Transgender Health
Volume 8, Number 2, 2023

DOI: 10.1089/trgh.2021.0112

ORIGINAL ARTICLE

Understanding the Complex Relationship Between One's Body, Eating, Exercise, and Gender-Affirming Medical Care Among Transgender and Nonbinary Adolescents and Young Adults

An Pham,[1,*] Hannah Kerman,[2] Katie Albertson,[3] Julia M. Crouch,[3] David J. Inwards-Breland,[4] and Kym R. Ahrens[1,3]

Abstract

Purpose: Gender dysphoria has been linked to body dissatisfaction, which can affect an individual's eating and exercise habits and increase their risk for disordered eating. The prevalence of eating disorders among transgender and nonbinary (TGNB) adolescents and young adults (AYA) ranges from 5% to 18% and studies have found a higher risk of disordered eating among these AYA in comparison to their cisgender peers. However, there is minimal research on why TGNB AYA are at higher risk. The aim of this study is to understand unique factors that define a TGNB AYA's relationship between their body and food, how this relationship may be affected by gender-affirming medical care, and how these relationships may contribute to disordered eating.

Methods: A total of 23 TGNB AYA were recruited from a multidisciplinary gender-affirming clinic to participate in semistructured interviews. Transcripts were analyzed using Braun and Clarke's theory of thematic analysis (2006).

Results: The average age of participants was 16.9 years. Forty-four percent of participants identified as having a transfeminine gender identity, 39% transmasculine, and 17% nonbinary/gender fluid. Five themes emerged regarding TGNB participants' relationship to food and exercise: gender dysphoria and control over one's body, societal expectations of gender, mental health and safety concerns, emotional and physical changes with gender-affirming medical care, and recommended resources for TGNB AYA.

Conclusion: By understanding these unique factors, clinicians can provide targeted and sensitive care when screening and managing disordered eating among TGNB AYA.

Keywords: adolescents; disordered eating; nonbinary; transgender

Introduction

Gender dysphoria is associated with a dissatisfaction with an individual's body shape and/or appearance and its relationship to their own perception and society's expectations of their gender identity. Body dissatisfaction, in turn, can affect an individual's relationship to eating and exercise.[1]

Transgender and nonbinary (TGNB) adolescents and young adults (AYA), ages 12 to 22, may be especially vulnerable to body dissatisfaction and resulting disordered eating, particularly during puberty as they are developing secondary sexual characteristics that may be discordant with their gender identity. However, studies looking at the prevalence and association of disordered eating and gender dysphoria have largely examined adults and there is less research on AYA.[2–9] The prevalence of eating disorders among TGNB AYA ranged from 5% to 18%.[3–8] In terms of disordered

[1]Division of Adolescent Medicine, Seattle Children's Hospital, Seattle, Washington, USA.
[2]The Warren Alpert Medical School of Brown University, Providence, Rhode Island, USA.
[3]Seattle Children's Research Institute, Seattle, Washington, USA.
[4]Division of Adolescent and Young Adult Medicine, Rady Children's Hospital, San Diego, California, USA.

*Address correspondence to: An Pham, MD, MPH, Division of Adolescent Medicine, Seattle Children's Hospital, 4540 Sand Point Way NE, CSB-200, Seattle, WA 98145, USA, E-mail: utanpham@gmail.com

eating behaviors, binge eating ranged from 29% to 42%, fasting 10–48%, purging 2–18%, diet pill use 2–7%, and laxative use 2–5%.[3,8,9]

Two cross-sectional studies used survey data to compare eating disorder diagnosis and/or disordered eating behaviors in TGNB AYA to their cisgender peers. Transgender college students were found to have a 4.62 times higher odds of a self-reported eating disorder diagnosis.[3] In the second study, transgender high school students were found to have 2.9 times higher odds of having fasted for more than 24 h.[8] Both studies also found higher odds of diet pill and laxative use in transgender participants in comparison to cisgender participants.

Although studies have primarily described the prevalence of disordered eating among TGNB AYA and explored differences in comparison to cisgender AYA, there are a few studies that attempt to understand why TGNB AYA engage in disordered eating.[10–12] In the Ålgars et al. study, participants most frequently described disordered eating as an attempt to suppress features of their sex assigned at birth or to accentuate features of their gender identity. Some participants in Hartman-Munick et al.'s study described a relationship between disordered eating and gender dysphoria and other participants discussed disordered eating as entirely separate from their gender dysphoria. Both studies included TGNB young adults, but did not include adolescents, individuals younger than 18 years old.

Romito et al. conducted semistructured interviews with nine transgender AYA, 16 to 20 years of age. In this study, disordered eating was related to gender identity, mental health concerns, social relationships, and gender affirmation. Our qualitative study aims to contribute to the growing literature on disordered eating among TGNB AYA and examine the complex relationships that TGNB AYA have with their body, eating, and exercise, and to explore, through their own words, how those relationships are modified by their gender identity and gender-affirming medical care.

Methods

Recruitment

From October 2016 to March 2017, participants were recruited from the Seattle Children's Gender Clinic, a multidisciplinary clinic that provides gender-affirming care for patients up to age 21, to participate in a qualitative study on a variety of topics that have the potential to affect the mental health of TGNB AYA. Topics included news media, religion, fertility, and relationship to food. Responses to questions regarding a participant's relationship to food were included for current analyses; findings from remaining topics will be presented in other articles.

Eligible participants were English-speaking AYA 13–21 years of age who identified as having a discordance of their gender identity and sex assigned at birth. To understand the impacts of gender-affirming care on one's relationship with their body, eating, and exercise, maximum variation purposive sampling was used to include participants of different gender identities and at different stages of their gender-affirming medical care.

Specifically, we sought recruitment of transmasculine, transfeminine, and nonbinary/gender fluid AYA who had been on gender-affirming hormones for less than 6 months and transmasculine, transfeminine, and nonbinary/gender fluid AYA who had been on gender-affirming hormones for more than 6 months. Participants were recruited until we achieved thematic saturation.[13] All participants provided assent/consent; parental permission was obtained for participants younger than 18 years of age. Seattle Children's Institutional Review Board approved this research protocol before initiation of recruitment.

Data collection

An interview guide was developed *a priori*, then modified after a pilot interview with a gender diverse young adult. The interview prompts are included in Table 1. Before participating in semistructured interviews, participants completed a brief online sociodemographic

Table 1. Interview Guide Questions

How do you feel about food and eating?
Do you ever feel negative feelings about eating? Can you tell me more about this?
[If negative feelings about eating]
Do you ever intentionally not eat? How do you feel when you do not eat?
What are the reasons you do [disordered behavior mentioned]?
Do you feel like your relationship with food is related to your experience of your gender?
Has your transition affected how you eat?
How do you feel about your current shape or weight?
What is your ideal shape or weight?
Have you ever taken specific steps toward that [ideal]?
How has your gender identity influenced how you think about your ideal body type?
Has any part of your medical/social transition affected how you eat or and/or exercise?
Has anything made your relationship with food easier?
Has anything made your relationship with food harder?
Some of our Gender Clinic patients struggle with food and eating. Do you have any thoughts about what factors in your life have helped you?
How can our Gender Clinic better support patients that struggle with their relationship to food?

survey through the data collection program REDCap™ (Tennessee). Interviews were done by telephone or in-person and ranged in duration from 15 to 60 min, with an average of 34 min. Interviewers were two cisgender female medical trainees, one identifying as Asian and the other as white. All interviews were audiorecorded and then transcribed verbatim by a professional transcription company.

Analysis

Descriptive statistics were generated for sample sociodemographic characteristics. Coding and qualitative analysis of deidentified interview transcripts were done with the web application Dedoose™ (California). We used thematic analysis techniques as described by Braun and Clarke, 2006, which include: (1) familiarizing yourself with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) writing the report.[14]

The two interviewers were also responsible for coding. Coders independently read two transcripts to establish familiarity (Step 1). To create a codebook, coders read two interview transcripts to develop initial codes and then two additional transcripts to identify new codes, merge existing codes, and finalize a codebook (Step 2). Both coders coded the same transcripts with the final codebook until both coders coded the transcripts uniformly. At this point, the remaining transcripts were distributed between the two coders to be done independently.

Themes were established using a data-driven, inductive approach (Step 3). Study team members met weekly to review patterns within data, identify persistent themes, and resolve any disagreements throughout the coding process (Steps 4 and 5). It is important to note that our process intentionally did not include calculations of inter-rater reliability, as resolving disagreements by discussion is considered to be a more rigorous approach to thematic analysis.[15] One hundred percent agreement among coders was achieved regarding the significance of each key theme and supporting quotations. Step 6 was the preparation of this article.

Results

Twenty-three TGNB patients from Seattle Children's Gender Clinic were screened and all 23 were included in the final sample. The age of participants ranged from 13 to 19 years with an average of 16.9 years. Forty-four percent of participants identified as having a transfeminine gender identity, 39% as transmasculine, and 17% as nonbinary or gender fluid. Approximately half of participants (52%) had been on gender-affirming hormones for at least 6 months and none of the participants had undergone gender-affirming surgery. Most participants identified as white (83%) and were enrolled in school (83%). Table 2 provides complete participant demographic characteristics.

Five key themes relating to eating and exercise among TGNB AYA were identified: (1) gender dysphoria and control over one's body and its relationship with food and exercise; (2) societal expectations of gender and influences on food and exercise; (3) mental health and safety concerns and influences on eating habits; (4) changes in eating habits and exercise with gender-affirming medical care; and (5) resources and support on relationship to food and/or exercise. Each theme is described below. For each theme and

Table 2. Participants Demographics

	TGNB youth (*N* = 23)
Characteristic	Mean or *n* (SD or %)
Age	
All participants	16.9 (1.8)
Age range	13–19
Transmasculine	17.1 (1.6)
Age range	14–19
Transfeminine	16.8 (1.8)
Age range	14–19
Transmasculine and transfeminine	17.0 (1.7)
Age range	14–19
Nonbinary/gender fluid	14.8 (1.7)
Age range	13–17
Gender identity	
Transmasculine	9 (39.1)
Transfeminine	10 (43.5)
Nonbinary/gender fluid	4 (17.4)
Sex assigned at birth	
Female	11 (47.8)
Male	12 (52.2)
On hormones[a] >6 months	
Yes	11 (47.8)
No	12 (52.2)
Gender-affirming surgery	
Yes	0 (0.0)
No	23 (100.0)
Race	
Asian	2 (8.7)
Native American/American Indian	2 (8.7)
White or Caucasian	19 (82.6)
In school	
Yes	19 (82.6)
No	4 (17.4)
Type of school	
Public	10 (43.5)
Online	2 (8.7)
Charter	1 (4.3)
Private	1 (4.3)
College or University	5 (21.7)

[a]Hormones include testosterone and estrogen.
SD, standard deviation.

subtheme, the number of participants and percentage of the total sample (unless otherwise stated) that discussed that topic is included in parentheses. Selected quotes are included in this section and a complete list of illustrative quotations are provided in Table 3.

Gender dysphoria and control over one's body and its relationship with food and exercise

For many participants ($n = 13$, 57%), their relationship to food and exercise was described as connected to gender dysphoria. At least one participant of each gender identity represented in this study, transfeminine, transmasculine, and nonbinary/gender fluid, discussed this theme. These participants described specific behaviors they used to cope with their sex assigned at birth and inability to fully experience life as their affirmed gender. For one transmasculine participant, his negative relationship with food was secondary to his perceived inability to have a flat stomach, which he believed as being due to having a uterus (Quote #1).

> "[In response to being self-conscious about food] Well, partially gender dysphoria because…most other guys my age, even if they don't have abs, they have a flat stomach, and I know I partially can't because I have a uterus and there's always going to be a little bump there."

In contrast, a transfeminine participant altered her nutritional intake on days that she thought about menstrual cycles (Quote #2).

> "But [days of intentionally not eating] are usually just bad days. So like the same days of just the whole ideas when I think about periods…although I guess, I don't just eat nothing. I guess it's usually just all I have for the entire day is just chocolates or something."

Feeling the pressure to pass as a gender that is different from their sex assigned at birth, a few participants ($n = 3$, 13%) perceived a stronger focus on body image ideals and resulting negative relationship to eating in comparison to cisgender people (Quotes #3–4).

> "[In response to feeling a pressure to be thin] I think partially because, even though I feel secure in my femininity in a lot of other ways, I also feel like trans women…have a double standard or are sort of are placed at higher standards than ciswomen are."

In response to thoughts and feelings around the distress of their sex assigned at birth, a few participants ($n = 4$, 17%) modified their eating and/or exercise habits to feel a sense of control over their body (Quotes #5–6).

> "I've started exercising more often than I normally would. So I guess that's sort of because of that feeling of a need to be thinner and trying to…sort of give myself that feeling of having control over my body."

Societal expectations of gender and influences on food and exercise

Participants described that one's relationship to food and exercise is not only affected by the distress of their sex assigned at birth, as seen in the previous theme, but also the societal beauty expectations of gender. When thinking about ideal body image, some participants distinguished specific masculine ($n = 9$, 39%) and feminine ($n = 6$, 26%) expectations of beauty.

Descriptions of masculine body standards included flat stomach, thin hips/minimal curves, and muscular build. One participant had a significant medical history for a gastrointestinal illness and although others were concerned about his health, this AYA was pleased that his weight loss contributed to slim hips and looking more like a boy (Quote #7). A few transmasculine participants ($n = 3$, 33% of transmasculine participants) endorsed exercise as a tool to attain a more muscular and, therefore, masculine appearance (Quote #8).

> "I did start eating a lot, and…when I realized, 'Oh, wait, I need to be at a certain weight for top surgery,' so then I started working out more and I was pushing myself a little bit more - probably a little bit more than I should, at some points - to make sure that I fit some stereotypical masculine things."

Participants who specified an ideal feminine body type all described this expectation as being thin (Quotes #9–10).

> "I think it's kind of just like how the body image for the perfect woman is perceived in society. And as much as I try to say, oh, that's not the perfect woman or whatever to other people, in my head…I'm still just…trying to get that perfect shape. Which everyone knows is…super anorexic and unhealthy as hell."

In one example, a participant initially attributed her gender-affirming hormones as a cause for nutritional restriction, but after probing from the interviewer, the participant determined that she felt it was society's expectations of women to be thin as the main influence on her restrictive eating (Quote #11).

In addition to body image, a few participants ($n = 5$, 22%) believed meal portion size was also linked to gender expectations. They described an expectation that males eat larger quantities of food than females and this expectation affected these participants' personal nutritional intake (Quotes #12–13).

> "I also developed weird eating habits where I ate a lot as a kid, and that's what my friend, X, did. And I would always try to compete with him because…that was my way of trying to be more like a dude… You've got stereotypes, I guess. Women are supposed to eat not very much and men eat a ton. And so I really enforced that."

Table 3. Illustrative Quotations from Transgender and Nonbinary Youth Regarding Relationship to Food and Exercise

Theme	Quote (#)	TGNB youth characteristics
(1) Gender dysphoria and control over one's body and its relationship with food and exercise		
	(#1) [In response to being self-conscious about food] Well, partially gender dysphoria because…most other guys my age, even if they don't have abs, they have a flat stomach, and I know I partially can't because I have a uterus and there's always going to be a little bump there.	Participant #12 14-year-old, transmasculine
	(#2) But [days of intentionally not eating] are usually just bad days. So like the same days of just the whole ideas when I think about periods…although I guess, I don't just eat nothing. I guess it's usually just all I have for the entire day is just chocolates or something.	Participant #6 18-year-old, transfeminine
	(#3) [In response to feeling a pressure to be thin] I think partially because, even though I feel secure in my femininity in a lot of other ways, I also feel like trans women...have a double standard or are sort of are placed at higher standards than ciswomen are.	Participant #7 18-year-old, transfeminine
	(#4) [In response to attaining ideal body type] …I feel like cis people don't necessarily think about how to match their body to what their gender should be as much. I know sometimes people get sad over it but I think trans people generally get more sad over it…	Participant #11 15-year-old, transmasculine
	(#5) I've started exercising more often than I normally would. So I guess that's sort of because of that feeling of a need to be thinner and trying to…sort of give myself that feeling of having control over my body.	Participant #7 18-year-old, transfeminine
	(#6) I'm looking to make my body and myself be the way I want it to be. Look the way I want it to look. And I feel like having restrictions, and limits, and not eat whatever I want, whenever I want makes that more accomplishable. And I think that's good, even if it's not exactly good for my weight at the moment.	Participant #22 14-year-old, nonbinary/ gender fluid
(2) Societal expectations of gender and influences on food and exercise		
	(#7) [Context of losing weight secondary to gastrointestinal diagnosis] And I was too preoccupied with looking at how slim my hips and everything had gotten to I didn't notice how pale and sickly I looked. And I had a feeding tube and I was in a wheelchair, and so everybody saw me and they saw this unhealthy kid, but I saw that I looked more like a guy, so that it kind of helped cover that up for me.	Participant #13 18-year-old, transmasculine
	(#8) I did start eating a lot, and…when I realized, "Oh, wait, I need to be at a certain weight for top surgery," so then I started working out more and I was pushing myself a little bit more - probably a little bit more than I should, at some points - to make sure that I fit some stereotypical masculine things.	Participant #19 18-year-old, transmasculine
	(#9) I think it's kind of just like how the body image for the perfect woman is perceived in society. And as much as I try to say, oh, that's not the perfect woman or whatever to other people, in my head…I'm still just…trying to get that perfect shape. Which everyone knows is…super anorexic and unhealthy as hell.	Participant #6 18-year-old, transfeminine
	(#10) …before I realized I was trans and started expressing myself more femininely, I think internally, I sort of created feminine need to being thinner in my mind…I guess I find that was sort of the model that I saw, that I could express femininity without being labeled.. as gay, or queer, or something… And even now, that I am a lot more comfortable in my femininity, I think those feelings are still—Sort of the belief or the desire to be thinner is still definitely there.	Participant #7 18-year-old, transfeminine
	(#11) Because of the hormones, it's encouraging me not to eat so much. And then because of that, it doesn't prevent me, but it makes me not want to eat three times a day. [Interviewer: what is it about the estrogen itself that makes you kind of want to be skinnier?] Now I'm thinking about it, it's not really the estrogen that's doing that. It's just the social construct of just how society put women as a fragile skinny person and men as a more the broad type of person. So things that I said about estrogen how it influenced that part, I would take that back and say it's mainly society that's doing that.	Participant #5 16-year-old, transfeminine
	(#12) I was thinking about caloric intake and how if I still had more testosterone…I could eat more with gaining less weight if I had more testosterone…but with all the estrogen in my body and having my metabolism change a little bit, the caloric intake would be less…	Participant #8 19-year-old, transfeminine
	(#13) I also developed weird eating habits where I ate a lot as a kid, and that's what my friend, X, did. And I would always try to compete with him because…that was my way of trying to be more like a dude… You've got stereotypes, I guess. Women are supposed to eat not very much and men eat a ton. And so I really enforced that.	Participant #18 18-year-old, transmasculine
(3) Mental health and safety concerns and influences on eating habits		
	(#14) I would also do this thing where I wouldn't eat at all. And I would eat dinner. And sometimes when I get really upset or angry, I don't—and then there were times where I just didn't eat breakfast, and then I'd forget to eat lunch and would have coffee or something, and that would hype up my anxiety. And I would binge eat a lot. So I've had very, very unhealthy eating habits for a very long time.	Participant #18 18-year-old, transmasculine
	(#15) [Food is] all right, I guess. It keeps you alive. It's not something I really enjoy, but I don't hate it either…It's a chore to keep my body alive…If I had a choice not to eat I wouldn't… I don't particularly enjoy self-care, so yeah.	Participant #11 15-year-old, transmasculine
	(#16) If I'm at an event, I'm likely not to eat the food provided. And in social situations like a restaurant, I will eat the food. But I'm likely to eat it slower than I normally would. And I think that just comes from a social anxiety kind of thing of just being nervous with what people think around you… My body kind of just shuts off that function, and I don't want to eat the food.	Participant #17 17-year-old, transmasculine
	(#17) I definitely say part of wanting to be buff is that when I don't have to worry about being beat up by homophobes. That's definitely something I was worried about a little while ago because I was out on a date with my boyfriend the other day because I'm passing… And it's nice to be intimidating... There's definitely a sense of safety that comes with it.	Participant #16 19-year-old, transmasculine

(*continued*)

Table 3. (Continued)

Theme	Quote (#)	TGNB youth characteristics
(4) Changes in eating habits and exercise with gender-affirming medical care		
	(#18) I'm starting to not really worry about fatty food and having it go straight to my stomach because I know my body's changing and that fats actually going to places where I want it to go…I'm not worrying about, "If I eat this muffin will I look like I'm bloated?." It's more like, "Because of this muffin, it's actually helping me become the woman I am"	Participant #5 16-year-old transfeminine
	(#19) I mean, when I got started getting on testosterone…it started changing for me. Because then, I didn't feel as much that I had to lose weight to pass... And I still kind of feel like that because with my chubbiness, I have more curves. But it's not as bad because I'm tall and hairy and I have a low voice…I'm just having to switch my mindset on it, at least slowly, and try not to beat myself up when I make a mistake. I'm trying to add good stuff instead of taking out a bunch.	Participant #18 18-year-old, transmasculine
	(#20) ...since I've transitioned and people regard me as a guy and not as a girl, that's a lot easier in terms of body image. It's great…if people don't see me as a girl, then it's okay for me to be a little bit chubby and it's not something that's directly tied to how people define my self-worth.	Participant #16 19-year-old, transmasculine
	(#21) [In response to changes with transition] I think it has, because the last few weeks, I've been eating less…I think [transition has] gotten me out of my depression, which allows me the time to think about what I'm doing, instead of wallowing around and just trying to do whatever makes me happy at the time.	Participant #15 18-year-old, transmasculine
	(#22) [In response to changes with puberty blockers] Because now I'm hyperaware of things that are healthy and things that aren't…So I'm trying a lot more to be healthier. And I feel like it's easier to do that because I have that…more hyper-focused view of my body. Even though maybe that's not very good, it's easier to do it because I'm so hyper-focused.	Participant #22 14-year-old, nonbinary/ gender fluid
	(#23) There had been a period of time before I got sick, and before I started testosterone, where I had been very depressed…and I wasn't taking great care of myself. I would still kind of exercise, and then when I started testosterone I was like, "I have this thing now." It made me want to take better care of my body because I'm getting the body that I actually want to have so I want to take care of it.	Participant #13 18-year-old, transmasculine
	(#24) But also the [feminizing] changes can be difficult in some ways just because of preexisting eating and body issues… as my dysphoria issues are starting to become less prominent...it is just making my sort of body image issues more—In terms of the weight and stuff…more prominent… overall, I'm probably in a better place, but…it's just now that that's sort of what I'm focusing on, I think.	Participant #7 18-year-old, transfeminine
(5) Resources and support on relationship to food and/or exercise		
	(#25) And I think having a healthier sense of what weight is. And that people don't always need to…conform to one specific body type to be the kind of person they want to be…not get sucked up in fad diets…I think the most important thing would just be that sense of body image, of reinforcing the idea that body image does not necessarily need to fit one particular stereotype and that there are multiple options that are okay to be. Making people more comfortable with their bodies.	Participant #10 19-year-old, transfeminine
	(#26) But I guess if there were more questions, just in general in the clinic…about eating and how that's going…it will…bring light into some people's eyes and be like, "Oh, I'm thinking a lot more about my eating than I really thought I was…" …and then you can kind of realize that not everybody does, and maybe there's something more to it for some people. And maybe just having those questions might make them see that.	Participant #20 17-year-old, nonbinary/ gender fluid

TGNB, transgender and nonbinary.

None of the nonbinary /gender fluid participants discussed societal beauty or eating standards associated with specific gender identities, such as feminine or masculine expectations.

Mental health and safety concerns and influences on eating habits

Some participants ($n = 10$, 43%) felt their eating and/or exercise habits as being connected to personal mental health concerns. This theme spanned the gender spectrum with at least one participant of each gender identity represented in this study, transfeminine, transmasculine, and nonbinary/gender fluid, discussing this topic. For these participants, mental health symptoms such as low mood, social anxiety, and lack of self-care were tied to eating habits varying from restriction to binge eating (Quotes #14–16).

> "[Food is] all right, I guess. It keeps you alive. It's not something I really enjoy, but I don't hate it either…It's a chore to keep my body alive…If I had a choice not to eat I wouldn't… I don't particularly enjoy self-care, so yeah."

One participant uniquely discussed the intersection of exercise, stress, and safety. This participant used exercise as a tool to become more muscular and, therefore, feel safer from homophobic/antitransgender attacks (Quote #17).

Changes in eating habits and exercise with gender-affirming medical care

After starting a gender-affirming medication, many participants ($n = 10$, 43%) experienced a change in their relationship with food and/or exercise. At least one participant from each gender identity represented in this study, transfeminine, transmasculine, and nonbinary/ gender fluid, discussed this topic. Some participants

($n=7$, 30%) perceived an improvement and some participants ($n=4$, 17%) perceived a worsening relationship to food and exercise.

Many participants ($n=8$, 35%) acknowledged a change in their nutritional intake once their bodies aligned more with gender-specific body ideals. These eight participants felt less stress with their weight status and more at ease in their relationship to food because hormone therapy had initiated feminizing or masculinizing changes (Quotes #18–19). One participant noted that once he began gender-affirming medical care and was able to pass as male, his weight was no longer tied to his perception of self-worth (Quote #20).

> "...since I've transitioned and people regard me as a guy and not as a girl, that's a lot easier in terms of body image. It's great…if people don't see me as a girl, then it's okay for me to be a little bit chubby and it's not something that's directly tied to how people define my self-worth."

For a few participants ($n=3$, 13%), changes in eating and exercise habits were described as being due to improvements in their mental health, which they attributed to their gender-affirming medical care. Improved eating habits included decreased restrictive eating and binge eating (Quote #21).

> "[In response to changes with transition] I think it has, because the last few weeks, I've been eating less…I think [transition has] gotten me out of my depression, which allows me the time to think about what I'm doing, instead of wallowing around and just trying to do whatever makes me happy at the time."

Lastly, many participants ($n=9$, 39%) found that gender-affirming medical care initiated a newfound appreciation of their body and a focus on being "healthy," including diet modifications and increased exercise (Quotes #22–23).

> "[In response to changes with puberty blockers] Because now I'm hyperaware of things that are healthy and things that aren't…So I'm trying a lot more to be healthier. And I feel like it's easier to do that because I have that…more hyper-focused view of my body. Even though maybe that's not very good, it's easier to do it because I'm so hyper-focused."

For one transfeminine participant, with an increased awareness of her body, she noted that although her gender dysphoria improved with estrogen, concerns with her eating and body image became more pronounced (Quote #24).

Resources and support on relationship to food and/or exercise

When participants were asked about suggestions for how providers can support individuals who are struggling with their relationship to eating and exercise, recommendations included education on healthy eating and weight ($n=5$, 22%), anticipatory information on how hormones affect appetite and body shape ($n=3$, 13%), mental health therapy ($n=3$, 13%), resources about body acceptance/neutrality and diversity ($n=2$, 9%; Quote #25), connection to support groups ($n=1$, 4%), and access to healthy foods ($n=1$, 4%). Additionally, one participant recommended that clinics screen patients by asking questions related to food and exercise to provide an opportunity to discuss any concerns (Quote #26).

> "But I guess if there were more questions, just in general in the clinic…about eating and how that's going…it will…bring light into some people's eyes and be like, 'Oh, I'm thinking a lot more about my eating than I really thought I was…'…and then you can kind of realize that not everybody does, and maybe there's something more to it for some people. And maybe just having those questions might make them see that."

Discussion

This qualitative study assessed eating and exercise habits from the perspectives of TGNB AYA to better understand their risk of disordered eating. Similar to previous qualitative studies on TGNB young adults and TGNB adolescents, the range of themes of our study show that the relationship to food and exercise can be complicated by many different factors, including gender dysphoria and society's gender-specific body ideals, control over one's body, mental health, and emotional and physical changes with gender-affirming medical care.[10–12]

It is important to note that these factors are almost certainly inter-related among TGNB AYA. Societal stigma against TGNB people and societal expectations of gender may intensify gender dysphoria.[16] Gender dysphoria can include body dissatisfaction and the inability to have control over one's body, particularly one's sex assigned at birth, and development of secondary sexual characteristics during puberty.[17] Worsening gender dysphoria in addition to societal stigma can lead to mental health disparities.[16–19] All of these stress-related factors can lead to coping methods during adolescence that are tied to eating and exercise habits.[20–22]

In this study, we assessed disordered eating behaviors after stratifying by gender identity. Certain themes spanned the gender identity spectrum, which demonstrates a potential risk of disordered eating across different gender identities of AYA. At least one transfeminine, transmasculine, and nonbinary/gender fluid participant discussed eating and exercise being affected by gender dysphoria, mental health, and gender-affirming medical care.

With regard to changes with gender-affirming medical care, participants of each gender identity category discussed improvement in gender dysphoria and mental health, similar to previous studies, as the cause of an improvement in their relationship to eating.[10,12,23–26] Unlike these studies, a few of our participants specifically described worsening disordered eating behaviors after starting gender-affirming medications. Additionally, some participants endorsed an increased focus on their body and being "healthy."

Although some participants used the word "healthy" to describe their improvement in eating and exercise habits, without further exploration it is difficult to ascertain whether their individual behaviors are indeed promoting better emotional and physical health or are just perceived as healthy by the participant because they are eating less and/or exercising more. Although gender-affirming medications may improve gender dysphoria, as their bodies physically align more with societal expectations of their gender identity after starting these medications, TGNB AYA may focus more on their body appearance and experience an increased pressure to alter their eating and/or exercise habits.

Our data suggest that nonbinary and gender fluid AYA may have unique experiences that affect their risk of disordered eating. Specifically, there were certain themes that were not discussed by nonbinary and gender fluid participants. For example, unlike participants with binary gender identities, nonbinary and gender fluid participants did not describe gender-specific body ideals. These AYA may not experience as much pressure as transfeminine and transmasculine AYA to fulfill societal standards because gender identity is largely expected to be binary. Alternatively, nonbinary and gender fluid AYA may experience pressure, but respond differently and reject binary norms.

A third possibility is that nonbinary and gender fluid AYA may not perceive ideal beauty standards due to the current lack of visibility of nonbinary/gender fluid persons in the media.[27] A single study conducted on this topic in adults found the odds of a self-reported eating disorder in transfeminine participants was 0.14 times the odds when compared with gender nonconforming participants assigned female at birth, and that transmasculine participants had 0.46 times the odds when compared with gender nonconforming participants assigned female at birth.[28]

Fortunately, our participants suggested ways in which providers can support TGNB AYA who are struggling with their relationship to food and exercise. Participants provided suggestions beyond the more conventional resources of education on healthy eating and mental health referrals. Additional suggestions included conversations around body diversity and neutrality, anticipatory information on hormones and its effect on appetite and body shape, and screening TGNB AYA for disordered eating.

Currently, there are no guidelines on screening for eating disorders/disordered eating among TGNB AYA. Avila et al. was the first study to implement a validated eating disorder questionnaire among transgender AYA; however, further studies are needed to validate this questionnaire specifically for TGNB AYA.[29]

Particularly because, as seen in the fourth theme, a negative relationship with eating and exercise can persist, and in some cases worsen, with gender-affirming medical care, it is important for providers to consider maintaining support before and after the initiation of gender-affirming medications. With potential stress associated with gender dysphoria compounded by the pressure of society to fit unhealthy, gendered beauty standards, providers can consider discussions around body diversity/neutrality.[30] As Participant #10, a 19-year-old transfeminine young adult, recommended: "reinforcing the idea that body image does not necessarily need to fit one particular stereotype and that there are multiple options that are okay to be."

There were limitations to this study. We interviewed a relatively homogeneous sample with most of the participants, though not all, identifying as white. A person's relationship with eating and exercise and presentation of disordered eating are likely to vary among different racial and ethnic backgrounds.[31,32] Similarly, the perspectives of nonbinary and gender fluid participants were less represented in this study with only four participants included. These four participants were also younger with an average age of 14.8 in comparison to 17.0 years of age for participants with binary gender identities.

Due to the nature of semistructured interviews with open-ended questions, the interview times ranged from 15 to 60 min. Shorter interviews may have affected the quality of the data if participants did not experience a negative relationship with eating/exercise or were not comfortable discussing this topic.

All participants were receiving gender-affirming medical care at a clinic that also provides expertise in eating disorders; however, participants were not specifically seeking eating disorder services and we did have

variation with respect to numbers who had established care and initiated gender-affirming hormones more than 6 months prior ($n = 11$) versus less than 6 months prior ($n = 12$). Regardless, because of the engagement in this type of clinic, participants were receiving gender-affirming medical care and were more likely to be supported in their affirmed gender and screened and treated for eating disorders in comparison to the general population of TGNB AYA.

Because all participants were currently on or planning to start gender-affirming hormones in the future, our results do not apply to TGNB AYA who are not interested or do not have access to gender-affirming hormones. The interview guide did not include a previous or current diagnosis of eating disorders and not all participants were explicitly asked about specific disordered eating behaviors in their interviews.

As a result, although we examined the relationship to one's body, eating, and exercise, we are unable to determine whether negative relationships contributed to disordered eating for all participants. The interview guide was modified after a pilot interview with a gender diverse young adult; however, the lack of lived experience of gender dysphoria may have affected how the two cisgender study members conducted the interviews and thematic analysis of the data. Finally, none of the participants had undergone gender-affirming surgery and this study does not assess how this particular form of gender-affirming care may affect a TGNB AYA's relationship to their body and eating.

Conclusion

Our interviews with TGNB AYA suggest that TGNB AYA of different gender identities experience unique relationships with eating and exercise that make them vulnerable to disordered eating behaviors, such as nutritional restriction, binge eating, and compulsive exercise, since behaviors can be used as a way to mediate and control a negative relationship with one's sex assigned at birth and/or body. Additionally, transgender AYA with more binary gender identities (i.e., transfeminine or transmasculine) may have different needs than nonbinary and gender fluid AYA. The diversity of themes and quotes highlight the unique experiences of TGNB AYA; future studies should explore interventions that can effectively and sensitively screen and treat TGNB AYA for disordered eating.

Author Disclosure Statement

No competing financial interests exist.

Funding Information

This study was supported by the Seattle Children's Center for Diversity and Health Equity Grants program and Seattle Children's Clinical and Translational Research Faculty Research Support Fund program. The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or nonfinancial interest (such as personal or professional relationships, affiliations, knowledge, or beliefs) in the subject matter or materials discussed in this article.

References

1. Jones BA, Haycraft E, Murjan S, Arcelus J. Body dissatisfaction and disordered eating in trans people: a systematic review of the literature. Int Rev Psychiatry (Abingdon, England). 2016;28:81–94.
2. Khatchadourian K, Amed S, Metzger DL. Clinical management of youth with gender dysphoria in vancouver. J Pediatr. 2014;164:906–911.
3. Diemer EW, Grant JD, Munn-Chernoff MA, et al. Gender identity, sexual orientation, and eating-related pathology in a national sample of college students. J Adolesc Health. 2015;57:144–149.
4. Feder S, Isserlin L, Seale E, et al. Exploring the association between eating disorders and gender dysphoria in youth. Eat Disord. 2017;25:310–317.
5. Nahata L, Quinn GP, Caltabellotta NM, Tishelman AC. Mental health concerns and insurance denials among transgender adolescents. LGBT Health. 2017;4:188–193.
6. Peterson CM, Matthews A, Copps-Smith E, Conard L. Suicidality, self-harm, and body dissatisfaction in transgender adolescents and emerging adults with gender dysphoria. Suicide Life Threat Behav. 2017;47:475–482.
7. Duffy ME, Henkel KE, Joiner TE. Prevalence of self-injurious thoughts and behaviors in transgender individuals with eating disorders: a National Study. J Adolesc Health. 2019;64:461–466.
8. Guss CE, Williams DN, Reisner SL, et al. Disordered weight management behaviors, nonprescription steroid use, and weight perception in transgender youth. J Adolesc Health. 2016;60:17–22.
9. Watson RJ, Veale JF, Saewyc EM. Disordered eating behaviors among transgender youth: probability profiles from risk and protective factors. Int J Eating Disord. 2017;50:515–522.
10. Ålgars M, Alanko K, Santtila P, Sandnabba KN. Disordered eating and gender identity disorder: a qualitative study. Eat Disord. 2012;20:300–311.
11. Hartman-Munick SM, Silverstein S, Guss CE, et al. Eating disorder screening and treatment experiences in transgender and gender diverse young adults. Eat Behav. 2021;41:101517.
12. Romito M, Salk RH, Roberts SR, et al. Exploring transgender adolescents' body image concerns and disordered eating: semi-structured interviews with nine gender minority youth. Body Image. 2021;37:50–62.
13. Spiers J, Morse JM, Olson K, et al. Reflection/commentary on a past article: "Verification Strategies for Establishing Reliability and Validity in Qualitative Research." Int J Qual Methods. 2018;17:160940691878823.
14. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3:77–101.
15. Levitt HM, Motulsky SL, Wertz FJ, et al. Recommendations for designing and reviewing qualitative research in psychology: promoting methodological integrity. Qual Psychol (Washington, DC). 2017;4:2–22.
16. White Hughto JM, Reisner SL, Pachankis JE. Transgender stigma and health: a critical review of stigma determinants, mechanisms, and interventions. Soc Sci Med. 2015;147:222–231.
17. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders: DSM-5. 5th ed. Arlington, VA, 2013.

18. Bockting WO, Miner MH, Swinburne Romine RE, et al. Stigma, mental health, and resilience in an online sample of the US transgender population. Am J Public Health. 2013;103:943–951.
19. Jackman KB, Dolezal C, Levin B, et al. Stigma, gender dysphoria, and nonsuicidal self-injury in a community sample of transgender individuals. Psychiatry Res. 2018;269:602–609.
20. Wagener AM, Much K. Eating disorders as coping mechanisms. J Coll Stud Psychother. 2010;24:203–212.
21. Fryer S, Waller G, Kroese BS. Stress, coping, and disturbed eating attitudes in teenage girls. Int J Eat Disord. 1997;22:427–436
22. Ingledew DK, McDonagh G. What coping functions are served when health behaviours are used as coping strategies? J Health Psychol. 1998;3:195–213.
23. Chew D, Anderson J, Williams K, et al. Hormonal treatment in young people with gender dysphoria: a systematic review. Pediatrics. 2018;141:e20173742.
24. Turban JL, King D, Carswell JM Keuroghlian, AS. Pubertal suppression for transgender youth and risk of suicidal ideation. Pediatrics. 2020;145:e20191725.
25. van der Miesen AIR, Steensma TD, de Vries ALC, et al. Psychological functioning in transgender adolescents before and after gender-affirmative care compared with cisgender general population peers. J Adolesc Health. 2020;66:699–704.
26. de Vries ALC, McGuire JK, Steensma TD, et al. Young adult psychological outcome after puberty suppression and gender reassignment. Pediatrics (Evanston). 2014;134:696–704.
27. Matsuno E, Budge SL. Non-binary/genderqueer identities: a critical review of the literature. Curr Sex Health Rep. 2017;9:116–120.
28. Diemer EW, White Hughto JM, Gordon AR, et al. Beyond the binary: differences in eating disorder prevalence by gender identity in a transgender sample. Transgend Health. 2018;3:17–23.
29. Avila JT, Golden NH, Aye T. Eating disorder screening in transgender youth. J Adolesc Health. 2019;65:815–817.
30. Perry M, Watson L, Hayden L, Inwards-Breland D. Using body neutrality to inform eating disorder management in a gender diverse world. Lancet Child Adolesc Health. 2019;3:597–598.
31. Miller MN, Pumariega AJ. Culture and eating disorders: a historical and cross-cultural review. Psychiatry (Washington, DC). 2001;64:93–110.
32. Rodgers RF, Berry R, Franko DL. Eating disorders in ethnic minorities: an update. Curr Psychiatry Rep. 2018;20:1–11.

Cite this article as: Pham A, Kerman H, Albertson K, Crouch JM, Inwards-Breland DJ, Ahrens KR (2023) Understanding the complex relationship between one's body, eating, exercise, and gender-affirming medical care among transgender and nonbinary adolescents and young adults, *Transgender Health* 8:2, 149–158, DOI: 10.1089/trgh.2021.0112.

Abbreviations Used

AYA = adolescents and young adults
SD = standard deviation
TGNB = transgender and nonbinary