



Gender Expression, Discrimination, and Health Among U.S. Adolescents and Young Adults: Quantitative and Qualitative Approaches

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GENDER EXPRESSION, DISCRIMINATION, AND HEALTH
AMONG U.S. ADOLESCENTS AND YOUNG ADULTS:
QUANTITATIVE AND QUALITATIVE APPROACHES

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A Dissertation Submitted to the Faculty of
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Gender Expression, Discrimination, and Health among U.S. Adolescents and Young Adults:
Quantitative and qualitative approaches

Abstract

Young people who are perceived as transgressing societal gender norms—that is, who have a nonconforming gender expression—are at heightened risk of discrimination and violence victimization in the U.S., which can adversely impact health. However, gender expression has been under-examined in public health, a gap this dissertation sought to address.

The first two studies draw on the Growing Up Today Study (GUTS), an ongoing cohort of the children of women in the Nurses' Health Study II. The objective of the first study was to examine the relationship between gender nonconformity and health-related quality of life (HRQL), measured when participants were ages 18-31 years (n=8977). In multivariable regression models, higher levels of gender nonconformity were associated with higher risk of poor HRQL. Gender nonconforming young women had higher risk of functional limitations and pain relative to more conforming women, after adjusting for sexual orientation identity and potential confounders. Gender nonconformity was also associated with elevated risk of depression/anxiety among men and women.

The second study extends this work by examining associations between gender nonconformity, reported gender expression-related discrimination, and depressive symptoms among GUTS sexual minority participants (e.g., lesbian, gay, bisexual, mostly heterosexual; n=1328). High levels of gender expression discrimination were reported by both sexual minority women and men, particularly among the most gender nonconforming. Among women, discrimination modestly attenuated the association between gender nonconformity and depressive symptoms.

The third study is a qualitative study of disordered eating and weight and shape control behaviors among young transgender women (i.e., individuals who were assigned a male sex at birth and identify as women). Through in-depth interviews with 21 low-income, ethnically diverse transgender women, this

study found that disordered weight and shape control behaviors occurred at the intersection of four key themes: (i) gender socialization processes and cultural femininity ideals, (ii) discrimination and unmet needs for gender affirmation, (iii) biological processes, and (iv) resilience processes.

These three studies contribute to growing evidence that gender expression, in the context of societal intolerance for gender diversity and narrow cultural masculinity and femininity ideals, is an important dimension of gender and social determinant of health.

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Introduction:

Why gender expression from a public health perspective?

“Principle 17: Everyone has the right to the highest attainable standard of physical and mental health, without discrimination on the basis of sexual orientation or gender identity.”

“Principle 19: Everyone has the right to freedom of opinion and expression, regardless of sexual orientation or gender identity. This includes the expression of identity or personhood through speech, deportment, dress, bodily characteristics, choice of name, or any other means, as well as the freedom to seek, receive and impart information and ideas of all kinds, including with regard to human rights, sexual orientation and gender identity, through any medium and regardless of frontiers.”

Yogyakarta Principles: Principles on the application of international human rights law in relation to sexual orientation and gender identity (2007)

There has been increasing awareness in the U.S. in recent decades of the harassment, discrimination, and violence faced by those who visibly transgress normative gender presentations and roles—that is, who have a nonconforming gender expression. In the wake of several high-profile suicides of youth targeted for being or being perceived as lesbian, gay, bisexual or transgender (LGBT), this attention has been particularly focused on children and adolescents and on the mental health consequences of anti-gay bullying^{*}. Yet this is only one facet of the relationship between gender expression and health inequity.

Feminist, queer, and transgender scholars, activists, and communities have long celebrated the power and pleasures of diverse forms of gender expression, while also unmasking the ways that societal norms dictating “acceptable” expressions of gender can damage social, educational, economic, and psychological outcomes for those of all genders (Connell, 1987; Nestle, 1992; Nestle, Howell, & Wilchins, 2002; Serano, 2007; Wolf, 1991). The meanings any given society attaches to gender are not fixed and notions of “acceptable” masculine and feminine appearances and behaviors vary substantially

^{*} Consider the rapid and nationwide sweep of the “It Gets Better” campaign (Stelter, 2010) or the 2011 first-of-its-kind White House-sponsored antibullying conference for some prominent examples (Calmes, 2011).

across historical and cultural contexts (Garber, 1992; Paoletti, 2012)[†]. These shifting meanings are nonetheless typically perceived to be stable—to be, in fact, “natural”—and perceived violations of gender norms are fiercely, sometimes violently, resisted by those who benefit (or believe they benefit) from existing gender hierarchies. Restriction of gender expression and censure of perceived gender nonconformity act to buttress gender inequity, a key structural determinant of population health, in interaction with racism, heterosexism, class inequality and other forms of social injustice (CSDH, 2008). However, the role of gender expression has been under-theorized and under-researched in the field of public health.

In the U.S., research has demonstrated that those with more nonconforming gender expressions are at greater risk of adverse discrimination, harassment, and violence (Gordon & Meyer, 2007; Roberts, Rosario, Corliss, Koenen, & Austin, 2012; Toomey, Ryan, Diaz, Card, & Russell, 2010). Other research has found that conforming to unrealistic societal ideals of masculinity or femininity may also take a toll, particularly on young people, increasing sexual risk-taking, risk of intimate partner violence (Santana, Raj, Decker, La Marche, & Silverman, 2006), or creating barriers to receiving needed care (Courtenay, 2000; Hammond, Matthews, Mohottige, & Agyemang, 2010). Although these findings lay the foundation, there is need for further empirical investigation of these hypotheses across diverse sexual orientation and gender identities, as well as with a focus on the specific experiences of lesbian, gay, bisexual, and mostly heterosexual populations and transgender populations. These will be crucial steps toward enhancing a public health understanding of gender as a social and structural determinant of health.

Below, I offer key definitions, briefly describe the historical and theoretical context that frames this dissertation, and provide an overview of the three dissertation papers that follow.

Definition of terms

[†] Historian Jo Paoletti offers an elegant example of this through her work on U.S. cultural shifts in the realm of children’s clothing. By the late 20th century CE, the American cultural imagination firmly associated pink with girls and blue with boys, but in the early 20th century, the associations were reversed, with pink considered “a more decided and stronger color” more suitable for boys, while blue was “delicate and dainty” and thus fitting for girls (Paoletti, 2012, p. 85).

As biologist Anne Fausto-Sterling has shown, “sex” and “gender” are complex and entangled rather than dichotomous, and gender and sexual diversity in humans is both a biological and a social reality (Fausto-Sterling, 2000, 2012). This means that sex and gender are remarkably challenging to define, although the terms are frequently considered self-evident (i.e., undefined) in the public health literature. Following Nancy Krieger’s definitions oriented towards social epidemiologists, **sex** is “a biological construct premised upon biological characteristics enabling sexual reproduction. Among people, biological sex is variously assigned in relation to secondary sex-characteristics, gonads, or sex chromosomes” (2003, p. 653)[‡]. **Gender** is “a social construct regarding culture-bound conventions, roles, and behaviors for, as well as relations between and among, women and men and boys and girls” (p. 653). In the present work, gender is conceptualized as having multiple dimensions, including gender identity and gender expression. From a public health perspective, the most recent and significant document to address these dimensions was a 2011 U.S. Institute of Medicine (IOM) report on the health of LGBT populations. This report defined **gender identity** as “A person’s basic sense of being a man or boy, a woman or girl, or another gender (e.g., transgender, bigender, or genderqueer—a rejection of the traditional binary classification of gender)” (IOM, 2011, p. 25) and **gender expression** as “The manifestation of characteristics in one’s personality, appearance, and behavior that are culturally defined as masculine or feminine” (IOM, 2011, p. 26). Gender expression can also be understood in terms of visible conformity or nonconformity to expected gender roles within a given time and place.

A central concern of the three papers presented here, and of social epidemiology more generally, is increasing understanding of and ultimately dismantling health inequities. **Social inequities in health** refer to differences within or between specific populations that are “judged to be unfair, unjust, and

[‡] Note that some gender and health scholars question the distinctions between “sex” and “gender” altogether. Springer and colleagues (2012) use entanglement theory to describe the inextricability of sex and gender. They recommend using the term “gender” to refer to “social and structural factors, such as patterns in the distribution of family responsibilities, formal and informal sanctions for gender nonconforming behavior, and so on” and to use “sex/gender” rather than “sex” alone as a way to describe the “domain of complex phenomena that are simultaneously biological and social” (Springer et al., 2012, p. 1818).

unnecessary (meaning: are neither inevitable nor unremediable) and that systematically burden populations rendered vulnerable by underlying social structures and political, economic, and legal institutions” (Krieger, 2001, p. 698). The terms health disparities and health inequalities have been critiqued for their lack of specificity regarding the role of power and privilege in producing “differences” in health; however, like the phrase social inequities in health, the phrase **health inequity** indicates that the observed gap is unjust. Additional definitions of key terms can be found in Text Box 1.1.

A brief historical note on the intersection of gender expression and sexuality

Since the early 20th century in the U.S. there has been a vital and well-documented connection between nonconforming gender expression and sexuality within what would now be termed LGBT communities. From the “massive drag balls” drawing thousands of participants and spectators in New York City’s Bowery, Village, and Harlem neighborhoods in the 1920s (Chauncey, 1994, p. 2) to the butch drag artists of Greenwich Village in the 1940s (Davis, 1992), to contemporary drag icons and house ball communities created by gay and transgender people of color (Phillips, Peterson, Binson, Hidalgo, & Magnus, 2011), there is a vibrant history and continued evolution of social systems in which gender nonconformity and gender diversity have flourished.

Yet this flourishing is embedded within an equally enduring U.S. legacy of pathologization and criminalization of homosexuality, transsexuality, and perceived gender transgression (Chauncey, 1994; Meyerowitz, 2002; Rivera, 2002). To cite one example, according to historian George Chauncey, in the early decades of the 20th century, “fairies and other homosexuals were widely recognized as social types in the streets of working-class neighborhoods” of New York, and, as such, “they were also regarded as easy marks by the gangs of youth who controlled much of the traffic on those streets” (Chauncey, 1994, p. 59). That is, overtly feminine men were perceived as easy targets because it was assumed that they would put up little physical resistance, and because “they were considered ‘outlaws’ by the authorities and thus would not dare complain to the police for fear of drawing attention to themselves” (Chauncey, 1994, pp. 59–60).

Text Box 1.1. Key terminology

Gender: Defined by Krieger (2003) as “a social construct regarding culture-bound conventions, roles, and behaviors for, as well as relations between and among, women and men and boys and girls” (p. 653). Gender has been conceptualized as having multiple dimensions, including gender expression and gender identity (IOM, 2011).

Gender expression: “The manifestation of characteristics in one’s personality, appearance, and behavior that are culturally defined as masculine or feminine” (IOM, 2011, p. 26). Gender expression can also be understood in terms of the extent to which an individual’s gender expression is conforming or nonconforming to culturally-, geographically-, and historically-contingent norms and stereotypes for the individual’s gender. Those who are perceived as transgressing these norms may be described as or identify as **gender nonconforming**.

Gender identity: “A person’s basic sense of being a man or boy, a woman or girl, or another gender (e.g., transgender, bigender, or genderqueer—a rejection of the traditional binary classification of gender)” (IOM, 2011, p. 25). Gender identity may or may not be aligned with an individual’s assigned sex at birth. Individuals who have a gender identity not aligned with their sex at birth may identify as **transgender** (or genderqueer, or other terms indicating rejection of conventional binary gender classifications), while individuals whose gender identity is aligned with their assigned sex at birth are described by some as **cisgender** (non-transgender) (Taylor, 2010).

Sex: Defined by Krieger (2003) as “a biological construct premised upon biological characteristics enabling sexual reproduction. Among people, biological sex is variously assigned in relation to secondary sex-characteristics, gonads, or sex chromosomes” (p. 653).

Sexual orientation: A social construct referring to combinations of sexual attraction, sexual behavior, and sexual identity—all of which may or may not overlap in terms of activities and genders of partners and may change over time (Fausto-Sterling, 2012; Laumann, Gagnon, Michael, & Michaels, 1994).

Sexual orientation identity: Refers specifically to one’s sense of self—for example, as heterosexual, bisexual, gay, lesbian, or queer.

Socially assigned gender nonconformity: Conveying feelings of masculinity or femininity through one’s appearance or mannerisms in a way that is perceived by others to be nonconcordant with the ways society has assigned to one’s gender (Wylie, Corliss, Boulanger, Prokop, & Austin, 2010).

The social and political landscape of institutional and interpersonal discrimination against sexual and gender minorities in the U.S. has shifted substantially in the past century. These shifts have perhaps been most rapid in the past 15 years, which have seen dramatic changes in public opinion towards gay and lesbian populations (Keleher & Smith, 2012) and growth of state legislation protecting individuals on the basis of gender identity and expression (and even more banning sexual orientation discrimination). Whereas in 2000, only one state had passed legislation prohibiting discrimination on the basis of gender identity/expression, by 2014, 18 states and the District of Columbia had such laws on the books (National LGBTQ Task Force, 2014). Yet today over half of states still lack nondiscrimination laws protecting sexual or gender minorities. Moreover, legislative protections are only one component of prevention efforts and discrimination and violence towards those perceived as gender nonconforming persist.

This complex historical and contemporary U.S. social context surrounding gender norms, gender expression, and gender identity has an array of potential implications for the health and wellbeing of young people growing up today, whether gender nonconforming, gender conforming, transgender, non-transgender, lesbian, gay, bisexual, or heterosexual. Before engaging with these lines of inquiry it is important to step back and clarify the theoretical perspectives that underpin this project.

Theoretical frameworks

This work is informed by three theoretical frameworks, which interlock in several ways. The first has been summarized as relational gender theory (Connell, 2012). Late 20th century feminist scholarship described gender as a social structure and a process that produces social differences distinguishing “women” and “men” via individuals’ interactions with the social world throughout their lives (e.g., Lorber, 1994). More recently, feminist and transgender scholars have argued that “gender is not best understood simply as an attribute of individuals but rather as a set of often hierarchical relations among differently gendered subjects” (Shotwell, 2012, p. 990 citing Heyes, 2007), which both highlights the multilevel and relational aspects of gender and offers language to embrace more than two genders. By this claim, gender is neither an individual attribute nor simply a social structure—rather, gender relations theory allows gender to be multidimensional, encompassing “economic relations, power relations,

affective relations and symbolic relations; and operating simultaneously at intrapersonal, interpersonal, institutional, and society-wide levels” (Connell, 2012, p. 1677). A multidimensional and relational approach to gender raises some conceptual and measurement challenges and has not been widely applied to the study of health behaviors or health inequities. Doing so could allow for much greater sophistication in public health research on gender and is an important challenge for the field (Connell, 2012).

The second body of work that informs this proposal’s theoretical approach is that on psychosocial stress processes, drawing on decades of research from multiple disciplinary perspectives, particularly sociology (Pearlin, 1989) and psychology (Lazarus & Folkman, 1984). Sociologist Leonard Pearlin described the “structural contexts of the stress process,” which recognized that “many stressful experiences don’t spring out of a vacuum but typically can be traced back to surrounding social structures and people’s locations within them” and saw the source as systems of “social stratification” that “cut across societies,” such as economic class, race and ethnicity, gender, and age (Pearlin, 1989, p. 242). This approach would suggest that stress related to gender expression would be due largely to social structures that regulate gender presentation and punish perceived transgressions of gender norms.

The psychosocial stress model posits two primary pathways by which stressors rooted in social inequalities—for example, stress related to a child’s experience of being repeatedly threatened on the playground for being insufficiently masculine—may influence susceptibility to and course of illness (Cohen, Janicki-Deverts, & Miller, 2007; Kubzansky, 2005). The first are physiological pathways: a psychological stressor can elicit endocrine responses that in turn trigger a cascade of physiological changes along the hypothalamic-pituitary-adrenocortical (HPA) axis, releasing cortisol, which in the long-term can interfere with regulation of other physiological systems leading to increased risk of physical or mental health disorders (Sapolsky, 2004). The second are behavioral pathways: external stressors may spur behavioral adaptations or coping responses, such as increased smoking, use of psychoactive substances, or coping-related eating behaviors, which may also influence disease risk.

Though the body of work on stress processes and health is vast, many questions remain unanswered, including questions about how experiences of discrimination act as social stressors and

become embodied in multiple ways (in addition to, in interaction with, or separately from the other pathways by which discrimination harms health and produces health inequality). The minority stress model was developed based on the stress process model to focus on the specific needs of populations exposed to excess stress “as a result of their social, often a minority, position” (Meyer, 2003, p. 675). The model has primarily been used to study discrimination, frequently at the intersection of sexual orientation and race/ethnicity (Bowleg, Huang, Brooks, Black, & Burkholder, 2003; Chen & Tryon, 2012; IOM, 2011; Meyer, Schwartz, & Frost, 2008). It has also been used to consider gender nonconformity as a marker for elevated risk of exposure to discrimination (Gordon & Meyer, 2007) and extended to be applicable for transgender populations (Hendricks & Testa, 2012).

The third theoretical framework is ecosocial theory (Krieger, 1994, 2011), a multilevel and temporally dynamic approach to understanding disease distributions that is centrally concerned with asking “who and what drive social inequalities in health?” (Krieger, 2012). Ecosocial theory provides an overarching framework that draws attention to the importance of embodiment, or the ways that humans literally incorporate into our bodies the social and material conditions in which we live. This is a fundamentally important idea for any study of sex/gender, particularly in relation to health, and ties directly to gender relations theory. For example, as Connell noted in her early work on gender relations theory, “The social definition of men as holders of power is translated not only into mental body-images and fantasies, but into muscle tensions, posture, the feel and texture of the body” (Connell, 1987, p. 85).

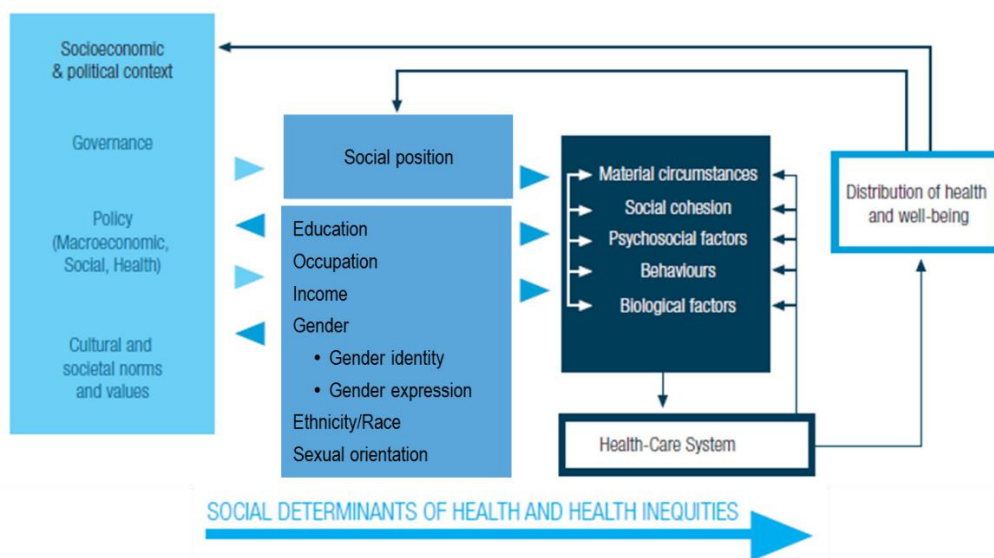
Ecosocial theory underscores the importance of articulating diverse “pathways to embodiment” (Krieger, 2011), noting that these pathways themselves are often in interaction. This brings important contextualization to the study of stress- and coping-related outcomes and health behaviors by reminding researchers of the ways that discriminatory social structures can impact the body via pathways beyond psychosocial stress. Finally, ecosocial theory informed these papers through its emphasis on the inextricable linkages between gendered power relationships and other domains in which power and privilege produce inequitable distributions of health.

Gender in a contemporary public health framework: Context and opportunities

Like other domains of social inequality, the place of sex and gender within public health discourses has often been contentious (Fee & Krieger, 1993). The social determinants of health framework represents an important site of discussion and action around the meanings and uses of “gender,” with relevance for gender expression and identity. Although there is no one agreed-upon definition or approach to the social determinants of health, recent national and global efforts have brought the concept into mainstream conversations and policy discussions. Foremost among the global effort to reshape health discourse around the structural conditions that pattern health is the World Health Organization’s convening of a groundbreaking Commission on the Social Determinants of Health and its 2008 final report (CSDH, 2008). This report included a chapter devoted to the topic of “gender equity,” informed by a 2007 feeder report from the Commission’s Women and Gender Equity Knowledge Network, which provided a nuanced background and recommendations for action on gender inequity’s impacts on health. Importantly for the topic of gender expression and gender diversity, the Knowledge Network report clearly articulated gender as a power structure and a set of relations and also attempted, albeit only briefly, to be inclusive of transgender and intersex populations, stating in the introduction: “The impact of gender power for physical and mental health—of girls, women and transgender/intersex people, and also of boys and men—can be profound” (Women and Gender Equity Knowledge Network, 2007, p. xiv). Sexuality was acknowledged and “sexuality-based discrimination” was described as “vitaly important” to health. Also relevant to gender expression was the report’s emphasis on the health effects of context-specific, strongly patterned gender norms, beliefs, and stereotypes.

Regrettably, the WHO’s final report omitted much of this nuanced analysis of gender diversity and gender norms. Several sections relied on the familiar reduction of “gender” to “women” to “reproduction” and transgender and intersex populations were excluded entirely. Similarly, the report omitted all mention of sexual orientation, gender identity, or LGBT populations—a fact that has not gone without some critique (Logie, 2012; Pega & Veale, 2015). Even more glaring is the absence of gender and sexuality from the most high-profile U.S.-focused document promoting a social determinants of health

framework. The Robert Wood Johnson Foundation’s Commission to Build a Healthier America, a bipartisan commission that served as a powerful platform for communicating with policy-makers and the general public around social determinants, produced two reports documenting the social forces driving health inequities and offering recommendations (Robert Wood Johnson Foundation Commission to Build a Healthier America, 2009, 2014). Neither report included any mention of gender as a social determinant of health, in spite of a focus on the importance of early childhood development (during which time gender socialization plays a key role (Fausto-Sterling, 2012)), and sexuality was only mentioned in passing in the context of sexually transmitted infections (Robert Wood Johnson Foundation Commission to Build a Healthier America, 2009). While social determinants of health frameworks are becoming increasingly visible and interpretable in public discourse, incorporating the multiple dimensions of gender into these models remains a challenge and an important goal. See Figure 1.1 for a representation of the WHO Commission’s heuristic, expanded to include gender identity and expression as well as sexual orientation.



Source: World Health Organization (2008, p. 43), amended from Solar & Irwin (2007); also reflects modifications suggested by Logie (2012) and Pega & Veale (2015)

Figure 1.1. World Health Organization (WHO) Commission on the Social Determinants of Health conceptual framework including sexual orientation and multiple dimensions of gender.

Dissertation overview: Quantitative and qualitative approaches to the study of gender expression and health in young adulthood

The three papers that follow seek to contribute both theoretically and empirically to a more nuanced understanding of gender and public health, with a particular focus on late adolescence and young adulthood. This period of the life course—ranging from around age 18 to around age 29 and sometimes called emerging adulthood—has been characterized as its own developmental period within the context of late 20th/early 21st century industrialized societies (Arnett, 2007), with unique public health implications (Institute of Medicine (IOM) and National Research Council (NRC), 2014). This is a period of life when young people may have more individual agency to make decisions about their health behaviors and health care than they had in childhood or early adolescence and this can be reflected in public health promotion efforts for this age group. This is also a period in which some forms of risk-taking are heightened (IOM and NRC, 2014) and when stressors from earlier life may be emerging and taking a toll on mental and physical health (Foster, Hagan, & Brooks-Gunn, 2008). Health problems that emerge during this time may reverberate throughout adulthood, and even modest health inequities observed in young adulthood may be the precursors for more substantial social inequalities in health later in life (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003).

The first two dissertation papers describe quantitative studies that aim to contribute to the nascent but growing literature examining gender nonconforming expression in relation to self-reported mental and physical health status. Both of these papers analyze data from a unique U.S. cohort study, the Growing Up Today Study (GUTS), composed of the children of women in the Nurses' Health Study II. By 2013, when outcomes in both papers were assessed, participants were young adults, 18-31 years old. The GUTS cohort has some important limitations that are part of this work. As a nonprobability study of the children of U.S. nurses with 4-year nursing degrees, the cohort has a restricted socioeconomic range (though there is some variation in socioeconomic position) and does not allow for comparisons across racial/ethnic groups as the cohort is 94% white. Thus, the GUTS cohort is not considered (nor is it designed to be) representative of the U.S. population of adolescents and young adults. Nevertheless, as a study that

included measures that are exceptionally rare among surveys of adolescents of this size and duration, GUTS affords the opportunity to examine important and under-explored topics, such as gender expression, among this specific group of young people.

Drawing upon the GUTS cohort, the first paper uses a standard measure of health-related quality of life to ask: Are young adults (of all sexual orientations) who are perceived by others as gender nonconforming at greater risk of functional limitations, pain, and anxiety or depression? This paper documents several disparities in these health domains, with those who report they are more gender nonconforming experiencing poorer health than those who report they are more gender conforming; some notable differences between young men and young women are also discussed. As described above, the theoretical approach to this analysis suggests that at least part of the explanation for these disparities may be exposure to discrimination based on one's perceived degree of gender (non)conformity. This interest in the role of discrimination motivated the second paper.

The second paper takes a closer look at one of the five health domains covered in the first paper: inequities in depression by gender expression and gender-expression discrimination. This paper focused on the health of lesbian, gay, bisexual, and other sexual minority young adults, which have been previously shown to experience elevated rates of psychological distress relative to heterosexual young adults, often attributed to heightened exposure to stigma and discrimination. Specifically, this paper examines the relationships between socially assigned gender nonconformity, reported experiences of discrimination attributed to gender expression, and depressive symptoms. This analysis examines discrimination that individuals have specifically attributed to gender expression at two different life periods: (a) childhood and adolescence and (b) late adolescence and young adulthood. Although reported discrimination only modestly attenuates the estimates of association between gender expression and depressive symptoms, the overall high levels of reported gender expression discrimination reported by both sexual minority women and men, particularly in high school and earlier life, make a strong case for the importance of continued public health attention to this area.

The third paper takes a different approach to exploring the relationship between gender expression and health. Where the first two papers take a broad look at population patterns within the GUTS cohort, the third paper is an in-depth inquiry into the experiences and perceptions of a group of young transgender women (i.e., women who were assigned a male sex at birth and identify as women and/or on a transfeminine spectrum)—a group that, by virtue of having had to articulate gender identity and navigate pervasive gender-based discrimination, may have insights into gender relations processes that are often kept invisible. This paper presents findings from Project Body Talk, a qualitative study involving interviews with 21 young transgender women (Project Body Talk). The paper examines the contexts and multi-level pathways that may place young transgender women at risk of negative body image and unhealthy weight and shape control practices. In doing so, this paper initiates a conversation between practitioners and researchers working in both transgender health and in the prevention and treatment of eating disorders. In addition, the paper serves as a kind of case study of some of the ways that biological and social processes interact and play out in and on our bodies—that is, the embodiment of gender—and potential implications for population health and wellbeing.

Creating the space to specifically focus on gender expression as well as gender identity has potential implications for several areas of public health. Text Box 1.2 offers a few examples. My hope is that this collection of studies will both contribute to the scientific development of the field and to the larger goal of building a public health approach to social inequality that works to prevent stigma and discrimination and actively celebrates gender and sexual diversity across the life course.

**Text Box 1.2. Implications of a public health focus on gender identity and expression:
Selected examples**

Domain	Example
Population health	<ul style="list-style-type: none"> ▪ Better understanding of the distribution of adverse childhood experiences of violence ▪ Better understanding of the rapidly increasing incidence of poorly regulated cosmetic surgical procedures (in the U.S. and globally) as expressions of feminine or masculine beauty norms
Health inequities	<ul style="list-style-type: none"> ▪ Explaining higher rates of PTSD symptoms in LGB compared to non-LGB populations ▪ Explaining higher rates of HIV/AIDS among transgender women compared to cisgender women
Research	<ul style="list-style-type: none"> ▪ Enhancing researchers' ability to conceptualize and measure distinct forms of gender-based violence ▪ Improving research on adolescent condom use decision-making by assessing the role of pressures to conform to ideals of masculinity or femininity
Medical Care	<ul style="list-style-type: none"> ▪ Training paramedics to offer quality emergency care when gender identity or expression does not match anatomy ▪ Increasing access to life-saving gender affirming medical care for transgender populations
Intervention	<ul style="list-style-type: none"> ▪ Implementation of antidiscrimination policies that explicitly protect individuals on the basis of sexual orientation as well as gender identity and expression ▪ Improving quality and reducing unintended consequences of public health interventions by encouraging gender analysis accounting for the impacts of planned interventions on gender minorities and in terms of reinforcement or countering of societal gender constraints

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Socially Assigned Gender Nonconformity, Health Status, and Health-Related Quality of Life and in a Cohort of US Young Adults

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ABSTRACT

Background: Socially assigned gender nonconformity, referring to the extent to which a person is perceived by others as expressing conventionally “masculine” vs. “feminine” characteristics, is an underexplored dimension of gender with important implications for exposure to discrimination, health-related quality of life (HRQL), and health inequities. This study’s objective was to assess the relationship between socially assigned gender nonconformity and HRQL in a cohort of U.S. young adults. **Methods:** Using data on 5,973 primarily white young men and women, aged 18-31 years, in the Growing Up Today Study 2010-2013 waves, we examined the associations between socially assigned gender nonconformity (categorized as highly gender conforming [referent], moderately gender conforming, and gender nonconforming) and self-reported functional limitations, pain, anxiety or depression, and poor HRQL, assessed as a health utility score <1. We used generalized estimating equations with a log link to estimate risk ratios (RRs) adjusted for demographic characteristics including sexual orientation. **Results:** Young women reporting the most gender nonconformity had higher adjusted risk (RR; 95% CI) of experiencing mobility limitations (1.71; 1.05, 2.78), usual activities limitations (2.12; 1.44, 3.13), and pain (1.60; 1.35, 1.89) relative to women reporting the most gender conformity. Gender nonconformity was also associated with anxiety or depression among men (1.94; 1.07, 3.53) and women (1.58; 1.23, 2.02). Higher levels of gender nonconformity were associated with higher risk of poor HRQL (RR for middle-level gender conformity: 1.12; 1.06, 1.18; RR for highest gender nonconformity: 1.24; 1.14, 1.33). **Conclusions:** Gender nonconformity is a unique aspect of gender that is associated with inequities in health status and health-related quality of life among adolescents and young adults. Further research is needed to articulate pathways between gender nonconformity and risk of poor health.

INTRODUCTION

Children and adolescents who do not conform to societal gender norms and expectations—that is, who have a nonconforming gender expression—are at heightened risk of harassment, discrimination and violence victimization (Gordon & Meyer, 2007; Grant et al., 2011; Grossman & D’Augelli, 2006; Kosciw, Greytak, Bartkiewicz, Boesen, & Palmer, 2012). Mounting evidence points to the serious mental health consequences of discrimination and violence victimization targeting gender nonconformity, with implications for health across the life course (Bontempo & D’Augelli, 2002; Plöderl & Fartacek, 2007; Roberts, Rosario, Corliss, Koenen, & Austin, 2012; Roberts, Rosario, Slopen, Calzo, & Austin, 2013; Toomey, Ryan, Diaz, Card, & Russell, 2010). While the evidence for mental health impacts of such discrimination is robust, there is an outstanding need for research on implications for physical health.

Research on racial discrimination has documented an array of health consequences of such discrimination, including cardiovascular disease risk (Beatty, Matthews, Bromberger, & Brown, 2014), cardiovascular reactivity (Lepore et al., 2006), chronic pain (Gee, Spencer, Chen, & Takeuchi, 2007), and overall physical health status (Borrell et al., 2007; Krieger, 2014). Emerging evidence also identifies sexual orientation inequities in chronic pain, disability, self-reported health status, and health-related physical functioning (Case et al., 2004; Conron, Mimiaga, & Landers, 2010; Fredriksen-Goldsen, Kim, Barkan, Muraco, & Hoy-Ellis, 2013; Roberts, Rosario, Corliss, et al., 2013). Such disparities may be driven by structural and interpersonal discrimination against sexual minorities (Institute of Medicine, 2011), which can be interlinked with discrimination targeting perceived gender nonconformity (Gordon & Meyer, 2007; Rieger & Savin-Williams, 2012). Given that the perceptions of others play an important role in exposure to discriminatory treatment, there is a particular need to focus on socially assigned gender nonconformity, that is, the extent to which a person is perceived by others as expressing conventionally “masculine” vs. “feminine” characteristics (Wylie, Corliss, Boulanger, Prokop, & Austin, 2010).

In addition, highly conforming gender expression has been linked to selected adverse health outcomes. For example, high levels of conformity to masculinity norms among U.S. young men has been

linked to risk-taking, including high-risk alcohol use and more frequent tobacco use (Courtenay, 2000; Iwamoto, Cheng, Lee, Takamatsu, & Gordon, 2011; Pachankis, Westmaas, & Dougherty, 2011). Such work suggests that higher levels of gender conformity might predict poorer health outcomes in selected health domains, particularly those relevant to substance use, other risk-taking and injury among young men. Less work has focused on conformity to feminine norms and health although a recent study in the adolescent cohort used in our analysis found higher rates of selected cancer risk behaviors such as tanning bed use among the most feminine adolescent girls, relative to those who were more nonconforming (Roberts et al., 2014).

However, there is a lack of research into whether socially assigned gender nonconformity may be related to both physical and mental health functioning, including functional limitations (mobility, self-care, and usual activities limitations), experiences of pain, and anxiety or depressive symptoms. In addition, measures of health-related quality of life (HRQL) offer a promising tool for assessing both the overall public health toll and the economic burden of exposure to harassment, discrimination and violence affecting those perceived as gender nonconforming; to our knowledge, no studies have examined the association between gender nonconformity and HRQL in young people.

Theoretical Framework and Hypotheses

This work is guided by ecosocial theory (Krieger, 1994, 2011), a multilevel, temporally dynamic approach to understanding population patterns of disease that is centrally concerned with asking “who and what drive social inequalities in health?” (Krieger, 2012, p. 936). Ecosocial theory provides an overarching framework that draws attention to the importance of embodiment, or the ways that humans literally incorporate into our bodies the social and material conditions in which we live. Ecosocial theory also emphasizes the inextricable linkages between gender relations and other domains in which power and privilege produce inequitable distributions of health and underscores the cultural and historical specificity of any discussion of gender “norms” or relations. In this case, research questions are specific to a cohort of predominantly white middle-to-high income young people in the U.S. in the early 21st century, chosen

because of its unique incorporation of questions on gender nonconformity in adolescence and young adulthood (to our knowledge not available in any other data set).

Following this framework, we hypothesized that:

- (1) Study participants who reported higher levels of socially assigned gender nonconformity would have reduced health-related quality of life in young adulthood, including greater risk of poor mental health (anxiety or depressive symptoms) and greater risk of physical health limitations (limitations in mobility and usual activities and problems with pain), compared to participants who reported less gender nonconformity.
- (2) Effect measure modification by gender will be apparent, with the following hypotheses: (i) the association of gender nonconformity with pain and physical health limitations will be greater among young women than young men (potentially because conventional masculine behavior may be associated with more physical risk-taking (Granié, 2010; Iwamoto et al., 2011)); and (ii) the association between gender nonconformity and anxiety/depression will be of greater magnitude among young men than women (potentially because of greater exposure to gender nonconformity-related bullying in childhood among boys than girls (Roberts, Rosario, Slopen, et al., 2013)).

METHODS

Participants

Participants were drawn from the Growing Up Today Study (GUTS), a U.S. cohort study of children of women in the Nurses' Health Study II (NHSII) that began in 1996 with 16,882 children ages 9-14 years (GUTS1). In 2004 a second cohort of 10,923 children of NHSII mothers was added, when these children were 9-15 years (GUTS2). Participants have been sent questionnaires (paper and online formats) annually or biennially.

For the current analyses, 8,977 individuals who participated in the 2013 GUTS wave were eligible. GUTS1 participants who reported in 2010 that they had a gender identity that did not align with their sex assigned at birth (n=18) were not eligible for the present study as this group was too small for

analysis[§]. A sensitivity analysis found that this exclusion did not affect results. Of the 8,977 eligible participants, 3,004 were excluded because they were missing information on gender expression in 2010-2011 (n=1,353), health outcomes in 2013 (n=311), or key covariates (reported “unsure” or did not report sexual orientation, n=28; mother did not report 2001 household income, n=1,312). The analytic sample for this study included 5,973 participants. Excluded participants were more likely to be male (excluded 37% male vs. included 30% male; χ^2 test $p < .0001$), but did not substantially differ from those included with respect to age, race/ethnicity, region of residence, childhood household income, sexual orientation identity, or reported gender expression. The Brigham & Women’s Hospital Institutional Review Board approved this study (Protocol # 2009P000542/BWH).

Measures: Primary Predictor

Gender nonconformity. We developed a gender nonconformity measure using two variables. The first is the participant’s gender, based on mother’s report at baseline (1996 or 2004) and coded as girl/woman or boy/man. The second is a scale to assess how participants think others view their gender expression. Termed the Socially Assigned Gender Expression (SAGE) Scale, this is a two-item, measure validated through cognitive testing (Greytak, Gill, & Conron, In press; Wylie et al., 2010) and administered in 2010-2011 when participants were 16-29 years old. Respondents reported how people would, on average, describe the respondent’s (1) appearance, style, or dress and (2) mannerisms. Response options ranged on a seven-point scale from “Very masculine” to “Very feminine.” The measure did not specify the types of people or contexts in which these social attributions were occurring. The two items were recoded relative to participant’s gender (e.g., “Very feminine” coded as 1 for women and 7 for men) and summed to produce a gender nonconformity summary score (range: 1 to 7) where low scores indicate high socially assigned gender conformity and high scores indicate high nonconformity). The score was used to construct three gender nonconformity categories for analysis: (1) Most gender conforming (score < 2 ; roughly corresponds to “very or mostly masculine” for young men or “very or

[§] Because of this exclusion and because 99.8% of the GUTS1 participants identified their gender as congruent with their birth sex (likely similar for GUTS2 participants), hereafter we will use the term “gender,” which is more relevant to the social dimensions considered here, rather than the more biologically oriented term “sex.”

mostly feminine” for young women); (2) Moderately gender nonconforming (score 2-3; roughly corresponds to “somewhat masculine” for men or “somewhat feminine” for women); (3) Most gender nonconforming (score >3; roughly corresponds to any report of being feminine among men or masculine among women, including reporting “equally feminine/masculine”). See Figure 2.1 for a depiction of the distribution of these groups by gender and sexual orientation identity in the study sample.

Measures: Outcomes

A participant’s multi-dimensional health status was assessed using the EuroQol-5D-5L (EQ-5D), a standardized instrument used worldwide to assess health status and health-related quality of life (EuroQol Group, 2014). The instrument asks about health problems in five domains: mobility (walking about), self-care (e.g., washing or dressing oneself), usual activities (e.g., housework, leisure activities), pain or discomfort, and anxiety or depressive symptoms. Each domain has five levels: (1) no health problems, (2) slight health problems, (3) moderate health problems, (4) severe health problems, and (5) extreme health problems. Following recommendations from the EuroQol group (EuroQol Group, 2014) and based on the low expected prevalence of functional limitations in a relatively young cohort such as GUTS, outcomes in each physical functioning domain (mobility, self-care, usual activities) and pain/discomfort were dichotomized into “no problems” (1) vs. “any problems” (2-5). Informed by the EuroQol classification and given the relatively high prevalence, responses on anxiety/depression were dichotomized into “none or slight problems” (1-2) vs. “moderate, severe, or extreme problems” (3-5) (Johnson, Luo, Shaw, Kind, & Coons, 2005; Luo, Johnson, Shaw, Feeny, & Coons, 2005).

Health-related quality of life was assessed using the U.S. preference-weighted health utility algorithm provided by the Agency for Healthcare Research & Quality (Agency for Healthcare Research and Quality, 2012). This algorithm uses EQ-5D responses to generate 5-digit codes, defining 243 health states that are then converted into a summary “health utility” index by applying scores from a U.S.-specific valuation set derived from a probability sample of 3,773 non-institutionalized English- and Spanish-speaking U.S. adults (18 years and older) (Shaw, Johnson, & Coons, 2005). This results in a U.S.-specific estimated health utility, calibrated to reflect the degree to which different health statuses are

valued in the U.S. population overall (which notably differs from the GUTS sample, although all GUTS participants were older than 18 years when EQ-5D data were collected). Index values for the U.S. population range from most severe impairment on all five dimensions (value= -0.109) to no problems on any dimension (value=1.0) (Lubetkin, Jia, Franks, & Gold, 2005). Although there is no standard delineating what change in score would constitute a clinically important difference, investigators have advocated minimum thresholds for important differences for the EQ-5D that have ranged from 0.02 to 0.07 points (Goldsmith, Dyer, Schofield, Buxton, & Sharples, 2009; Lubetkin et al., 2005). Researchers in the United States and United Kingdom have noted that there is a gap at the upper end of the health utility index distribution (0.888 to 1) and suggested that the EQ-5D health utility index is most effective at discriminating health states among those with poor health (Goldsmith et al., 2009; Longworth & Bryan, 2003). For this reason, a two-step analytic approach has been recommended, as described in the Analysis section below.

Measures: Covariates

Age at questionnaire return was assessed in 2013 (range: 18-31 years in 2013). We used annual household income in 2001 (12 years prior, i.e., ages 7 to 19 years) as this was the available indicator of childhood socioeconomic position. This was reported by mothers in 2001 and coded categorically (<\$40,000, \$40-49,999, \$50-74,999, \$75-99,999, \$100,000+); in 2001, US median household income equaled \$42,228, and for white families was \$90,682 (US Census Bureau, 2002). Models were also adjusted for sub-cohort, coded as initial cohort (GUTS1, baseline 1996) versus younger cohort (GUTS2, baseline 2004). Sexual orientation identity was reported in 2010-2011 and coded as sexual minority (mostly heterosexual, bisexual, or gay/lesbian/homosexual) or completely heterosexual. Sexual orientation identity reported in 2013 was used for those missing 2010-2011 data (n=651).

In addition to these measures used to adjust for potential confounding, additional variables were used to control for potential selection bias using inverse probability weighting, described below. These additional variables were measured on the 2010/2011 survey wave and included: U.S. region of residence

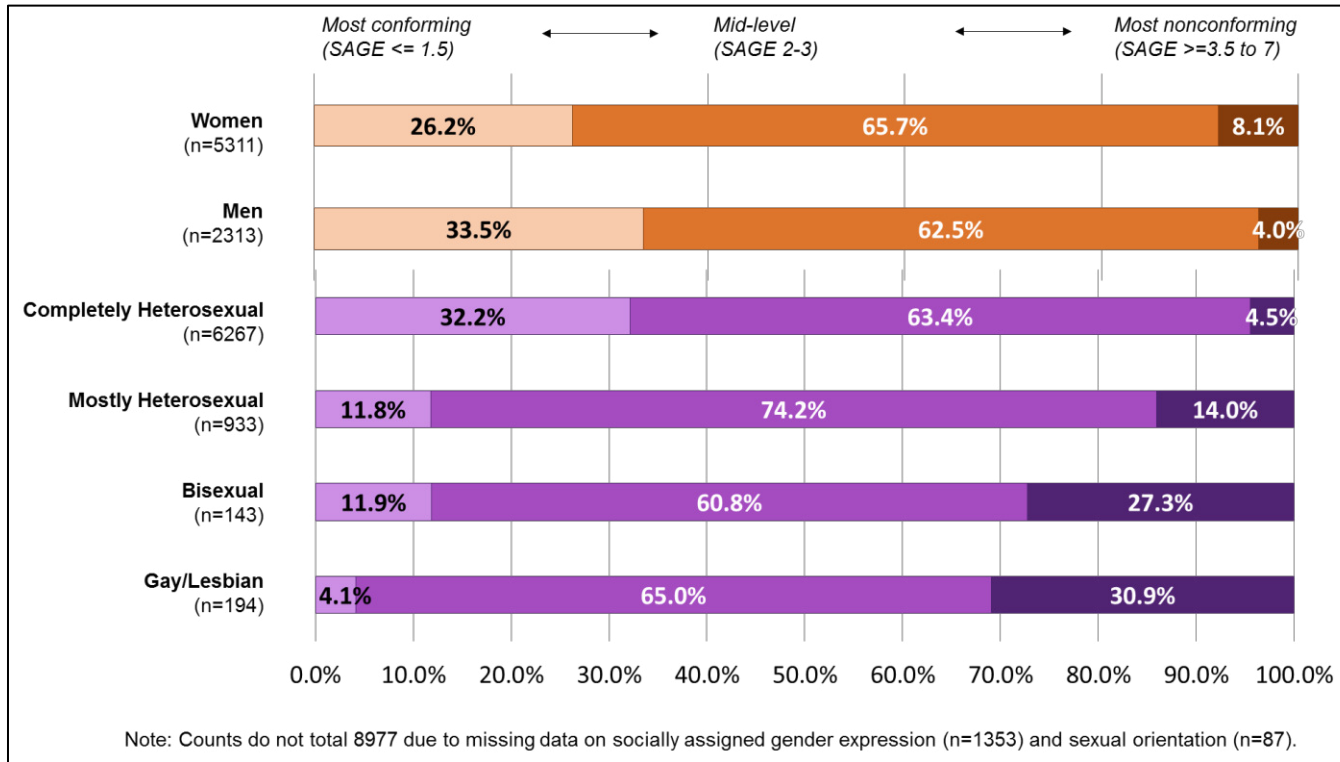


Figure 2.1. Socially assigned gender expression in three categories by gender and sexual orientation identity among young men and women in the Growing Up Today Study 2010-2013 (US; n=8,977).

(West, Midwest, South, East, Other/Military), current living situation (with parents, with partner and/or children, with roommates, alone), any cigarette smoking in the previous 12 months (yes/no); level of depressive symptoms as measured using the Center for Epidemiologic Studies Depressive Symptoms scale short form (CESD-10).

Analysis

This analysis examined the association between gender nonconformity and health status in relation to (1) risk of poor health in each of the five health domains of the EQ-5D and (2) risk of poor preference-weighted HRQL scores. After fitting bivariate models to assess these associations (using χ^2 tests for categorical variables and ANOVA for continuous variables), we used multivariable regression to account for potential confounders (age, gender, childhood SEP, sexual orientation identity, cohort [GUTS1 or GUTS2]). Because some mothers enrolled more than one child in the GUTS cohort, we used generalized estimating equations (GEE) and the robust sandwich estimator to account for within-family clustering (Liang & Zeger, 1986). Throughout, we used a log link in order to estimate adjusted relative risks. We tested for interactions between gender nonconformity and gender; these tests were statistically significant in three of the five health domains. We present both aggregated and gender-stratified results for all outcomes.

For the analysis of HRQL we first examined the distribution of health utility scores in the sample. We followed a two-step approach recommended for analyzing health utility scores with bimodal distributions (Bilger, Finkelstein, Kruger, Tate, & Linnan, 2013; Pullenayegum et al., 2010): (i) the health utility index was dichotomized (1 versus <1) and analyzed by gender nonconformity, and (ii) the continuous health utility score was restricted to those with poorer health, defined as health utility scores less than 1. Both models are presented as unadjusted and adjusted for potential confounders. Interactions between gender nonconformity and gender were tested in relation to both outcomes.

We implemented inverse probability weighting (IPW) to mitigate selection bias due to missing data. This method weights complete cases (i.e., those with complete data on predictors, outcomes, and covariates) by the inverse of their probability of selection (i.e., of being a complete case) (Seaman &

White, 2013). IPW avoids bias from missingness provided that the outcomes among the included participants represent the unobserved outcomes in the excluded participants (Hernán, Hernández-Díaz, & Robins, 2004). Weights were calculated based on two logistic regression models: (i) predicting the probability of participating in both GUTS survey waves (2010/2011 and 2013); and (ii) predicting the probability, among those who returned a 2013 survey, of having complete outcomes data on this wave. Weighting by these two quantities seeks to recover the estimates that would have been obtained had complete data on all participants 2010/2011 and 2013 participants been available. For comparison, we ran all models using complete data without IPW and found that effect estimates were not substantially different. We also conducted a sensitivity analysis in which we used two alternative cut-points to identify those in the most gender nonconforming group: a lower cut-point of 3 for the whole sample (gender nonconforming group=15.4%), and a more stringent cut-point of 4 in a sample restricted to women (gender nonconforming women=4.4%, not possible for men due to small sample size). All analyses were conducted using SAS v9.3 (SAS Institute Inc., 2011).

RESULTS

Table 2.1 presents characteristics (exposure, outcomes, covariates) of the study sample. The study sample included 2,914 men and 6,063 women. Participants were 93% white and 12% lived in households with annual incomes under \$50,000 in 2001 (when participants were ages 7-19 years). Approximately 4% of young men and 8% of young women reported high levels of socially assigned gender nonconformity (Figure 2.1). Prevalence of functional limitations was relatively low, as expected in a young non-clinical sample: 4.0% reported currently experiencing any mobility limitations, <1% reported any self-care limitations, and 6.1% reported any limitations in usual activities. In addition, 28.4% of participants reported pain or discomfort and 13.6% reported moderate-to-severe levels of anxiety or depressive symptoms. Bivariate significance testing suggested significant positive associations between higher levels of gender nonconformity and poorer health status in young adulthood in four of the five domains: limitations in mobility and usual activities, problems with pain/discomfort and problems with anxiety/depressive symptoms.

Table 2.1. Distribution of study sample by socially assigned gender nonconformity group and social and demographic characteristics among men and women (ages 18-31 years) in the Growing Up Today Study 2013 (US)

	Total (n=8977)		Most gender conforming (n=2166, 28%)		Mid-level gender conformity (n=4935, 65%)		Most gender nonconforming (n=523, 7%)		Data not available ¹	
	% (n)		% (n)		% (n)		% (n)		% (n)	
Demographic characteristics										
Age (Years)									0.0	(0)
18-22 years	23.2	(2082)	21.7	(469)	21.0	(1037)	29.1	(152)		
22-27 years	41.0	(3679)	40.4	(876)	40.8	(2015)	39.4	(206)		
28-31 years	35.8	(3216)	37.9	(821)	38.2	(1883)	31.6	(165)		
Gender									0.0	(0)
Men	32.5	(2914)	35.7	(774)	29.3	(1446)	17.8	(93)		
Women	67.5	(6063)	64.3	(1392)	70.7	(3489)	82.2	(430)		
Race/Ethnicity²									15.9	(1431)
White	93.2	(8270)	94.0	(2015)	93.1	(4546)	89.2	(463)		
Black	0.8	(68)	0.9	(20)	0.6	(27)	1.0	(5)		
Latino	1.8	(158)	1.3	(28)	2.1	(101)	1.9	(10)		
Asian	1.8	(162)	1.5	(32)	2.0	(96)	3.1	(16)		
Another race; Multiracial	2.5	(220)	2.2	(48)	2.3	(114)	4.8	(25)		
Childhood HH Income (Annual)³									30.4	(2729)
<\$40,000	5.3	(386)	6.5	(114)	4.8	(193)	5.2	(23)		
\$40-49,999	6.6	(484)	6.0	(106)	6.5	(264)	8.6	(38)		
\$50-74,999	23.4	(1720)	23.3	(412)	23.3	(941)	25.7	(114)		
\$75-99,999	22.0	(1618)	21.1	(373)	22.7	(918)	19.4	(86)		
\$100,000+	42.7	(3139)	43.1	(760)	42.7	(1724)	41.1	(182)		
Sexual Orientation Identity⁴									16.0	(1440)
Completely heterosexual	83.3	(7332)	93.7	(2016)	81.4	(3970)	55.0	(281)		
Mostly heterosexual	12.2	(1074)	5.1	(110)	14.2	(692)	25.6	(131)		
Bisexual	1.9	(164)	0.8	(17)	1.8	(87)	7.6	(39)		
Gay/Lesbian/Homosexual	2.7	(233)	0.4	(8)	2.6	(126)	11.7	(60)		

Table 2.1 (Continued)

	Total (n=8977)		Most gender conforming (n=2166, 28%)		Mid-level gender conformity (n=4935, 65%)		Most gender nonconforming (n=523, 7%)		Data not available¹	
	% (n)		% (n)		% (n)		% (n)		% (n)	
Outcomes										
Health Limitations or Problems⁵										
Mobility	4.1	(345)	3.1	(65)	4.1	(192)	7.5	(38)	18.6	(1671)
Self-care	0.9	(76)	0.6	(12)	0.8	(36)	1.4	(7)	18.7	(1679)
Usual Activities	6.2	(528)	4.5	(94)	6.0	(283)	13.1	(66)	18.9	(1699)
Pain or Discomfort	28.3	(2408)	23.3	(486)	29.6	(1395)	38.1	(191)	18.7	(1682)
Anxiety or Depression	14.1	(1206)	11.3	(235)	13.6	(641)	25.4	(128)	18.5	(1664)
Health Utility Index										
Health utility score <1	56.4	(4745)	49.6	(1021)	58.0	(2702)	71.7	(360)	19.6	(1762)
Poorer health utility score ⁶	0.835	(0.063)	0.840	(0.060)	0.836	(0.061)	0.821	(0.077)	14.0	(662)

1. Includes missing information due to survey questionnaire non-response (2010/2011 wave) and/or item non-response on socially assigned gender nonconformity (n=1353) and each demographic variable

2. Race/ethnicity reported at baseline (1996 or 2004)

3. Household income assessed via maternal report in 2001 when participants were ages 6-19 years

4. Sexual orientation identity as reported in 2010/2011 when participants were 16-29 years; where possible, 2013 responses were used for those who did not respond in 2010/2011

5. Percent reporting any problems with mobility, self-care, usual activities or pain/discomfort and percent reporting moderate-to-extreme problems with anxiety/depression as measured by the EQ-5D-5L instrument in 2013

6. Restricted to subsample reporting a health utility score <1 (n=4083)

Results of multivariable analyses are shown in Table 2.2. In co-gender multivariable models, after adjusting for covariates (age, gender, childhood household income, cohort, and sexual orientation identity), participants reporting the highest levels of gender nonconformity experienced higher risk of health limitations relative to those reporting the lowest level of gender nonconformity in three domains: usual activities, pain/discomfort, and anxiety/depression. For example, those who were most gender nonconforming had 1.8 times greater risk of reporting limitations in their usual activities compared to those who were most gender conforming (RR=1.82, 95% CI: 1.29, 2.57).

Gender significantly modified the associations between gender nonconformity and usual activities limitations, pain, and anxiety/depressive symptoms (p for interaction terms=.035, .038, and .048, respectively). Young women reporting the highest levels of socially assigned gender nonconformity had two times greater risk of reporting limitations in their usual activities (RR=2.12, 95% CI: 1.44, 3.13) and 1.6 times greater risk of reporting problems with pain (RR=1.60, 95% CI: 1.35, 1.89) compared to young women reporting greatest gender conformity. In addition, a dose-response relationship was observed in these domains, such that each level of gender nonconforming expression was associated with greater risk of functional limitations (specifically, mobility and usual activities limitations) and pain in young women. When restricted to men the associations with functional limitations and pain were not statistically significant or could not be estimated due to sample size limitations. However, the association between gender nonconformity and anxiety/depressive symptoms was significantly higher magnitude among young men than among young women. Young men in the mid-level gender expression group had greater risk of anxiety/depressive symptoms than the most gender conforming men while for women there was no such difference, and the most gender nonconforming men had nearly two times greater risk of anxiety or depressive symptoms relative to the most gender conforming men (RR=1.94, 95% CI: 1.07, 3.53).

Table 2.2. Results of inverse probability weighted multivariable analysis for the risk of experiencing any limitations in five health-related domains¹ by socially assigned gender nonconformity (GNC)² among men and women (18-31 years) in the Growing Up Today Study 2013 (US)

	Unadjusted Models		Adjusted Models ³		Adjusted Models by Gender ³			
	(n=5973) ⁴		(n=5973)		Men (n=1787)		Women (n=4186)	
	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
MOBILITY								
GNC (Ref=Most conforming)	1.00		1.00		1.00		1.00	
Mid-level	1.28	(0.95, 1.74)	1.11	(0.82, 1.50)	1.10	(0.62, 1.95)	1.13	(0.79, 1.62)
Most nonconforming	2.10	(1.36, 3.26)	1.43	(0.90, 2.25)	0.29	(0.04, 2.30)	1.71	(1.05, 2.78)
SELF-CARE								
GNC (Ref=Most conforming)	1.00		1.00		1.00		1.00	
Mid-level	1.44	(0.70, 2.98)	1.20	(0.56, 2.56)	*	*	0.92	(0.41, 2.06)
Most nonconforming	2.37	(0.79, 7.13)	1.52	(0.47, 4.92)	*	*	1.58	(0.48, 5.25)
USUAL ACTIVITIES								
GNC (Ref=Most conforming)	1.00		1.00		1.00		1.00	
Mid-level	1.37	(1.05, 1.77)	1.14	(0.88, 1.47)	*	*	1.37	(1.00, 1.87)
Most nonconforming	3.02	(2.17, 4.22)	1.82	(1.29, 2.57)	*	*	2.12	(1.44, 3.13)
PAIN OR DISCOMFORT								
GNC (Ref=Most conforming)	1.00		1.00		1.00		1.00	
Mid-level	1.26	(1.14, 1.39)	1.20	(1.09, 1.33)	1.12	(0.93, 1.33)	1.26	(1.11, 1.42)
Most nonconforming	1.65	(1.42, 1.91)	1.48	(1.27, 1.72)	1.05	(0.69, 1.61)	1.60	(1.35, 1.89)
ANXIETY OR DEPRESSION								
GNC (Ref=Most conforming)	1.00		1.00		1.00		1.00	
Mid-level	1.30	(1.11, 1.52)	1.17	(1.00, 1.38)	1.48	(1.08, 2.02)	1.04	(0.86, 1.25)
Most nonconforming	2.41	(1.94, 2.98)	1.74	(1.38, 2.19)	1.94	(1.07, 3.53)	1.58	(1.23, 2.02)

1. Risk Ratios (RRs) represent the relative risk of reporting any problems (slight, moderate, severe, or completely unable) vs. no problems with the following: (1) Mobility = walking about; (2) Self-care = washing or dressing myself; (3) Usual activities = usual activities, e.g., work, study, housework, family, or leisure activities; (4) pain or discomfort; or represent the risk of reporting moderate, severe or extreme problems vs. no or slight problems with (5) being anxious or depressed.

2. GNC = Gender nonconformity (assessed in 2010 for GUTS1 and 2011 for GUTS2 using Socially Assigned Gender Expression scale and participant gender). Continuous scale score (range: 1-7, with higher scores representing greater nonconformity to gender expectations relative to gender) was classified into 3 categories: 1=Most conforming (Score <=1.5), 2=Middle level of conformity/nonconformity (Score 2-3), 3=Most nonconforming (Score >=3.5).

3. Models adjusted for age (in years, continuous), annual household income in childhood (\$40K/year, \$40-49K, \$50-74K, \$75-99K, \$100K (ref)), cohort (GUTS2 (ref) vs. GUTS1), and most recent report of sexual orientation identity (completely heterosexual (ref) vs. gay/lesbian, bisexual, or mostly heterosexual). Unstratified models additionally adjusted for gender (men (ref) or women).

4. Sample sizes vary due to missing responses on outcome (Mobility n=5967; Self-care n=5962; Usual activities n= 5943; Pain/discomfort n=5959; Anxiety/depression n=5973).

* Could not estimate due to small sample size.

Table 2.3 presents results of analyses of the association between gender nonconformity and the EQ-5D preference-weighted health utility index. In adjusted models, participants who reported the greatest gender nonconformity had 1.24 times higher risk (95% CI: 1.14, 1.33) of experiencing poorer overall health (i.e., health utility <1) compared to their most gender conforming counterparts; for participants who reported mid-level gender conformity the risk ratio equaled 1.12 (95% CI: 1.06, 1.18). In linear regression models restricted to those with a health utility score <1, the most gender nonconforming group, on average, experienced a modest statistically significant 0.011 unit decrement in health utility relative to the most gender conforming group (SE=.005, $p<.05$). In this restricted group, however, there was no significant difference between the mid-level gender expression group and the most conforming. We did not find support in the health utility analyses for our hypothesis of effect modification by gender and gender nonconformity. Our sensitivity analysis using a less stringent cut-point to define high gender nonconformity resulted in no substantive change in effect estimates. When we restricted the analysis to women and used a more stringent cut-point to define high gender nonconformity, we found slightly larger effect estimates for the relationship between gender nonconformity and mobility limitations and anxiety or depressive symptoms compared to our main analyses and no differences in estimates in the other domains.

DISCUSSION

Our findings provide novel evidence of a relationship between socially assigned gender nonconformity and risk of poor physical and mental health status in a US cohort of primarily white and middle-to-upper income young adults. Young adults in this study who reported being perceived as more gender nonconforming (i.e., more feminine males and more masculine females) had higher risk of functional limitations with regards to usual activities as well as higher risk of experiencing pain and anxiety or depressive symptoms compared to those who reported being perceived as highly gender conforming. Contrary to our hypotheses, there was only partial evidence of effect modification by gender. In three health domains, the associations varied significantly by gender: gender nonconforming young women were at greater risk of functional limitations and pain than highly gender conforming young

Table 2.3. Results of inverse probability weighted multivariable analysis for (1) the risk of experiencing less than excellent health (utility score<1 vs. utility score=1), and (2) health utility index score among those who reported less than excellent health (utility score <1) by gender nonconformity (GNC) among men and women (ages 18-31 years) in the Growing Up Today Study 2013 (US)

	Unadjusted Models (n=5892)		Adjusted Models (n=5892)		Adjusted Models by Gender							
	RR	95% CI	RR	95% CI	Men (n=1759)			Women (n=4133)				
	RR	95% CI	RR	95% CI	RR	95% CI		RR	95% CI			
POORER VS. EXCELLENT HEALTH												
GNC ² (Ref=Most conforming)	1.00		1.00		1.00			1.00				
Mid-level	1.18	(1.11, 1.24)	1.12	(1.06, 1.18)	1.16	(1.05, 1.30)		1.09	(1.03, 1.16)			
Most nonconforming	1.45	(1.35, 1.57)	1.24	(1.14, 1.33)	1.43	(1.19, 1.70)		1.19	(1.09, 1.29)			
	Unadjusted (n=3371)			Adjusted (n=3371)			Men (n=908)			Women (n=2463)		
	Beta	(SE)	p-value	Beta	(SE)	p-value	Beta	(SE)	p-value	Beta	(SE)	p-value
RESTRICTED HEALTH UTILITY INDEX SCORE												
GNC ² (Ref=Most conforming)												
Mid-level	-0.004	(0.003)	0.18	-0.001	(0.003)	0.63	-0.003	(0.005)	0.54	-0.001	(0.003)	0.84
Most nonconforming	-0.018	(0.005)	0.001	-0.011	(0.005)	0.03	0.005	(0.011)	0.63	-0.015	(0.006)	0.02

Note: Restricted health utility index score models restricted to those with a health utility score <1 (n=4083)

1. Models adjusted for age (in years, continuous), annual household income in childhood (\$40K/year, \$40-49K, \$50-74K, \$75-99K, \$100K (ref)), cohort (GUTS2 (ref) vs. GUTS1), and most recent report of sexual orientation identity (completely heterosexual (ref) vs. gay/lesbian, bisexual, or mostly heterosexual), and gender (men (ref) or women; unstratified models only).

2. GNC = Gender nonconformity (assessed in 2010 for GUTS1 and 2011 for GUTS2 using Socially Assigned Gender Expression scale and participant gender). Continuous scale score (range: 1-7, with higher scores representing greater nonconformity to gender expectations relative to gender) was classified into 3 categories: 1=Most conforming (Score <=1.5), 2=Middle level of conformity/nonconformity (Score 2-3), 3=Most nonconforming (Score >=3.5).

women and there was a higher magnitude relationship between gender nonconformity and anxiety/depressive symptoms among young men than among women. We also found that gender nonconformity was significantly associated with decrements in health utility, but observed gender differences in this association were not statistically significant.

Our findings regarding elevated anxiety/depressive symptoms are consistent with prior studies demonstrating that gender nonconforming young people are at elevated risk of negative mental health outcomes such as depressive symptoms, anxious symptoms, PTSD, self-harm behaviors, and suicidality (Friedman, Koeske, Silvestre, Korr, & Sites, 2006; Landolt, Bartholomew, Saffrey, Oram, & Perlman, 2004; Liu & Mustanski, 2012; Remafedi, Farrow, & Deisher, 1991; Rieger & Savin-Williams, 2012; Roberts et al., 2012; Roberts, Rosario, Slopen, et al., 2013; Toomey et al., 2010). Our findings on functional limitations and pain are new contributions; little, if any, prior research has examined these elements of health-related quality of life in relation to gender nonconformity in young adults.

We hypothesized both general and gender-specific pathways to embodiment of functional limitations and pain as linked to gender expression. The minority stress framework posits that discrimination and violence targeting gender nonconformity act as social stressors that impact mental health via psychological and physiological stress responses (Gordon & Meyer, 2007; Hendricks & Testa, 2012; Meyer, 2003). In the GUTS cohort, childhood abuse (exposure to violence) has been shown to mediate the relationship between childhood gender nonconformity and adolescent depressive symptoms (Roberts, Rosario, Slopen, et al., 2013). However, this might also extend to pain and functional limitations as many pain and somatic disorders, including chronic pain syndromes, functional abdominal pain, chronic headaches, and arthritis have been associated with a history of abuse (Keeshin, Cronholm, & Strawn, 2012). Exposure to violence and discrimination can also be linked to stress-related coping behaviors, such as substance use, which can heighten risk of injury leading to pain or loss of mobility. Sexual minority youth in the U.S. report higher levels of alcohol, tobacco, and other substance use compared to their heterosexual peers (Corliss et al., 2010; Corliss, Rosario, Wypij, Fisher, & Austin, 2008; Marshal et al., 2008) and a similar pattern might occur in gender nonconforming youth. There is

also some evidence of sexual orientation and gender identity inequities in functional limitations and disability in U.S. adult populations (Conron et al., 2010; Conron, Scott, Stowell, & Landers, 2012). In our analyses, sexual minority status was significantly associated with poorer health outcomes in each domain (data not presented), yet a significant association between gender nonconformity and HRQL persisted even after controlling for sexual orientation identity, suggesting the importance of considering gender nonconformity in relation to as well as independently from sexual orientation.

The lack of statistically significant effect modification by gender in regards to functional limitations and pain was unexpected given that prior research has suggested several gender-specific pathways to consider. Among young women, higher adherence to masculine role norms (which may be associated with socially assigned gender nonconformity) could predict greater participation in stereotypically masculine occupations involving physical labor, in sports-related activities or higher levels of substance use, all of which could increase risk of injury (Sønderlund et al., 2014; Sorenson, 2011), causing problems with mobility or pain. Among young men, theories of compensatory hypermasculinity (Herek, 1986; Kimmel, 2001) suggest that awareness of being perceived as more gender nonconforming might itself encourage risk-taking in adolescence, heightening risk of injury and thus functional limitations. Alternatively, more gender nonconforming boys might engage in less stereotypically masculine and less physically risky activities, which might be protective against injury and subsequent pain or functional limitations; there is limited research on this to date, although a study of preschool age children in France found that lower masculinity scores predicted lower injury risk behaviors among both boys and girls (Granié, 2010).

In addition, research with young men has found that potentially injurious health behaviors can vary by gender expression, with the greatest burden of injury risk falling on more gender conforming young men. Mahalik and colleagues (2007) found that greater conformity to masculinity norms predicted more health behaviors that increase risk of injury, such as heavy alcohol use and not wearing a seatbelt in men (sexual orientations not specified). And in a sample of male college students, greater endorsement of masculine norms related to risk-taking increased risk of drinking to intoxication and alcohol-related

problems (Iwamoto et al., 2011). Our analyses did not detect excess risk of functional limitations or pain among the most gender conforming men, although power limitations may also have hindered the ability to detect significant associations. Future research should directly examine risk-taking and injury in relation to gender expression among boys and girls.

These findings must be considered in light of several limitations. We measured the key predictor, gender nonconformity, at a single time point; therefore we are not able to detect changes in gender expression over adolescence and young adulthood and the effect such changes may have on health status. Although gender nonconformity was assessed in 2010-2011 prior to the measurement of health outcomes in 2013, this does not eliminate the possibility that prior poor health might influence individuals' understandings of others' perceptions of their masculinity or femininity. Like any survey research, this analysis relies on self-report data, which can lead to measurement error and item non-response. In particular, participants are being asked to describe how they believe they are perceived by others rather than having an external rater assess gender expression. Notably, this measure has been validated and found to be consistently interpretable and meaningful within samples of adolescents similar to, but more ethnically diverse than, the GUTS participants (Greytak et al., In press; Wylie et al., 2010).

Power limitations were also a concern in this analysis, particularly given relative sparseness of data for men at the most nonconforming end of the original gender expression scale and overall sample size limitations among men, which may have limited our ability to detect effect modification by gender. A larger sample might permit additional gender expression categories or allow for alternate cut-points to define gender nonconformity. In sensitivity analyses using higher cut-points to define the most gender nonconforming group in young women, we found similar but slightly greater magnitude effect estimates in two domains, suggesting that our estimates may be underestimates of the relationship between gender nonconformity and the EQ-5D measure. It is also worth noting that the domain of self-care limitations is an important and valid component of the EQ-5D in many populations but this analysis lacked power to examine this domain, given the low number of these more severe limitations in this young nonclinical cohort. Finally, these findings are based on a predominantly white and middle-to-high income cohort of

the children of NHSII participants and, as such, are not generalizable to other U.S. populations. In spite of the non-representative nature of this cohort, it is notable that the prevalence estimates across the EQ-5D health domains are in line with estimates from U.S. probability samples such as the National Health Interview Survey (Adams, Martinez, Vickerie, & Kirzinger, 2011; Jonas & Loeb, 2010).

CONCLUSION

This study's findings contribute to a nascent body of evidence on the role of gender expression in the health and well-being of adolescents and young adults. This study replicates past findings that greater gender nonconformity is linked to risk of depression and anxiety in young adults and extends this work to demonstrate parallel relationships with indicators of physical health and well-being. The physical limitations described here are relatively low prevalence but as these young adults age such limitations could contribute to long-lasting chronic pain or functional limitations later in life. In addition, inequities observed when adults are young have the potential to be exacerbated over the life course. Gender expression, gender conformity, and gender nonconformity continue to be relatively overlooked dimensions of gender in public health research and practice, which can obscure the links between gender and health inequities. Further research into the potential pathways between gender expression and health, including discrimination based specifically on gender nonconformity (Gordon & Meyer, 2007), in interaction with other vectors of social inequity such as racism, heterosexism, and class inequality, is needed to build a more complete understanding of gender and health across the life course, with particular implications for public health efforts to improve child, adolescent, and young adult health.

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Gender Nonconformity, Gender-expression Discrimination, and Depressive Symptoms among US Sexual Minority Young Adults

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ABSTRACT

Objectives. We examined associations of gender nonconformity and gender expression discrimination with depressive symptoms among sexual minority (e.g., gay, lesbian, bisexual, mostly heterosexual, heterosexual with same-gender sexual partners) young adults in a US cohort.

Methods. We analyzed data from 1,328 primarily white, middle-to-high socioeconomic position sexual minority adults aged 18-31 in the 2013 Growing Up Today Sexual Minority Supplement. Gender-stratified analyses using multivariable generalized estimating equations estimated risk differences for mean scores on the CESD-10 and risk ratios for probable mild-to-moderate depression accounting for within-family clustering.

Results. The most gender nonconforming participants had significantly elevated exposure to gender-expression discrimination: 40%/50% of gender nonconforming women/men reported unfair treatment since high school, compared to 8%/7% of the most conforming women/men. In multivariable models, gender nonconformity was significantly associated with higher risk of depressive symptoms among women (RR=1.7, 95% CI=1.2-2.4) but not men. Gender-expression discrimination attenuated the effect estimate for women but not men.

Conclusions. Elucidating the independent and joint influence of gender nonconformity and gender-expression discrimination on depressive symptoms may be critical to safeguarding the mental health of sexual minority men and women.

INTRODUCTION

Over the past two decades, a substantial body of evidence has demonstrated that experiences of discrimination constitute social stressors that may trigger a cascade of psychological and physiological responses adversely impacting health and wellbeing (for relevant reviews, see: Krieger, 2014; Meyer, 2003; Williams & Mohammed, 2009). There is growing evidence that sexual orientation discrimination may drive elevated risk of adverse mental health outcomes such as depression and suicidality among gay, lesbian, bisexual and other sexual minority young people (Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010; Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009; Institute of Medicine (IOM), 2011; Marshal et al., 2011; Meyer, 2003; Meyer, Dietrich, & Schwartz, 2008). One form of discrimination that has only recently begun to receive attention is harassment and violence targeting young people who are perceived to violate societal gender norms and expectations in relation to a given geographic, historical, and cultural context (Gordon & Meyer, 2007; Grant et al., 2011; Grossman & D'Augelli, 2006; Kosciw, Greytak, Bartkiewicz, Boesen, & Palmer, 2012). This gender expression-related discrimination may be essential to understanding the factors shaping health and health inequities for sexual minority youth, particularly given the association between gender nonconformity and non-heterosexual sexual orientations (Bailey & Zucker, 1995; Rieger & Savin-Williams, 2012; Zucker, 2008). Indeed, interventions to improve health may require understanding aspects of discrimination that differentially impact specific vulnerable populations. However, the link between gender-expression discrimination and mental health remains relatively under-investigated.

Recent research has demonstrated a link, independent of sexual orientation, between childhood gender nonconformity and adverse mental health outcomes such as probable PTSD (Roberts, Rosario, Corliss, Koenen, & Austin, 2012) and depressive symptoms (Roberts, Rosario, Slopen, Calzo, & Austin, 2013). Research with sexual minority young people has found some evidence that these findings may be explained by increased exposure to discrimination. For example, one study of lesbian and bisexual adolescents ages 14-21 years in New York found that differences in gay-related stressful events (i.e., discriminatory experiences) and internalized homophobia partially account for the higher risk of tobacco

and marijuana use observed in gender nonconforming young women compared to more gender conforming women, though not for differences in alcohol use (Rosario, Schrimshaw, & Hunter, 2008). A study of lesbian, gay, bisexual, and transgender (LGBT) young adults 21-25 years old in California found that experiences of school victimization based on gender nonconformity were predictive of poorer psychological adjustment in young adulthood (Toomey, Ryan, Diaz, Card, & Russell, 2010). Within the same cohort as the present study, it has also been found that, across sexual orientations, experiences of bullying victimization in childhood partially accounted for the relationship between childhood gender nonconformity and depression in young adulthood (Roberts et al., 2013).

However, it is unknown whether gender nonconformity in young adulthood is also predictive of depression and what role experiences of discrimination earlier or later in adolescence and young adulthood for sexual minorities might play. Such questions mirror recent calls for discrimination research that adopts a life course perspective in order to better illuminate the impacts of racial discrimination in child health (Acevedo-Garcia, Rosenfeld, Hardy, McArdle, & Osypuk, 2013; Krieger, 2012). Moreover, little is known about reported discrimination that is explicitly attributed to gender expression—including how it might be linked to an individual’s own gender expression and to risk of depression. Research on the measurement of racial discrimination has raised important questions about how attributions of the reasons for unfair treatment may matter for health (Shariff-Marco et al., 2011). For example, a population-based study of Black Americans in the U.S. found that racial attributions for discrimination were associated with higher odds of serious psychological distress compared to non-racial attributions within each level of discrimination frequency (Chae, Lincoln, & Jackson, 2011). This underscores the need for research that is able to consider individuals’ reported experiences of discrimination targeting their gender expression.

This study sought to address these gaps using data from sexual minority participants in an ongoing cohort study of U.S. adolescents and young adults. We hypothesized the following among sexual minorities:

- (1) Participants reporting the highest level of gender nonconformity will be at elevated risk of depressive symptoms and probable depression relative to participants reporting the lowest level;
- (2) Participants reporting the highest level of gender nonconformity will be more likely to report experiencing gender expression-related unfair treatment (hereafter referred to as “gender-expression discrimination”) in high school and since high school, compared to participants reporting the lowest level of gender nonconformity; and
- (3) Reported gender-expression discrimination will attenuate the associations between gender nonconformity and depressive symptoms and probable depression.

METHODS

Participants

Participants were drawn from the 2013 Growing Up Today Study Sexual Minority Supplement (GUTS-SMS). GUTS is a U.S. cohort study of children of women in the Nurses’ Health Study II, which enrolled 27,805 children in two waves (1996 and 2004); all children were aged 9-15 years at enrollment. Participants have been sent questionnaires annually or biennially (paper and online formats). GUTS participants who completed the 2013 wave of the questionnaire and who identified as lesbian, gay, or completely homosexual (hereafter referred to as “gay/lesbian”), mostly homosexual, bisexual, mostly heterosexual, or completely heterosexual with a history of same-gender sexual partners or a sexual minority identity on the 2010-2011 survey wave (i.e., current or recent sexual minorities) were invited to participate in the web-based Sexual Minority Supplement. GUTS-SMS participants who reported a gender identity in 2013 that was not “male” or “female” (n=23) were not eligible for inclusion in the present analysis as the sample of transgender-identified or non-gender-identified participants was too small for analysis.

There were 1,328 sexual minority participants who completed the GUTS-SMS and were eligible for the current study. We excluded participants missing information on primary predictor (gender expression in 2010-2011, n=46), primary outcome (depressive symptoms, n=4), or covariates (n=4);

analyses including reported discrimination additionally excluded those missing information on the everyday discrimination scale (n=40). The final analytic sample included 1,274 participants (96% of those eligible). Excluded participants were more likely to be male (excluded 39% male vs. included 24% male; χ^2 test p=.01), to identify as gay/lesbian (excluded 26% identified as gay/lesbian vs. included 13% gay/lesbian, χ^2 test p=.02) and had a slightly older mean age than those included (excluded M=27.6 years vs. included M=26.3 years; two-sample t-test p<.0001). Those excluded did not differ from those included with respect to race/ethnicity, region of residence, educational attainment, or annual earnings. The Brigham & Women's Hospital Institutional Review Board approved this study (Protocol # 2009P000542/BWH).

Measures

Gender nonconformity. The Socially Assigned Gender Expression (SAGE) scale is a two-item, cognitively validated measure (Greytak, Gill, & Conron, In press; Wylie, Corliss, Boulanger, Prokop, & Austin, 2010) administered in 2010-2011 when participants were 16-28 years old. Respondents reported how other people, in general, would describe the respondent's (1) appearance, style, or dress and (2) mannerisms. Responses ranged on a seven-point scale from "Very masculine" to "Very feminine." We developed a gender nonconformity measure using the SAGE scale in conjunction with participant's gender, based on mother's report at enrollment (1996 or 2004) and coded as girl/woman or boy/man^{**}. The SAGE scale items were recoded relative to participant's gender (e.g., "Very feminine" coded as 1 for women and 7 for men) and summed to produce a gender nonconformity summary score (range: 1 to 7) where low scores indicate high socially assigned gender conformity and high scores indicate high nonconformity). The score was used to construct three gender nonconformity categories for analysis: (1) Most gender conforming (score <2; roughly corresponds to "very or mostly masculine" for the young men or "very or mostly feminine" for the young women); (2) Mid-level gender conforming (score 2-3; roughly corresponds to "somewhat masculine" for the men or "somewhat feminine" for the women); (3)

^{**} Because 99.8% of included participants identified their gender as congruent with their birth sex we use the term "gender," which is more relevant to the social experiences considered here, rather than the more biologically-oriented term "sex."

Most gender nonconforming (score >3; roughly corresponds to any report of being feminine among men or masculine among women, including reporting “equally feminine/masculine”). See Figure 3.1 for a depiction of the distribution of these groups by gender and sexual orientation identity in the study sample.

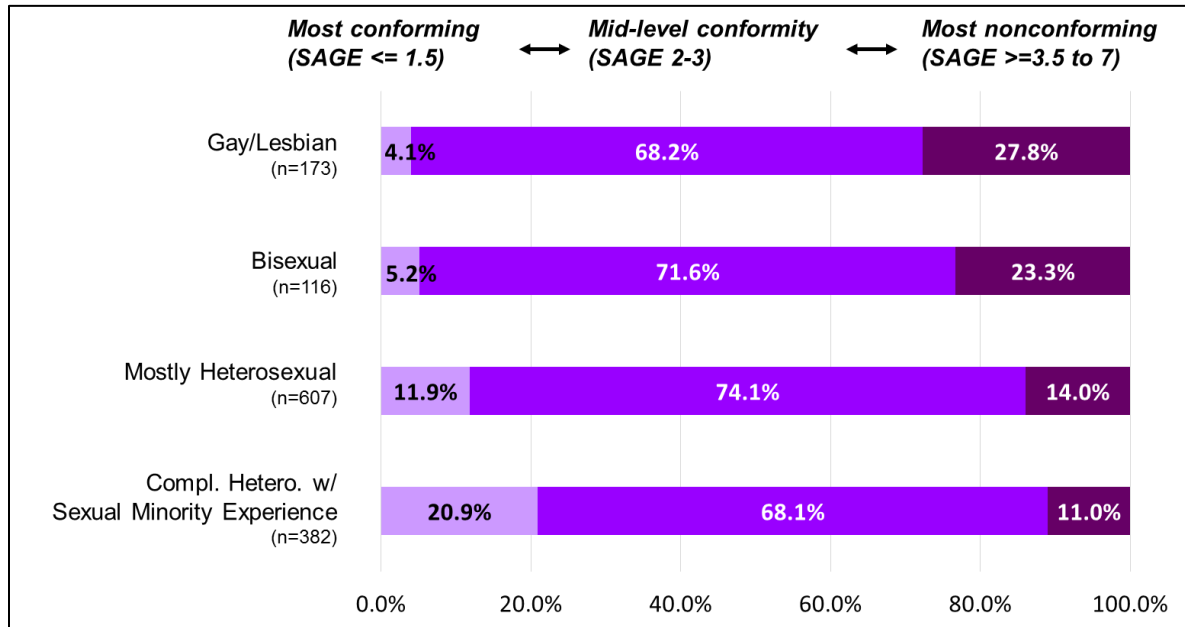


Figure 3.1. Socially assigned gender nonconformity by sexual orientation identity among Growing Up Today Study Sexual Minority Survey participants ages 18-31 years, 2013 (n=1281).

Depressive symptoms and probable depression were assessed using the 10-item short form of the Center for Epidemiologic Studies Depression Scale (CESD-10), a reliable screener for probable depression that has been validated in adult and adolescent populations (Bradley, Bagnell, & Brannen, 2010; Radloff, 1977). Participants were asked about feelings and behaviors over the previous week (e.g., “I felt that everything I did was an effort”). Response options were on a four-point scale: Rarely or none of the time (0), some or a little of the time (1), occasionally or a moderate amount of the time (2), all of the time (3). Two items were reverse coded for consistency and all items were summed, resulting in a continuous score ranging from 0-30, with higher scores indicating greater depressive symptoms

(Cronbach's $\alpha=0.82$). To assess probable mild-to-moderate depression, continuous scores were dichotomized at the recommended cut-off of 10 or higher (Bradley et al., 2010).

Gender-expression discrimination was measured using a modified version of the Everyday Discrimination Scale (EDS; Williams, Yan Yu, Jackson, & Anderson, 1997) in conjunction with follow-up attribution questions. The original measure was designed with a focus on racial discrimination and included nine items assessing frequency of experiences of unfair treatment in day-to-day life (e.g., being treated with less respect than other people; see Appendix, Table A1 for all items). This measure was adapted in the GUTS-SMS by: (a) adding two unfair treatment items concerned with aspects of anti-LGBT interpersonal discrimination (people acting “as if they are disgusted by you” and “as if they are judging you negatively”); and (b) administering the scale twice, first for unfair treatment before and during high school and second for unfair treatment since high school. Response options for each item were on a five point scale from (1) never to (5) very often. Internal consistency of both scales was high (before/during high school: Cronbach's $\alpha=0.92$; since high school: $\alpha=0.91$). Removing the two newly added items did not improve internal consistency for either scale. Mean EDS scores at the two time periods were significantly correlated (Pearson $r=0.65$, $p<.0001$).

All participants who reported experiencing unfair treatment on any of the 11 EDS items were asked a follow-up attribution question for each time period: “Thinking about the experiences above, what do you think were the reasons for this/these experience(s)?” and then asked to endorse all that applied from among 13 options (e.g., age, sex, race, weight). One response option assessed gender expression: “how masculine or feminine you appear (e.g., how you walk, talk, or dress).” This item was used to construct the indicator of reported gender-expression discrimination for each time point.

Demographic characteristics. Age was assessed in 2013 (range: 18-31 years). Educational attainment was coded as: high school degree, some college, 4-year college degree, or graduate degree. Sexual orientation identity reported in 2013 was combined with reports of sexual minority identity in 2010/2011 and lifetime same-gender sexual partners and used to construct sexual orientation, coded as:

gay/lesbian, bisexual, mostly heterosexual, completely heterosexual with same-gender partners or recent sexual minority identity.

Statistical Analysis

All analyses were gender-stratified to avoid misinterpretation of effect estimates given the gender imbalance of the sample (75% female). To test the study hypotheses in relation to different specifications of both the exposure and the outcome, we examined prevalence of reported gender-expression discrimination at the two time points (before/during high school and since high school) and also both mean scores on the CESD-10 and prevalence of probable mild-to-moderate depression.

We tested for bivariate associations between gender-expression discrimination and both mean depressive symptoms and probable depression. We constructed four models for each of the depression outcomes in relation to gender nonconformity, all adjusted for potential confounders (age, educational attainment, sexual orientation, and GUTS cohort 1 or 2): (1) adjusting for potential confounders only (2) adjusting for reported gender-expression discrimination before or during high school, (3) adjusting for reported gender-expression discrimination since high school, and (4) accounting for reported gender-expression discrimination at either or both time periods. We also constructed multivariable regression models for the association between gender nonconformity and gender-expression discrimination (one model for each time period), adjusted for age, educational attainment, sexual orientation, and cohort. All models used generalized estimating equations with SAS PROC GENMOD and the robust sandwich estimator to account for within-family clustering in the cohorts (Liang & Zeger, 1986). We specified an identity link to estimate risk differences for depressive symptoms and a log link to estimate risk ratios for probable depression (coded dichotomously). Only about 4% of the GUTS-SMS sample was missing information on predictor, covariates, or outcomes therefore complete case analysis was used for final analyses. All analyses were conducted with SAS 9.3 (SAS Institute Inc., 2011).

RESULTS

Table 3.1 presents characteristics of the study sample, stratified by gender. The sample included 1,003 women and 325 men, with mean age of 26 years. Participants were 91% white and 76% had

Table 3.1. Characteristics of study sample, Growing Up Today Study Sexual Minority Survey 2013 (n=1,328)

	Women (n=1003, 76%)		Men (n=325, 24%)		n missing
	M	SD	M	SD	
Age in years (2013)	26.4	3.0	26.2	3.3	0
	n	%	n	%	
Race/ethnicity					8
White	908	91.2	289	89.2	
Black	14	1.4	4	1.2	
Latino	27	2.7	8	2.5	
Asian	18	1.8	12	3.7	
Another race; Multiracial	29	2.9	11	3.4	
Education (Highest completed, 2013)					4
High school or less	33	3.3	17	5.3	
Some college	180	18.0	82	25.4	
College	495	49.5	161	49.9	
Graduate	293	29.3	63	19.5	
Annual earnings (2013)					86
<\$25,000	452	48.3	129	42.2	
\$25-49,999	302	32.3	80	26.1	
\$50-74,999	122	13.0	59	19.3	
\$75,000+	60	6.4	38	12.4	
Region (2010/2011)					2
West	205	20.5	68	20.9	
Midwest	276	27.6	98	30.2	
South	164	16.4	50	15.4	
Northeast	356	35.6	109	33.5	
Sexual orientation (2013)					0
Completely hetero w/ past report of SM identity	171	17.1	38	11.7	
Completely hetero w/ same-gender partner	145	14.5	35	10.8	
Mostly heterosexual	512	51.1	122	37.5	
Bisexual	103	10.3	16	4.9	
Lesbian/Gay	72	7.2	114	35.1	
Socially assigned gender expression (2010/2011)					46
Most conforming (SAGE<=1.5)	134	13.7	32	10.5	
Moderately conforming (SAGE 2-3)	677	69.4	237	77.5	
Most nonconforming (SAGE>=3.5)	165	16.9	37	12.1	
Gender expression-related unfair treatment					33
None reported	685	70.2	195	61.1	
Only before/during high school	107	11.0	49	15.4	
Only since high school	42	4.3	8	2.5	
Both before/during & since high school	142	14.6	67	21.0	

Note: percent missing based on observed data only

received a college degree or higher. Sexual orientation identity in the sample varied by gender, with 7% of women and 35% of men identifying as gay or lesbian, 10% of women and 5% of men as bisexual, 51% of women and 38% of men identifying as mostly heterosexual, and 31% of women and 22% of men identifying as completely heterosexual with past same-gender partners or a recent sexual minority identity. Approximately 17% of young women and 12% of young men reported high levels of socially assigned gender nonconformity.

In bivariate analyses, greater socially assigned gender nonconformity was significantly associated with higher mean depressive symptoms and a higher prevalence of probable mild-to-moderate depression among young sexual minority women but not among young sexual minority men (Table 3.2). Among women, 42% of those reporting highest gender nonconformity were classified as having probable depression, compared to 25% of those reporting mid-level conformity and 22% of those reporting lowest gender nonconformity. Across gender, prevalence of gender-expression discrimination was higher before/during high school than since high school (women: McNemar's test statistic=27.0, $p<.0001$; men: 27.7, $p<.0001$). Reported gender-expression discrimination was significantly associated with gender nonconformity among women and men at both time periods. Among the most gender nonconforming women, 46% and 40% reported experiencing gender-expression discrimination before/during high school or since high school, respectively, compared to 12% and 8% of the most conforming women. Among men, the reported prevalence was even higher among the most nonconforming: 68% and 49% reported gender-expression discrimination during high school or since high school, respectively, compared to 13% and 7% of the most conforming men. After adjusting for potential confounders the association between gender nonconformity and gender-expression discrimination remained high magnitude and significant for both women and men and at both time periods assessed (data not shown).

Tables 3.3 and 3.4 provide results of multivariable analyses for the associations between gender nonconformity and mean depressive symptoms and probable depression, respectively. In the adjusted model (Model 2) controlling for age, educational attainment, sexual orientation, and cohort, sexual minority women reporting the highest levels of gender nonconformity experienced, on average, higher

Table 3.2. Bivariate relationships between socially assigned gender nonconformity and depression-related outcomes and reported gender-expression discrimination, by gender, among sexual minorities in the Growing Up Today Study 2013 (n=1,244)

	Total	Most gender conforming	Mid-level gender conforming	Most gender nonconforming	p-value
WOMEN (n, %)	n=945	n=131, 14%	n=650, 69%	n=164, 17%	
Outcomes					
Mean depressive symptoms (M, SD)	8.1 (4.9)	7.4 (4.7)	7.8 (4.7)	9.8 (5.4)	<.0001
% probable depression (%)	27.8	22.1	25.4	42.1	<.0001
Gender-expression discrimination by time period (%)					
Any Before/During High School	25.6	12.2	23.2	45.7	<.0001
Any Since High School	18.9	8.4	15.7	40.2	<.0001
Gender-expression discrimination -- Cumulative (%)					
Only Before/During HS	11.1	6.1	10.9	15.9	<.0001
Only Since HS	4.4	2.3	3.4	10.4	
Both HS and Since HS	14.5	6.1	12.3	29.9	
MEN (n, %)	n=299	n=30, 10%	n=232, 78%	n=37, 12%	
Outcomes					
Mean depressive symptoms (M, SD)	8.8 (5.2)	9.1 (5.1)	8.7 (5.3)	9.0 (4.1)	0.87
% probable depression (%)	34.5	40.0	34.5	29.7	0.68
Gender-expression discrimination by time period (%)					
Any Before/During High School	36.8	13.3	34.9	67.6	<.0001
Any Since High School	23.8	6.7	22.0	48.7	0.0001
Gender-expression discrimination -- Cumulative (%)					
Only Before/During HS	15.7	6.7	16.0	21.6	0.0002
Only Since HS	2.7	nd	3.0	2.7	
Both HS and Since HS	21.1	6.7	19.0	46.0	

Notes: HS = High School; nd=Insufficient data to estimate; p-values are for tests of significant differences across gender expression groups (Chi-square tests for categorical variables and ANOVA for mean differences in depressive symptoms)

Table 3.3 Unadjusted and multivariable linear regression models of mean depressive symptoms on socially assigned gender nonconformity (GNC) with adjustment for self-reported experiences of unfair treatment due to participants' gender expression, among women and men ages 18-31 years in the GUTS 2013 Sexual Minority Subsample (n=1244)

	MODEL 1		MODEL2		MODEL3		MODEL4		MODEL5	
	Est Beta (SE)	p	Est Beta (SE)	P	Est Beta (SE)	p	Est Beta (SE)	p	Est Beta (SE)	p
WOMEN (n=945)										
GNC (Ref=Most conforming)										
Mid-level	0.42 (0.46)	0.36	0.29 (0.46)	0.52	0.23 (0.46)	0.62	0.24 (0.46)	0.60	0.22 (0.46)	0.62
Most nonconforming	2.48 (0.56)	<.0001	1.97 (0.57)	0.001	1.74 (0.58)	0.003	1.69 (0.58)	0.003	1.66 (0.58)	0.004
Gender-expression discrimination (Ref=None reported)										
Any before/during HS					0.68 (0.36)	0.06				
Any since HS							0.98 (0.41)	0.02		
Gender-expression discrimination (Ref=None reported)										
Only before/during HS									1.14 (0.83)	0.67
Only since HS									3.91 (1.81)	0.44
Both time periods									1.17 (0.76)	0.01
MEN (n=299)										
GNC (Ref=Most conforming)										
Mid-level	-0.45 (1.00)	0.65	-0.20 (1.03)	0.84	-0.36 (1.03)	0.73	-0.35 (1.03)	0.73	-0.52 (1.02)	0.61
Most nonconforming	-0.16 (1.26)	0.90	-0.09 (1.31)	0.94	-0.46 (1.33)	0.73	-0.48 (1.32)	0.72	-0.70 (1.32)	0.60
Gender-expression discrimination (Ref=None reported)										
Any before/during HS					0.98 (0.63)	0.12				
Any since HS							1.23 (0.70)	0.08		
Gender-expression discrimination (Ref=None reported)										
Only before/during HS									1.14 (0.83)	0.17
Only since HS									3.91 (1.81)	0.03
Both time periods									1.17 (0.76)	0.13

Model 1: Unadjusted

Models 2-5: Adjusted for age (in years), highest educational attainment (high school or less, some college, 4-year college degree, or graduate degree [ref]), sexual orientation (gay/lesbian [ref], bisexual, mostly heterosexual, and completely heterosexual with same-gender sexual partners), and GUTS cohort (GUTS1 [ref] vs. GUTS2).

Models 3-5: Additionally adjusted for reported unfair treatment at two life periods (before/during high school [HS] or since high school)

Table 3.4. Risk of probable depression by socially assigned gender nonconformity (GNC) with adjustment for covariates and self-reported experiences of unfair treatment due to participants' gender expression, among women and men ages 18-31 years in the GUTS 2013 Sexual Minority Subsample (n=1244)

	MODEL 1	MODEL2	MODEL3	MODEL4	MODEL5
	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)
WOMEN (n=945)					
GNC (Ref=Most conforming)					
Mid-level	1.29 (0.93, 1.79)	1.25 (0.90, 1.73)	1.23 (0.88, 1.71)	1.23 (0.89, 1.71)	1.23 (0.88, 1.71)
Most nonconforming	1.98 (1.40, 2.81)	1.70 (1.19, 2.44)	1.61 (1.12, 2.34)	1.62 (1.12, 2.32)	1.58 (1.09, 2.29)
Gender-expression discrimination (Ref=None reported)					
Any before/during HS			1.14 (0.93, 1.40)		
Any since HS				1.27 (1.03, 1.56)	
Gender-expression discrimination (Ref=None reported)					
Only before/during HS					1.12 (0.85, 1.47)
Only since HS					1.50 (1.04, 2.17)
Both time periods					1.26 (0.99, 1.59)
MEN (n=299)					
GNC (Ref=Most conforming)					
Mid-level	0.85 (0.56, 1.29)	0.87 (0.57, 1.32)	0.84 (0.55, 1.28)	0.85 (0.56, 1.29)	0.84 (0.55, 1.29)
Most nonconforming	0.87 (0.50, 1.50)	0.84 (0.48, 1.46)	0.74 (0.42, 1.32)	0.73 (0.41, 1.29)	0.71 (0.40, 1.26)
Gender-expression discrimination (Ref=None reported)					
Any before/during HS			1.26 (0.95, 1.67)		
Any since HS				1.36 (1.00, 1.86)	
Gender-expression discrimination (Ref=None reported)					
Only before/during HS					1.11 (0.76, 1.63)
Only since HS					1.19 (0.48, 2.96)
Both time periods					1.43 (1.02, 2.00)

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Model 1: Unadjusted

Models 2-5: Adjusted for age (in years), highest educational attainment (high school or less, some college, 4-year college degree, or graduate degree [ref]), sexual orientation (gay/lesbian [ref], bisexual, mostly heterosexual, and completely heterosexual with same-gender sexual partners), and GUTS cohort (GUTS1 [ref] vs. GUTS2).

Models 3-5: Additionally adjusted for reported unfair treatment at two life periods (before/during high school [HS] or since high school)

mean depressive symptoms ($b=1.97$, $SE=0.57$, $p<.01$) and higher risk of probable depression ($RR=1.70$, $95\% CI=1.19, 2.44$) relative to those reporting the lowest level of gender nonconformity. No significant associations between gender nonconformity and depression outcomes were found among sexual minority men. Among women, attenuation in the main effect estimate was observed when gender-expression discrimination was included (Models 3-5). For example, the parameter estimate for the effect of gender nonconformity on depressive symptoms declined about 16% ($b=1.97$ to $b=1.66$) when gender-expression discrimination since high school was included in the model (Table 3.3, Model 4). The parameter estimate was further attenuated, but only slightly, when discrimination exposure at both time periods was included (Table 3.3, Model 5). Similar patterns were observed in relation to probable depression (Table 3.4, Models 3-5).

DISCUSSION

Experiences of gender-expression discrimination were highly prevalent in a national cohort of sexual minority young adults, especially among those who were most gender nonconforming. Among the sexual minority women, but not men, gender nonconformity was associated with higher risk of depressive symptoms and probable depression, and cumulative exposure to gender-expression discrimination modestly contributed to these associations. Our finding of higher mean depressive symptoms and a higher prevalence of probable depression among more gender nonconforming young sexual minority women is consistent with past research showing elevated risk of psychological distress for gender nonconforming compared to gender conforming sexual minority young adults (D'Augelli, Grossman, & Starks, 2006; Friedman, Koeske, Silvestre, Korr, & Sites, 2006). The lack of any such association among the sexual minority men, however, was unexpected, given prior research showing an association between gender nonconformity and psychological distress in predominantly white gay and bisexual men in Pittsburgh, PA (Friedman et al., 2006) and in Latino gay and bisexual men in three U.S. cities (Sandfort, Melendez, & Diaz, 2007).

Our findings extend the literature on the measurement of reported discrimination by exploring the role played by unfair treatment attributed to gender expression—a type of discrimination that has until

recently been overlooked in the public health literature. Future research would benefit from consideration of relationships among attributions to ascertain whether specific intersections of attributions differ in their impacts on mental health and wellbeing. Some work in the area of multiple attributions and the impact of intersectional forms of discrimination has been done (Chae et al., 2010; Choi, Paul, Ayala, Boylan, & Gregorich, 2013; Garnett et al., 2014; Grollman, 2012; Krieger & Sidney, 1997; Otiniano Verissimo, Gee, Ford, & Iguchi, 2014), although to our knowledge, gender expression has not yet been considered.

Limitations

These findings should be considered in light of several limitations. Like any survey research, this analysis relies on self-report data, which can lead to measurement error and item non-response. Participants were asked to describe how they believe they are perceived by others rather than having an external rater assess gender expression. Notably, this measure has been validated and found to be consistently interpretable and meaningful within similarly aged but more ethnically diverse samples of adolescents and young adults (Greytak et al., In press; Wylie et al., 2010). As has been discussed extensively in the field of racial discrimination research, the measurement of unfair treatment raises several methodological and conceptual challenges (Krieger, 2012; Shariff-Marco et al., 2011; Williams & Mohammed, 2009). This survey did not include a measure of social desirability, as has been previously recommended (Krieger et al., 2011). While a strength of this study was our ability to use a measure of unfair treatment explicitly linked to gender expression, this still misses participants who did not perceive or attribute their experiences as such.

Second, although gender nonconformity was collected in 2010-2011, data on both depressive symptoms and unfair treatment were collected concurrently in 2013. Prior poor health might have influenced participants' understandings of others' perceptions of their masculinity or femininity. Nevertheless, data on unfair treatment were reported retrospectively, and although this might introduce recall bias, it is a strength in terms of potentially improving temporal ordering.

Third, power limitations are a concern in this analysis, particularly among the male sample given relative sparseness of data for men at both ends of the gender expression scale; this may have limited our

ability to detect differences in outcomes by gender nonconformity and to stratify models by sexual orientation group. Fourth, these findings are based on a predominantly white and middle-to-high income cohort of the children of NHSII participants and, as such, are not generalizable to other U.S. populations. Finally, sample size limitations precluded analysis of transgender-identified participants (n=23), although transgender populations have been shown to be exposed to high levels of gender-expression discrimination and are at high risk of depression and suicidality (Grant et al., 2011; Reisner et al., 2015).

Compared to prior studies on gender nonconformity in U.S. gay and bisexual men (Friedman et al., 2006; Sandfort et al., 2007), depressive symptoms among the young men in our cohort were relatively high across all levels of gender expression. It is important to view these findings in light of the diverse sexual orientation composition in our sample. While past research included primarily gay- and bisexual-identified men, over half the men in our study identified as mostly heterosexual or completely heterosexual with same-gender sexual experiences and these two groups were less likely to report gender nonconformity than gay or bisexual-identified men (see Figure 3.1). Although we adjusted for sexual orientation in our multivariable models, this may indicate other unique aspects of this cohort that we were not able to control for statistically. It has been well documented that sexual minority youth are at elevated risk of depression and suicidality relative to their non-minority peers (Marshal et al., 2011); less is known about differences in such risk between gay-identified and non-gay-identified sexual minority young men. Some research has found elevated risk of depression among mostly heterosexual-identified young people (Loosier & Dittus, 2010), but further research is needed to disentangle the role of gender and gender expression in the pathways that produce excess depressive distress among sexual minority men.

CONCLUSIONS

Despite limitations, this study offers several insights for public health research. These findings contribute to growing evidence that sexual minority young people who report they are perceived as being gender nonconforming may be exposed to harassment, bullying, and violence, exposures that may contribute to documented sexual orientation disparities in mental health. Following a life course framework (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003), our findings regarding different levels

of reported discrimination at different periods of adolescent and young adult development affirm the importance of the accumulation of risk over time in shaping the mental health of sexual minority women. The results also underscore the necessity of considering the role of both gender identity and gender nonconformity in understanding exposure to discrimination, as societal responses to gender nonconformity may vary for adolescent girls and boys, with different implications for mental health in young adulthood. As awareness of the importance of addressing discrimination targeting gender nonconformity increases, it is particularly important that public health researchers determine the best ways to study these exposures and their public health impacts, with the goal of guiding future researchers and practitioners to the most effective points of intervention for the reduction of gender and sexual orientation health inequities.

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APPENDIX

Table A-1. Percent of sexual minority young adults (ages 18-31 years) reporting moderate-to-high levels of any unfair treatment (no attribution) by type of unfair treatment, gender expression, and time period, Growing Up Today Study 2013 (n=1,244)

	Total	Most gender conforming (n=161, 13%)	Mid-level gender conf. (n=882, 71%)	Most gender nonconf. (n=201, 16%)	<i>p</i>
Before/During High School					
Treated with less courtesy than other people (%)	49.5	38.5	49.8	57.2	0.002
Treated with less respect than other people (%)	47.8	35.4	47.5	59.2	<.0001
Received poorer service than others at restaurants or stores (%)	13.9	11.8	13.3	18.4	0.12
People have acted as if they think you are not smart (%)	25.0	22.4	23.6	32.8	0.02
People have acted as if they are afraid of you (%)	16.9	9.9	16.1	25.9	0.0002
People have acted as if they think you are dishonest (%)	13.7	8.7	13.6	17.9	0.04
People have acted as if they're better than you are (%)	62.7	64.0	61.3	67.7	0.23
People have acted as if they are disgusted by you (%)	18.0	13.0	17.0	26.4	0.002
People have acted as if they are judging you negatively (%)	49.1	46.6	48.2	55.2	0.16
Called names or insulted (%)	51.1	43.5	50.3	61.0	0.003
Threatened or harassed (%)	29.1	22.4	27.8	40.3	0.0003
Since High School					
Treated with less courtesy than other people (%)	20.3	19.9	18.5	28.4	0.01
Treated with less respect than other people (%)	21.3	19.3	20.3	27.4	0.07
Received poorer service than others at restaurants or stores (%)	8.7	5.0	8.3	13.4	0.01
People have acted as if they think you are not smart (%)	17.9	18.6	16.5	23.4	0.07
People have acted as if they are afraid of you (%)	10.8	6.8	10.2	16.5	0.01
People have acted as if they think you are dishonest (%)	7.7	4.4	7.2	12.5	0.01
People have acted as if they're better than you are (%)	38.2	36.0	37.4	43.3	0.25
People have acted as if they are disgusted by you (%)	8.6	6.3	7.2	16.9	<.0001
People have acted as if they are judging you negatively (%)	27.8	21.9	27.0	36.3	0.01
Called names or insulted (%)	16.6	13.0	15.4	24.9	0.002
Threatened or harassed (%)	12.0	11.8	11.0	16.4	0.10

‘I have to constantly prove to myself, to people, that I fit the bill’:

Perspectives on weight and shape control behaviors among young transgender women

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ABSTRACT

Transgender women in the U.S. are frequently subjected to discrimination and violence, and there is mounting evidence that these exposures may contribute to substantial health inequities burdening transgender populations. Feminist theorists have discussed the role of societal femininity ideals in producing high rates of eating disorders in women. These factors may be particularly salient for low-income transgender women, for whom the demand to meet societal expectations of feminine appearance within a transphobic society may be a matter of survival, but who may have low access to protective material resources or gender affirming care. However, little is known about eating disorders risk or potentially harmful weight and shape control in transgender women. This qualitative study, informed by ecosocial theory and a gender affirmation framework, explored weight and shape control behaviors among low-income, ethnically diverse young transgender women in the Boston metropolitan area. Semi-structured in-depth interviews were conducted with 21 participants (ages 18-32 years). Interviews were transcribed and double-coded using a template organizing method to identify key themes and sub-themes. Weight and shape control behaviors were found to be situated at the intersection of transphobia, gender affirmation needs, and femininity ideals. Of 21 participants, 16 reported past-year disordered eating behaviors, including binge eating, fasting, vomiting, and laxative use. Participants also discussed personal risk-benefit assessments around high-risk shape control methods (non-prescription hormone use and liquid silicone injection). Findings are discussed in the context of four emergent themes: gender socialization processes, gender affirmation processes, biological processes, and individual- and community-level resilience processes. This formative study provides insight into disordered eating and weight and shape control behaviors among at-risk transgender women, illuminating avenues for future research, treatment, and public health interventions to reduce transphobia and harmful femininity ideals and to enhance resilience factors.

“To embody ‘realness’... enables trans women to enter spaces with a lower risk of being rebutted or questioned, policed or attacked. ‘Realness’ is a pathway to survival, and the heaviness of these truths were a lot for a thirteen-year-old to carry, especially one still trying to figure out who she was. I was also unable to accept that I was perceived as beautiful because, to me, I was not.”

—Janet Mock, *Redefining Realness* (2014, p. 116)

INTRODUCTION

Recent research has demonstrated substantial health inequities burdening U.S. transgender populations and a landmark 2011 Institute of Medicine report on LGBT population health highlighted the urgent need to address these inequities through improved research on all aspects of transgender health (Baral et al., 2013; Grant et al., 2011; Institute of Medicine, 2011). To date, there has been little public health attention paid to the ways that transphobia, sexism, and racism might influence high-risk weight and shape control practices among transgender women. The term “transgender women” is a diverse category but generally refers to individuals who were assigned a “male” sex at birth and identify as women, as transgender, or as some other gender identity on the transfeminine spectrum. Data on eating disorders in transgender populations are scarce. Preliminary findings from the National College Health Assessment II, a survey of over 280,000 U.S. college students, found that transgender-identified students had two times greater odds of a past-year diagnosis of anorexia nervosa or bulimia nervosa and over twenty times greater odds of being diagnosed with both anorexia and bulimia nervosa compared to non-transgender heterosexual women (Diemer, Chee, Munn-Chernoff, Patterson, & Duncan, In press). A study in a community sample of LGBT youth in Chicago did not find that any of the 20 transgender-identified participants met diagnostic criteria for anorexia nervosa or bulimia nervosa (Mustanski, Garofalo, & Emerson, 2010), as might be expected given this small sample and the low prevalence of anorexia nervosa and bulimia nervosa meeting diagnostic criteria (Hudson, Hiripi, Pope Jr, & Kessler, 2007). Neither of these studies were able to look specifically at subgroups of transgender women or at a wider array of potentially harmful disordered eating behaviors.

In spite of the limited empirical work, there is reason to believe eating disorders risk or potentially harmful weight and shape control behaviors constitute an area of significant public health concern for transgender populations. As feminist sociologists, historians and cultural critics have noted for over three decades, dominant Western constructions of the “ideal female body” are inextricably bound to historically contingent notions of weight and shape ideals, as well as to long-standing hierarchies of gender, race, class, and physical ability (Bordo, 1993; Gilman, 1999). More specifically, the hegemonic 20th/21st century Western definition of “feminine beauty” requires a thin and young body, white (or pale) skin, and straight hair (Bordo, 1993; Patton, 2006). From this vantage point, culture is “not simply contributory but productive of eating disorders” (Bordo, 1993, p. 50). Epidemiological and psychological research with adolescent and young adult cisgender (i.e., non-transgender) women has supported the claim that gendered societal thinness ideals contribute to body dissatisfaction (Dohnt & Tiggemann, 2006; Paquette & Raine, 2004; Pingitore, Spring, & Garfield, 1997; Stice & Whitenton, 2002), which in turn contributes to unhealthy weight and shape control practices such as risky dieting, binge eating, vomiting, diet pill use, and laxative abuse (Grigg, Bowman, & Redman, 1996; Sonnevile et al., 2012; Vanin & Saylor, 1989).

Adolescent and young adult transgender women are likely to be affected by these same gendered beauty ideals promulgated in popular media and public discourse. At the same time, transgender women may also be facing gender-related social stressors above and beyond those faced by cisgender women, including pervasive discrimination in multiple contexts of school, employment, housing and other settings, sexual objectification, harassment and violence victimization targeting transgender individuals, and lack of access to essential gender affirming health care (Bradford, Reisner, Honnold, & Xavier, 2012; Grant et al., 2011; Lombardi, Wilchins, Priesing, & Malouf, 2001; Serano, 2007; Sevelius, 2013). In the context of such structural and interpersonal prejudice against transgender women, societal femininity norms may take on a heightened importance.

A growing body of evidence has demonstrated sexual minority (e.g., gay, lesbian, bisexual) populations are at heightened risk of disordered weight control behaviors relative to their heterosexual

peers (Austin et al., 2009; Austin, Nelson, Birkett, Calzo, & Everett, 2013; Feldman & Meyer, 2007). Young people with unstable housing may also be at elevated risk of disordered weight control behaviors (Fournier et al., 2009). In addition, adolescent boys of color have elevated risk of disordered weight control behaviors compared to white boys and there is also evidence that Latina and Native American/American Indian girls have similar or higher risk compared to white girls (Austin et al., 2011; Johnson, Rohan, & Kirk, 2002; Neumark-Sztainer et al., 2002). Recent literature has begun to illuminate the intersection of racism and gender in shaping body image and body dissatisfaction, particularly with regard to the experiences of Black and African American women as they negotiate both Black cultural beauty ideals and racist media messages that devalue or exoticize Black women's bodies (Burk, 2013; Capodilupo & Kim, 2014; Patton, 2006).

In addition to the weight and shape control risks frequently discussed in the body image literature, there are shape control behaviors particularly relevant to the experiences of some transgender women. Given the discrimination and violence faced by transgender women who do not “pass” as non-transgender women (i.e., are “read” as transgender because they do not conform to societal expectations for women), young women who do not have access to gender affirming health care—due to economic constraints, family barriers, or lack of access to transgender-competent providers—may seek more accessible or affordable pathways to feminizing procedures (Sevelius, 2013; Wilson, Rapues, Jin, & Raymond, 2014). These can include using underground economies, the Internet, and friend networks to obtain hormones or liquid silicone injections (Rotondi et al., 2013; Wallace, 2010). These methods raise several risks, including syringe sharing, uncertain or unregulated quality of hormones or liquid silicone product, and potential short- or long-term health problems due to incorrect hormone dosing (Garofalo, Deleon, Osmer, Doll, & Harper, 2006; Rotondi et al., 2013; Wilson et al., 2014). Liquid silicone injection, FDA-approved only for treatment of retinal detachment, confers additional dangers in both its medical-grade and adulterated forms, including infection, disfigurement, pulmonary emboli, and, in a few documented cases, acute renal failure resulting in death (Apostolou et al., 2012; CDC, 2008; Cooper, 2014).

Taken together, these factors suggest that there may be multiple, interacting pathways to the embodiment of health inequities related to risky weight and shape control practices among young transgender women. There is a need for research that elucidates young transgender women's experiences with a range of weight and shape control behaviors (including risky dieting, self-induced vomiting, diet pill and laxative use, and use of liquid silicone injections) and on the ways that structural and interpersonal stigma and discrimination might affect these behaviors. Even more scarce is research focused on the perspectives of transgender women, which is crucial for public health efforts to prevent or treat disordered eating and promote positive body image in this underserved population.

THEORY AND STUDY AIMS

This study draws on two theoretical frameworks relevant to the study of health inequities, and transgender health inequities in particular: ecosocial theory and the gender affirmation framework. Figure 4.1 depicts the initial integrated framework used to conceptualize harmful weight and shape control behaviors in sexually at-risk young transgender women and guide study design and analysis. Ecosocial theory (Krieger, 1994, 2011), a multilevel approach to understanding determinants of disease distributions over the life course and across historical generations, is centrally concerned with asking “who and what drives social inequalities in health?” (Krieger, 2012). Ecosocial theory provides an overarching framework and draws attention to the importance of embodiment, or the ways that humans literally incorporate lived social and material conditions into the body. This definition of embodiment is rooted in feminist theory, but is also unique in its embrace of biology and the dynamic interplay between biological and societal processes, even while emphasizing that “the overwhelming weight of evidence places the primary causal arrow as leading from societal conditions to health status” (Krieger, 2011, p. 214). Ecosocial theory proposes that there are typically multiple “pathways of embodiment” that influence distribution of health and illness in a population and that these pathways of embodiment must be considered at multiple levels—societal, regional, interpersonal, individual—and across the life course, from conception onward. This paper focuses on two primary levels, interpersonal and individual/biological, while acknowledging the multi-level contexts in which these levels are nested.

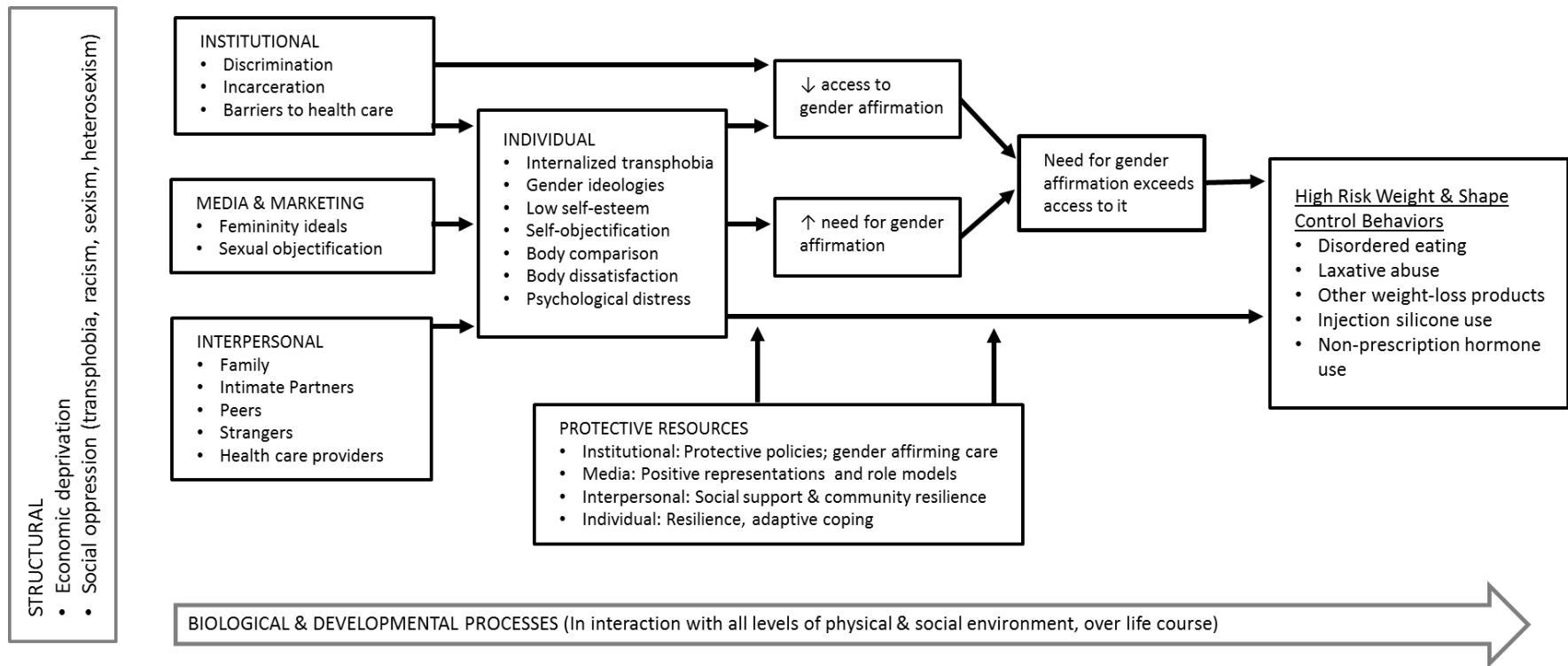


Figure 4.1. Integrated framework for conceptualizing high-risk weight and shape control behaviors in low-income transgender women, based on a gender affirmation framework and ecosocial theory.

The gender affirmation framework was synthesized specifically for understanding high-risk health behaviors among transgender women of color (Sevelius, 2013). This model creates an opportunity to apply ecosocial theory's temporally dynamic multilevel understanding of social inequalities and health to the particular forms of oppression faced by many transgender women in the U.S. Gender affirmation refers to "an interpersonal, interactive process whereby a person receives social recognition and support for their gender identity and expression" (Sevelius, 2013, p. 676). In this conceptualization, all people, whether transgender or not, require gender affirmation in their lives as an essential confirmation of one's sense of self. However, not all groups have equal access to this affirmation. For people who have a gender identity or expression that aligns with their assigned sex at birth, gender affirmation may be easily obtained and thus rendered invisible. For transgender or other gender nonconforming individuals, gender affirmation can be difficult to obtain, particularly in the context of narrow societal dictates of "legitimate" or "acceptable" maleness or femaleness that may make it difficult to "pass" as non-transgender for those who desire to do so (or for whom "passing" is essential for safety and survival). The framework posits that the need for gender affirmation coupled with insufficient access to gender affirmation due to intersecting forms of social oppression (racism, sexism, transphobia, and poverty) create the psychological and material conditions whereby many transgender women of color find themselves in "high-risk contexts." In the present study, gender affirmation was used as the primary explanatory framework as it allowed us to examine weight and shape control behaviors in light of met and unmet needs for gender affirmation.

Study Objectives and Aims

Given the scarcity of research on this topic and the importance of building an evidence base founded on the insights of transgender women themselves, qualitative research methods are especially suitable and necessary. This paper presents findings from a qualitative study of weight and shape control behaviors in a sample of young, ethnically diverse and low-income transgender women involved in an HIV risk reduction intervention in a Northeastern U.S. metropolitan area. The aims of this research were to:

- (1) Identify weight and shape control behaviors in this group of young transgender women;

- (2) Explore social contexts that influence body image and that structure the use of potentially high-risk weight and shape control practices in this sample;
- (3) Examine sources of strength and resilience that may encourage positive body image development and prevent harmful weight and shape control behaviors.

METHODS

Setting and Participants

All participants in this study were recruited from an ongoing HIV behavioral intervention trial, developed by and for young transgender women and known as LifeSkills (Garofalo et al., 2012; <http://projectlifefskills.org/>). At the time of this study's start, over 100 young transgender women in the Boston metropolitan area had been enrolled in LifeSkills. LifeSkills eligibility criteria included: ages 16-29 years at enrollment; living in the Boston region; able to read or understand English; and self-reported being assigned a male sex at birth and currently identifying as a transgender woman, transsexual woman, female, or on a transfeminine or male-to-female spectrum (e.g., individuals assigned a male sex at birth who have a non-binary gender identity, such as genderqueer). Additional inclusion criteria were that participants had engaged in at least one of four categories of sexual risk behaviors in the four months prior to enrollment: one or more unprotected anal or vaginal sex act(s); two or more anal and/or vaginal sex partners; transactional sex (i.e., anal and/or vaginal sex in exchange for money, shelter, food, drugs, alcohol, or other material resources); and/or a sexually transmitted infection diagnosis.

LifeSkills participants were eligible for the present study (Project Body Talk) if they were ages 18 years or older and had completed at least their 12-month follow-up visit for the LifeSkills study, so as not to interfere with the HIV intervention. Recruitment was conducted by LifeSkills project staff, who provided study fliers to eligible participants either at the end of a LifeSkills study visit or via email or text message. Eligible participants then met with the lead investigator to have any questions answered and, if interested, begin the informed consent process. This study was approved by the Fenway Health Institutional Review Board (IRB), with an agreement from the Harvard T. H. Chan School of Public Health IRB to have the Fenway IRB act as the primary reviewing institution.

As shown in Table 4.1, the data reported here include 21 participants, ages 18-32 years (mean age=24 years, SD=4.3 years). The majority of participants were women of color (n=17) and born in the U.S. or a U.S. territory, including Puerto Rico (n=19). Participants were very low income (16 reported an annual income in 2013 less than \$6,000), about half (n=10) reported unstable housing in the prior six months (meaning living in a hotel, boarding house, groups home, on the street, or having no fixed address) and only three reported being currently employed full-time.

Table 4.1. Demographic characteristics of Project Body Talk participants (n=21)

	<i>Total</i>		<i>Total</i>
Age in years (Mean [SD])	24.4 [4.3]		
Gender identity		Education (highest level completed)	
Female	11	Middle school	1
Transgender	4	Some high school	3
Male-to-Female (MTF)	3	HS grad or GED	9
Transsexual	1	Some college	5
Genderqueer	1	College degree	3
Not listed: Demi-girl	1	Income, past year	
Race/Ethnicity		<\$6,000	16
Black/African American	4	\$6,000-\$11,999	2
Latina	4	\$18,000-\$23,999	1
Asian/Asian American	1	\$24,000-\$29,999	1
White	4	Not reported	1
Multiracial	8	Employment status	
Nativity		Full-time (>30 hrs/wk)	3
U.S. (incl. Puerto Rico)	19	Part-time	5
Outside U.S.	2	Unemployed	13
Sexual Orientation Identity		Disabled	3
Heterosexual or Straight	11	Student	3
Lesbian, Gay or Homosexual	2	Body Mass Index (BMI)	
Bisexual	2	Underweight (<18.5)	1
Queer	2	Recommended (18.5-24.9)	7
Not listed: Pansexual	2	Overweight (25.0-29.9)	8
Not listed: Transgender woman	1	Obese (30.0 and above)	4
Don't know	1	Not reported	1

Notes. Employment status counts do not add to 21 because categories were not exclusive (check all that apply). BMI (kg/m²) was calculated using self-reported height and weight and categories were constructed using CDC guidelines for each category

Instrument Development

An interview guide was developed based on the underlying theoretical frameworks being applied and review of the literature on contextual influences on health risk behaviors in transgender women (Clements-Nolle, Marx, Guzman, & Katz, 2001; Lombardi, 2009; Nemoto, Operario, Keatley, Han, & Soma, 2004; Reisner, Gamarel, Nemoto, & Operario, 2014; Sevelius, 2013; Sugano, Nemoto, & Operario, 2006) and disordered weight control behaviors in cisgender women (Neumark-Sztainer et al., 2006; Stice, 2002; Stice & Whitenton, 2002; Thompson, 1999). The interview guide was revised following pilot-testing and review by both transgender- and cisgender-identified LifeSkills staff who had worked extensively within communities of transgender women. The guide was reviewed following the first four participant interviews and modestly revised to improve interview clarity and flow. Final interview topic areas included: body satisfaction and dissatisfaction; met and unmet needs for gender affirming body change; stress and coping-related health behaviors; worries about weight and desires for weight change (lose, gain, maintain, shifting distribution of fat on body, or none); past or current experiences with weight and shape control behaviors (including, but not limited to, dieting, exercise, laxative use, vomiting, fasting, diet pills or other over-the-counter weight loss products, prescription medications, or liquid silicone use for gender affirming shape change); and the role of family, peers, romantic partners, and health care providers in feelings about appearance, weight and shape. Any reports of weight and shape control behaviors were followed up with probes about the specific behaviors and social context in which these behaviors occurred and to explore new lines of inquiry.

A post-interview questionnaire was also developed to capture relevant demographic characteristics (age, gender identity, racial/ethnic identity, income, employment, unstable housing), body image, and weight control information. Questionnaire items included standardized measures from population-based and topical health surveys including self-reported height and weight and current attempts at weight change (Eaton et al., 2010), disordered weight control activities (Eaton et al., 2010; Field, Taylor, Celio, & Colditz, 2004; Neumark-Sztainer et al., 2014), food insecurity (Neumark-Sztainer

et al., 2014), visual gender conformity (Grant et al., 2011), and a body appreciation scale (Avalos, Tylka, & Wood-Barcalow, 2005).

Data Collection

Following the informed consent process, 21 semi-structured in-depth interviews were conducted in a private location at Fenway Health, a community health center in Boston, Massachusetts (Reisner et al., 2015). Study visits lasted 55 to 90 minutes, including approximately 45-75 minutes for the in-depth interview and 10-15 minutes for the post-interview questionnaire. Participants received a \$50 gift card for their time. All interviews were conducted by the lead author, who identifies as a white cisgender queer woman. Interviews were audio recorded and transcribed verbatim for analysis.

Analysis

Analysis was conducted in iterative phases using a template organizing style (Crabtree & Miller, 1992), which pairs a deductive approach structured by an underlying theoretical framework and offers the flexibility to adapt and follow emergent themes as the analysis proceeds. Following this approach, the lead author reviewed all transcripts and proposed a preliminary set of codes and code definitions based on both the initial review of the transcripts and the underlying theoretical frameworks; this was reviewed by the study team. In what Miles & Huberman have called the “chunking” phase (1994), all transcripts were read and coded by two coders (the lead author and the LifeSkills project manager, J.M.W.). The codes and codebook were reviewed and modified twice, after both coders reviewed two initial batches of four and five transcripts, respectively, followed each time by a meeting to identify gaps and resolve discrepancies. The codebook was then finalized and the remaining 12 transcripts were coded, followed by a final coding meeting to resolve discrepancies. In the next phase, using an immersion and crystallization approach (Borkan, 1992), the lead author iteratively reviewed narratives within each of the ten key codes or “chunks” (see Appendix) to identify themes and patterns in the participants’ narratives addressing weight and shape control. These results were reviewed and discussed by study team members and interpretations were reconsidered as needed. NVivo 10 software (QSR International) was used for data storage and management.

RESULTS

Embodiment of High-risk Weight and Shape Control Behaviors

The majority of participants described experiences with high-risk practices related to either weight control, shape control, or both, including food restriction, binge eating, purging, laxative abuse, and use of diet pills. Based on the post-interview questionnaire, the majority of participants (n=16) reported having engaged in some level of disordered eating or high-risk weight control behavior in the previous year. Table 4.2 presents the frequencies of self-reported weight and shape control behaviors in this sample based on responses to the post-interview quantitative questionnaire. The most commonly reported form of disordered eating behavior was overeating, or the consumption of a large amount of food in a discrete period of time (n=13); of these participants, two reported overeating with a sense of loss of control, a criteria for binge eating disorder (Striegel-Moore, 2011). Text Box 4.1 provides narratives illustrating high-risk forms of weight and shape control behaviors described by some participants. In addition to the disordered weight control behaviors noted above, some of the transgender women in this study engaged in high-risk shape control behaviors, specifically non-prescription hormone use and liquid silicone injection. Because these forms of shape-control constitute a particularly under-studied topic, in the following section we present these findings in some depth.

High-risk shape control: Non-prescription hormones and liquid silicone injection

In the post-interview questionnaire, four participants indicated that in the past 6 months they had used non-prescription hormones (i.e., “not given to you in a doctor’s office or by a doctor or nurse”); the number who had ever engaged in this kind of hormone use was not asked but was likely higher. In interviews, a few participants alluded to experiences with such non-prescription hormone use at various points in their lives, typically for short periods of time, and did not report adverse side effects. Most of the young women in the study reported being aware of injectable silicone as a method used by some transgender women to feminize shape and facial features. However, among interviews in which the issue of silicone injection was raised (n=17) the majority of participants reported having no interest or active fears about the practice (n=13). Many participants noted that they had done research on health

Table 4.2. Disordered eating and disordered weight and shape control behaviors among young transgender women ages 18-32 years as reported on post-interview questionnaire (n=21)

	<i>N</i>
Currently trying to...	
Lose weight	8
Gain weight	3
Stay the same weight	3
Change shape without changing weight	4
Not trying to do anything about weight	2
Refused	1
Disordered eating behaviors in past year	
Overeating with loss of control (binge eating)	2
Any overeating	13
None	5
< Once/month	7
1-3 times/month	3
Once/week	1
> Once/week	2
Behaviors to lose or maintain weight in past year	
Fasting (at least a day)	8
< Once/month	3
1-3 times/month	1
Once/week	1
> Once/week	3
Vomiting	3
Laxative use	2
Diet pill use	4
Any of above disordered eating or weight control	16
High-risk shape control behaviors	
Non-prescription hormone use in past 6 months	4
Ever had liquid silicone injection (pumping)	2
Any cigarette use in past 6 months	
< Once/month	2
Monthly, but not weekly	1
Weekly, but not daily	2
Daily	9

Text Box 4.1. High-risk weight and shape control behaviors among young transgender women (ages 18-32 years) in Project Body Talk, 2014: Selected examples by behavior

Behavior	Quote
Fasting	<p>Sometimes I don't even eat, just to make my stomach go. I wanna lose weight. I know it's not good for me, but that's what my mind telling me: just don't eat, don't eat, and you'll be fine. My stomach is the main source of the problem. That's what I'm really having trouble with... Today, I haven't eaten anything today. I'm not hungry. If I do decide to get hungry, I'll get a orange or a apple and I'll drink some water. I guess I'm training myself, cuz I'm training my stomach, as well, not to eat so much. (Age 30 years)</p>
Binge eating	<p>I've always wanted to gain weight. I always was very slim. I was very skinny. I was actually underweight especially for my height. I've always been five-nine, five-ten all my life. Not all my life, but up until I wanna say middle school I was always this height, and I was always really slim. I just wanted to have a healthy body look. Not look emaciated or too skinny. I already knew that I was gonna be slim. It's kinda hard to avoid, but I just wanted to look healthy and slim... During that time I used to overeat... Severely overeat like my stomach is clearly—I would have a feeling of clearly being full, and I'm still shoving food in my mouth. (Age 24 years)</p> <hr/> <p>I was always, you know, a chubby kid. But then I went from that chubby kid to that, “Whoa, honey, you're the side of a house.” And it was from that, because what I would do is I would eat all this food. And on top of what I already aid I would eat, there was always a dessert to it. It would either be ice cream, or cookies, whatever. And after I took that last bite and swallowed it, it was—I would lay down instantly with the TV on and fall asleep in about a half hour, say. So that food was not digesting. I wasn't up and it was circulating to come out. It would just stay. In a year, I gained over 100 pounds. (Age 26 years)</p>
Binge eating and purging	<p>I was so self-conscious. Unfortunately, I resorted to bulimia really early on. It's unfortunate to say, but that's how I lost a lot of the weight, was I resorted to really dangerous eating habits where I'd binge and I'd purge right, automatically, because it was just too much pressure. Understanding this pressure that just kind of came down on me at once, because I was that one chubby kid in a room full of skinny people. It was just so, like, nerve-wracking all the time. I was constantly thinking, “Oh my gosh, people are calling me fat. They're judging me. They're criticizing me.” I just couldn't take it anymore. (Age 21 years)</p>
Purging	<p>Oh, yeah. I did them. I did liquid diet. I was drinking Ensures. I got constipated. I just—I threw—I purged sometimes. You know what I mean? I didn't wanna ruin my makeup, so, honey, I didn't do too much. There was just days I didn't eat... Cuz I knew if I purged and I was somewhere where I didn't have a lot of makeup that means my shadow was gonna show and all that stuff. (Age 24 years)</p>

Text Box 4.1 (Continued)

Behavior	Quote
Laxative abuse	Cuz I would be like, “If I eat this, I’m gonna be fat. I’m gonna feel bloated all the time and disgusting. How am I gonna get this food out of my body?” I’d rely on that, not realizing I could do it the natural way. I would be like, “I need the laxatives to cleanse myself.” (Age 31 years)
Other over-the-counter weight loss products	<p>There's a lot of products that they have at GNC that you can do. Like a cleanser, basically, where you're just cleaning out your system for toxins. It can definitely bring down your stomach and definitely help flatten it. It's not gonna make you look like—spin around and look like a Barbie. But it definitely does help with the process. I'm looking into different things that I can do. (Age 24 years)</p> <hr/> <p>I'm trying to research, and it takes me a while, but I'm trying to research cleansers and trying to get all those toxins out of your body. That's definitely a big thing. I've spoken to my provider here, and she was stating to me eating right but flushing your system out would maybe help you lose that stomach or whatever. Definitely trying to do stuff like that. (Age 24 years)</p>
Liquid silicone injection	<p>I know the woman who does it and she does a good job. It’s a good silicone. It’s not the kind of silicone they put in cars and stuff. I would definitely do it again. I wanna get my face done again, some more. Some more in my cheek and just to round out my face, look more feminine. (Age 31 years)</p> <hr/> <p>Well, in the community, if you’re a trans woman, you hear other trans girls talking about, “Oh, I’m gonna go get pumped.” Then they also throw pumping parties. Which, like I said, [chuckles] in the healthcare eye, they look down upon it. Unless if you work with trans girls, so they understand a little bit more about silicone pumping if they work with trans girls. If they don’t, then they totally look down on it.</p>

consequences, witnessed the results of “botched” silicone injections, or in other ways conducted a personal cost-benefit analysis:

Even one of my friends was like, “Come on. Let’s go get pumped,” and then—to some—what’s it called—black market. Not even legitimately, just get pumped by someone that’s known for pumping other trans girls. I would never do that because, one, it’s not safe and, two, I don’t really need silicone injections. I don’t have a flat butt, *[laughter]* and I don’t want to look crazy. (Age 21 years)

This participant and several others described evaluating the dangers, even in the context of peer encouragement to try pumping, and determining the risks to outweigh any potential benefits. The risk of potential harm to appearance was particularly salient for several, and, for these participants, was often coupled with a reflection on current body satisfaction (e.g., “I like my butt the way it is” (Age 24 years)) or concerns about irreparable damage to one’s appearance. Transphobia, both external and internalized, intensified this fear for some; as one participant noted, “I was like, ‘Okay, when I become a woman I don’t wanna look all deformed.’ Cuz I already felt so deformed. I was like, ‘I don’t want anything to make me look worse’” (Age 31 years).

Unlike the majority of participants, two participants discussed past personal experiences with silicone injection—both positive and negative—and an additional two participants expressed an interest in trying it in the future. The two participants who had liquid silicone injections reported overall satisfaction with the gender affirmation-related results, noting that they would use it again:

It has done what I wanted. It’s gotten me to where I am comfortable. Do I want more? Yes. A little bit more. (Age 27 years)

I know the woman who does it and she does a good job. It’s a good silicone. It’s not the kind of silicone they put in cars and stuff. I would definitely do it again. I wanna get my face done again, some more. Some more in my cheek and just to round out my face, look more feminine. (Age 31 years)

Both women described their experiences with silicone as an important component of gender affirmation and embodied wellbeing (feeling comfortable, looking more feminine). Notably, the 31-year-old participant had also experienced negative effects of silicone injection, including a serious abscess that resulted from her first experience and which had to be drained and treated in a hospital emergency department. She also was dissatisfied with the feel of her breasts, although the look was pleasing: “I’ll

probably get more but my breasts is like—I should have massaged ‘em when I first got ‘em. They silicone inside is hard like a rock. It looks good on the outside, but if you were to squeeze them, you can feel it’s really hard like a big ol’ rock inside of it. ...But I like the way they look” (Age 31 years). The participant partially blamed herself for the adverse results. She later talked about how her breasts were the subject of some good-natured-yet-still-hurtful teasing from family members; nevertheless, for this participant, the benefits continue to outweigh future risks and she indicated she will “probably get more.”

The two participants who expressed interest but had not yet tried silicone injection articulated a struggle between their fears and the anticipated gender affirmation benefits.

Nope, I have never done anything with that yet. Only due to the fact of being around other transgender women and noticing it looks very pretty on the outside but just a little nervous about putting it on the inside. (Age 24 years)

I’ve thought about it. I’ve thought about it drastically. I’m scared because I see people who’ve done it starting to develop problems. That’s not something that I wanna deal with. If I do get it done, I want it done professionally where, if anything do happens, I’m gonna sue your ass. Sorry for saying it, but I wanna be something done professionally, so I do have that net... I’m just scared of that, but I’ve thought about it. I have... I want it done... I would want my butt done. That’s it. That’s only thing I would want done: my butt and my hips. Cuz I really don’t have it. That’s about it. Putting it in my titties, no. I’m gonna wait ‘til I get my implants for that. (Age 30 years)

The 30-year old participant states that she wants the procedures to be done professionally; however, she earlier had described facing financial hardship and reported that silicone injection may be more economically attainable. In these two narratives, as well as for the participants who had experienced pumping, lack of economic resources, social networks, and social norms played a key role in intentions and decisions about silicone injection use; all four described pumping as embedded in their social networks. At the same time, several of the participants who described having access—e.g., having been invited to pumping parties—still expressed no interest.

Pathways of Embodiment: Four Emergent Themes

Four key themes emerged from analysis of the contexts surrounding weight & shape control behaviors in this sample: (1) Socialization processes and the development of femininity ideals; (2) Gender affirmation processes and intimate partners; (3) Biological processes; (4) Resilience processes and

protective resources. These themes were set against a backdrop of participants’ exposure to anti-transgender stigma and discrimination. Text Box 4.2 provides examples of participants’ experiences of discrimination, which included familial rejection and abuse, discrimination in schools and in employment, sexual objectification and intimate partner abuse, and harassment or violence on the street or in public environments, often starting at a young age. Below, four key themes and selected sub-themes related to body image and weight and shape control are described.

Table 4.2. Discrimination experienced by young transgender women (ages 18-32 years) in Project Body Talk, 2014: Selected examples by domain

Domain	Quote
Family	<p>[Mother said] “You have 48 hours to decide if you’re gonna stop acting like you’re a woman, or you can get the hell out of my house.” I got the hell out of her house. I mean, that’s not really a choice. (Age 20 years)</p> <p>Lately, I noticed that my family holds me to a higher standard than other cis women. I have to be like this ultra-feminine woman... My family’s always nitpicking everything I do, like, “Don’t sit that way. Women don’t sit that way,” and it’s like, “Don’t open your legs. That’s inappropriate for a woman,” and it’s like, “Don’t sneeze loudly in public. That’s not okay. Ladies don’t do that.” Meanwhile, when my other cis cousins go about doing that stuff, nobody tells anything to them. ‘Cause at the end of the day, they don’t stop being women because they were born women. Meanwhile, I have to constantly prove to myself, to people, that I fit the bill.” (Age 21 years)</p>
Family & Health care	<p>I came out to [my parents] in my psychiatrist’s office. They put me in a mental hospital because I was—because of that. My psychiatrist thought I was psychotic because I wanted to be female. Yeah, that wasn’t fun. ...I went back into the closet after the whole fiasco with the hospital. Because my psychiatrist thought I wasn’t psychotic anymore when I told him I didn’t want to be. That was basically the primary reason why I went back into the closet. I eventually came back out again at 17. (Age 20 years)</p>
Intimate partnerships	<p>I did have a relationship like that. I’ve known this guy for over a year... I’ve known him for a long time. It was difficult. We were intimate, and he had a really big decision that he made, and I made a choice. He said that he couldn’t have a relationship with me, because he felt I was [not] 100 percent passable. He felt that if I was more passable, and I was more of a woman, and if I had my surgery then he could say, “Okay, I’m in a relationship with her.” (Age 31 years)</p>
School	<p>It got worse in high school, too. ‘Cuz now I really was comfortable in my skin so I started dressing, you know, a little bit more tighter, and sometimes I would have on a girl’s piece... High school was so crazy that I dropped out. I dropped out. I was like, I can’t do this. I can’t even learn. People were coming into my classrooms starting problems. You know what I mean? It was that bad so I was like, “No. I can’t learn in this type of environment.” I just dropped out. (Age 22 years)</p>

Text Box 4.2 (Continued)

Domain	Quote
Employment	<p>I had a job before, and it was under the table, and it was around the time where I started to express my identity a little bit more, so I'd go to work wearing bows, or just like a little extra feminine, and the boss would be like, blah, blah, blah, "This place we're going to, they wouldn't accept that," or that place or this... It's different in the workplace. It's like I can take this because I need the money. I'm a different person because I need the money. (Age 19 years)</p> <p>I'm not sure if I was too feminine enough. I wasn't—but then I kept on still looking at maybe I don't have the education that could help me get into the door. I tried to get a job working at Macy's or—but I didn't have due to me leaving school at 14 years old at a very young age I didn't really stick around for the education piece. I just was trying to find my identity and trying to find myself. It just led me to where I felt more accepted into the underworld of sex work in different areas, but I always knew that it wasn't right. (Age 24 years)</p>
Public settings	<p>I feel like most the time people are always looking at me and trying to figure out what I am. They'll look at my face; they'll look at my chest, in between my legs, and it's just so annoying. I have to remember, "You don't care about these people. You don't know any of these people, so it doesn't matter. Just keep doing you, because you're not worried about them. Why are they worried about you?" (19 years)</p>
Oppression as intersectional	<p>Being biracial and transgendered had a lot of different strikes against me due to I wasn't either black enough or I wasn't white enough... I wasn't too male. I wasn't too female. It was just pretty a lot of identity issues and a lot of abuse. (24 years)</p>

Socialization processes in childhood and adolescence: Femininity, stigma and weight & shape control

Participants represented a diverse array of gender transition trajectories, including those who identified and began to live openly as a girl from middle school or younger, those who began to socially or medically transition in their late 20s, and those who identified on a transfeminine spectrum while presenting in the world as male (i.e., “in boy mode”) or gender-fluid. Across this diversity, all participants discussed ways that they had been, from a young age, absorbing, interpreting, and engaging with femininity—both their own and broader cultural notions of “ideal” femininity—with implications, whether explicit or implicit, for body image and potentially for later weight or shape control behaviors.

Feminine thinness ideals and weight and shape control.

For some, notions of ideal womanhood and related gender transition goals were intimately linked with weight and with family or peer role models.

Me and my mom being the only two big-boned people and a lot of other family members were skinny. There weren't really that many big-boned people or chunky people or whatever you wanna use in our family. Mainly everyone was skinny. When I started my transition, I was obviously—I wanna be skinny, and this is how I visualize my body. Have been working to where I wanna get my body. (Age 27 years)

In this narrative, the ideal body is so normative that it is “obvious.” Although she identified with her mother’s weight and shape, she felt it was evident that this was in contrast to her family’s body norms (and possibly the dominant cultural ideal) and so as she began transitioning, she visualized a skinny body as her goal. Other participants described internalizing the femininity norms of their adolescent peers and subsequently adopting weight control behaviors present in those peer groups. As one participant, who also reported a great deal of familial shaming around her eating and weight, commented about high school:

A lot of girls would come up with these inventive ways of how to stay thin like the crash diet. They’d be like, “I just eat cottage cheese. I just have a Tic Tac today. I just had an apple. I just had a piece of bread.” ...I wanted to be these girls that these guys saw. What they thought was pretty. I would be like if I lose weight, or I can fit in this size... Cuz in high school it was a big thing if a girl was—they liked the small girls. They liked the double zeros and the twos and the fours. (Age 31 years)

This narrative integrates the participant’s identification with her (cisgender) female peers, who are engaging in weight control behaviors to embody feminine thinness ideals, and her desire to be attractive to her male peers, who she viewed as subscribing to these ideals. This participant later linked these observations to her own attempts at crash dieting and restricted eating, resulting in her having episodes of passing out and generally functioning poorly in school. An even more striking case of peer-based gender socialization increasing vulnerability to disordered eating came from a participant who self-described as having formerly engaged in binge eating and purging. She described learning about negative body talk and disordered weight control from her female friends at school:

In my teenage youth, there was a very common topic, which was weight gain and weight loss. I remember specifically, I’d be with the other girls at the table, because I would almost always hang out [with] other girls, and they’d talk amongst themselves, and they’d say—they’d criticize. They’d critique each other’s physical appearance. They’d say, “Oh, my gosh, like you lost so much weight.” “Look at her, she’s so pretty now. She’s so beautiful. Look at how skinny she is. She’s gorgeous.” Then once that specific person would leave the table, they’d be like, “Well, I heard she was resorting to bulimia. She was hospitalized for a while. That’s why she’s been so long out of school. That’s why she got skinny so fast.” That’s how I’d come in contact—what I

knew what bulimia was, and what I knew what, allegedly, other girls were doing to lose weight. That's how [I] kind of got motivated to do what I was doing, which was a really unhealthy, dangerous habit of bingeing and purging everything that I'd eat. (Age 21 years)

Notably, at this time the participant was not yet living openly as a girl, and it is not clear from her narrative whether she was actively participating in these ongoing conversations and “critiques” with her peers; she did make it clear that these conversations were about actions the girls around her would take to achieve physical beauty—and that this motivated her to engage in what she described in hindsight as unhealthy and dangerous. Although these two participants did not represent the majority of participants with regard to their level of experience with disordered weight control, their perspectives illustrate the role of adolescent interactions as both buttressing societal (and familial or cultural) femininity ideals and creating a space for gender affirmation through affiliating oneself with femininity-linked disordered weight control behaviors.

Race/ethnicity, culture, and femininity ideals in contrast to white/Western thinness ideals.

Several participants discussed femininity ideals from a different vantage point. Although interviews did not include a specific question on the role of racial/ethnic identity, a few of the Latina and Black/African American-identified women and one white woman (with a strong ethnic/religious affiliation) talked explicitly about their racial/ethnic identities in relation to femininity ideals. For example: “That’s how I envision my body. Not big breasts, but breasts that would fit my body. Then my stomach to be skinny. Then big hips and a big butt. In the Latin community, that’s pretty much what you see” (Age 27 years). A few women (mostly but not exclusively Black/African American) described a “thicker” body as more, rather than less, feminine, or as a personal goal. As one participant commented, describing her weight trajectory: “Then I got thick, but not in a bad way” (Age 20 years). Another participant explained her satisfaction with her size as follows:

My ideal body is just what I have right now, just to lose my stomach and just be nice and curvaceous. I don't wanna be skinny, skinny. I wanna be nice and thick, really proportioned, my teeth fixed, and just looking good and feeling good. I like to be thick. It's not too big. All in the right places. Like I used to have back then. That's my ideal body. (Age 31 years)

While this thicker feminine beauty ideal stands in contrast to the pressures of the white/Western thinness ideal described by several of the participants, it did not come without its own pressures. Some participants reported teasing in school for being too thin, while others reported being criticized by other transgender women or gay men for lacking a curvaceous figure. Such an equation of femininity with specific ideals of curviness may contribute to higher-risk shape control practices such as illicit hormone use or injection silicone use.

Socialization in the context of stigma and discrimination.

Most participants were being socialized in family, peer, school, and societal environments that were either explicitly or implicitly heterosexist and transphobic—and for some, weight-stigmatizing as well. For a few participants, the stress of sexual orientation and gender identity development in this context was inextricable from weight control. For example, for one participant, who was at the time identifying as a boy and grappling with feelings of same-sex attraction, the stresses of weight stigma and sexual orientation stigma compounded each other:

I was battling my mind back then with what I was thinking, how I was feeling with other guys, and stuff like that. About other guys and stuff. It was just stressful. My elementary school and middle school years was very, very, very, very stressful. I was trying to find myself, and trying to fix my weight. (Age 21 years)

Several participants explicitly connected their fears of family rejection of their sexual and/or gender identity to coping responses based on eating and weight control. One participant, whose mother made her leave home to live with a relative at age 12 years, described the onset of her binge eating habits when she was around age 16 years:

Cuz it was right after I had lost my virginity. And then I even... I was afraid then, like of, "What if my mother or father ever found out that I just slept with a man?" Like, that was—it was my biggest concern. I was so scared... and that guilt, you know, it just—I started eating more and more. (Age 26 years)

While the two narratives above describe the internalization of developmental and social stressors in relation to weight and weight control, there was another way that stressors related to gender identity development and disclosure emerged: when weight stigma was used as a means to have otherwise verboten conversations about gender. In the case of a participant whose father had destroyed all of her

“non-male-conforming” clothing when she was in high school (see Text Box 4.2), weight and gender stigma were mutually reinforcing:

Well, cuz when I'm over there [father's house], I'm more in male mode, in a sense, just cuz I haven't told him yet, but I kind of told him—the hormone meds cuz he always asks, "What are they for?" I'm, like, "Oh, they're for my muscle thing," cuz I don't really wanna tell him yet. He was saying how I'm really gaining weight and I'm gonna have to work out or something so I can lose those bitch tits, in a sense. That was, like, male-male. [*Chuckles*] ...It's the way he thinks. It's how he thinks, so I'm cool with it, but, yeah, he doesn't really know that I'm trans. ...Just, like, “Yeah, I'm working on it, trying to lose weight.” (Age 22 years)

Thus, some parents may have managed their anxieties or prejudices about their child's gender by channeling them into body-shaming (and, in this case, sexist) narratives about weight gain and fitness. This participant, in turn, may have been managing her father's transphobia and weight stigma and protecting herself by affirming the narrative of weight loss rather than disclosing her gender status.

Gender affirmation processes in young adulthood: Intimate partners, economic constraints and weight & shape

The second prominent theme to emerge from analysis was the interaction of discrimination, sexual objectification, and body image in participants' experiences of dating and intimate relationships, with implications for vulnerability to violence and high-risk weight and shape control behaviors. Most participants described single or repeated instances of being sexually objectified on the street, in sexual encounters, or in ongoing relationships, particularly (but not exclusively) by cisgender men. Half of participants (n=11) recounted specific dating-related instances of discrimination based on their gender identity and/or anatomy, such as these two participants' accounts:

I tell guys I'm trans, and it's something that they've never dealt with before. They're used to dealing with straight girls, and they have their little formulas and mechanisms to deal with straight girls, but when I come into the picture, and they don't know about me, ever, so it's something that blows their mind. Then they have all these questions, like how do you get sexual pleasure, and then this question, and that question. Then it leads up—“I want to see you naked.” This just happened to me yesterday. I was like, “Do you ask straight girls this?” (Age 21 years)

Men, I've noticed, a majority of them, have the shared mentality where you could be flawless stunning, but you're still trans. In their head that kind of screws them up psychologically. Well, you'll never be good enough as a cis woman. You'll never be adequate enough to claim as his girlfriend in public. (Age 21 years)

As these participants explain, interactions with current or potential sexual or romantic partners could quickly become stigmatizing and sexually objectifying, reinforcing notions of transgender women as an inferior but exotic “other.” At the same time, some participants remarked on the benefits of male attention as an affirmation of being an attractive woman: “I know women get offended when men stare at their breasts, but I would be happy if a man was staring at my breasts. It would be gratifying to say you’re a woman” (Age 31 years).

Relationship power and economic resources.

The gender affirming benefits of male attention created relationship power imbalances that some participants discussed explicitly in relation to weight and shape. These discussions were often rooted in economic concerns. For those who brought up their experiences with sex work (n=3), economic interests were intertwined with perceptions of weight and shape and the desires of male partners and transactional sex clients: “There’s some guys that like big girls and then there’s guys that like skinny girls. There’s guys that like curvy girls. I try to kind of keep a medium. I don’t wanna be the fat chick but I also don’t wanna look like the anorexic chick” (Age 28 years). Alternately, dating partners’ perceived desires about weight or shape sometimes conflicted with economic goals, as was the case for a participant who aspired to work in the fashion industry. She expressed a tension between thinness ideals (per her career goals) and the benefits of weight gain (affirmation from male partners):

At the end of the day, it’s a downside to it because I know I’m stepping outside the bounds of my modeling goals, but then it’s a plus side to it is because you’re getting more attention with guys. You’re looking more curvy. You’re filling out. You’re looking more like a woman. That’s also been something that’s been driving me to eat more. (Age 21 years)

A few other participants discussed the ways that weight or shape stigma had been used by their intimate partners to insult or control them (i.e., maintain a power differential). For example:

It’s hard. Some guys, they label T girls. They’ll be like, “You’re a thick girl. You’re a big girl.” Then they don’t want you to lose weight. They like the fact that you’re thick and bigger. They think if you lose the weight, you’re gonna leave them for somebody else. You’re gonna look more attractive than them, and then you’re not gonna want them anymore. Then they want you to put on more weight. I don’t want to put on any more weight. (Age 31 years)

From this participant's perspective, the men she dates espouse a paradoxical set of desires: weight is both fetishized and stigmatized such that it decreases a woman's power, leaving no room for her own desires. In this way, the needs and desires of (largely cisgender male) sexual partners became another barrier to weight loss for participants who desired to lose weight.

Unmet need for gender affirmation and dating violence.

A few participants alluded to experiences of physical violence in the context of sexual encounters or longer-term relationships. Said one 24-year old participant: "I have messed around with so many boys that will swear up and down they didn't [mess around with me]... They either want to jump me or they either want to kill me or they either want to hurt me." In this participant's experience, her sexual partners' shame and denial about their attraction to her ends up placing her at risk of physical harm. Many participants described a feeling of constant vigilance when flirting or dating, or simply an awareness of the proximity of violence. This may have intensified gender affirmation needs and influenced weight and shape control behaviors for some women, as the ability to conform to societal femininity standards (i.e., to "pass") could, in some settings, be protective against violence. Yet even a participant who was not perceived as transgender by the men she dated had experienced threats and violence upon disclosing her transgender status, and as such, dating never felt free from a sense of extreme danger: "My biggest fear is that some dude will end up killing me because of my situation" (Age 21 years). The direct pathways between experiences of transphobic intimate partner violence and weight and shape control behaviors were not elucidated in this study but this is an area worth further consideration.

Supportive experiences.

While widespread sexual objectification and transphobia may have increased risk of negative body image, engagement in unhealthy weight and shape control, and violence victimization, significant heterogeneity was observed. About one-third of participants described feeling supported and affirmed in the context of their intimate relationships in ways that benefited their body image and weight perceptions. For some this came in the form of reassurances of "not being fat" from partners. As one participant, who reported she did not like her weight, noted, "my man person, boo thing doesn't really want me to lose

weight... I don't think he's saying it just to say it. I think he says it cuz he believes it. That helps me believe it" (Age 20 years). For these participants, although they experienced some weight-related dissatisfaction, their romantic partners provided a valued external counter-narrative.

In other cases, participants described support from partners directly related to disordered eating, such as someone who reported not eating when she felt stressed: "He'll be like, 'At least one or one and a half scoops' of whatever we're cooking, or if we didn't cook and we have TV dinners in the house, he'll be like, 'At least eat half of the TV dinner, because I don't want you getting sick and anything happening to you'" (Age 27 years). In this case, her partner (a cisgender man) provided support by trying to help her eat and affirming his concern for her. One participant described a situation that was unique in this sample. This participant had gone through extended periods of food avoidance linked to severe mental health concerns. She described her partner (a transgender woman) as providing essential support through respecting autonomy; yet part of her also desired more active intervention:

My girlfriend was, and she's very concerned and supportive of me, but she also respects my bodily autonomy a bit too much. If I stop eating, she won't really push me to try to start eating again. She'll just say, "Well, it's your body, and you should have the full right to do what you want with it." (Age 20 years)

This brings to the forefront the tension between autonomy and intervention, which has important implications for identifying and facilitating access to eating disorders treatment. The participant left this tension unresolved: "I'm split 50/50 over it. Half of me is happy that she really respects me to that extent. The other half of me feels like she respects me too much."

Biological processes

As ecosocial theory articulates, embodiment is always a process of dynamic engagement between the biological and social worlds and this was very much the case for the embodiment of weight and shape control behaviors among study participants. This dynamic is relevant across the life course, although the focus here is young adulthood. The primary pattern that emerged regarding biological processes concerned the effect of gender affirming cross-sex hormones on body satisfaction and dissatisfaction. The majority of participants reported having currently or previously taken cross-sex hormones in order to

change their appearance (n=15). Four reported that they were not using hormones but wished to be. Ten participants explicitly described cross-sex hormones as affecting their weight—typically, through weight gain or increased appetite, although one participant described significant weight loss after starting hormones.

Most participants taking hormones reported increased body satisfaction and an increased sense of wellbeing. Participants largely attributed this satisfaction to hormones' gender affirming effects, and described being "happy with the developments," liking how hormones "feminize my face," and feeling "so much better" after developing a more "feminine physique." However, for several (n=7), hormone use also accompanied increased weight dissatisfaction. For some this centered on frustration with increased appetite; as one participant put it, after taking a hormone pill "you're ready to eat the entire world" (Age 20 years). Belly fat was particularly salient for some of the participants, sometimes with a sense of inevitability and solidarity (noted one woman, "we call it 'mone belly sometimes") and sometimes with great frustration and even pain. Several described increases in weight or belly fat as a kind of foil to ideal womanhood:

Being on hormones, your weight is such a struggle as a woman. Because as a woman, you put on weight a lot quicker. It's a lot harder to take weight off. You maintain more fat. Through the hormones, it makes you eat more... I put on 65 pounds. As a woman, it makes me feel gross and disgusting. (Age 31 years)

While facing the biological reality of a changing metabolism and fat distribution due to cross-sex hormone use, some participants were also navigating broader Western cultural scripts of "overweight" female bodies as deviant and even repulsive. As noted earlier, even a few participants who may have had access to alternative body image norms and scripts from within their respective communities of color reported dissatisfaction with the increase in belly fat. Thus, the interaction of cultural femininity ideals and hormone-related weight gain presented a challenge to the positive benefits of gender affirming hormone use.

Several participants talked about how hormone-related weight or appetite increases motivated them to want to be more "healthy," which for some included healthful strategies like physical activity—

albeit strategies that may have been difficult to attain due to economic barriers to entry, such as gym membership or access to safe outdoor recreational spaces. For others this motivation to engage in healthy behaviors may have prompted use of high-risk or ineffective weight-control products, such as laxatives, as for this participant: “My estrogen says to eat. My hormones say to eat, honey, and I just maybe just try to live healthy now. I just maybe go to—I try to fight it, and I just do an herbal lifer. A detoxifying flush. When I have a few extra bucks, it’s like it cleans you” (Age 24 years). Notably, a few participants had a completely different perspective: for those who had struggled with feeling too thin and thus lacking feminine curves, weight gain was interpreted as a potential benefit of hormone use: “I want to do something about my weight. I’m trying to stay on my ’mones constantly, and I’m trying to eat more” (Age 19 years).

One participant highlighted another dimension of biology: weight control as a manifestation of psychological distress due to pubertal changes without appropriate gender affirming treatment. Specifically, this participant, who was the only participant who had received treatment for an eating disorder, reported:

[The binge eating and purging started] not long before I was there [at the residential treatment facility] for the self-injury and stuff. Just because I’d see other people and girls, the way their bodies were forming and mine and I’m becoming too masculine. Like, this is something—I need to do something. (Age 20 years)

This narrative depicts a causal link between the participant’s own increasing gender dysphoria as male puberty proceeded, body comparison with other girls, and what is described as a conscious decision to remedy this dissonance through binge eating and purging. While no other participant narratives articulated this link to the same degree, this participant’s experience resonates with others as an example of the severe psychological distress that can result from a lack of gender affirmation and, if desired, medical intervention, and the implications of this psychological distress for unhealthy attempts at body control via disordered eating or other high-risk strategies.

Resilience processes and positive body image development: Strength, stress, and complexity

While many participants reported previously or currently engaging in some degree of unhealthy weight or shape control behavior, only a minority of participants reported severe disordered eating or high-risk silicone use. What's more, participants described an array of strategies they used to find strength and provide support to others in spite of the pervasive transphobia and sexism they had faced throughout their lives. These forms of agency and resilience threaded through the weight and shape control narratives. In terms of positive body image development in particular, study participants drew on both internal and external resources. At the individual level, some grappled with ways to deflect negative comments from others and reinforce body satisfaction through positive body talk:

Worry about your own weight, because at the end of the day I wanna be thicker, but I'm so happy with my body. Just because I want little things changed doesn't mean I'm not satisfied with who I am. (Age 19 years)

Other participants described role models they used to validate their sense of self and gender presentation in the world. These role models represented a range of meanings in relation to weight and shape control.

For some, role models were high profile celebrities such as Beyoncé and Angelina Jolie:

I've actually always admired a couple Hollywood stars and catwalk models, where, certain women who have more angular features, who have stronger jaw lines and are not as stereotypical like feminine look... Like Sandra Bullock who's—hilariously often get confused for, and accused of, being a transsexual and all these things... So that kind of encourages me a little bit, 'cause it's like, I don't have to look ultra-feminine. I don't have to have the ideal face shape for people to think I'm beautiful. There's beauty in different kinds of people and different faces, so it kind of eases me up a little bit. (Age 24 years)

This category of role model had a double edge. While, for some young women, such icons represented an affirming expansion of feminine beauty (e.g., strong jaw, voluptuous hips), these “alternatives” still elevated an unattainable thinness ideal per the demands of their profession, and as such were another example of gender affirmation bundled with body weight and shape restrictions. Other participants spoke of a few high-profile transgender women of color, who are actively creating powerful new media representations of transgender women: “Laverne [Cox]. She's amazing... Then you see so many people behind the scenes that are doing so much positive things and modeling and acting. It's just, like, if they can do it, you can do it, too. If they can step out into the light, you can step into the light, too” (Age 24

years). Other participants cited countercultural role models (e.g., in the world of comics conventions), who, in being celebrated for their nonconformity, affirmed a broader range of body shapes, gender identities, and gender expressions. Thus, while role models represented a gender affirming resource, the implications of these role models for positive body image development varied widely.

Critical analysis and media literacy was another strategy employed by participants for protecting themselves from pervasive marketing of unrealistic femininity ideals. Take, for example, the participant who described growing up watching her mother “go through every single popular diet plan” of the 1980s-2000s. Her conclusion: “That every diet plan that I’ve seen, with the exception of just ‘eat what you need’ was just to get money” (Age 28 years). Another participant explained that she finds popular media to be “very objectifying of women” and noted “lots of fatphobia. Lots of photoshopping people so they look more suitable for their magazine,” to the extent that “over the past few years I’ve just completely cut myself off from any news sources... I just don’t like the messages that they’re trying to send to their audience” (Age 20 years). Although no other participants described going to this extent to protect themselves from degrading media content, critical media literacy generated within communities of transgender women may be an important source of strength upon which to build future interventions.

In addition to identifying public figures as role models, many participants reported their body confidence being bolstered by the gender affirming support of friends and community members.

My friends are like congratulating me and cheering me on, like, “Ooh, your butt’s getting bigger. Your boobs getting bigger. You’re filling out. You’re looking good. You’re gaining weight.” Not even from just boys, my friends, too. *[Laughter]* That part feels good. (Age 21 years)

In this instance, her friends’ positive body talk helps the participant to feel good about herself. Other participants described the importance specifically of getting both feedback and gender transition-related information through transgender community networks. And some, particularly those with limited access to in-person transgender community (e.g., due to geographic isolation, mental health issues, or living in foster care), described the importance of finding online support.

It must be noted here that community networks represented important sources of stress as well as strength and that many participants described judgment and policing of what was considered “appropriately feminine” within their own communities:

People have said, “Oh, you’re hard.” Or “You have a big back.” Or “Your hands are very big.” Or “You know, you’re not too feminine. Look at your jaw line.” ...It’s pretty cruel for another peer of yours to or another transgender peer to look at you and say, “Oh, you’re not that feminine.” Or... “You don’t fit into some category of being real or realness,” or just all these different catty categories. “She’s a hard brick.” “Oh, she doesn’t wanna—she’s not a real transgendered woman because she may be not on hormones.” (Age 24 years)

Several participants described such experiences, sometimes coming from other transgender women, sometimes from gay men with whom they shared a social milieu. A few participants acknowledged their own biases against transgender women who were perceived as insufficiently womanly or “passable.” Such experiences point to the internalization of transphobia and the normalization of this internalized transphobia at a community level. These within-community stressors could have important implications for weight and shape control if weight and shape control behaviors are largely inseparable from gender affirmation. A full analysis of this duality—marginalized communities as sources of gender-related body shaming and as crucial knowledge networks and sources of strength—is beyond the scope of this paper but merits further discussion.

DISCUSSION

This study sheds light on an underserved, at-risk population for disordered eating and weight control behaviors: socially and economically marginalized adolescent and young adult transgender women, and particularly women of color. Past research on disordered weight control has focused almost exclusively on cisgender women (Hoek & van Hoeken, 2003; Smink, van Hoeken, & Hoek, 2012; Thompson, 1999) and only a few studies have focused on transgender men and women (Ålgars, Alanko, Santtila, & Sandnabba, 2012; Diemer et al., In press). Although the nature of a small qualitative study precludes calculation of prevalence proportions, this study found that 16 out of 21 participants reported some level of disordered eating or weight control. The ubiquity of disordered eating or weight control behaviors in this sample of young transgender women is unfortunately not unexpected given high levels

of economic and housing instability, social marginalization, and high-risk of psychological distress in this sample. Each of these social determinants has been linked to disordered eating in general population studies. For example, in a representative sample of Massachusetts high school students, those who were unstably housed had 2-3 times greater odds of reporting disordered weight control behaviors relative to non-homeless students; among unstably housed students, 11% reported purging, 25% fasting for weight loss, and 13% diet pill use (compared to 5%, 10% and 4% of non-homeless students, respectively) (Fournier et al., 2009). Sexual orientation has also been linked to disordered weight control behaviors, with complex racial/ethnic intersections. A study using data from Youth Risk Behavior Surveys pooled across several U.S. regions demonstrated that sexual minority (e.g., lesbian, gay, and bisexual) girls and boys reported higher levels of purging behaviors than their heterosexual counterparts, particularly among African American and Latina girls, and African American, Latino, and white boys (Austin et al., 2013). Several participants in the present study reported sexual orientation discrimination, particularly those who were gay- or bisexually identified in school. Research has also consistently shown that young men of color—specifically, African American, Latino, and American Indian young men—have higher prevalence of disordered eating behaviors than young white men (Austin et al., 2011; Johnson et al., 2002; Neumark-Sztainer et al., 2002), and some research with Massachusetts middle school students has found similar patterns among young women (Austin et al., 2011).

The primary finding that emerged from the analysis of the contexts of weight and shape control behaviors was that, in this sample, weight and shape control desires and endeavors were situated at the intersection of transphobia, gender affirmation needs, and femininity ideals. This was illustrated through four emergent themes: gender socialization processes in childhood and adolescence, gender affirmation processes in young adulthood, biological processes, and resilience processes. All of these dimensions must be accounted for in any consideration of disordered eating, weight control, or shape-related risk behaviors among young transgender women.

There are three key insights that stemmed from the analysis of these themes. First, gender affirmation is a key component of understanding the health and wellbeing of young transgender women.

Participant's narratives were consistent with previous research showing that gender affirmation is an important aspect of wellbeing for transgender women and that, in a transphobic society, not being able to have one's gender affirmed can mean heightened exposure to discrimination and physical violence, in addition to a host of mental health and behavioral consequences (Melendez & Pinto, 2007; Nuttbrock et al., 2009; Sevelius, 2013). In particular, the analysis suggested that gender affirmation has a critical and multi-faceted role to play in the ways that women approach weight and shape control. Sexual objectification coupled with stigmatization was rampant in the interactions that women in the study had with cisgender intimate partners, potential partners, strangers on the street, and sometimes even friends. For some women, such sexual objectification heightened their own self-objectification and body consciousness, which can increase psychological strain, body dissatisfaction, and disordered weight control (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Hebl, King, & Lin, 2004).

Second, gender affirmation must be considered in relation to both dominant and culturally specific femininity ideals when conceptualizing determinants of weight and shape control. Gender socialization and gender transition require that women, particularly women of color, negotiate both Western femininity ideals (thinness, whiteness, youthfulness) and competing femininity ideals rooted in racial/ethnic identity or community norms. For transgender women, the stakes are heightened because conforming to societal standards of femininity and "passing" as non-transgender can be necessary for daily safety and survival. Across types of relationships (family, peers, partners), gender affirmation was often bundled with narrow prescriptions for socially acceptable expressions of femininity, including acceptable forms of female weight and shape. Body size and weight stigma were also used against some transgender women as tools for perpetuating relational power imbalances by cisgender male partners. On the other hand, several women in the study described how a transgender woman may reject this bundling by asserting her right to self-determination and to defining femininity for herself. This assertion of one's human right to self-definition may be self-contained, or may be grounded in a host of potential protective resources, including supportive peer or family networks or access to more expansive or attainable notions of femininity. Although beyond the ability of this study, an analysis of transgender

women's body image and weight and shape control behaviors within and across racial/ethnic identities and in relation to both racist Western femininity ideals and the specific strengths and constraints of non-dominant cultural femininity ideals is greatly needed. In the past two decades, increasing attention has been paid to discussion of differences in body dissatisfaction and disordered weight control across racial/ethnic groups and has been a subject of some contention, with some work demonstrating substantial similarities in levels of body dissatisfaction across racial/ethnic groups in the U.S. (Grabe & Hyde, 2006), others indicating important areas of difference (Yates, Edman, & Aruguete, 2004), and calls for more attention to within-group analyses and the intersectionality of racism and gender in determining body image (Capodilupo & Kim, 2014).

Third, these findings emphasized biology as an integral component of positive body image development and weight perceptions for young transgender women in the sample. This was particularly striking in participants' descriptions of the effects of cross-sex hormone use, which was largely viewed as positive while also generating some dissatisfaction related to undesired weight gain or (less often) loss. There are several biological pathways through which estrogen, progesterone, and testosterone might influence weight and appetite, although studies of exogenous hormone use in cisgender women (via oral contraceptives or hormone replacement therapy) have found limited or no evidence that either cause weight gain (Hirschberg, 2012). There has been scant research on the weight or appetite effects of cross-sex hormones for transgender populations. One community sample of 16 transgender women in Los Angeles found no significant weight change at 6 months post-initiation of cross-sex hormone treatment (Deutsch, Bhakri, & Kubicek, 2015). The long-term effects of cross-sex hormone use on weight and/or appetite in transgender youth and adults is an important and understudied clinical issue that warrants future research with implications for understanding body image development and disordered weight and shape control behaviors.

These findings should not be interpreted as a decontextualized picture of biology as preeminent; rather, as clarified by ecosocial theory, "biological and societal features" are intertwined at every level (Krieger, 2011, p. 227). The biological processes theme illuminated an ongoing interplay between bodily

pleasures and frustrations, between body change that affirms femininity (e.g., through breast development) and body change that undermines cultural femininity ideals (e.g., through increasing belly fat). Gender affirming health care providers may be an important point of intervention, able to provide access to needed gender affirming technologies such as cross-sex hormones, while also delivering affirming messages and resources about body weight and shape acceptance.

Strengths & Limitations

Three primary limitations are noted. First, as a cross-sectional study, this study could not characterize developmental processes or assess the temporal dimensions of relationships, such as exposure to potential influences and subsequent engagement in particular weight and shape control behaviors. Instead, our approach was to situate experiences as they were reported to have occurred in broad segments of the life course (e.g., childhood, high school), which allowed for a recognition, if not an analysis, of life course variation. In a qualitative study, generalizability is neither feasible nor sought. However, a second limitation is that this sample, while purposefully chosen, is a specific, sexually at-risk group of young transgender women, who were currently participating in an HIV risk reduction intervention study and who already may have had heightened exposure to structural violence over their lifetimes. The degree of harmful weight control behaviors may not be substantially different if we were able to compare to young cisgender women in identical social and economic circumstances—but it's nevertheless critically important to be able to examine the ways that the women in this group live at an intersection of social stressors linked to their status as women, as low-income women, as transgender women, and for the majority of the sample, as transgender women of color. Importantly, even within a narrow segment of the broader population of transgender women, there was significant heterogeneity of gender, racial/ethnic, and sexual orientation identities, as well as heterogeneity in experiences with weight and shape control. Last, this study used what is known as an “etic” approach—that is, the study was largely designed, conducted, and analyzed by researchers who are “outside” the study population (as compared with an “emic” approach in which the researchers can count themselves as members of the group being studied). There are strengths and limitations to both of these approaches, which have been the

subject of longstanding debate (e.g., Headland, Pike, & Harris, 1990). A within-community interviewer and analyst might have elicited different responses from participants or contributed different insights to the analysis; an outsider interviewer might create more space for participants to explain concepts without assuming shared knowledge and open up new lines of inquiry. The key is to recognize the approach and note that, were this study to be replicated from an emic perspective, additional insights might emerge.

CONCLUSION

To our knowledge, this the first study to explicitly examine weight and shape control experiences among a group of young transgender women with an eye towards multi-level stressors and strengths. This project sought to foster conversation across two areas of study and practice that have previously had little opportunity to communicate: transgender health and body image development/eating disorders prevention and treatment. Further, the insights and experiences of the transgender women in this study made visible some of the processes of gender socialization and affirmation that are frequently taken for granted and obscured in U.S. conversations about gender and inequality.

Our findings suggest several directions for future inquiry with an eye towards possible intervention efforts. There is a need for research exploring themes outlined in this study among economically diverse populations of transgender women and among transgender men, who may face similar and distinct gender-related pathways to weight and shape control. Epidemiologic research is needed in order to begin to assess absolute and relative risk of disordered eating behaviors among gender minorities, ideally stratified by gender, economic level, and race/ethnicity. Although small sample sizes pose methodological challenges in quantitative research, efforts are mounting to incorporate gender identity questions on population-based surveys in the U.S., such as the Youth Risk Behavior Surveys and the National College Health Assessment II, which include topics relevant to weight control. More work is also needed to understand the perspectives of health care providers in the two fields bridged by this analysis: (a) those providing primary care to transgender populations, who may not be screening patients for disordered weight and shape control; and (b) those providing eating disorders treatment, who may not have expertise in providing care for transgender patients. Finally, study participants described multiple

forms of individual- and community-level resilience. These represent important sources of community and individual strengths that may be starting points for the development of intervention efforts seeking to facilitate access to safe and healthy gender affirming care and the promotion of positive body image development relevant to the needs of young transgender women.

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Appendix. Project Body Talk codes and code definitions used in present analysis

CODE	DEFINITION
BODY IMAGE	Any aspect of perceptions of body (including face, overall look) in conjunction with mention of feelings. Particular focus on (but not limited to) comments about body satisfaction, body dissatisfaction, and weight perceptions. Also used to code anything related to body + weight that is not specifically about weight control.
DISCRIMINATION/STIGMA – GENDER	May include any reported discrimination or stigmatization attributed to being transgender or being female (e.g., dating and relationships, employment/work, health care, family of origin, family of choice, police or criminal system, school, stores/businesses, street or other public locations, internalized). May also be inferred by coder if participant describes something about the situation that suggested it was due to being perceived as a woman or perceived as transgender or gender nonconforming. Can include mention of personal responses to discrimination or vigilance in anticipation of discrimination (based on prior experience or otherwise).
DISCRIMINATION/STIGMA - RACIAL/ETHNIC	Any specific mention of experiences of racism or discriminatory treatment related to race, ethnicity, nationality, or color. Can also include responses to such experiences and resources used to counter or cope.
DISCRIMINATION/STIGMA - SEXUAL ORIENTATION	Any specific mention of experiences of heterosexism or discriminatory treatment related to sexual orientation. Can also include responses to such experiences and resources used to counter or cope.
DISCRIMINATION/STIGMA - WEIGHT OR SIZE	Any specific mention of experiences of fatphobia or discriminatory treatment related to body size or weight (including related to being "too skinny"). Can also include responses to such experiences and resources used to counter or cope.
HORMONES	Includes any references to hormones, including: links to weight and shape, health care access, unmet need, thoughts about hormones (re: gender affirmation, positive or negative experiences), informal or illicit access, and side effects or other physiological processes.
INFLUENCES ON WEIGHT & SHAPE CONTROL	These can include influences on body image and weight and shape control perceptions or behaviors at multiple levels. (For example: targeted marketing; pop culture/media messaging; ethnicity & cultural background; interpersonal-family of origin; interpersonal-family of choice; interpersonal-peer/friend; interpersonal-other; interpersonal-romantic/sexual; structural/policy).
ROLE MODEL	Explicit description of someone participant sees as a role model
STRENGTH, SUPPORT & RESILIENCE	Includes internal strength and resources (e.g., resilience), interpersonal sources of support (e.g., social support), and community or organizational forms of support.
WEIGHT, SHAPE, & APPEARANCE CONTROL (+DIET)	Includes experiences, actions, perceptions and desires related to potentially harmful weight, shape and appearance control activities as well as any discussion of diet. Content could include: binge-eating; dieting, hunger, or food habits; diet pills or other weight-loss products; excessive exercise; fasting; laxative use; pumping (silicone injections); vomiting; other appearance control with some risk (e.g., laser hair removal).