



Engendering Pain: Psychosocial Mechanisms Underlying Sex-related Differences in Pain

- Kai Karos, PhD: Maastricht University, Department of Clinical Psychological Science, Maastricht, Netherlands
- Sónia F. Bernardes, PhD: Iscte-Lisbon University Institute, Department of Social and Organisational Psychology, Lisbon, Portugal
- Saman Khalatbari-Soltani, PhD: University of Sydney School of Public Health, Sydney, Australia

Psychosocial Mechanisms that Account for Sex and Gender-Related Differences in Pain

There are sex and gender-related differences in human pain experiences. For example, especially after puberty, females/women are more sensitive to pain than males/men and report more frequent, severe, widespread, and disabling chronic pains. For an overview see [Fact Sheet 1 “Overview of sex and gender differences in human pain”](#)^[9]. Sex-related differences in pain can be accounted for by both biological mechanisms^[9] (e.g., sex hormones, genes, immune cells; for an overview see “Fact Sheet Biological Mechanisms Underlying Sex Differences in Pain” and psychosocial mechanisms, namely, gender-related factors.

- According to the Canadian Institutes of Health Research Institute of Gender and Health^[6]: “Gender refers to the socially constructed roles, behaviours, expressions and identities of girls, women, boys, men, and gender diverse people. It influences how people perceive themselves and each other, how they act and interact, and the distribution of power and resources in society. Gender identity is not confined to a binary (girl/woman, boy/man) nor is it static; it exists along a continuum and can change over time. There is considerable diversity in how individuals and groups understand, experience and express gender through the roles they take on, the expectations placed on them, relations with others and the complex ways that gender is institutionalised in society.”

- The term “gender”, therefore, encompasses a wide range of concepts reflecting different levels of interrelated psychosocial processes, which can (together) strongly shape how people experience and communicate pain, because pain is, at least in part, a socially determined, multidimensional, and dynamic gendered experience^[4,5,13]
- More specifically, gender can be conceptualised at different levels of analysis^[4], namely the intra-individual, interpersonal / situational, positional, and ideological level. This fact sheet will review the relevant research at these different levels of analysis.

Intra-Individual Mechanisms

- Gender, from an intra-individual level of analysis, refers to what people *are* - an intraindividual and relatively stable characteristic. For example, the extent to which a person has certain gender-related personality traits, such as agency/instrumentality (e.g. achievement orientation, assertiveness, competitiveness) and/or communion (e.g., cooperativeness, caring, interpersonal) (also termed gender identity), conforms to gender norms or endorses certain attitudes towards gender roles.
 - Gender identity: An individual’s sense of self in relation to the gender they most strongly identify with. This construct has been conceptualised as the endorsement of gender-related traits (clinical psychology tradition) or as a social identity (social

psychology tradition), namely the extent to which a person identifies with the stereotypical representation of gender social categories held in society.

- Most research has investigated whether different gender-related personality traits or group membership identification affect pain experience and expression.
 - A meta-analysis by Alabas et al. [2] showed that more masculine traits (e.g., agency/instrumentality) and less feminine traits (e.g., communion/expressiveness) are associated with less pain sensitivity in experimental studies, but effect sizes were small.
- In clinical settings, more masculine traits were associated with less self-reported disability and more feminine traits with more reported pain conditions. In another study, higher scores on feminine traits were associated with higher pain, whereas scores on masculine traits did not differ [13]. Again, large variation is observed in the data.
 - Perceptions of group membership identification might also be relevant, with participants showing less sensitivity to experimental pain when they believe they are less sensitive than the typical woman [2].
 - Research also showed that self-identified women report being more likely to seek help for pain, whereas self-identified men are more reluctant to seek help [12], yet research looking at actual differences in pain behaviour (e.g., facial expression) do not find consistent differences [16] between men and women.
- Pain can affect and threaten self-identity and vice versa [11], with gender identity being a core component of most people's identities from an early age [13].
 - Studies show pain can threaten identification with traditional gender roles. Some males/men report that pain interferes with their ability to conform to traditional masculinity norms such as stoicism, or the ability to provide for others. Some females/women report interference with traditional femininity norms, such as nurturing or providing support to others [13].
 - Some studies show that a threat to gender identity is also linked to stereotypical coping responses that may aim to reinstate gender identity. For example, some males/men might prefer to find solutions within healthcare rather than focus on emotional consequences of pain or ignore physicians' advice (e.g., not to lift heavy objects) in order not to appear weak [17].

- Several studies show that threats to gender identity can affect pain sensitivity. For example, studies in which masculine identity was threatened led to higher pain tolerance in males/men [3].

Interpersonal / Situational Mechanisms

- From a situational level of analysis, gender refers to what people do – often referred to as gender expressions, which are variable, dynamic, and highly determined by interpersonal interactions and/or situational cues.
 - Gender expression: The way a person communicates and performs gender (e.g., appearance, behaviour)
- The wider social and interpersonal context in which pain occurs can be considered a gender context [4], with certain environments (e.g., competitive sports) and interactions (e.g., male/male) that, by bringing gender meanings to fore, affect gender expression, including pain expression (e.g., "Men don't cry").
- Social interactions in pain involve the person in pain and the observer, each bringing their own gender identity, beliefs, and norms, which in turn might affect behaviour. This fact sheet will predominantly focus on how gendered situational cues may influence the person in pain.
- Most research in this domain uses dyad studies where the sex/gender of the person in pain and of the observer is considered. These studies show that:
 - Pain sensitivity is affected by the sex/gender of and relationship with the observer, but findings are mixed. For example, pain sensitivity is lower in the participant when in the presence of an experimenter of a different sex/gender [13]. At the same time, the presence of a same-sex friend leads to higher pain intensity ratings in females/women, but not males/men. For males/men, the presence of same-sex strangers and friends can lead to lower pain intensity ratings [7].
 - Research in different sex couples shows that solicitous partner behaviour leads to more pain and disability in males/men, and greater interference, opioid usage and more pain in females/women [8], and wives use more helpful behaviour around their spouses compared to husbands [18].
 - Research in parent-child interactions demonstrates that fathers estimate the pain of their sons as more intense than that of their daughters, and fathers react with more

criticism to their child's pain compared to mothers. Conversely, some studies demonstrate that girls are more sensitive to parental displays of pain than boys^[13].

- A large body of research also demonstrates that gender stereotypical norms affect observer estimation and judgements of pain in others, as well as treatment decisions^[13]. This body of research is discussed in more detail in the [Fact Sheet on Sex/Gender Biases in Pain Research and Clinical Practice](#).

Positional and Ideological Mechanisms

- From a positional level of analysis, gender is defined as a sign of social status – in that being and/or acting as a man, a woman, or a gender-diverse person is not just deemed different but, more importantly, differently valued, i.e., reflecting different positions in a social structure of status and prestige.
- Gender can also be defined as an institutionalised ideology – widely shared social values, norms and representations of the meanings associated with being a man or a woman that are institutionalised, i.e., integrated and reinforced by ongoing social practices and discourses produced by societies' social structures seeking to maintain and justify a social order (most often patriarchy). Institutionalised gender ideologies, such as hegemonic masculinity, justify and perpetuate the previously mentioned gender-related status (and power) asymmetries.
- A few studies have shown that discourses and practices of biomedical institutions in patriarchal societies, by institutionalising hegemonic masculinity values (e.g., strength, control, stoicism, rationality), create asymmetries in the value attributed to female/women's and male/men's pain experiences and behaviours. This may, for example, be reflected in less funding for research on female-specific pain conditions or in the often reported struggles of females/women to see their pain complaints legitimised in clinical encounters and, hence, lower quality of pain care^[4,17].
- Sex-related differences in pain intersect with other social determinants of health, particularly life course socioeconomic position (i.e., the resource- and prestige-based factors that contribute to the position individuals or groups hold within the structure of society)^[14] (also see Fact Sheet 4 "Intersectionality and pain across the life course"). Socioeconomic position is commonly measured at the

individual (e.g., education, occupation, income), household and community level (e.g. neighbourhood/environmental conditions and features of a society, such as access to education and employment across population groups and geographical areas).

- It has been shown that lower education and income, working in a lower grade profession, and living in deprived areas are associated with pain, chronic pain, and pain severity, highlighting socioeconomic inequities in pain^[14].
- Socioeconomic position can be viewed as a gendered construct. For example, while, since 1970, sex-related differences in educational attainment, favouring males/men over females/women, have declined in almost all high-income countries and eliminated or reversed in others, this is still a case in some low- and middle-income countries. However, the socioeconomic impact of education on health is still gender-related, given known gender differences in labour market, gender pay gap, or access to economic resources across the life course. Of note, social policies are directly and indirectly fundamental in addressing or increasing gender-related socioeconomic inequities in health (e.g., pain) through their influence on access to resources and opportunities (e.g., labour market and family care experiences over time)^[15].
- There is little research on cultural differences about gender constructs and pain. However, one study did show that there are cultural differences in beliefs regarding gender-appropriate pain behaviour, with Japanese participants considering pain behaviour in males/men and females/women to be less acceptable than Americans^[10] and another showing stronger gender role expectations of pain in Libyan compared to British participants^[1].

Recommendations for Future Research

- As most research thus far has focussed on intra-individual and situational mechanisms, future research should especially focus on positional and ideological gendered mechanisms underlying sex-related differences in pain^[4,13], as well as incorporating cross-cultural differences.
- Future research should take more dimensional gender constructs into account, rather than relying on binary comparisons between males/men and females/women.

This is especially important regarding gender-diverse individuals where sex and gender identity might diverge (also see Fact Sheet 9 “Pain and gender diversity (beyond the binary)”).

- Future research should explore the intersection between gender and other indicators of socioeconomic position (i.e., gender is one indicator of social position as outlined in the [PROGRESS-Plus framework](#) for example) across the life course to understand how individuals at different sociodemographic intersections (e.g., socioeconomically disadvantaged women living in a deprived area) are disadvantaged by multiple sources of oppression, power, and privilege.
- Future research should move “upstream” from individual characteristics and examine the direct and indirect impact of social policies and cultural norms in shaping sex differences in pain ^[19].
- Future research should actively manipulate psychosocial mechanisms discussed here (e.g., gender identity, gender threat) to be able to evaluate the causal role of these mechanisms in sex-related differences in pain.

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