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Sex and Gender Disparities in Pain

FACT SHEET

Pain and Gender Diversity - Beyond the Binary

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Sex and Gender

Biomedical understandings of sex and gender have traditionally been centered around a binary framework, conceptualizing sex as either male or female and gender as either man or woman. However, this restrictive framework fails to capture the diverse nature of identities. It overlooks the multiplicity of ways in which individuals express their sex and gender beyond the confines of a binary. These binary biomedical frameworks risk homogenizing peoples' experiences while silencing the experiences of those who do not fit into these predetermined classifications. Furthermore, binary frameworks can perpetuate inequities in healthcare more broadly and in pain medicine more specifically.

The ways sex and gender are conceptualized require nuanced and dynamic discourses that address biological and sociocultural dimensions. Sex has traditionally been defined as a biological construct based on anatomy and genetics. However, the way in which we define sex based on biology needs to be more nuanced, considering organs, reproduction, chromosomes, gene expression, and hormonal levels. Sex, therefore, can also be considered on a spectrum. A non-exhaustive list of sex classifications could include female, male, intersex, and disorders of sexual development. Gender is a socially-constructed concept that takes into account the multifaceted sociocultural, psychological, and experiential dimensions of an individual's identity. However, multiple gender theorists conceptualize gender slightly differently. A non-exhaustive list of gender identity classifications could include Two-Spirit, woman, man, transfeminine, transmasculine, transwoman, transman, gender diverse, gender non-binary, agender, etc. Conceptualizations of sex and gender are complex and continue to evolve in response to societal attitudes and advances in medicine.

Sex and gender identities are not monolithic; inclusive and intersectional approaches to understanding sex and gender beyond the binary are crucial within pain medicine. Considering that not all transgender and gender-diverse (TGD) people will undergo medical and surgical gender-affirming care, understanding where each TGD person is in their journey is of utmost importance in supplying patient-centered care.

Pain Beyond the Binary

Rates of TGD individuals presenting at pain clinics are rising, which is not surprising given the abundance of literature to suggest unique pain experiences in this population.

Empirical evidence of the co-occurrence of pain and gender diversity is available but limited:

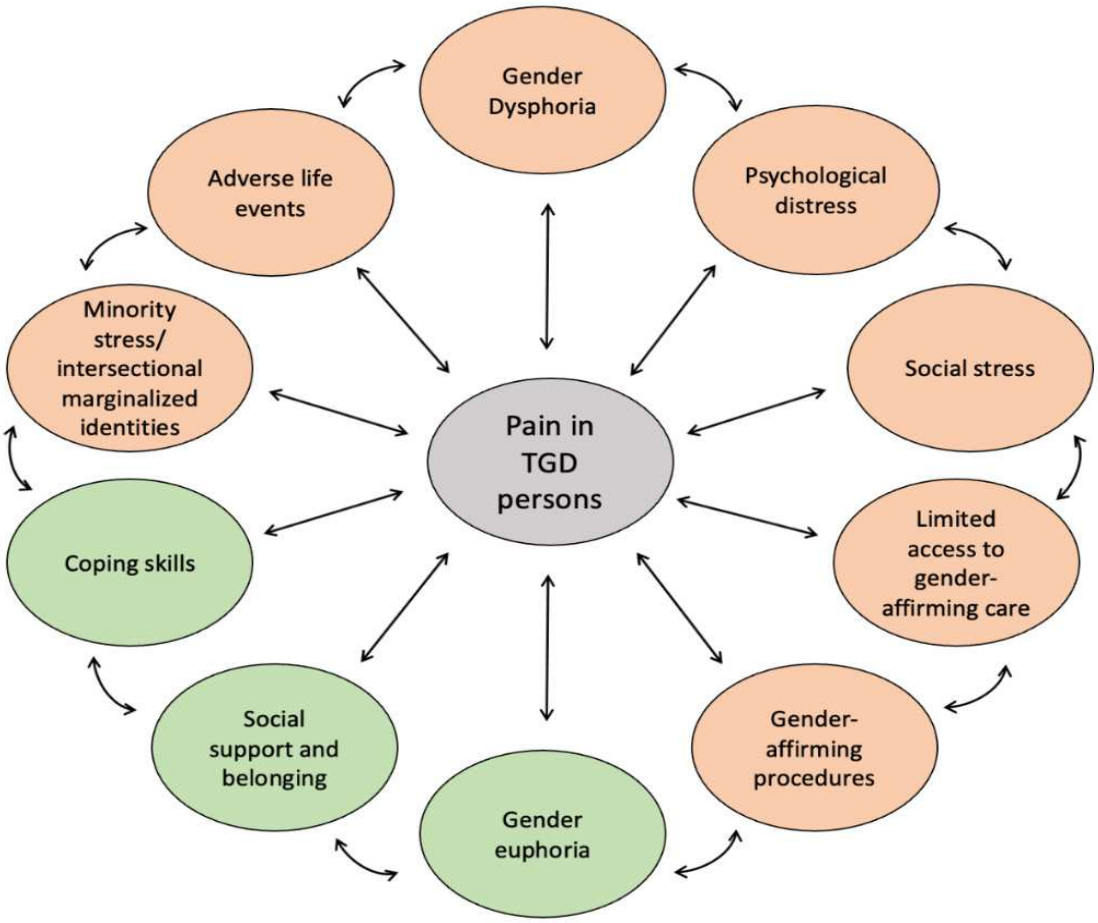
- Current estimates of chronic or widespread pain in TGD or sexual and gender minority (SGM) adults range from 14.8% to 56.4% [1-2].
- In the United States, TGD Medicare beneficiaries under the age of 65 are shown to have more chronic conditions than cisgender Medicare beneficiaries, including disabling mental health and neurological/chronic pain conditions [3].
- High rates of chronic pain are also found in TGD youth worldwide; a recent cross-national, retrospective study found that one-third of adolescents identifying as non-binary reported suffering from pain all or most of the time over 12 months [4].

- One study reviewed the number of TGD youth attending a pediatric intensive interdisciplinary pain treatment program in the United States and found a prevalence rate of 6.11% over a 4-year period. Notably, the TGD youth in this sample were least likely to complete the program and presented as more emotionally distressed and functionally impaired at baseline compared to age-matched, cisgender peers [5].
- Research suggests that rates of autism diagnoses and autistic traits are higher in gender-diverse individuals compared to the general population [6], which, for this subset of people, can exacerbate the risk of pain or contribute to its undermanagement. For example, a retrospective review of electronic medical records found that a total of 30% of patients in the outpatient pediatric pain clinic were found to be likely to meet the criteria for autism, with 9% having a prior diagnosis and an additional 21% identified during clinical assessment. Among autistic youth, 52% presented with widespread pain, and 6% identified as gender-expansive or transgender.

Figure 1. Factors known to inform pain experiences in TGD individuals. Arrows indicate the interacting nature of these factors. Potential risk factors are denoted in orange, and potential resilience factors are denoted in green.

Biological and Sociocultural Considerations

Higher rates of pain in TGD individuals may be linked to the experiences associated with one's gender identity. This phenomenon can be explained by the ***gender minority stress framework***, which suggests that the unique stressors TGD individuals face due to their minority status lead to higher risks of negative health outcomes, while resilience factors like positive self-identity can mitigate these effects [7]. Stressors are categorized as distal stressors, such as discrimination and victimization, or proximal stressors, like internalized transphobia and fear of rejection. The impact of stressors can be exacerbated by development and intersectional identities [8]. Figure 1 presents many key factors known to uniquely influence pain experiences in TGD individuals. However, the relative impacts of these factors are not mutually exclusive and cannot be quantified; factors impacting pain experiences in gender-diverse youth are interconnected and influence each other (e.g., adverse childhood experiences and social stress may be related and influence psychological distress; gender dysphoria is characterized by psychological distress). In this section, we provide examples of research that points to the relevance of the purported risk and resilience factors.



Adverse Childhood Experiences (ACEs)

- ACEs are a known risk factor for pain and tend to be common and higher amongst TGD individuals compared to cisgender individuals, especially in terms of emotional abuse, physical neglect, and emotional neglect [9].
- Amongst adults with chronic pain, TGD individuals reported higher ACE scores and current pain scores compared to cisgender individuals [10].

Gender Dysphoria

- Gender dysphoria refers to the distress that may accompany gender incongruence, often heightened at the onset of puberty, and is associated with minority stress across systemic (e.g., discrimination), familial (e.g., conflict, rejection), social (e.g., bullying, exclusion, harassment, transphobia), and psychological (e.g., anxiety, depression, internalized transphobia) domains.
- Only one study characterized pain in a sample of eight youths with gender dysphoria presenting at a chronic pain clinic. This study found that all eight youths treated for both chronic pain and gender dysphoria experienced a consistent reduction in their pain scores over time [11].

Social Stress

- Social stress stemming from discrimination, stigma, and limited healthcare access significantly exacerbates chronic pain in TGD individuals through prolonged exposure to stress hormones, which can alter immune function, promote inflammation, and contribute to heightened pain sensitivity and chronic pain [12].
- Based on survey responses from parents of TGD youth, about 0.6 million youth in the U.S. have experienced discrimination; these children are twice as likely to have chronic pain [13].

Psychological Distress

- Research shows that TGD individuals are at a greater risk of poor psychological well-being, with transgender women being at the greatest risk [14]. Given the link between pain severity and mental health impairments, higher psychological distress is believed to be a mechanism of worsened pain outcomes in TGD individuals [15, 16].

Gender-affirming (Biomedical) Interventions

- Sex hormones (estrogens, progesterones, androgens, and testosterones) play pivotal roles in pain perception and transmission. Differences in pain sensitivity have been documented between cisgender women and men, where women display greater pain sensitivity compared to men. However, evidence in cisgender people cannot easily be extrapolated to TGD people as it is necessary to consider the impacts of gender-affirming hormonal therapy and gender dys/eu-phoria on mental health. Although they are less well-documented, differences in pain sensitivity in people who self-identify as TGD do exist. These differences include:
  - Transgender people reported a higher prevalence of pain related to gender-affirming hormones (GAHs). For example, studies show approximately 30% of transwomen reported experiencing painful conditions, commonly in the breast and head, and 80% of these transwomen expressed that these painful conditions occurred after having started GAHs. On the contrary, 60% of transmen on GAH had improvement of their chronic headaches [1, 17].
  - Approximately 69% of transmen endorsed abdominopelvic pain following initiation of testosterone, and 51% of transmen reported pain with sexual penetration, with pain being present in only 42% of these men prior to testosterone use [18, 19].
  - The above-mentioned research is in adults. In youth, less is known about whether gonadotropin-releasing hormone injection is associated with altered pain syndromes and/or injection site pain.
- Some TGD people may choose to undergo any number of gender-affirming surgeries (GAS) to align their bodily appearance with their gender identity, simplistically categorized as "feminizing surgery," "masculinizing surgery," or "top surgery," and "bottom surgery." Chronic pain is a potential side effect of any type of surgery, but the degree to which one experiences persistent pain is contingent on the intensity of the postoperative acute pain, pre-existing chronic pain, and depression and anxiety. Research on post-surgical pain in transgender people is lacking, but suggestions include:
  - Transgender patients receiving pectoralis nerve blocks reported lower pain scores than cisgender patients undergoing breast reduction surgery [20].
  - Robinson et al. revealed no difference in opioid consumption in patients undergoing top surgery compared to patients undergoing oncologic mastectomy without immediate reconstruction, both of whom received pectoralis nerve blocks [21].

Protective Factors: Gender Euphoria, Social Belonging, and Coping Skills

- Gender-affirming care and acceptance are critical to pain management. Research shows that, for TGD individuals, living in alignment with one's gender identity can be a powerfully positive experience (i.e., gender euphoria) and lead to a stronger sense of self, which may, in turn, buffer against pain-related stressors or facilitate coping with pain related to gender-affirming practices.
- Gender euphoria also alters TGD peoples' pain experiences. TGD people experience fewer phantom penises and phantom breasts after gender-affirmation surgery than their cisgender counterparts [22]. Furthermore, transmen use opioids less frequently and experience less pain after gender-affirming mastectomy [23]. This is theorized to be related to the positive psychosocial impacts of surgery.
- Resilience factors related to enhancing self-acceptance, hope, community connections, and positive self-identification can help TGD individuals cope with stressors. For example, supportive families, communities, and schools, as well as gender-affirming healthcare and mental health support, are crucial in developing coping skills that protect against negative mental health outcomes and enhance overall well-being.

Practice Points for Healthcare Providers

- Seek out resources specific to providing care for gender-diverse patients within your area of practice, such as published guidelines for anesthesia [25], gastroenterology [26], psychology [27], as well as general resources for practitioners and families.
- Create an affirming, welcoming environment in your clinical space, which can include access to gender-neutral washrooms, inclusive options on intake forms and clinic documentation, displaying safe space stickers, avoiding gendered materials, etc.
- Clinical staff should introduce/display their own pronouns and ask patients for theirs.
- Consider privacy and safety when asking about and documenting gender-related information (e.g., for an adolescent, is this information known to their parent(s)? Has the patient consented to this information being documented visibly in their medical chart?).
- Ask questions that are relevant only to the care you are providing, and educate yourself about issues specific to TGD people that may impact pain care (e.g., the influence of hormone treatments, pain associated with chest binding or genital tucking, understanding where an individual is in their gender exploration/understanding, etc.).
- Remember that each individual is unique. Do not assume what experiences (medical or social) an individual may have had based on their gender identity.
- Apologize if you make a mistake, acknowledge the limits of your knowledge, and incorporate the feedback that patients provide you.
- Be aware of the minority stressors impacting TGD individuals in your area of practice, particularly if there is legislation restricting access to gender-affirming care or if individuals in the area have been exposed to transphobic violence. Mental health providers and referrals to support groups, queer communities, and other sources of allyship may help buffer against internalized transphobia and negative self-evaluation while increasing identity pride.
- Understand that gender diversity is one part of a person's experience, and be aware of biases in healthcare that inappropriately attribute health issues to gender identity in TGD individuals.
- **Prioritize patient safety, autonomy, and respect.**

Practice Points for Researchers

- Be aware of existing guidelines on the ethical conduct of research with people from the TGD communities [28-30].
- Review guidance on conducting sex- and gender-sensitive research in pain [31], and consider how to incorporate gender-inclusive practices in all research, regardless of whether the focus is on TGD individuals. For example, use inclusive language when addressing groups of people (e.g., "folks" or "everyone" instead of "ladies and gentlemen")
- Ensure that research about TGD individuals is done in partnership with people from the TGD communities from inception to dissemination and that cisgender researchers reflect on their position, power, and biases [32].
- Understand the additional risks faced by TGD individuals with respect to privacy and confidentiality, and account for this in developing safe and autonomy-promoting research practices.
- Avoid damage- or deficit-focused research [33].

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