Factors Affecting Fertility Decision-Making Among Transgender Adolescents and Young Adults

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Abstract

Purpose: This study aimed to identify factors affecting transgender adolescents' and young adults' (AYA) decisions to pursue fertility preservation (FP).

Methods: Participants completed a semistructured interview between December 2016 and June 2017 to inform improvements in fertility counseling and the development of a fertility decision aid targeted to transgender youth. Interviews included open-ended questions within the following domains: (1) gender-affirming medical care received, (2) knowledge of gender-affirming hormone effects on fertility and FP options, (3) FP decision-making, and (4) how, when, and what information AYA prefer to receive regarding FP. The interviews were analyzed thematically.

Results: Eighteen transgender AYA (ages 15–24) participated (60% participation rate). The majority was White (61%) and assigned female at birth (67%). Half received specialized FP counseling (50%). Few of the transgender AYA pursued FP (33%). Five key themes reflecting factors affecting transgender AYA's FP decision-making were identified: (1) future parenthood desires, (2) individual experiences of gender dysphoria, (3) family values around biological parenthood, (4) financial considerations, and (5) fertility information provision.

Conclusions: Transgender AYA consider numerous factors in deciding whether to pursue FP. Although individual desires for and family values around biological parenthood influenced whether AYA pursued specialized FP counseling, individual experiences of gender dysphoria and costs of FP were barriers. AYA also identified shortcomings in fertility counseling with providers, highlighting the need to establish standardized counseling protocols and develop patient decision aids.

Keywords: gamete cryopreservation, gender dysphoria, oocyte cryopreservation, qualitative research, reproductive health, sperm cryopreservation

Introduction

TRANSGENDER ADOLESCENTS AND young adults (AYA) increasingly seek medical care to reduce gender dysphoria.¹ Treatment with gender-affirming hormones (GAH; tes-

tosterone or estrogen) induces sex steroid-mediated pubertal changes (e.g., facial hair growth, voice deepening, or breast development). GAH treatment is associated with improved psychosocial functioning²; however, some studies suggest that exogenous hormones have a negative impact on fertility.^{3,4}

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Established fertility preservation (FP) methods exist for postpubertal birth-assigned males (sperm cryopreservation) and postmenarchal birth-assigned females (oocyte cryopreservation).^{5–7} Thus, practice guidelines published by the World Professional Association for Transgender Health,⁸ the Endocrine Society,⁹ and the American Society for Reproductive Medicine¹⁰ recommend fertility counseling before GAH initiation.

Infertility causes psychosocial distress among affected adults.¹¹ Pediatric cancer survivors, a population for whom medical treatment is known to cause infertility, express disappointment, regret, and anger about missed opportunities for FP.^{12,13} To date, two studies have examined FP rates in transgender AYA, with 3% of 72 AYA¹⁴ and 4.8% of 105 AYA¹⁵ cryopreserving gametes. Low FP rates in transgender AYA contrast with their higher rates of reported desires for biological children, which ranged from 24% to 36% across two studies.^{16,17}

The discrepancy between reported desires for biological children and rates of FP suggests that transgender AYA may be at risk for distress and regret should they learn they are infertile in adulthood. Retrospective chart reviews have identified cost, invasiveness of FP procedures, reluctance to delay GAH, and plans to adopt children as reasons that transgender AYA decline FP.^{14,15} However, a comprehensive examination of fertility-related decision-making in transgender AYA has yet to be explored empirically. This study aimed to identify factors that affect transgender AYA's decisions to pursue FP.

Methods

Recruitment and sampling

Self-identified transgender AYA ages 14–24 interested in or receiving GAH were eligible to participate in the study. Participants were recruited from a subspecialty pediatric gender clinic located in a large Midwestern city through clinician referral and from community-based organizations serving transgender AYA using study flyers. We purposively sampled for AYA with varying personal experiences with FP counseling and procedures (i.e., completed FP, received specialized FP counseling from a fertility specialist but did not pursue FP, and neither received specialized FP counseling nor completed FP) and for non-White and birth-assigned male participants to diversify respondent characteristics. Transgender AYA were approached in person or contacted by telephone and invited to participate. Participants aged 18 and over provided written informed consent; those under age 18 provided written assent while a parent gave written permission. Although not an exclusionary criteria, none of the participants had received pubertal suppression treatment. All procedures were approved by the Ann & Robert H. Lurie Children's Hospital of Chicago's Institutional Review Board.

Procedures

Participants completed an in-person, semistructured interview between December 2016 and June 2017. Interviews assessed fertility decision-making, with the intention of improving fertility counseling and developing a fertility decision aid targeted to transgender AYA. Interviews included open-ended questions within the following domains: (1)

gender-affirming medical care received, (2) knowledge of GAH effects on fertility and FP options, (3) FP decision-making, and (4) how, when, and what information AYA prefer to receive regarding FP. Participants also completed a questionnaire documenting their age, birth-assigned sex, race/ethnicity, and educational attainment, whether they were currently or previously receiving pubertal suppression treatment or GAH, whether they have tried to have biological children, pursued FP procedures (e.g., oocyte or sperm cryopreservation) or used any assisted reproductive technologies to attempt to have a child, and one question: "Which statement best describes how you feel about having children someday?"

Interviews were conducted by a trained research assistant using an interview guide adapted from a study exploring attitudes toward FP in another patient population.¹⁸ Before participant recruitment, the interviewer and the principal investigator conducted pilot interviews for training purposes, to assess interview length and ensure the interview guide was comprehensive. Interviews were audio recorded and lasted an average of 65 minutes, and participants received a \$25 gift card. Full details regarding study procedures are reported elsewhere.¹⁹

Data management and analysis

Interviews were transcribed verbatim. Transcripts were uploaded to Dedoose,²⁰ an Internet-based qualitative analysis software program. We used thematic analysis²¹ to identify themes related to fertility decision-making in transgender AYA and followed published standards for reporting qualitative research.²²

The coding team included M.A.K., a White queer-identified cisgender woman, doctoral candidate in Anthropology, and D.C., an Asian American cisgender heterosexual woman, licensed clinical psychologist with expertise in transgender health. Coders independently reviewed sets of three to five interviews and identified preliminary themes based on whether they represented a meaningful pattern in the data. Themes were refined through constant comparison, discussion, and consensus.²³ Once consensus was reached, and as an additional method of reducing bias, the coding pair repeated the consensus-building process for the first two sets of interviews with a third coder, A.S. (a South Asian queer-identified gender fluid research assistant with a bachelor's degree in psychology) who provided feedback.

The coding team met weekly to establish consensus and resolve coding discrepancies. Analytic phases were repeated until all available data were coded at least once, until all coding discrepancies were resolved, and reaching saturation—when novel codes no longer emerged. Thereafter, reliability testing was performed on a subset of excerpts. The pooled Kappas were 0.91 (13 excerpts), indicating excellent interrater reliability.²⁴

Cross-case analyses were conducted using Fisher's exact tests to examine whether there were significant patterns in identified themes based on participants' birth-assigned sex and FP consult and completion status.

Results

Participant characteristics

A total of 33 AYA were eligible for recruitment; 30 were contacted, 21 enrolled, and 3 failed to present for their

research visit (60% participation rate). The sample consisted of 18 AYA ages 15 to 24 (mean=18.4, standard deviation=2.3). The majority was White (61%) and assigned female at birth (67%) (Table 1). Few of the transgender AYA pursued FP (33%), although a larger percentage of birth-assigned males (67%) than birth-assigned females (16%) had completed FP. There were no significant differences in age, race/ethnicity, or assigned sex at birth between study participants and eligible but not enrolled youth. Table 2 presents individual characteristics for each participant. Table 3 depicts youths' responses to the question about how they feel about having children someday.

Qualitative analyses

Five key themes reflecting factors affecting transgender AYA's FP decision-making were identified: (1) future parenthood desires, (2) individual experiences of gender dysphoria, (3) family values around biological parenthood, (4) financial considerations, and (5) fertility information provision. All key themes and examples are summarized in Table 4.

Future parenthood desires. AYA varied in desires for parenthood, affecting decisions to pursue FP consultation and procedures. Some youth explicitly desired biological children and expressed interest in FP: "I've always wanted kids. And so...we talked to someone here about freezing eggs" (S113, 17-year old, on testosterone, received FP consult, no FP). Other AYA did not want children, biological or otherwise: "I'm not interested in having children of any sort, be it through adoption or reproduction" (S107, 20-year old, on estrogen, no FP consult, no FP). Some participants expressed

uncertainty about parenthood desires, which complicated decision-making:

"With fertility, it was a very back and forth of just, do I want to leave this option open to myself or am I willing to just kind of close that door? And it was a couple months of thought of just, do you want to be able to have your own biological children? Do you not? And it just came to the point where I was like, you don't even know if you want kids, and if you decide to, there's thousands, millions...of kids who are there to be adopted" (S111, 17-year old, on testosterone, received FP consult, no FP).

AYA interested in parenting also took into account potential co-parenting partners in FP decision-making:

"I did save sperm [but] I probably plan on adopting just because the people who I think I'll be in a long-term relationship with are people who either probably wouldn't be able to carry a child in their uterus or who wouldn't want to carry a child in their uterus" (S116, 18-year old, on estrogen, received FP consult, completed FP).

Individual experiences of gender dysphoria. AYA's personal experiences of gender dysphoria affected their decisions not to pursue FP, even among those desiring biological children in the future. Some youth expressed concerns about the mental health ramifications of delaying GAH treatment to complete FP:

"I was thinking, yeah, this is smart, why don't I save my eggs. But then at the same time it was just...an ongoing battle internally with myself and my gender identity...I was just super depressed...They told me if you want to do it [FP], you'll have to wait on hormones...it does kind of make me sad, a little bit, because I'm just like, well, I should have saved it [eggs]. But I don't think I would have made it, because I was just going through so much...I had very bad thoughts. And like I said, testosterone literally saved my life" (S105, 18-year old, on testosterone, received FP consult, declined FP).

Trans masculine participants referenced dysphoria stemming from the ovarian stimulating hormones necessary for FP:

"I know the moment that I heard that I would have to go on [ovarian stimulating hormone for FP]...I was like yeah, no. I'm out...I just felt like that was going backwards, and I didn't want to...so that was definitely something that played into [my decision]" (S111, 17-year old, on testosterone, received FP consult, declined FP).

Family values around biological parenthood. AYA had varying perceptions of familial expectations or felt pressure to have biological children, which shaped FP decision-making. Some youth perceived no pressure to preserve fertility. Among these AYA, some chose not to pursue FP: "I don't think they [parents] really care, they just want me to be happy...they're not like 'you need to give us grandchildren'" (S107, 20-year old, on estrogen, no FP consult, no FP). However, others chose to preserve gametes: "My mom said...the importance of having a genetically related child is only as

TABLE 1. PARTICIPANT CHARACTERISTICS (N=18)

	n (%) or M ± SD
Age in years	18.4 ± 2.3
Assigned sex at birth	
Female	12 (66.7)
Male	6 (33.3)
Race	
White	11 (61.1)
Black/African American	4 (22.2)
Asian	1 (5.6)
Multiracial	2 (11.1)
Ethnicity	
Not Spanish/Hispanic/Latinx origin	17 (94.4)
Spanish/Hispanic/Latinx origin	1 (5.6)
Highest educational attainment	
9th Grade	1 (5.6)
10th Grade	2 (11.1)
11th Grade	3 (16.7)
High school diploma/GED	6 (33.3)
Some college/technical school or associate's degree	6 (33.3)
Duration on GAH in months ^a	14.7 ± 15.5

^aOnly includes 16 participants who were on GAH at the time of the study visit.

GAH, gender-affirming hormones; GED, General Education Diploma; M, mean; SD, standard deviation.

TABLE 2. INDIVIDUAL PARTICIPANT CHARACTERISTICS

ID	Age	Assigned sex at birth	Affirmed gender	Race/ethnicity	Sexual orientation	On GAH?	Age at GAH initiation	FP consult? ^a	Pursued FP?	LCH patient?
101	16	Female	Trans man	Black/African American	Queer	Yes	16	No	No	Yes
102	20	Female	Man	White; Asian	Heterosexual	Yes	19	Yes	Yes	Yes
103	17	Female	Man	White	Demisexual	Yes	16	No	No	Yes
104	15	Female	Trans man; nonbinary	White	Pansexual	No	N/A	No	No	Yes
105	18	Female	Man; trans man	Black/African American	Heterosexual	Yes	17	Yes	No	Yes
106	20	Female	Man	Asian	Pansexual	Yes	18	No	No	Yes
107	20	Male	Trans woman	White	Homosexual, demiromantic	Yes	20	No	No	Yes
110	18	Male	Trans woman	Black/African American	Not sure	Yes	18 ^b	No	No	Yes
111	17	Female	Trans man	White	Pansexual	Yes	16	Yes	No	Yes
112	17	Male	Woman	White; American Indian/Alaska Native; Mexican American	Heterosexual	Yes	17	Yes	Yes	Yes
113	17	Female	Trans man	White	Homosexual	Yes	16	Yes	No	Yes
114	19	Female	Man	White	Bisexual, heteroromantic	Yes	17	No	No	Yes
116	18	Male	Trans woman	White	Pansexual	Yes	16	Yes	Yes	Yes
117	16	Male	Trans woman	Black/African American	Not sure	Yes	15	Yes	Yes	Yes
118	23	Female	Man	White	Pansexual	Yes	23	No	No	No
119	24	Female	Trans man	White	Queer	Yes	19	No	No	No
120	19	Male	Trans woman	White	Pansexual	Yes	19 ^b	Yes	Yes	Yes
121	18	Female	Man; trans man	White	Homosexual	No	N/A	Yes	Yes	Yes

^aFP consult refers to specialized fertility counseling delivered by fertility specialists (e.g., reproductive endocrinologists, adult urologists specializing in infertility, and advanced practice nurse with fertility specialization) versus the adolescents' and young adults' primary medical/mental health providers.

^bThe participant initiated GAH on the same day as the study visit.

FP, fertility preservation; LCH, Lurie Children's Hospital; N/A, not applicable.

TABLE 3. PARTICIPANT RESPONSES TO “WHICH STATEMENT BEST DESCRIBES HOW YOU FEEL ABOUT HAVING CHILDREN SOMEDAY (CIRCLE ALL THAT APPLY)?” GROUPED BY FERTILITY PRESERVATION STATUS

<i>Response options</i>	<i>No FP consult, n</i>	<i>FP consult only, n</i>	<i>FP consult and pursued FP, n</i>
I do not plan to have children	2	0	0
I am not sure if I plan to have children	3	1	3
I plan to adopt children	3	1	2
I plan to have children by surrogacy (egg or sperm donor)	2	1	1
If I choose to have children, I will probably need medical help	1	1	2
If I choose to have children, I will probably not need medical help	0	0	0
If I choose to have children, I am not sure whether I will need medical help	1	0	2
Other	1	0	0

FP consult refers to specialized counseling delivered by fertility specialists (e.g., reproductive endocrinologists, adult urologists specializing in infertility, and advanced practice nurse specializing in fertility) versus the adolescents' and young adults' primary medical/mental health providers.

important to them as it was important to me” (S117, 16-year old, on estrogen, received FP consult, completed FP).

Other participants, however, perceived more pressure from parents, influencing decisions to complete FP: “My mother was really wanting me to have a kid...I wasn't really asking her, but she was giving me her insight of the whole situation. And she was all for it [FP]. She really wanted me to do it” (S112, 17-year old, on estrogen, received FP consult, completed FP). Similarly, another participant shared: “My mom was basically like I don't want you to [start testosterone] until we have an actual plan on your eggs” (S104, 15-year old, not on testosterone, no FP consult, no FP). Another participant stated:

“[Fertility] is kind of a concern for them. [My parents] were worried, ‘Oh, what if she changed her mind.’ Maybe that’s part of the reason they wanted me to save sperm...it’s just there in case I ever wanted to use it” (S116, 18-year old, on estrogen, received FP consult, completed FP).

Financial considerations. Almost all of the participants referenced financial considerations in decision-making and the importance of counseling around costs. One participant shared: “The most important is being aware of costs. [It’s] very important and does pertain to a decision [about FP]” (S106, 20-year old, on testosterone, no FP consult, no FP). Some AYA desired, but were unable to pursue FP due to

cost: “I’d be like, you know what, I will not be doing [hormones] without freezing my sperm so I can have a biological child of my own if financial issues weren’t in play” (S110, 18-year old, on estrogen, no FP consult, no FP). Other participants highlighted the potential for emotional distress if FP is desired but unattainable due to costs: “You don’t want to bring someone’s hopes up and then crash them down...it’d be pointless to get their hopes up and then find out they won’t be able to afford it cause it’s just worse for them” (S104, 15-year old, not on testosterone, no FP consult, no FP).

Fertility information provision. All participants reported that their primary medical/mental health team discussed fertility risks, with a subset pursuing counseling with fertility specialists. However, there was variability in perceived adequacy of fertility counseling, at times hindering FP decision-making. Some youth felt that counseling was effective in supporting decision-making:

“I wasn’t totally certain about whether or not I was going to go through with the process. But the information that she was able to provide...the rundown of what’s necessary, the tests that needed to be done, and the costs was enough to help me make that decision. It was pretty much everything I needed to confirm whether or not this was something that I wanted to do” (S120, 19-year old, on estrogen, received FP consult, completed FP).

Other participants felt that fertility information provision was incomplete or lacking, which affected decision-making satisfaction:

“I just sometimes wish I had more information about certain things. Like I said, I do kind of regret not doing the fertility thing [FP]...I felt like if I didn’t do my own research, and I didn’t know, hey, I can be on testosterone then get off, and then I can just like start taking ovulation medication...like imagine if I didn’t do my own research! I just wish they had told me, ‘hey, there is a way, even after you start testosterone to do [FP]’” (S105, 18-year old, on testosterone, received FP consult, no FP).

Cross-case analyses

Fisher’s exact tests showed no significant patterns in identified themes between (1) birth-assigned males and females, (2) those who pursued FP consultation versus those who did not, or (3) those who completed FP versus those who did not.

Discussion

This study identified factors affecting fertility-related decision-making among transgender AYA with varying personal experiences of fertility counseling and FP. Our findings suggest that transgender AYA consider myriad factors in weighing whether to pursue FP. Desires for parenthood influenced whether AYA pursued specialized FP counseling beyond fertility discussions with the primary medical/mental health team. However, even among AYA desiring biological parenthood and FP, individual experiences of gender dysphoria weighed into decisions not to complete FP, particularly among trans masculine AYA. These barriers are consistent

TABLE 4. THEMES, DEFINITIONS, AND EXAMPLE QUOTES

<i>Key theme</i>	<i>Definition</i>	<i>Example</i>
Future parenthood desires (<i>n</i> = 18)	Youth's current desire for or lack of desire for children, including biological parenthood and other parenting options (adoption, surrogacy, donor gametes, etc.)	<p>"I don't know if I want children, if I want children I would probably adopt. I've just never really been interested in having my own child really. There's nothing wrong with it, I'm just not interested in it." (S101, 16-year old, on testosterone, no FP consult, no FP)</p> <p>"I'm grateful that I can have a biological child whether we...whether my future spouse and I have it through a surrogate or she carries it." (S102, 20-year old, on testosterone, received FP consult, completed FP)</p>
Individual experiences of gender dysphoria (<i>n</i> = 9)	Gender incongruence affects desire for FP or pursuit of FP; FP emphasizes assigned sex at birth	<p>"For me personally...as someone who identifies as male, [having children] is just not something that resonates with me either. In terms of having a biological child, it just does not mean anything to me. Especially because I understand that while I was assigned female at birth, I don't necessarily consider my body in that way. And I do my best to adjust the way that I see my body to the way I identify as male." (S106, 20-year old, on testosterone, no FP consult, no FP)</p> <p>"[FP] was awkward I guess. And, I don't know, just kind of against my gender identity...so it was kind of...it was a very interesting experience. I wasn't the most happy camper, but I knew I needed to know the stuff [about FP] so then I can get that done with and then move on." (S121, 18-year old, not on testosterone, received FP consult, completed FP)</p>
Family values around biological parenthood (<i>n</i> = 15)	Youths' perceptions of parent/family values around youth having biological children in the future	<p>"I've talked about [biological parenthood] a lot with my mom, she clearly wants grandkids, that's all she wants. Not—not all she wants, but she really wants them. I know my dad doesn't care that much whether we have kids or not but my mom...I've talked to her a lot about it. And she never cared whether they were biological or not in the first place." (S103, 17-year old, on testosterone, no FP consult, no FP)</p> <p>"[Biological parenthood] is something that they like to put a lot of stress on...my mother...tells me all the time that...you can't replicate the bond that you'd have with a child that is genetically yours." (S120, 19-year old, on estrogen, received FP consult, completed FP)</p>
Financial considerations (<i>n</i> = 15)	Costs of procedures are a major factor in decision-making about FP	<p>"So we came to the conclusion [about FP] by talking, and talking a lot about costs and talking about benefits of [FP], but also a lot of times of cost." (S117, 16-year old, on estrogen, received FP consult, completed FP)</p> <p>"And the biggest decision factor for me was cost. I absolutely had no idea how much [FP] was going to cost." (S120, 19-year old, on estrogen, received FP consult, completed FP)</p>
Fertility information provision (<i>n</i> = 18)	Degree to which clinicians provide adequate and accurate information about fertility and FP procedures and effective counseling to youth	<p>"I mean, it was kind of like some of it was new information [about FP], but my mom kind of knew about the options that are available. Yeah. I mean, I think it was fine...a lot of information, but...I think it was all presented very—it was clear, and we all kind of understood it. It was definitely helpful. Cause I wasn't totally sure whether [FP] was right for me or not, but getting the information definitely helped." (S113, 17-year old, on testosterone, received FP consult, no FP)</p> <p>"I don't know a lot [about FP] I was not told that much at all [by clinicians]... Apparently there is just not enough information, at least when I started [testosterone] two years ago. I was told that [testosterone] could influence fertility in some way, but it was just not...there was no straight answer." (S106, 20-year old, on testosterone, no FP consult, no FP)</p>

with those reported by transgender AYA from retrospective chart reviews^{14,15} and a recent case study.²⁵

Family values around parenting also influenced AYA's decisions to pursue FP consultation and FP. For example, three trans feminine youth who indicated that they were "not sure" if they plan to have children actually completed FP. Two of these participants specifically referenced parental pressure to cryopreserve sperm. Parental pressure to complete FP represents an ethical dilemma as it may interfere with youth autonomy to make reproductive health decisions.²⁶ Fertility counseling should thus include support navigating complex discussions about personal parenting values and priorities among AYA and their parents.

Similar to the oncology population,²⁷ cost was a significant barrier to FP, with several AYA indicating that they would have cryopreserved gametes if not for limited financial resources. In the United States, the average cost of ovarian stimulation and oocyte retrieval is \$12,737,²⁸ and for sperm retrieval by masturbatory emission it is \$745.²⁹ Long-term annual storage fees average \$343.³⁰ Costs render FP out of reach for many transgender AYA. Since 2017, five states (Connecticut, Delaware, Illinois, Maryland, and Rhode Island) have enacted insurance laws requiring state-based insurers to subsidize costs of FP for patients who face infertility secondary to medically necessary treatments. The impact of this new legislation on transgender individuals seeking gender-affirming, but potentially fertility-compromising, treatments is unclear. It is imperative that providers of transgender health care stay abreast of evolving state-level insurance coverage policies to advocate for insurance subsidies on behalf of transgender patients who may desire FP.

Understanding factors influencing FP decision-making is critical as transgender youth are seeking transition-related medical care at younger ages. With clinical practice guidelines recommending fertility counseling before starting GAH,^{8–10} transgender AYA must consider medical decisions that may have long-term reproductive health implications during a period in which thinking about fertility and parenting is developmentally non-normative. This puts transgender AYA at risk for prioritizing gender-affirming treatments over fertility at a time in their lives when their parenthood goals may not be well defined, which may be problematic as impaired fertility affects future quality of life, rather than current functioning.^{13,31}

Participants highlighted many ways in which fertility counseling could be improved, including more in-depth discussions about fertility and FP, and ongoing conversations over time even after GAH initiation. Another important finding is that all AYA in our study expressed the belief that GAH exert a *negative* impact on fertility and reproductive functioning. Unlike pediatric oncology, which presents quantifiable risks to fertility resulting from chemotherapy and radiation treatment, little is known about fertility-related outcomes after long-term GAH treatment in transgender populations. For instance, both planned and unintended pregnancies have been reported in transgender men with previous and current use of testosterone.^{32–34} In addition, variability in testicular histology has been observed among transgender women undergoing gender-affirming orchiectomy.³⁵ Thus, fertility counseling for transgender AYA typically is about the *unknown* risks of GAH on long-term fertility. Lack of clarity about the impact of GAH on fertility,⁷ and reversibil-

ity of any fertility impairment complicates fertility counseling. Basic science research is needed to more clearly define hormone-specific risks (i.e., testosterone-specific effects on ovarian function and estrogen-specific effects on testicular function) and dose-specific risks of GAH on fertility. In addition, counseling should include education that GAH are not effective as contraception.³⁴ Moreover, given that a third of our participants expressed interest in adopting children in the future, fertility counseling should include discussions of all possible pathways to parenting, including adoption and its associated costs.

Our sample was comprised of transgender AYA who had not received pubertal suppression treatment before GAH, and thus had progressed far enough through their endogenous puberty to have mature gametes for FP. Transgender youth are presenting at younger ages for care.³⁶ Increasingly, these youth will be eligible for pubertal suppression treatment in early puberty, which halts undesired pubertal changes and prevents gamete maturation.⁹ No studies to date address whether fertility is possible among transgender people treated with pubertal suppression followed directly by GAH.⁷

Strengths and limitations

Our study has several strengths. First, in-depth qualitative analyses enriched our current understanding about fertility decision-making in transgender youth. In addition, our recruitment strategy allowed us to examine decision-making factors in a diverse sample of transgender AYA that varied in experience with fertility counseling and FP. Our study also has limitations to acknowledge. All but two participants were recruited from the same clinic, a gender-affirming multidisciplinary program housed in an institution with an established pediatric FP program. Providers caring for these AYA are likely to be more attuned to fertility considerations, potentially limiting generalizability to AYA receiving care in community-based settings. Participants also varied in their medical transitions. Future studies should examine decision-making processes in real time.

Conclusion

These study findings suggest that transgender AYA consider many factors in making decisions to pursue FP and highlight the need to improve fertility counseling for this vulnerable population, consistent with a recent call to action to improve fertility counseling in pediatrics more generally.³⁷ Ongoing attention to strategies that support patient education and decision-making, including the development of patient education and decision-support tools and evaluating the impact of these decision aids on care delivery, remain important next steps in this research. Future studies also should examine whether transgender adults of childbearing age who were offered FP but declined, experience regret related to their FP decisions.

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Disclaimer

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Author Disclosure Statement

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