

# Experience of Chest Dysphoria and Masculinizing Chest Surgery in Transmasculine Youth

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abstract

**OBJECTIVES:** Transmasculine individuals, those assigned female sex at birth but who identify as masculine, have high rates of suicidal behavior and often suffer from chest dysphoria (discomfort and distress from unwanted breast development). Growing numbers of transmasculine youth are pursuing definitive treatment with masculinizing chest surgery (MCS), and adult studies reveal marked benefits of MCS, although little is known about the impact of chest dysphoria on transmasculine youth or the optimal timing of MCS. In this study, we aimed to explore youth experiences of chest dysphoria and the impact of MCS.

**METHODS:** Transmasculine youth aged 13 to 21 were recruited from a pediatric hospital-based gender clinic. Participants completed a semistructured qualitative interview exploring the experience of chest dysphoria and thoughts about or experiences with MCS. Interview transcripts were coded by 3 investigators employing modified grounded theory, with the median interrater reliability at  $\kappa = 0.92$ .

**RESULTS:** Subjects ( $N = 30$ ) were a mean age of 17.5 years, and 47% had undergone MCS. Youth reported that chest dysphoria triggered strong negative emotions and suicidal ideation, caused a myriad of functional limitations, and was inadequately relieved by testosterone therapy alone. All post-MCS youth reported near or total resolution of chest dysphoria, lack of regret, and improved quality of life and functioning.

**CONCLUSIONS:** We observed consensus that chest dysphoria is a major source of distress and can be functionally disabling to transmasculine youth. MCS performed during adolescence, including before age 18, can alleviate suffering and improve functioning. Additional research is needed to develop patient-reported outcome measures to assess the impact of chest dysphoria and MCS.



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**WHAT'S KNOWN ON THIS SUBJECT:** Transmasculine youth have high rates of suicidal behavior. Studies in transmasculine adults reveal that chest dysphoria severely impacts quality of life and functioning and is greatly improved by masculinizing chest surgery; however, little is known about chest dysphoria in youth.

**WHAT THIS STUDY ADDS:** This study is the first to describe the lived experience of chest dysphoria through the words of transmasculine youth themselves, and explores the impact of masculinizing chest surgery on quality of life and functioning in these youth.

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Transgender individuals face disproportionately high rates of negative health outcomes, including depression, anxiety, and suicidality.<sup>1-3</sup> Transmasculine individuals are those who were assigned female sex at birth but identify their gender as male or along the masculine spectrum. In a large multisite study published in 2018, researchers found that transmasculine youth had the highest prevalence of reported past suicide attempts among youth of any gender identity at 50.8%.<sup>4</sup> It is imperative that we better understand the lived experience of transmasculine youth and the factors that contribute to these staggering rates of suicidality.

A phenomenon known to cause distress in many transmasculine individuals is chest dysphoria: physical and emotional discomfort and distress caused by the presence of unwanted breast development. Although the early use of gonadotropin-releasing hormone agonists for pubertal suppression can help to prevent breast development, the majority of transmasculine youth have already had significant irreversible breast development when presenting for gender-affirming care.<sup>5,6</sup> As a temporizing measure, transmasculine individuals commonly bind their chests to create a more masculine chest contour, but this seldom provides adequate relief of chest dysphoria and often causes adverse health effects.<sup>7,8</sup>

Many transmasculine individuals ultimately choose to pursue masculinizing chest surgery (MCS), often referred to as “top surgery,” in which unwanted breast tissue is removed to create a more masculine chest contour. Researchers of multiple studies of transmasculine adults have found high rates of satisfaction with MCS outcomes, low complication rates, and improvements in psychosocial and health outcomes.<sup>9-15</sup> Given the dramatic impact that MCS can have in

alleviating dysphoria and improving quality of life, it is widely accepted as a medically necessary procedure for many transmasculine individuals with chest dysphoria.<sup>16,17</sup>

International best practice guidelines for the care of transgender individuals note that there are no specific age requirements for MCS and that timing of MCS should be based on the individual’s physical and mental health status and goals for gender expression,<sup>16,17</sup> yet most US insurers limit coverage of MCS to those aged  $\geq 18$  years.<sup>18</sup>

There has been limited investigation of the experience of chest dysphoria or outcomes of MCS in transmasculine youth. Olson-Kennedy et al<sup>19</sup> described the Chest Dysphoria Scale, a novel measure of severity of chest dysphoria using a 17-item survey piloted on a cohort of transmasculine youth aged 13 to 25. They found that youth who had not undergone MCS had chest dysphoria scores nearly 10-fold higher than post-MCS youth. Much, however, remains unknown about transmasculine youths’ overall experiences with chest dysphoria and MCS, information that is critical to guiding providers and policy makers to address the needs of this vulnerable population. Therefore we aimed to (1) describe the physical and emotional experience of chest dysphoria in transmasculine youth aged 13 to 21 and (2) explore transmasculine youths’ perceptions of MCS, their decision-making process for whether to pursue MCS, and (for postsurgical youth) their experiences of MCS and its impact on quality of life.

## METHODS

### Participants and Recruitment

Study participants were recruited from a large US pediatric hospital-based gender clinic. Participants were eligible if they were aged 13 to 21 years, assigned female

sex at birth, identified their gender as male or along the masculine spectrum, endorsed having had discomfort or distress about their chest, had experienced notable breast development (as indicated by electronic health record [EHR] documentation revealing a previous breast sexual maturity rating of 4 to 5 or by being postmenarcheal), and received care at the Children’s Hospital of Philadelphia Gender and Sexuality Development Clinic. Youth were ineligible if (1) they had undergone MCS within the past 90 days (so that post-MCS youth would be able to reflect on the impacts of the procedure on their life beyond the recovery period) or (2) their primary gender-affirming care provider was the lead investigator.

Potentially eligible youth were identified by the clinical team, and a limited EHR review was performed to ensure appropriateness for study inclusion. Youth were purposefully sampled in an effort to recruit a sample of both non-MCS and post-MCS youth that was diverse in age, race, ethnicity, and insurance status. Youth were approached either in person during a clinic visit, by phone, or by e-mail. Recruitment continued until thematic saturation was achieved.

### Procedures

The study was approved by the Children’s Hospital of Philadelphia Institutional Review Board. Written informed consent was obtained either from youth ( $\geq 18$  years) or from guardians of minors who provided their assent. Study visits were conducted in person or via video conference on the basis of youth preference. A one-on-one semistructured interview was conducted with each youth to explore their experiences with chest dysphoria and their thoughts about or experiences with MCS (see the Supplemental Information for interview questions). Youth also

completed a brief demographic survey. The participant's EHR was reviewed post study visit. Participants received a \$40 gift card after interview completion.

## Analysis

All interviews were audio recorded, transcribed, deidentified, and entered into NVivo software (version 12; QSR International Pty Ltd, Doncaster, Australia). Key themes and patterns were identified by using a modified grounded theory approach.<sup>20</sup> The team developed a codebook by reading each transcript independently and identifying key ideas and also included a priori codes derived from the study questions. Key ideas became codes with definitions. A team of 3 coders triple-coded the first 14 interviews. Discrepancies were reviewed and discussed, and the codebook was revised iteratively. The remaining 16 interviews were double-coded. Interrater reliability was calculated by using Cohen's  $\kappa$ , with a median across all codes of 0.92 (range 0.80–0.99). The contents of each code were summarized and examined for patterns and themes. Bivariate analyses of sociodemographic and clinical variables were conducted by using  $\chi^2$  tests for categorical variables and  $t$  tests for comparison of means.

## RESULTS

### Demographics

Of 35 youth approached for recruitment, 30 youth enrolled and completed the study visit: 16 had not had MCS (non-MCS) and 14 had undergone MCS (post-MCS). Descriptive characteristics of each group are shown in Table 1. There was no significant difference in age, race, ethnicity, or insurance status between the 2 groups. Youth overall had a mean age of 17.5 years (range 14–21 years) and were predominantly white, non-Hispanic, and privately insured. The post-MCS

**TABLE 1** Descriptive Characteristics of Youth Participants

	Overall (N = 30)	Non-MCS (n = 16)	Post-MCS (n = 14)	P
Age, y, mean (range)	17.5 (14–21)	17.1 (14–20)	17.9 (14–21)	.29
Race, <sup>a</sup> n (%)				.52
White	22 (73)	11 (69)	12 (86)	
Black or African American	5 (17)	2 (13)	3 (21)	
Asian	2 (7)	1 (6)	1 (7)	
Other	2 (7)	2 (13)	0	
Hispanic or Latinx ethnicity, n (%)	3 (10)	3 (19)	0	.09
Insurance, n (%)				.35
Private	26 (87)	13 (81)	13 (93)	
Public	4 (13)	3 (19)	1 (7)	
Testosterone				
On treatment, n (%)	25 (83)	11 (69)	14 (100)	.02*
Duration of treatment, mo, mean (range)	21.9 (8–60)	14.5 (9–24)	27.7 (8–60)	0.009*
MCS, mean (range)				
Age at MCS, y	—	—	16.4 (14–18) <sup>b</sup>	—
Time since MCS, mo	—	—	19 (6–48)	—
Payer of MCS, n (%)				
Insurer	—	—	4 (29)	—
Patient or family	—	—	10 (71)	—
Surgical technique, n (%)				
Periareolar or keyhole surgery	—	—	4 (29)	—
DI/FNG or inverted-T	—	—	10 (71)	—

DI/FNG, double incision with free nipple graft; —, not applicable.

<sup>a</sup> More than 1 race could be selected.

<sup>b</sup> n = 10 underwent MCS before age 18 y.

\* P ≤ .05.

youth were more likely to be receiving testosterone therapy than the non-MCS group and were more likely to be on testosterone for a longer time. Additional information about the post-MCS group may be found in Table 1. All participants met *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* criteria for gender dysphoria. Five youth were approached for recruitment and did not enroll: 4 met eligibility criteria but declined to participate (2 declined because of time constraints, 1 declined because of discomfort with audio recording, 1 gave no reason), and 1 did not respond to the recruitment call and e-mail.

### Qualitative Results

Eight major themes emerged, which are presented with example quotes in the text below with randomly assigned initials for confidentiality. Additional illustrative quotes are presented in Tables 2 and 3. In general we did not find major differences in themes by

demographics, nor between the non- and post-MCS groups, regarding experiences before MCS, so results are reported in aggregate unless otherwise specified.

### Theme 1: Chest Dysphoria Causes Strong Negative Emotions and Can Trigger Suicidal Ideation

All youth described how chest dysphoria triggered strong negative emotions; the most commonly cited emotions included sadness, depression, anxiety, anger or frustration, a subjective feeling of heaviness or burden, self-loathing, disgust, annoyance, and envy or jealousy: “I was really self-loathing... the chest dysphoria—it just ate away at me” (E.P.).

Many youth noted that chest dysphoria made them emotionally dysregulated: “[Chest dysphoria] would influence how I would interact with the world that day, just on a baseline more anxious, more

**TABLE 2** Themes 1–5 and Additional Example Quotes

Theme	Example Quotes
Theme 1: chest dysphoria causes strong negative emotions and can trigger suicidal ideation	
Strong negative emotions	<p>“I get tingly and stuff and it kind of makes me want to punch something.” (I.B.)</p> <p>“There’s a feeling of hopelessness, of desperation, of—almost makes me feel physically sick.” (I.S.)</p> <p>“It felt like there was this burden that I was just constantly carrying around with me and this sort of insecurity...like I had a secret that I was trying to hide...this constant feeling of being uneasy and sort of on edge.” (J.L.)</p>
Suicidal ideation	<p>“[My chest dysphoria] made me feel like shit, honestly. It made me suicidal. I would have breakdowns.” (F.J.)</p> <p>“I’ve been suicidal quite a few times over just looking at myself in the mirror and seeing [my chest]. That’s not something that I should have been born with.” (Q.Y.)</p>
Theme 2: youth feel helpless and unable to escape chest dysphoria	
	<p>“It feels like a burden on my life that’s kinda like always there and it always makes me feel bad and I can’t really do anything about it.” (V.S.)</p> <p>“It’s a really invasive feeling that I can’t do anything about.... It feels like this is something that’s holding me back. It’s like my own body’s discriminating against me.” (Z.P.)</p>
Theme 3: chest dysphoria is an intrinsic phenomenon and is not limited to social settings	
	<p>“Not even to outsiders—just inside, to yourself, you’re embarrassed.... If I’m getting ready to shower—you have to strip in order to take a shower...there’s nothing that I can hear or someone can tell me or I can even tell myself that will make it better.” (N.C.)</p>
Theme 4: chest dysphoria causes functional impairments	
Social avoidance, impaired interpersonal relationships	<p>“I became more isolated.... I was really self-conscious, so it was kind of like if I don’t go outside then I don’t really have to think about what people think or what people perceive.” (X.B.)</p> <p>“I would have a lot of days where I would just feel too dysphoric to even really leave my room or just interact with anybody.” (E.P.)</p> <p>“I sometimes feel like I’m really on edge because I wonder how they are perceiving me and if they’re noticing my chest a lot more and stuff like that.” (T.Q.)</p> <p>“I didn’t want people to touch me or get too close, because I didn’t want them to notice [my chest].” (S.U.)</p>
Interference with school or work	<p>“Sometimes [my chest dysphoria] would manifest into anxiety and I would not be able to even get out of bed in the morning, it would be so bad.” (G.N.)</p> <p>“Little things would definitely tip me off to the edge where I would feel too overwhelmed—I couldn’t manage very simple tasks like just doing schoolwork.” (H.G.)</p>
Impact on personal hygiene and posture	<p>“I wouldn’t use public restrooms...even though that’s—it’s not a place you’re taking off your shirt, but it’s still vulnerable to me.... During classes and stuff, I would always be hunched over.... I’d never walk with my head up.” (L.S.)</p>
Avoidance or limitations in physical activity and sports participation	<p>“I don’t really do any physical activities really because I’d have to bind if I did them in public, and I really cannot do that safely.... I can’t really do intense physical activity with this [binder] on, and I don’t want to not have it on.” (I.S.)</p> <p>“I’m a freshman next year and I want to pursue sports. Some of them I can’t pursue because of the chest dysphoria and because [my chest] could target me out to the other people.” (A.O.)</p>
Theme 5: chest binding is a trade-off between physical and psychological discomfort	
	<p>“Binding’s really uncomfortable.... I don’t like doing it, but at the same time, I have no other option. I don’t really leave my room unless I have a binder on” (K.C.)</p>

twitchy, ready to be reactive sort of to just things, in general” (D.V.).

Some reported that chest dysphoria induced thoughts of suicide and self-harm: “Suicidal ideation definitely stemmed from that—from chest dysphoria and the feelings that it gave me” (X.B.).

### **Theme 2: Youth Feel Helpless and Unable to Escape Chest Dysphoria**

Nearly all youth reported feeling helpless and unable to escape chest dysphoria, and many reported constant intrusive thoughts: “[Chest dysphoria] was just like always on my mind no matter what I was doing” (A.C.).

### **Theme 3: Chest Dysphoria Is an Intrinsic Phenomenon and Is Not Limited to Social Settings**

Many youth described that their chest dysphoria was not confined to social settings. They explained that chest dysphoria caused distress even when they were alone, not just at times when their chest might be in view of others: “[My chest dysphoria is worse] when I’m in the shower...when I’m by myself it’s an issue because I’m like, wow. That’s there right now.” (L.E.).

### **Theme 4: Chest Dysphoria Causes Functional Impairments**

Every youth reported experiencing functional impairments from chest dysphoria. Many avoided social interactions because of anxiety or shame about their chest, fear of being outed as transgender if others noticed their chest contour, or not wanting to endure the discomfort of binding their chest (often viewed as a requisite when leaving the home because of dysphoria): “I don’t really want to be outside. I don’t want people to see me...because I feel gross and just like icky all around” (T.Q.).

Chest dysphoria interfered with interpersonal interactions, causing difficulty in engaging with others because of intense anxiety, shame, or intrusive thoughts.

*[I]n social settings...I’m always thinking about [my chest], so it feels*

*like they’re looking at me. And it’s just anxiety inducing.... It just makes it hard to get to know people and kind of communicate and establish a connection, because I feel like they’re noticing something that I don’t like about myself.*

R.P.

Many explained that they adopted a hunched or closed body posture and would avoid hugs or physical contact as strategies to help hide their chest; however, these strategies would often inadvertently drive others away: “I’m kind of hunched over or I push my shoulders forward...and I just kind of feel like I have to keep hiding myself or just trying to deflect the focus” (Z.P.).

Youth also reported that chest dysphoria interfered with school or work.

*It was really hard every day waking up and having to go to school.... For me at least it was impossible to feel like a man especially in an environment like school - with a very large chest. And I didn’t wanna be seen...I would miss a lotta school sometimes because I just couldn’t get myself together.*

H.G.

Chest dysphoria led many to avoid sports and exercise, citing pain or breathing difficulties from chest binding or inability to keep their chest hidden from others. For some youth, chest dysphoria led to avoidance of bathing and public restrooms, making it challenging to address personal hygiene.

### **Theme 5: Chest Binding Is a Trade-off Between Physical and Psychological Discomfort**

All youth engaged in chest binding before MCS, with most doing so on a daily basis. Binding was unanimously viewed as a useful coping strategy, and many reported that it was essential to helping them leave home and get through the day: “The binder helped me at least get out of my room more... because at least I could go out in public and I knew I looked pretty flat, and I could pass.” (L.S.).

However, although binding helped to alleviate psychological distress, this came at a cost. All youth reported binding to be physically uncomfortable, and many reported adverse health effects, such as pain (in the chest, ribs, back, or shoulders), difficulty breathing, skin rashes or irritation, overheating, and decreased endurance: “[My binder] was incredibly restricting with my breathing. And if I wasn’t wearing my binder, I wouldn’t go out and do things. So I’d wear it even if I was unable to breathe” (D.V.).

As one participant noted, there was a constant balancing act between physical and mental well-being: “I’d rather be in physical pain than in mental pain. So I’d rather just wear the binder than just deal with it” (A.C.).

### **Theme 6: MCS Is Viewed as Critical to Gender Affirmation; However, There Are Many Barriers to Accessing It**

Every youth in the non-MCS group intended to undergo MCS in the future. All acknowledged the risks and irreversibility of MCS yet expressed confidence in their decision to pursue it, feeling that MCS would be critical to improving their quality of life and functioning: “Even if it’s not the prettiest surgery, I will be comfortable... [I won’t] have to limit my activities or limit the most ridiculous things because of my breasts. More freedom. I’ll get to live. I’m not living now...I feel like I’m just getting by” (N.C.).

Many barriers to obtaining MCS were identified, the most common of which were lack of insurance coverage for the procedure and high burden of out-of-pocket costs. Most families of post-MCS youth paid for MCS out of pocket because of insurance denial due to age. Other barriers to MCS included lack of family support for MCS, difficulty accessing a skilled surgeon, and challenges with scheduling surgery around school and/or work.

**TABLE 3** Themes 6–8 and Additional Example Quotes

Theme	Example Quotes
Theme 6: MCS is viewed as critical to quality of life and functioning; however, there are many barriers to accessing it	
Critical role of MCS	<p>“It’s just something I’ve always wanted. And it was never kind of a decision for me... Top surgery was kind of what I always envisioned, so it wasn’t really like a decision. It was more like a need.” (R.P.)</p> <p>“I’m not going to love the scars, but I’m going to be happy and grateful for them...I’ll be able to live my life the way I’ve always envisioned it...I can do everything I’ve liked to do and wanted to do for the last couple of years that I just couldn’t bring myself to do or physically couldn’t do.” (Q.Y.)</p>
Barriers to accessing MCS	<p>“Seven days before I was scheduled to go in for my top surgery, I got a phone call from my surgeon’s office telling me that my insurance wouldn’t cover it. And it devastated me... It’s a slap in the face. I cried. I cried because it’s like why is that a thing?... It’s not my fault that I’m trans. I just want to be comfortable. So it’s hurtful.” (N.C.)</p> <p>“My main barriers were probably getting my parents to agree to it...[their] concerns were just that I was gonna regret it.” (F.J.)</p>
Theme 7: youth experience resolution of chest dysphoria and improved quality of life and functioning after MCS	
Resolution of chest dysphoria and improved quality of life	<p>“I’m happy with what it is. I don’t care about the scars. I think they look cool.” (D.V.)</p> <p>“[MCS] just makes everything a million times better...I can’t even describe how much. It is amazing. That’s about the only words that are coming to my brain—because it doesn’t just help with the chest dysphoria—but it’s also just like you’re so much more confident in yourself after you have it... I’m happy with it...just like having—like closer to the body that I am supposed to have.” (S.M.)</p>
Improved functioning	<p>“It was liberating, because I just could finally live a normal life like the rest of kids my age... [It’s] a lot easier to talk to people because I’m not as uptight, or I don’t come off as rigid as I was. So, it’s made me a lot more relatable to people because I could actually – I don’t have to worry about my chest dysphoria.” (A.C.)</p> <p>“It’s been a relief... Now that the problem is basically solved...I can basically focus the energy that I was focusing on [my chest] and redirect it somewhere way more productive.... I can now do actual exercise for the first time in my life.” (D.V.)</p>
Theme 8: chest dysphoria is a large component of gender dysphoria and is not adequately addressed by testosterone alone	
	<p>“I think that a lot of my dysphoria, just general dysphoria, comes from my chest...I want top surgery first and then I wanna decide if I still wanna go on [testosterone]... So [my chest dysphoria’s] just a lot more prominent.” (V.S.)</p> <p>“I’ve looked forward to [MCS] more than I have, to be honest, for the testosterone.” (A.O.)</p> <p>“I think [testosterone] kind of made [my chest dysphoria] a little worse, because I saw all of these other things changing, but then my body really still kind of stayed the same.” (E.P.)</p> <p>“Over the past, I want to say year or so, [my chest dysphoria]’s dropped slightly. And I think that’s because I’m on testosterone. So there are parts of my body that I like now.... But there are still days where it’s really bad.” (J.S.)</p>

**Theme 7: Youth Experience Resolution of Chest Dysphoria and Improved Quality of Life and Functioning After MCS**

All post-MCS youth reported complete or near-complete resolution of their chest dysphoria after MCS. They were unanimously satisfied with their MCS results and had no regrets, regardless of the surgical technique used.

*Before top surgery, I had this picture of a perfect chest – and I wanted it to be absolutely perfect. And now, looking at my chest, I know it’s not perfect...but honestly– it’s such a breath of fresh air just being able to see it in the mirror and see it be flat.... It’s great. I’m just super, super satisfied.*

F.J.

All post-MCS youth experienced improvements in quality of life and

functioning after MCS. Youth reported improvements in mood, confidence, self-esteem, and interpersonal relationships; decreased anxiety; increased social engagement and physical activity; and relief from the cognitive load of chest dysphoria, enabling them to direct their attention to other endeavors.

*I think I really didn’t realize how much it was affecting my life until I*

*was able to start going out and doing things again without that constant worry and fear. I just felt more confident as a person. I was able to talk to people... A lot of things that I wasn't able to do because that was holding me back.*

H.G.

### **Theme 8: Chest Dysphoria Is a Large Component of Gender Dysphoria and Is Not Adequately Addressed With Testosterone Alone**

Several youth expressed that chest dysphoria was the most prominent or most distressing aspect of their overall gender dysphoria. All youth had access to testosterone earlier than MCS, yet some viewed MCS as the more vital component of their treatment: "I honestly think that [MCS] would help like 95 percent of my issues with dysphoria just solely because for me my chest is the most dysphoric thing about me" (I.B.).

Youth undergoing testosterone therapy noted it had variable effects on their chest dysphoria, with similar numbers of youth commenting that testosterone made their chest dysphoria worse, unchanged, or only slightly better. Of those who felt that their dysphoria had worsened while they were on testosterone, some theorized that their chest dysphoria appeared to worsen because of improvement in other dimensions of dysphoria (ie, voice, menstruation) due to the testosterone therapy.

*When I started [testosterone, my chest dysphoria] got worse, because other things that were causing me dysphoria lessened...so it made my chest dysphoria feel worse in comparison...it probably was the same, but the fact that everything else, like...voice dysphoria was getting a bit better—it made my chest dysphoria more prominent in comparison.*

I.S.

### **DISCUSSION**

Overall, our study reveals that chest dysphoria is a critical component of gender dysphoria, leading to marked suffering and functional impairments, and can contribute to suicidality. Youth

in the post-MCS cohort experienced tremendous benefits, including resolution of chest dysphoria and improvements in mood, confidence, quality of life, and functioning, mirroring what has been described in the adult literature.<sup>9-15</sup> In addition, the 10 youth who had MCS as minors were satisfied with their surgical outcomes and reported similar benefits to what has been seen in the adult literature.

Although it is common for pediatric and adolescent gender-affirming medical care to be thought of as limited to pubertal blockers and gender-affirming hormones, postpubertal transmasculine youth reported that testosterone did little to alleviate their chest dysphoria. Olson-Kennedy et al<sup>19</sup> observed a positive correlation between their measure of chest dysphoria and time on testosterone therapy. However, several of the youth in our study who reported worsening chest dysphoria after starting testosterone therapy reflected that this was not due to testosterone directly worsening their chest dysphoria but rather due to testosterone resolving other aspects of dysphoria and no longer drawing attention away from the chest. In addition, some insurers and surgeons require testosterone therapy for a requisite amount of time before MCS,<sup>18</sup> but our data suggest that such requirements may potentially cause harm by restricting or delaying access to MCS.

These data suggest that MCS is a critical component of gender-affirming care for many transmasculine youth with chest dysphoria and that MCS should be considered whenever it is clinically indicated, even if the youth is a minor, to alleviate suffering. Recently, legislation has been proposed in 14 US states to prohibit gender-affirming medical and surgical care for minors,<sup>21-34</sup> conflicting with best practice guidelines<sup>16,17</sup> and the official position of the American Academy of Pediatrics.<sup>35</sup> Our results suggest that such age-based bans for clinically indicated care are misguided. Withholding clinically indicated MCS purely on the basis of age may needlessly prolong suffering, as

unanimously described in our study, resulting in heightened risk of negative health outcomes, including suicidality.

Our study has several limitations, including a sample from a single clinical site that was predominantly white and privately insured, which reflects the population receiving gender-affirming care in our clinic and across the United States<sup>36</sup> but limits generalizability to youth in other locations or youth who lack access to care. In addition, we focused on transmasculine youth and did not include nonbinary youth assigned female sex at birth who do not identify along the masculine spectrum, so our findings cannot be generalized to that population, and is an area for future work.

### **CONCLUSIONS**

This study is one of the first studies to describe transmasculine youths' experiences of chest dysphoria and the impact that MCS can have in alleviating suffering and improving function. These findings lend support for current clinical practice guidelines,<sup>16,17</sup> which support MCS in minors when clinically and developmentally appropriate, and underscore the importance of insurance coverage not being restricted by age. Future research is needed to develop and assess patient-reported outcomes of MCS across a broad age range of adolescents, with the hope that it will lead to improved health outcomes in this vulnerable population.

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### **ABBREVIATIONS**

EHR: electronic health record  
MCS: masculinizing chest surgery

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