulties. These findings support the evidence suggesting that a non-affirming puberty may predict significant negative psychosocial functioning among TGD adolescents and highlight the importance of family support and early, gender-affirming interventions where needed. Our data also underscores that access to gender-affirming medical care can be essential to the emotional well-being and psychosocial functioning of TGD young people and may offer robust protection against poor mental health outcomes for this vulnerable population.

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interACT
ADVOCATES FOR INTERSEX YOUTH

Anti-Transgender Legislation Affects Intersex Kids, Too!

State legislatures across the country are introducing bills that would criminalize or restrict providing healthcare to transgender minors. What many don't realize is that in the rush to control transgender minors' bodies, many of these bills also include specific exemptions allowing "corrective" procedures on intersex traits.

These bills attempt to set a standard for how individuals can feel good in their bodies, and what a "normal" body should look like, in regards to sex and gender.

Here at interACT, we support our transgender peers in their fight to access lifesaving, necessary care. It's all about individuals leading decisions about their own bodies.

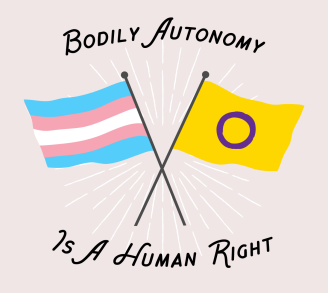

Illustration by Alex Yoon for Transgender Education Network of Texas, Intersex Awareness Day 2019

transgender and intersex?

Transgender means having a gender that is different than what adults presumed based on visible anatomy at birth. **Cisgender** means an individual's gender is the same as what was presumed at birth. **Intersex** is an umbrella term for many different variations in sex characteristics that can cause an individual not to fit the two usual paths of human sex development. Intersex traits can affect chromosomes, gonads and other internal reproductive organs, genitals, and hormone production and response. Some intersex traits, such as having a large clitoris, are obvious at birth, while others may not be discovered until puberty or later in adulthood—or not at all.

Some common intersex variations include Androgen Insensitivity Syndrome (where an individual is born with XY chromosomes, internal testes, a vulva and vagina, and a hormonal response that converts testosterone into estrogen) and Congenital Adrenal Hyperplasia (where an individual is born with XX chromosomes, ovaries and a uterus, and genitals that may look more like a vulva, a small penis, or appear between the two). A person can be both intersex and transgender.

– Why are these bills harmful to both transgender and intersex communities?

Intersex and transgender youth have a shared interest in autonomy around their medical decisions, and bills like these deny it to them both. For transgender youth, the ability to access affirming care, including puberty blockers and hormones, is crucial to their well-being. These bills criminalize a basic human right. For intersex youth, autonomy means preserving choices about alterations to their sex traits so that they can decide for themselves how they want their bodies to look and function. These bills go out of their way to take that decision from them.

testicular tissue; or
(2) When a physician has otherwise diagnosed a disorder of sexual development, in which the physician has determined through genetic testing that the minor does not have the normal sex chromosome structure for a male or female.

Screenshot of South Dakota's HB 1057's intersex exemption—banning necessary care for transgender youth while encouraging "normalizing" surgery on intersex traits. The bill failed on February 10th, 2020.

Medical experiences within transgender and intersex communities may look different: transgender youth often proactively seek out medical care to affirm their gender and alleviate dysphoria, while intersex youth are told there is something wrong with them when it is discovered they have natural variations in their sex traits. Intersex youth may be subjected to medical interventions to "normalize" their bodies without their consent–including surgeries that create a vaginal opening, reduce the size of a clitoris, and remove hormone-producing gonads–often before the age of 2. In the vast majority of cases, these procedures are not urgently necessary and could safely be delayed until the intersex individual could make their own decision about what (if any) procedures are right for them. Instead, doctors can offer irreversible surgeries to parents with no opportunity for the patient to consent or refuse. Many, many intersex people grow up to wish they could have participated in the decision making around these procedures, which come with risks like chronic pain, scarring, loss of sexual function, urinary incontinence, sterilization, PTSD, and a surgically enforced sex assignment that does not match their gender.

Banning patient-initiated care that reduces the risk of depression and suicide for trans teens while encouraging the continuation of non-consensual surgeries on intersex infants–which have been denounced as a human rights violation by the United Nations, the World Health Organization, the American Academy of Family Physicians, and more–is exactly the opposite of legislation to protect vulnerable children.

+ How do we advocate for transgender rights while also considering intersex rights?

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What are puberty blockers? What are the benefits and risks for transgender children?

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Puberty blockers are medications that stop the body from producing oestrogen and testosterone. In the clinic, they're called gonadotropin-releasing hormone agonists (GnRHa).

If adolescents take these medications during puberty, bodily changes associated with puberty are prevented. If these medications are stopped, these bodily changes resume.

Puberty blockers have been used since the early 1980s to treat early-onset puberty in young children.

Beginning in the 1990s, puberty blockers have also been used in transgender adolescents to help prevent the unwanted development of masculinising or feminising physical changes that occur during puberty.

What are the benefits for transgender adolescents?

Many transgender children describe anxiety about unwanted physical changes that will occur because of puberty, especially as adolescence approaches.

For those presumed female at birth, these unwanted changes include breast development and starting periods. For those presumed male at birth, these unwanted changes may include the development of a deeper voice, an Adam's apple, facial hair and a masculine physique.

Many of these physical changes are irreversible and result not only in gender dysphoria but also misgendering. This is when transgender people are mistakenly assumed to be the gender they were presumed at birth. Misgendering can be a significant and lifelong source of distress.

Some transgender people will seek out surgery to address these unwanted irreversible changes. This might be to masculinise their chest, feminise their face, alter their voice, or reduce their Adam's apple.

For transgender young people and their families, the most obvious benefits of puberty blockers are to avoid unwanted changes that come with puberty. It can also reduce misgendering and prevent the need for future surgery

Several studies have assessed the potential benefits of puberty blockers. A 2024 systematic review of the research found consistent evidence showing they effectively suppressed puberty.

The study the review authors identified as being the highest quality found significantly improved psychological outcomes. Puberty blockers reduced suicidal thoughts and actions in transgender adolescents compared to those who had not accessed the treatment.

When should puberty blockers be started?

Puberty blockers can only be started once puberty has commenced. The age at which this occurs varies considerably between individuals. To avoid unwanted physical changes, puberty blockers should ideally begin in early to mid-puberty.

However, many transgender adolescents have been started on puberty blockers in late puberty or even after puberty has finished.

In England, for example, at least 12 months of puberty-blocker treatment was previously mandatory for any transgender adolescent under 18 who wished to access oestrogen or testosterone. This resulted in many young people starting puberty blockers well after their puberty was complete.

One potential problem with commencing puberty blockers beyond early or mid-puberty is that unwanted physical changes have already occurred, so many benefits of this treatment are no longer expected to occur.

The recent systematic review on puberty blockers noted that, while many studies saw improvements in psychological wellbeing, others failed to observe a difference. One possible explanation is that none of these studies accounted for the stage of puberty at which treatment was commenced.

Notably, a more recent study from Harvard University confined the analysis to treatment with puberty blockers in early to mid puberty. It found treatment was associated with significant reductions in anxiety, depression and suicidal thoughts.

Risks of puberty blockers for transgender adolescents

Puberty blockers are generally well-tolerated. But as with any medical intervention, they can also cause unwanted effects. This includes reductions in bone density and fertility, and changes in adult height.

When started beyond early to mid puberty, they are more likely to cause menopausal-like side effects, such as hot flashes. This is due to a reduction in sex hormone production.

There are also potential long-term effects of puberty blockers that are still being investigated.

Brains mature substantially during adolescence. But it remains unclear what effect puberty blockers may have on cognitive development. While the use of puberty blockers in early-onset puberty has not been shown to affect cognitive functioning, studies in transgender adolescents are ongoing.

Where are the randomised controlled trials of puberty blockers?

Randomised controlled trials are typically considered the gold-standard way to study the effectiveness of medical interventions.

To date, there have been no randomised controlled trials of puberty blockers for transgender adolescents, which has led some to label this treatment as experimental. However, conducting such trials of hormonal interventions in transgender youth is problematic, as it would be unethical to withhold treatment for research purposes.

It's common not to have data from randomised controlled trials in paediatric care more broadly. The use of puberty blockers for early puberty displays similar research gaps.

However, the politicisation of trans young people has seen the use of puberty blockers in transgender adolescents held to a different standard.

How are puberty blockers accessed in different clinical settings?

In the United Kingdom, puberty blockers will now only be accessed by transgender adolescents via the National Health Service (NHS) in a research setting, following the adoption of recommendations by the Cass review, which reviewed gender identity services available to children and young people via the NHS.

One of the main criticisms of the review was it failed to consider the likely harms of denying transgender adolescents hormonal interventions.

In Australia, health experts have also cautioned against comparing our health system to the NHS and highlighted that many of the review's recommendations align with existing practices within Australian specialist gender services.

Puberty blockers in Australia are accessed by transgender adolescents as part of a comprehensive, team-based approach to gender-affirming care. This emphasises holistic, individualised care which considers the young person's stage of puberty, while balancing potential benefits and risks.

Sasha Bailey, PhD Candidate and Research Assistant, The Matilda Centre for Research in Mental Health and Substance, University of Sydney; Cristyn Davies, Research Fellow in Child and Adolescent Health, Faculty of Medicine and Health, University of Sydney; Ken Pang, Team Leader, Murdoch Children's Research Institute, and Rachel Skinner, Professor in Paediatrics, University of Sydney

Authors: Associate Professor Ken Pang, Murdoch Children's Research Institute, Sasha Bailey, University of Sydney; Cristyn Davies, University of Sydney and Rachel Skinner, University of Sydney.

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+61 3 8341 6200
1300 766 439

The Royal Children's Hospital
Flemington Road, Parkville
Victoria 3052 Australia

ABN | 21 006 566 972