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# Fertility Desires of Adolescent Females: Decreased Desire for Children in Those Identifying as Transgender/Gender Diverse and in Depressed Adolescents



Miriam D. Langer MD<sup>1</sup>, Ellen J. Silver PhD<sup>2</sup>, Nancy A. Dodson MD, MPH<sup>1</sup>, Hina J. Talib MD<sup>1</sup>, Susan M. Coupey MD<sup>1,\*</sup>

<sup>1</sup> Division of Adolescent Medicine, Children's Hospital at Montefiore, Albert Einstein College of Medicine, Bronx, NY

<sup>2</sup> Division of Academic General Pediatrics, Children's Hospital at Montefiore, Albert Einstein College of Medicine, Bronx, NY

## ABSTRACT

**Study Objective:** We aimed to describe fertility desires in healthy adolescent females and to explore associations of fertility desire with conditions and therapies potentially compromising fertility.

**Design:** This was a cross-sectional, anonymous survey.

**Setting and Participants:** A total of 323 female adolescents aged 13-19 years were recruited from clinic waiting areas at a children's hospital. We oversampled on days when clinics serving adolescents with potential fertility compromise were scheduled.

**Main Outcome Measures:** We measured fertility desire by agreement with the statement "I want to have children someday." To measure compromised fertility we asked "In the past year, has a doctor, nurse or other medical professional ever talked to you about the possibility that you may have decreased fertility and may not be able to have your own biological child someday?" To measure depression severity, we used a validated scale, the PHQ-9, scores were dichotomized into no/mild and moderate/severe depression.

**Results:** Mean age was  $16.06 \pm 1.87$  years. Of the 323 participants, 57% identified as Hispanic, 24% as Black, 93.5% as cisgender, 6.5% as transgender/gender diverse, 70% as heterosexual, and 30% as sexual minority. A total of 35% had moderate/severe depression, and 12% had compromised fertility. Overall, 89% wanted children. Fewer transgender/gender diverse than cisgender participants wanted children (67% vs 93%,  $P < .001$ ), as did fewer with moderate/severe versus no/mild depression (83% vs 93%,  $P < .05$ ), whereas those with compromised fertility versus those without and heterosexual versus sexual minority participants had similar fertility desires. Transgender/gender diverse identity (odds ratio, 0.33; 95% confidence interval, 0.11-0.97;  $P < .05$ ) and moderate/severe depression (odds ratio, 0.45; 95% confidence interval, 0.22-0.93;  $P < .05$ ) were independently associated with lower fertility desire.

**Conclusions:** We found a high overall proportion of female adolescents desiring future children, and only 2 independent predictors of decreased fertility desire, namely, transgender/gender diverse identity and moderate/severe depression.

**Key Words:** Adolescent, Transgender persons, Gender diverse, Fertility, Infertility, Attitude, Depression

## Introduction

The past 2 decades have seen considerable interest in fertility preservation methods for adolescents who are facing medical treatments that may compromise their fertility, such as chemotherapy and radiation.<sup>1,2</sup> More recently, with the increase in provision of gender-affirming care for transgender and gender diverse adolescents, practice guidelines have been developed recommending counseling about options for fertility preservation prior to initiating such therapy, as it may have irreversible adverse effects on fertility.<sup>3,4</sup> Cryopreservation of sperm is relatively straightforward, but the options to preserve ovarian tissue

or oocytes is invasive, time consuming, costly, and not guaranteed to result in a fertilized embryo in the future.<sup>5</sup> It is not surprising that adolescents assigned female at birth undergoing fertility-compromising therapy often refuse fertility preservation measures.<sup>6-8</sup> We do not know, however, whether refusal of fertility preservation is based on a lack of desire for children or on other factors. A 2009 systematic review of fertility desires and intentions among adults with human immunodeficiency virus/acquired immune deficiency syndrome noted that fertility desires are influenced by many cultural, demographic, health, stigma-associated, and psychosocial factors, and we expect that the influences are similar for adolescents.<sup>9</sup>

Little is known about the fertility desires of healthy female adolescents, making it difficult to interpret the choices made by those with potential fertility compromise. Investigations of fertility desires over the life course in a prospective study of a British birth cohort found that for female adolescents interviewed at age 16 years, few respondents wanted no children or only 1 child, and increased academic ability was associated with the desire to remain childless.<sup>10</sup> A 2006 study of 12- to 17-year-old adolescents

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\* Address correspondence to: Susan M. Coupey, MD, Division of Adolescent Medicine, Children's Hospital at Montefiore, 3415 Bainbridge Avenue, Bronx, NY 10467. Phone: (718) 920-6781

E-mail address: [scoupey@montefiore.org](mailto:scoupey@montefiore.org) (S.M. Coupey).

recruited from a predominately low-income, African American neighborhood in San Francisco found that 80% of the 166 female participants reported that having children in the future was important to them.<sup>11</sup> A qualitative study designed to assess female adolescents' attitudes toward fertility and cancer conducted focus groups using hypothetical scenarios with 25 primarily white and Asian, healthy, 12- to 18-year-old girls in Florida.<sup>1</sup> All except one of the girls indicated that they would like to have a baby in the future and would be "sad," "disappointed," and "upset" if they found out that they could not have children because of cancer treatment.

In contrast, studies show that when fertility counseling is routinely provided to transgender youth prior to initiation of hormonal therapy, few use the fertility preservation services available; this is particularly true of those in the trans-masculine spectrum (assigned female at birth).<sup>7,8</sup> In a chart review study of 73 youths aged 9-18 years at initiation of gender-affirming therapy, accessing care through the gender management program at Nationwide Children's Hospital, 98% received fertility counseling, but only 2 transgender females opted to preserve their sperm.<sup>8</sup> This study found that 16% of the transgender males refused fertility preservation because they stated that they never wanted to have children.

To our knowledge, a direct comparison of fertility desires of adolescent females with no fertility compromise to those with potential fertility compromise related to health conditions as well as medical treatments has not been done. In this study, we aimed to describe fertility desires in female adolescents without known fertility compromise, and to explore associations of fertility desires with conditions and treatments potentially compromising fertility as well as with sociodemographic, behavioral, and mental health variables.

## Materials and Methods

### *Procedure and Participants*

From August 2019 through February 2020, trained research assistants approached all individuals who appeared to be female adolescents in the emergency room waiting area and the common waiting rooms for subspecialty clinics affiliated with an academic children's hospital located in Bronx County, New York, a dense, low-resource urban area. The research assistants read a brief script to those individuals who acknowledged that they were 13-19 years of age to invite them to complete an anonymous, online survey on provided electronic tablets. We described the purpose of the survey as being about "young people's future plans for their education and family." We prioritized recruitment to oversample the waiting rooms of the subspecialty clinics on days when clinics serving children with potentially fertility compromising conditions were scheduled, for example, adolescent medicine/gynecology, endocrinology, rheumatology, and gender care clinics. On days when a gender care clinic was scheduled, we used a modified recruitment strategy whereby the research assistants approached both male- and female-appearing adolescents to capture masculinized youth who were assigned female at birth.

We did not recruit adolescents who were outside the age range or who were unable to understand the description of the survey, or if an accompanying parent refused to allow their child to participate. We excluded from analysis any adolescents who answered "male" to the survey question "What gender were you assigned at birth, on your original birth certificate?" The Albert Einstein College of Medicine institutional review board approved the study with a waiver of parental consent via "opt out" for participants 13-17 years of age. We obtained a waiver of signed documentation of consent to preserve anonymity for participants 18 and 19 years of age, as the consent document is the only identifiable link between the subject and the research.

We approached 497 individuals, and 411 (83%) completed the survey. Of those completing the survey, 88 natal males were excluded. We analyzed survey responses from 323 natal female adolescents.

### *Measures*

We developed, piloted for comprehension, and revised a 50-item survey for this study, adapting questions from previously published studies when available and developing new questions as needed. Demographic and sexual history questions were adapted from the Youth Risk Behavior Survey.<sup>12</sup> Questions about gender identity were adapted from a study by Reisner et al.<sup>13</sup> Questions about fertility attitudes were adapted from a questionnaire developed by Strang et al,<sup>14</sup> and other fertility questions were adapted from a survey of adolescent patients with cancer by Kloskly et al.<sup>2</sup> To assess our primary outcome measure, fertility desire, we used the statement "I want to have children someday," scored with a 4-point Likert scale ranging from "strongly agree" to "strongly disagree." For analysis, we combined "strongly agree" and "agree" to indicate an affirmative answer. We measured potentially compromised fertility with the question "In the past year, has a doctor, nurse, or other medical professional ever talked to you about the possibility that you may have decreased fertility and may not be able to have your own biological child someday?" This question was preceded in the survey with a definition of "biological child" as follows: "...it is important to know that 'biological child' means a child born with your own eggs or sperm." For those answering this question affirmatively, we asked them to write the name of the condition potentially causing decreased fertility. In addition, we incorporated into the survey a validated scale to measure depression severity, the PHQ-9.<sup>15</sup> This scale is scored from 1 through 27, with scores of 10-16 indicating moderate depression, 17-20 moderate/severe depression, and 21-27 severe depression. For analysis, we dichotomized scores of <10 as no or mild depression and  $\geq 10$  as moderate or severe depression.

### *Statistical Analysis*

We first used  $\chi^2$  analysis to look at bivariate associations of sociodemographic, behavioral, and fertility characteristics with fertility desire (ie, I want to have children someday). We then used binary logistic regression to determine

which variables found to be significant in bivariate analyses were independently associated with wanting children. IBM SPSS Statistics Version 25 was used for all analyses, and a  $P$  value  $< .05$  was considered statistically significant.

## Results

### Participant Characteristics and Fertility Desires

Of 323 participants, the mean age was  $16.06 \pm 1.87$  years (Table 1). Most participants self-identified as either Hispanic or Black and were enrolled in middle or high school. More than 90% of participants reported their gender identity as female, and 6.5% ( $n = 21$ ) reported their gender identity as transgender, nonbinary, gender queer, or something else. In this sample of adolescents assigned female at birth, 70% identified their sexual orientation as heterosexual, whereas 30% identified as bisexual, gay/lesbian, or unsure. Just under one-third of participants (32%) had ever had sex, and just over one-third (35%) screened positive for moderate or severe depression.

A large majority (89%) of participants agreed that they wanted to have children someday (Table 1). In all, 38 participants (12%) reported they had been told by a medical professional that they may have decreased fertility and may not be able to have a biological child. The conditions related

to the possible fertility compromise that participants wrote in on the survey included the following: polycystic ovary syndrome/irregular periods ( $n = 9$ ); testosterone shot/injection ( $n = 5$ ); hypo-/hyperthyroid ( $n = 4$ ); lupus ( $n = 4$ ); Turner syndrome/HRT/ovarian failure ( $n = 3$ ); anorexia/eating disorder ( $n = 2$ ); and PID, endometriosis, heart condition, or nephrotic syndrome ( $n = 1$  each).

### Comparison of Natal Female Adolescents' Desire for Children by Sociodemographic, Behavioral and Fertility Characteristics

We found no sociodemographic differences in the proportions of participants who answered affirmatively to our primary outcome measure “I want to have children someday” (Table 2). Consistent with our hypothesis, we found that adolescent participants who self-identified as transgender/gender diverse were significantly less likely to desire future children than cisgender girls (67% vs 90%,  $P < .001$ ). Participants with health conditions who had been told by a medical professional that they may have decreased fertility had fertility desires similar to those of participants without such conditions (84% vs 89%,  $P = .377$ ), as did participants who self-identified as heterosexual/straight compared with those identifying as sexual minority (90% vs 85%,  $P = .244$ ). Female adolescents with moderate or severe depression were significantly less likely to desire future children than those with no or mild depression (83% vs 93%,  $P < .05$ ).

**Table 1**  
Sociodemographic, Behavioral and Fertility Characteristics of Participants\*

Characteristic	Natal Females N = 323
Mean age $\pm$ SD, yr	16.06 $\pm$ 1.87
Age group, yr, % (n)	
13-15	42 (135)
16-19	58 (188)
Race/ethnicity, % (n)	
Hispanic	57 (184)
Black	24 (78)
White/other	17 (56)
Education, % (n)	
Not enrolled in school	5 (16)
Enrolled in middle/high school	75 (242)
Enrolled in college	15 (50)
Siblings, % (n)	
Grew up with any brothers or sisters	89 (289)
Grew up with no brothers or sisters	11 (34)
Gender identity, % (n)	
Female	93.5 (302)
Transgender	4 (13)
Nonbinary/gender queer/something else	2.5 (8)
Sexual orientation, % (n)	
Heterosexual/straight	70 (223)
Bisexual	16 (51)
Gay/lesbian	6 (18)
Not sure/other	8 (25)
Ever had sex, % (n)	32 (102)
Depression severity, % (n)	
None or mild (score $< 10$ )	61 (198)
Moderate or severe (score $\geq 10$ )	35 (114)
Told by medical professional of the possibility of decreased fertility/unable to have your own biological child, % (n)	
Yes	12 (38)
No/don't know	82 (265)
I want to have children someday, % (n)	
Strongly agree/agree	89 (287)
Disagree/strongly disagree	11 (36)

\* Percentages may not add up to 100 because of missing data.

### Logistic Regression Model of Desire for Children According to Sociodemographic and Fertility Characteristics

In our multivariable model, both transgender/gender diverse identity (odds ratio, 0.326; 95% confidence interval, 0.110-0.967;  $P < .05$ ) and moderate/severe depression (odds ratio, 0.449; 95% confidence interval, 0.218-0.926;  $P < .05$ ) were independently associated with decreased desire for children (Table 3).

## Discussion

To our knowledge, this is the first study to directly compare desire for future children in a large sample of more than 300 female adolescents 13-19 years of age, with and without potential fertility-compromising conditions or therapies. We found, as have others, that the large majority (89%) of the teens whom we surveyed wanted to have children someday. Our finding is nearly identical to that reported in a study of fertility desires and intentions of US women using data from the 2011-2013 National Survey of Family Growth.<sup>16</sup> That study found that among 1568 nondisabled adolescent and young adult women 15-24 years of age, 89.1% wanted “to have a baby at some time in the future.” For participants in our study with gynecologic, endocrinologic, or other chronic health conditions who had been told by a medical professional that they may have compromised fertility, we found no difference in their desire for future children when compared with participants without such conditions. However, among participants identifying as transgender as well as gender nonbinary,

**Table 2**  
Comparison of Natal Female Adolescents' Desire for Children by Sociodemographic, Behavioral, and Fertility Characteristics

Characteristic	Natal Females Desiring Children, %	P Value
Age group, yr		NS
13–15	92	
16–19	87	
Race/ethnicity		NS
Hispanic	90	
Black	92	
White/other	80	
Education		NS
Not enrolled in school	100	
Enrolled in middle/high school	88	
Enrolled in college	88	
Siblings		<.05
One or more	90	
None	77	
Gender identity		<.001
Female/cisgender	90	
Gender diverse*	67	
Sexual orientation		NS
Heterosexual	90	
Sexual minority†	85	
Ever had sex		NS
Yes	93	
No	88	
Depression severity		<.05
None or mild	93	
Moderate or severe	83	
Told by health professional of the possibility of decreased fertility/unable to have own biological child		NS
Yes	84	
No/don't know	89	

NS, not significant.

\* Gender diverse includes transgender/nonbinary/gender queer/something else.

† Sexual minority includes bisexual/gay/lesbian/not sure/other.

gender queer, or something else, we found significantly decreased desire for future children when compared with their cisgender female peers. Transgender/gender diverse adolescents assigned female at birth had only about one-third the odds of desiring children as cisgender girls. Although we found no differences in desire for future children by age, race/ethnicity, education, sexual orientation, or sexual behavior, we found that female adolescents who screened positive for moderate or severe depression had less than half the odds of desiring children than those with no or mild depression. A transgender/gender diverse identity and moderate/severe depression each were independent predictors of decreased fertility desires in these adolescents assigned female at birth.

**Table 3**  
Logistic Regression Model of Desire for Children by Selected Variables

Variable	Natal Females Desiring Children (n = 323)	
	Odds Ratio (95% CI)	P Value
Siblings [reference: 1 or more siblings]		
No siblings	0.496 (0.185–1.330)	NS
Gender identity [reference: cisgender]		
Gender diverse*	0.326 (0.110–0.967)	<.05
Depression severity [reference: none/mild]		
Moderate/severe	0.449 (0.218–0.926)	<.05

CI, confidence interval; NS, not significant.

\* Gender diverse includes transgender/nonbinary/gender queer/something else.

Clinical experience and the findings of this study suggest that transgender/gender diverse adolescents assigned female at birth may envision their lives differently from cisgender girls; they are more likely to see a future without children. This may, in part, be influenced by exclusion of transgender people from traditional institutions, so they may not feel entitled to normal life milestones including marriage and parenthood. We found a considerable number of teens in our sample who reported their sexual orientation as lesbian, gay, bisexual, or questioning. Despite belonging to another traditionally marginalized group, this group of sexual minority participants had fertility desires similar to those of their heterosexual peers; they were envisioning a future with children, unlike many of their transgender/gender diverse peers. Possibly our lesbian, gay, and bisexual teens can imagine a future with children because legalization of gay marriage has placed them closer to the mainstream, whereas our transgender/gender diverse teens cannot see themselves or their futures in the same way.

Another plausible explanation for our finding of decreased fertility desires specifically in transgender/gender diverse adolescents assigned female at birth includes dysphoria related to their reproductive anatomy, especially breasts and uterine bleeding.<sup>17,18</sup> Many transgender and gender diverse adolescents may be unwilling even to consider the reproductive functions of these organs, especially as their pubertal maturation may be a new and potentially unwanted experience for them. Indeed, many transmasculine teens bind their breasts and seek menstrual suppression from their health care providers, as these organs and bodily functions can cause significant distress and can exacerbate gender dysphoria.<sup>18</sup> In addition, transmasculine teens may worry that if they endorse a desire to be pregnant or to have a baby someday, it will make their health care providers less likely to prescribe gender-affirming hormones. Nonetheless, although we found that transgender/gender diverse adolescents assigned female at birth had a decreased desire for future children when compared with cisgender girls, still more than 60% of the transgender/gender diverse teens desired future children. A study on desire for children among German transgender adults found that prior to gender-affirming treatment, nearly half (46%) of trans men (median age 25 years) indicated that having children was important to them, a proportion not dissimilar to our finding in younger adolescents.<sup>19</sup>

Although depression is common among transgender and gender diverse adolescents,<sup>20</sup> our analysis indicates that our finding of decreased fertility desires in depressed adolescent females is independent of gender identity. The relatively high rate of just over one-third of our sample of adolescents screening positive for moderate to severe depression is nearly identical to the rate of depression that our group found in a previous study of a similar population of adolescent girls living in Bronx County, New York, a low resource, high-poverty, urban community.<sup>21</sup> Adolescent depression is associated with adverse childhood experiences including family dysfunction, sexual and physical abuse, and poverty, all of which may discourage adolescent

girls from wanting to start their own families and become parents.<sup>22</sup> Adverse childhood experiences are prevalent in our Bronx adolescent population,<sup>21</sup> and our finding of an association of depression with decreased fertility desires in adolescent girls may be mediated by this stressful environment and may not be generalizable to adolescents living in different environments.

Primary symptoms of depression are hopelessness, anhedonia, and lack of future focus or hope for the future that may manifest in adolescent girls as a belief that they will not have “the good things in life,” including a family and children. A comparison of depressed and nondepressed adults found that depression is associated with reduced positive future thinking.<sup>23</sup> It is important for clinicians to consider that depression may color an adolescent's stated fertility desires. For example, a girl with depression who reports little interest in having children in the future may be expressing her hopelessness about a bright future, rather than a deeply held, well-developed attitude about her fertility. Depression is a treatable condition, and so decreased desire for future children in depressed adolescent girls may change with successful treatment and lifting of the depression.

The strengths of this study are the relatively large overall sample size and recruitment of gender diverse adolescents assigned female at birth and girls with potentially compromised fertility allowing meaningful comparisons to be made. Limitations include that this is a sample of mostly racial and ethnic minority girls from a high-poverty urban community and thus may not be generalizable to other populations of teens. In addition, the cross-sectional nature of the study does not allow for assessment of changes in fertility desire over time.

In conclusion, in this sample of 13- to-19-year-old adolescents assigned female at birth, we found a high overall proportion of participants wanting to have children someday. We found only 2 independent predictors of decreased fertility desire, which were transgender/gender diverse identity and moderate to severe depression. It may be useful to conduct further studies to explore this association. For example, if gender dysphoria or depressive symptoms are a critical influence on fertility desire, it would be useful to explore whether intervention could modify this relationship. Alleviation of gender dysphoria with gender-affirming hormones and/or successful treatment of depression may alter a person's desire for children. Moreover, longitudinal studies are needed to assess whether fertility desire changes over time in both transgender/gender diverse teens and those who are depressed, and to identify factors associated with those changes. Recent studies indicate that successful oocyte retrieval for cryopreservation may occur after several years of testosterone therapy in transmasculine individuals, and successful pregnancies may occur in women who had harvesting of ovarian tissue for cryopreservation after exposure to

chemotherapy.<sup>5,24</sup> As such, we continue to think that it is important to periodically revisit conversations of desire for children and offers of fertility preservation with transgender/gender diverse adolescents assigned female at birth, even after initiation of gender-affirming hormones, and with adolescent girls with cancer and other fertility-compromising conditions even after treatment has begun.

## References

1. Quinn GP, Murphy D, Wang H, et al: Having cancer does not change wanting a baby: healthy adolescent girls' perceptions of cancer-related infertility. *J Adolesc Health* 2013; 52:164
2. Klosky JL, Simmons JL, Russell KM, et al: Fertility as a priority among at-risk adolescent males newly diagnosed with cancer and their parents. *Support Care Cancer* 2014; 23:333
3. Coleman E, Bockting W, Botzer M, et al: Standards of care for the health of transsexual, transgender, and gender-nonconforming people, version 7. *Int J Transgenderism* 2012; 13:165
4. Hembree WC, Cohen-Kettenis PT, Gooren L, et al: Endocrine treatment of gender-dysphoric/gender-incongruent persons: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2017; 102:3869
5. Isogna IG, Ginsburg E, Srouji S: Fertility preservation for adolescent transgender male patients: a case series. *J Adolesc Health* 2020; 66:750
6. Taylor JF, Ott MA: Fertility preservation after a cancer diagnosis: a systematic review of adolescents', parents', and providers' perspectives, experiences, and preferences. *J Pediatr Adolesc Gynecol* 2016; 29:585
7. Chen D, Simons L, Johnson EK, et al: Fertility preservation for transgender adolescents. *J Adolesc Health* 2017; 61:120
8. Nahata L, Tishelman AC, Caltabellotta NM, et al: Low fertility preservation utilization among transgender youth. *J Adolesc Health* 2017; 61:40
9. Nattabi B, Li J, Thompson SC, et al: A systematic review of factors influencing fertility desires and intentions among people living with HIV/AIDS: implications for policy and service delivery. *AIDS Behav* 2009; 13:949
10. Berrington A, Pattaro S: Educational differences in fertility desires, intentions and behaviour: a life course perspective. *Adv Life Course Res* 2014; 21:10
11. Trent M, Millstein SG, Ellen JM: Gender-based differences in fertility beliefs and knowledge among adolescents from high sexually transmitted disease-prevalence communities. *J Adolesc Health* 2006; 38:282
12. Centers for Disease Control and Prevention: Youth Risk Behavior Survey Questionnaire. 2017. Available at: [www.cdc.gov/yrbps](http://www.cdc.gov/yrbps). Accessed February 27, 2019.
13. Reisner SL, Conron KJ, Tardiff LA, et al: Monitoring the health of transgender and other gender minority populations: validity of natal sex and gender identity survey items in a U.S. national cohort of young adults. *BMC Public Health* 2014; 14:1224
14. Strang JF, Jarin J, Call D, et al: Transgender youth fertility attitudes questionnaire: measure development in nonautistic and autistic transgender youth and their parents. *J Adolesc Health* 2018; 62:128
15. Kroenke K, Spitzer RL, Williams JB: The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001; 16:606
16. Bloom TL, Mosher W, Alhusen J, et al: Fertility desires and intentions among U.S. women by disability status: findings from the 2011–2013 National Survey of Family Growth. *Maternal Child Health J* 2017; 21:1606
17. Shumer DE, Nokoff NJ, Spack NP: Advances in the care of transgender children and adolescents. *Adv Pediatr* 2016; 63:79
18. Hodax JK, Wagner J, Sackett-Taylor AC, et al: Medical options for care of gender diverse and transgender youth. *J Pediatr Adolesc Gynecol* 2020; 33:3
19. Auer MK, Fuss J, Nieder TO, et al: Desire to have children among transgender people in Germany: a cross-sectional multi-center study. *J Sex Med* 2018; 15:757
20. Price-Feeney M, Green AE, Dorison S: Understanding the mental health of transgender and nonbinary youth. *J Adolesc Health* 2020; 66:684
21. Titchen KE, Maslyanskaya S, Silver EJ, et al: Sexting and young adolescents: associations with sexual abuse and intimate partner violence. *J Pediatr Adolesc Gynecol* 2019; 32:481
22. Blum RW, Li M, Naranjo-Rivera G: Adverse child experiences among young adolescents globally: relationships with depressive symptoms and violence perpetration. *J Adolesc Health* 2019; 65:86
23. MacLeod AK, Salaminiou E: Reduced positive future-thinking in depression: cognitive and affective factors. *Cognit Emot* 2001; 15:99–107
24. Shapiro M, Dolmans MM, Silber S, et al: Evaluation of ovarian tissue transplantation: results from three clinical centers. *Fertil Steril* 2020.