



# Pain in non-binary people: where we are and where we need to go

Dor em pessoas não binárias: onde estamos e para onde precisamos ir

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For decades, pain research was based on comparisons between men and women, supporting a binary logic that simplifies complex processes and marginalize those who don't fit into this scheme<sup>1,2</sup>. Trans and gender diverse (TGD) people have experiences that cannot be explained solely by hormones or anatomical differences, since their experience of pain is modulated by layers of identity, social context and biography.

Recent population studies have revealed a consistent scenario. Data from the PRIDE Study<sup>3</sup>, with over 6000 participants, showed that a third of non-binary people and trans men reported diffuse chronic pain, while trans women and cis men had the lowest rates. In another large cohort study, the prevalence of chronic pain among TGD individuals was higher than among cisgender people, and gender-affirming hormone therapy appeared to be associated with more frequent pain diagnoses, especially when there was concomitant depression or anxiety<sup>4</sup>. These results leave no doubt that the models built exclusively on cisgender populations are unsatisfactory.

On the mechanistic level, there are signs that the interaction between hormonal therapies, neuroplasticity and immunity plays a relevant role. Reports indicate that some trans women develop new pain conditions after starting estrogen, while many trans men experience an improvement in headaches while on testosterone<sup>5</sup>. These are observations that still lack longitudinal studies, but which suggest promising paths of research.

Psychosocial factors cannot be ignored. The impact of adversity in childhood is expressive: higher rates of adverse events in this phase are associated with more intense and disabling pain in adulthood<sup>6</sup>. In LGBTQ+ samples, almost half of the participants exceed this threshold, with particularly high rates among TGD individuals<sup>7</sup>. Histories of sexual trauma are directly related to fibromyalgia and pelvic pain, configuring an axis of vulnerability that adds to stigma and social exclusion<sup>7</sup>. In adolescents, there are records of significant improvement in pain when gender dysphoria is recognized and treated, illustrating the power of identity validation as part of care<sup>8</sup>.

Another important aspect is the overlap with the autistic spectrum, which is much more frequent in TGD people than in the general population<sup>9</sup>. This overlap has significant clinical implications: a greater risk of anxiety, depression and suicide,

all factors that intensify the experience of pain. This also highlights the need for intersectional approaches, capable of considering neurodiversity and gender differences in an integrated manner.

Finally, it should be emphasized that the issue is not just about vulnerability. Qualitative studies have described gender euphoria as a protective factor: the relief, pride and sense of congruence experienced after recognizing one's identity can reduce suffering and improve quality of life<sup>10</sup>. These results broaden the traditional perspective, as they show that coping with pain in TGD individuals cannot only be thought of in terms of deficits, but also of resources of resilience and affirmation.

What is clear, therefore, is the need for an agenda of research and clinical practice that goes beyond binary thinking. Future multicentric studies should monitor the long-term effects of hormone therapy and affirmative surgeries on pain, specific protocols for perioperative analgesia, systematic tracking of early trauma and suffering of minorities in specialized services, as well as metrics that incorporate gender euphoria as a relevant variable. Beyond an academic exercise, this is an ethical requirement: to offer trans and gender diverse people pain care that is equitable, inclusive and truly centered on each and every individual.

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