



Intersectionality and Pain Across the Life Course

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Increasing research suggests that changes in sex and gender differences in pain over the lifespan cannot be solely attributed to shifting sex hormones, and taking a broader biopsychosocial-intersectional perspective is necessary to capture a fuller picture of the influences on pain outcomes^[2]. In this fact sheet, we review intersectionality as a framework for providing more depth to understanding sex/gender disparities in pain, by examining how sex/gender intersect with other sociodemographic positions. We also illustrate how life course methodology can be used to appreciate the temporal and developmental influences of factors contributing to sex/gender disparities in pain.

What is Intersectionality and How is it Relevant to Understanding Pain Across the Life Course

People are often disadvantaged by multiple sources of oppression, power, and privileges, which are important to consider if we are to understand sex/gender disparities fully. The critical theoretical framework of intersectionality helps us to understand the impact of unequal and interlocking distributions of social power and resources, both structural and interpersonal, that shape health experiences (e.g., pain) of individuals at different socio-demographic intersections^[14]. Demographic factors, such as age, ethnicity, socioeconomic position, as well as national (low-, middle-, and high-income countries) and local geographical context (rural and urban settings) interact with sex/gender. These social identities work simultaneously and dynamically, which influences sex/gender disparities in pain through different mechanisms.

Some examples of social positions and identities that interact with sex/gender to influence pain are:

- **Ethnicity/Race and Socioeconomic Position:** There is scarcity of intersectionality between ethnicity/race, socioeconomic position, sex/gender in pain research. One study conducted among chronic pain patients in low-income clinics in rural and suburban Alabama, USA revealed that those experiencing disparities based on an intersection of age, socioeconomic position, race, and sex exhibited the poorest levels of functioning^[15]. Another study conducted in Australia highlighted how a combination of ethnocultural background, social class, migration status, and sex contributes to unequal pain outcomes within culturally and linguistically diverse communities^[3]. Women's pain assessment (intensity, credibility, and etiology) and management decisions have been shown to differ by social class, related to dehumanizing inferences^[14].
- **Neurodiversity:** Research on the overlap between chronic pain and neurodiversity is emerging, and have shown sex- and gender-related patterns. Neurodiverse populations are at higher risk of pain experiences, as well as pain undermanagement. While most neurodevelopmental conditions are more prevalent in boys, samples of young people with chronic pain have found more clinically significant autistic traits amongst girls and gender-diverse youth^[6,12].

- **Sexual Orientation:** Sexual orientation refers to a person's attraction to other people and can be, but is not necessarily, related to their sex or gender. Research shows that bisexual female-identifying individuals are at the greatest risk for pain and associated risk factors [8]. This is thought to be related to minority stress.

What are Life Course Models in the Study of Pain

Pain is present at all ages and influenced by dynamic and reciprocal complex interactions among early- and late-life biological, psychological, social, and environmental factors. Thus, adopting life course approaches is critical to understanding the biopsychosocial concept of pain across the life course (gestation, childhood, adolescence, adult) or across generations [5,10]. Life course approaches recognize the complex and dynamic nature of pain, taking contextual and societal perspectives. Such approaches consider the importance of time, timing, and duration in the impact of being exposed to disadvantaged circumstances (e.g., disadvantaged socioeconomic position, minority groups) and the interdependence of these factors and pain experienced across communities and societies [9]. The life course approach allows us to explain social-to-biological mechanisms that an individual has experienced at different stages of their life via different conceptual models:

1. **The Accumulation Effect Model:** Where the impact of being exposed to disadvantaged circumstances accumulates over time. For example, it has been shown that those with life course trajectory of consistently low socioeconomic position (e.g., lower educational level, occupational position, and/or income) have higher odds of reporting chronic disabling pain and low back pain [9].
2. **The Critical Period Model:** Focuses on the timing and emphasizes that exposure to disadvantaged circumstances at a specific period in the life course (e.g., childhood) and not others, has long-lasting and detrimental effects. For example, early-life exposure to pain has long-term effects on the risk of persistent pain and mental health concerns into adolescence and adulthood [18,19]. Studies focusing on critical period models are scarce in pain research, which might be related to challenges in distinguishing sensitive period models with the critical model.

3. **The Sensitive Period Model:** Focuses on the timing where impacts of being exposed to disadvantaged circumstances are greater during certain periods (e.g., adolescence) more than the same exposure in another period. For example, earlier pubertal onset has been associated with increased risk of chronic pain in young women [16]. Focusing on socioeconomic conditions, while some studies reported that earlier adulthood might be a sensitive period for experiencing chronic widespread pain later in life, given the stronger associations between socioeconomic indicators of early adulthood (e.g., financial hardship and being a tenant) than with those of childhood or later adulthood [7,13], others highlighted the associations between socioeconomic indicators across various stages of life with pain [17]. Further research is needed to investigate the sensitive and critical period models.

4. **The Chain of Risk Model:** Refers to a sequence of linked exposures that raise the risk of a health outcome, e.g., pain. Trajectories of pain, or pattern of risk factors (single factor, or combination of biomedical, psychological, or social domains) across the life-course, are examples of chain of risk models. For example, having stable low or downward social mobility (e.g., being at higher socioeconomic level during mid-life to being low socioeconomic level at older ages) were associated with low back pain [11].

How Can this Information be Incorporated into Pain Research and Clinical Care

While there are consistent sex and gender influences observed in the pain literature, there is often great variability within each group. Considering factors such as development and intersectionality allow for a greater understanding of what might account for this within-group variability, and the circumstances under which sex or gender influences may be more prominent. This also highlights the importance of considering the systemic and structural factors that drive individual variability, and attributing relative risk to these factors (e.g., sexism, racism, trans-negativity, classism, ableism, etc.), rather than assuming health outcomes are solely attributable to an individual's identity or actions.

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