The Gender Health Gap

How a "male default" in medicine shapes the health of girls, young women and gender-diverse young people, and what can be done about it.

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Abstract. When a teenage girl is told her period pain is "normal", or a young woman's heart attack is mistaken for anxiety, the problem is not only one person's judgement. It reflects a system of medicine that, for most of its history, studied male bodies and treated them as the standard human. This report asks a central question: how does the gender health gap, built into research, medicines and clinical habits, shape the health of girls, young women and gender-diverse young people today? To answer it, this report synthesises 30 academic and grey-literature sources, including systematic reviews, large population studies, Australian government inquiries and national youth surveys. The findings are organised into three themes: the male default in research and medicines; the gender pain gap; and the girls and gender-diverse young people who remain hidden in plain sight. Each theme closes with practical, youth-centred solutions.

Keywords: young people; adolescent health; the male default in research and medicines; the gender pain gap; hidden in plain sight

1. Introduction

The idea that men and women can be treated the same way in medicine sounds fair, but it has often meant treating everyone as if they were male. Four developments make this issue urgent for young people in Australia.

1.1 Women live longer, but spend more of life unwell

Women in most countries outlive men, yet a longer life is not the same as a healthy one. A global analysis by the World Economic Forum and the McKinsey Health Institute found that women spend 25% more of their lives in poor health than men (World Economic Forum, 2024). Much of this burden begins early. Conditions such as period pain, endometriosis, anxiety and eating disorders often start in adolescence, which means the gender health gap is, in large part, a youth health issue.

1.2 Young women are carrying a heavy mental health load

Australia's most recent national mental health survey found that 45.5% of females aged 16–24 had experienced a mental disorder in the previous 12 months, compared with 32.4% of males in the same age group (Australian Bureau of Statistics [ABS], 2023). Anxiety disorders were the most common. These figures matter for the gender health gap because mental distress is often the label given to physical symptoms in young women, and because untreated pain and delayed diagnosis can themselves wear down mental health.

1.3 Pain is being dismissed on a large scale

In Victoria, more than 13,000 girls, women, gender-diverse people, carers and clinicians contributed to the Inquiry into Women's Pain. Of survey respondents, 71% said they had been ignored, dismissed or had their pain minimised by health professionals, and 53% reported a delayed diagnosis (Victorian Department of Health, 2025). The Inquiry found that many adolescents and girls experience pelvic pain, often with delays in diagnosis and treatment (Premier of Victoria, 2025).

1.4 Policy is finally catching up

Australia now has a National Women's Health Strategy 2020–2030, which names gender equity and a life-course approach as guiding principles and calls for more women and girls in clinical research (Department of Health, 2018). The National Health and Medical Research Council (NHMRC) and the Department of Health have also issued a joint statement saying funded research "must consider sex, gender, variations of sex characteristics and sexual orientation" at every stage (NHMRC & Department of Health and Aged Care, 2024). These are important commitments, but their impact depends on whether young people's experiences are counted and acted on.

Table 1. Key terms used in this review

Term	Definition
Gender health gap	The difference in health outcomes, care and research attention between women and men (and gender-diverse people) that comes from bias and neglect rather than biology alone.
Sex and gender	Sex refers to biological characteristics such as chromosomes, hormones and anatomy. Gender refers to social roles, identities and expectations. Both shape health, in different ways.
Sex as a biological variable	The practice of including both sexes in research and analysing the results separately, so that differences are not hidden in an average.
Adverse drug reaction	An unwanted or harmful effect from a medicine taken at a normal dose, such as dizziness, nausea or heart rhythm problems.
Gender pain gap	The pattern in which women's and girls' pain is more often doubted, minimised or undertreated than men's and boys' pain.
Endometriosis	A chronic inflammatory condition where tissue similar to the uterine lining grows outside the uterus, often causing severe pelvic pain.
Masking (camouflaging)	Consciously or unconsciously hiding autistic or ADHD traits, for example by copying others' social behaviour. It can delay diagnosis and is often exhausting.
Gender-affirming care	Health care that supports a person's gender identity, which may include social, psychological and medical support, provided respectfully and with informed consent.

2. Method

This report is a narrative literature review of peer-reviewed literature and grey literature, including government strategies, public inquiries, statistical releases and reports from non-government and research organisations. Sources were identified through searches of PubMed, Google Scholar and publisher databases, together with Australian government websites such as those of the Australian Bureau of Statistics, the Australian Institute of

Health and Welfare, the National Health and Medical Research Council and the Victorian Department of Health. The review focused on English-language evidence relevant to young people aged approximately 10 to 24, drawing on both Australian and international studies. Where youth-specific evidence was limited, adult studies were included when they illustrated system-wide patterns, such as drug dosing and research funding, that directly affect young people. Systematic reviews, meta-analyses, large population studies and government inquiry reports were prioritised.

3. Conceptual model: The Invisibility Loop

The evidence in this report points to a self-reinforcing cycle, which this report calls the Invisibility Loop. It begins when research leaves out female and gender-diverse bodies, so medical "normal" is defined using male data. Anyone whose symptoms or responses differ from that norm is more likely to be labelled atypical, anxious or exaggerating. This leads to dismissal and delayed diagnosis, which means fewer women, girls and gender-diverse people appear in official records for a condition. Missing data then makes their conditions look less common and less urgent, which attracts less research funding and restarts the loop. The National Women's Health Strategy describes a similar "cycle of invisibility" in which missing data leads to groups being overlooked in care (Department of Health, 2018). Breaking the loop requires action at every stage, not just one.

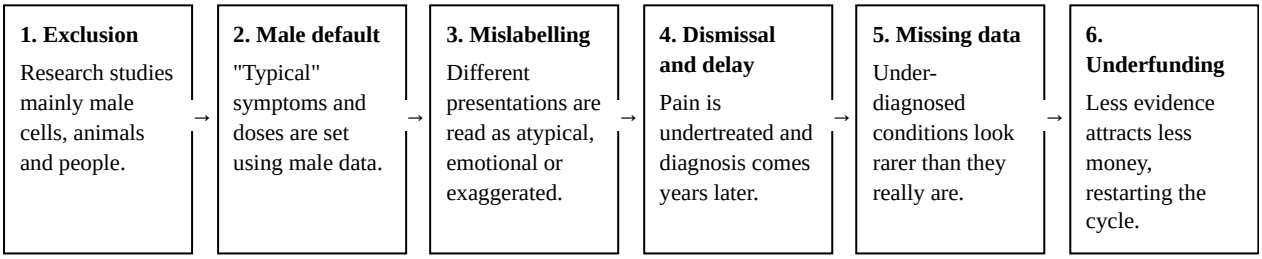


Figure 1. The Invisibility Loop: conceptual model developed from the literature reviewed.

4. The Male Default in Research and Medicines

For decades, medical research treated the male body as the default human and the female body as a complicated variation. This theme examines how that history continues to shape the medicines young people take and the symptoms clinicians are trained to recognise.

4.1 Women were formally excluded from early research, and the gaps persist

In 1977, following the thalidomide tragedy, the United States Food and Drug Administration (FDA) recommended excluding women of childbearing potential from early-phase drug trials. The guidance was so broad that it covered women using contraception, single women and women whose partners had vasectomies (National Institutes of Health Office of Research on Women's Health [NIH ORWH], 2024). It was not until the NIH Revitalization Act of 1993 that the inclusion of women in publicly funded US clinical research became law (NIH ORWH, 2024). Reviews of this history show that protective intentions ended up producing a large evidence gap about how medicines work in female bodies (Liu & DiPietro Mager, 2016).

Exclusion did not end with trials on people. A review of 2009 research across ten biological fields found male bias in eight, with single-sex neuroscience studies using male animals outnumbering female-only studies by 5.5 to 1 (Beery & Zucker, 2011). A ten-year follow-up found that the share of studies including both sexes rose

from 28% to 49%, but the share of those studies that actually analysed results by sex did not improve (Woitowich et al., 2020). Including women is not enough if the data are never separated to see whether results differ.

4.2 Overall balance can hide under-representation in key areas

Today, women make up roughly half of participants in clinical trials overall, but this headline figure is misleading. An analysis of more than 20,000 US trials registered between 2000 and 2020 found that women were still under-represented, relative to their share of the disease burden, in areas such as cancer, neurology, immunology and kidney disease (Steinberg et al., 2021). Cardiology and paediatric trials had the strongest negative associations with female enrolment (Steinberg et al., 2021). For young people, the finding on paediatric trials is particularly important, because evidence about how medicines work in adolescent girls is especially thin.

Australia's National Women's Health Strategy recognises this gap and includes an objective to encourage women and girls' participation in clinical research studies (Department of Health, 2018). The NHMRC statement goes further by asking researchers to include historically under-represented groups and make their findings visible (NHMRC & Department of Health and Aged Care, 2024).

4.3 Doses based on male data expose women to more side effects

When medicines are tested mainly on men, the "standard" dose is effectively a male dose. A study of 86 FDA-approved drugs found that 76 produced higher blood concentrations or longer exposure in women (Zucker & Prendergast, 2020). For drugs with known side effects, these sex differences in how the body processes the drug predicted the direction of sex differences in adverse reactions in 88% of cases, and 96% of drugs with higher exposure in women were linked to more side effects in women (Zucker & Prendergast, 2020). Importantly, the differences were not explained by body weight alone, so simply giving smaller people less medicine would not fix the problem.

Real-world consequences have been documented for decades. An official US review found that 8 of the 10 prescription drugs withdrawn from the US market between 1997 and 2000 posed greater health risks for women than for men (United States General Accounting Office [GAO], 2001). In 2013, the FDA halved the recommended starting dose of the sleeping medicine zolpidem for women, because women clear the drug more slowly and were at greater risk of next-morning impairment, including while driving (U.S. Food and Drug Administration [FDA], 2013). This decision came about two decades after the drug was first approved.

4.4 "Atypical" symptoms are often just female symptoms

Heart attacks are often imagined as a man clutching his chest. In the VIRGO study of nearly 3,000 adults aged 55 or under who were hospitalised with a heart attack, most women did report chest pain (87.0%, compared with 89.5% of men), but women were more likely to also report additional symptoms such as indigestion, shortness of breath, palpitations, and jaw, neck or arm pain (Lichtman et al., 2018). Among those who sought care in the week before hospital, more than half of the women said their provider did not think their symptoms were heart-related, compared with 36.7% of men (Lichtman et al., 2018).

This shows how the male default works in practice. When textbooks treat the male presentation as "typical", women's presentations are labelled "atypical", even when they are common among women. The National Women's Health Strategy notes that conditions such as cardiovascular disease can present differently depending on gender (Department of Health, 2018). For young women, who are not expected to have heart disease at all, the combination of age and gender bias can be especially risky.

Table 2. Summary of evidence discussed in this section

Sex or gender difference	Example	Consequence
Drug processing	Women had higher drug exposure for 76 of 86 drugs studied	More adverse drug reactions in women (Zucker & Prendergast, 2020)
Drug clearance	Women clear zolpidem more slowly	Dose for women halved after next-morning impairment risk (FDA, 2013)
Heart attack symptoms	Young women report more additional symptoms beyond chest pain	Symptoms more often judged not heart-related (Lichtman et al., 2018)
Pain stereotypes	Women seen as "emotional", men as "stoic"	Women's pain attributed to psychological causes (Samulowitz et al., 2018)
Neurodevelopmental presentation	Girls' ADHD and autism often quieter or masked	Later or missed diagnosis (Young et al., 2020; Bargiela et al., 2016)
Disease timing	Women diagnosed later across hundreds of diseases	Average delay of several years (Westergaard et al., 2019)

4.5 Conditions that mainly affect women receive less research funding

Research funding does not always follow the burden of disease. An analysis of US National Institutes of Health funding compared spending against disease burden for conditions that mainly affect one sex. Among the diseases where funding was skewed, about three-quarters favoured conditions that mainly affect men, and the size of the imbalance was also larger for male-dominant conditions (Mirin, 2021). Conditions affecting mostly women were more likely to be underfunded relative to how much illness and disability they cause.

In Australia, endometriosis illustrates the cost of this neglect. About 1 in 7 women born in 1973–78 had been diagnosed with endometriosis by their late 40s, and the hospitalisation rate for endometriosis among women aged 20–24 roughly doubled over the decade to 2021–22 (Australian Institute of Health and Welfare [AIHW], n.d.). Emergency department presentations for endometriosis were highest in the 20–24 age group (AIHW, n.d.). Despite this, there is still no cure, and treatment options remain limited.

4.6 Implications and recommendations

Fix the evidence base

- *Sex-disaggregated results as standard.* Require all funded studies to report outcomes separately by sex and, where safe and relevant, gender.
- *Include adolescents.* Design trials that safely include adolescent girls and gender-diverse young people, rather than extrapolating from adult men.
- *Fund to the burden.* Track Australian research funding against the burden of conditions such as endometriosis and close the gap.

Make medicines safer for everyone

- *Sex-specific dosing guidance.* Review dosing advice for commonly used medicines where female exposure is known to be higher.
- *Plain-language medicine information.* Tell young people, in consumer medicine information, when side effects differ by sex.

Retrain the "typical" patient

- *Update clinical teaching.* Teach women's symptom patterns as typical for women, not "atypical".
- *Youth-friendly heart health messages.* Include young women in campaigns about heart attack warning signs.

5. The Gender Pain Gap

Pain is one of the most common reasons young people seek health care, yet it is also one of the areas where gender bias is most visible. This theme examines how stereotypes shape how girls' and women's pain is assessed, treated and believed.

5.1 Women's pain is more likely to be undertreated

In a study of 981 adults attending a US emergency department with acute abdominal pain, women and men reported similar pain scores, yet women were less likely to receive opioid pain relief (45% compared with 56%) (Chen et al., 2008). After adjusting for age, race, triage category and pain score, women were 13% to 25% less likely to receive opioids, and they waited a median of 65 minutes for pain relief compared with 49 minutes for men (Chen et al., 2008). Pain relief delayed is pain prolonged, and for young people visiting emergency departments with pelvic or abdominal pain, these minutes matter.

The pattern was first described in a landmark legal and ethical review titled "The Girl Who Cried Pain", which argued that women's pain reports were more likely to be discounted (Hoffmann & Tarzian, 2001). Two decades later, the same lead author and colleagues revisited this work, examining what has since been learned about women's and men's chronic pain and asking whether women are still treated less aggressively for their pain (Hoffmann et al., 2022).

5.2 Gender stereotypes shape how pain is interpreted

A theory-guided review of 77 studies found that women with chronic pain were often portrayed as emotional, complaining or "hysterical", and that their pain was more frequently attributed to psychological rather than physical causes (Samulowitz et al., 2018). Men, by contrast, were portrayed as stoic and as avoiding health care. The authors argue that these norms contribute to differences in how pain is treated, including in medication (Samulowitz et al., 2018). Both stereotypes are harmful: one leads to women being disbelieved, and the other discourages men from seeking help.

These stereotypes begin early. In two experiments, adults watched an identical video of a child undergoing a medical procedure. When the child was described as a boy, participants rated the child's pain as higher than when the same child was described as a girl (Earp et al., 2019). The effect disappeared when researchers accounted for participants' explicit gender stereotypes, such as the belief that boys are more stoic, suggesting that these stereotypes drive the difference (Earp et al., 2019).

5.3 Period and pelvic pain are common, disruptive and normalised

Period pain is often brushed off as a normal part of growing up, but for many adolescents it is severe and disruptive. In a survey of more than 13,000 Australian school students assigned female at birth, 52.6% reported regular severe period pain and 22.9% regularly missed school or work because of their periods (Tomsett et al., 2026). Yet only 21.5% had seen a health professional for their pain, and fewer than half knew what endometriosis was before receiving an education program (Tomsett et al., 2026).

When pain is normalised, young people may not seek help, and when they do, they may not be believed. The Victorian Inquiry into Women's Pain heard from a young woman who was diagnosed with fibromyalgia as a teenager and had to leave school because flexible learning options were not available (Victorian Department of Health, 2025). Some parents told the Inquiry that they were reprimanded for raising concerns about their daughters' health (Victorian Department of Health, 2025). Menstrual and hormonal conditions were the most commonly reported cause of pain among all respondents, at 40% (Victorian Department of Health, 2025).

5.4 Dismissal compounds disadvantage for diverse young people

The Victorian Inquiry found that 22% of survey respondents identified as LGBTIQA+, and that these respondents were more likely than others to report that cost was a major barrier to care (77.7% compared with 64.3%) and that pain affected their mental health (Victorian Department of Health, 2025). One non-binary respondent described hiding their identity from health providers to avoid mistreatment (Victorian Department of Health, 2025).

Culturally and linguistically diverse (CALD) respondents faced additional barriers. Only 57% of people who completed the survey in a language other than English had sought help for pain, compared with 95% of all respondents, with the most common barriers being not understanding which services could help and not knowing what services existed (Victorian Department of Health, 2025). Very few respondents were aged 12–17 (about 1%), showing that the voices of adolescents themselves remain under-represented even in landmark inquiries (Victorian Department of Health, 2025).

Box 1. Case vignette (composite)

This is a composite example drawn from patterns in the research, not a real person. Mia is 15. Since her periods started, she has missed two days of school most months. A school nurse tells her that "everyone gets cramps". At an emergency department visit, she waits over an hour for pain relief and is asked whether she is stressed about exams. It takes several years, multiple GPs and a specialist referral before endometriosis is considered. By then, Mia has fallen behind at school and has started to believe she was "overreacting".

5.5 Implications and recommendations

Believe and measure pain

- *Pain is real by default.* Embed the principle that patients' pain reports are taken seriously in clinical guidelines and training.
- *Audit pain relief by gender.* Hospitals routinely check whether time to pain relief differs for women, girls and gender-diverse patients.

Normalise talking about periods, not period pain

- *Menstrual health education in every school.* Scale up evidence-based programs that teach students when period pain is not normal.
- *Flexible school arrangements.* Give students with chronic pain conditions access to flexible learning without penalty.

Remove barriers for diverse young people

- *Multilingual pain information.* Provide pain and menstrual health resources in community languages, co-designed with CALD youth.
- *Affirming, low-cost care.* Ensure youth pain services are bulk-billed and affirming for LGBTIQA+ young people.

6. Hidden in Plain Sight: Girls and Gender-Diverse Youth

Some young people are not dismissed once but missed for years, because their bodies, behaviours or identities do not fit the template that diagnostic systems were built around. This theme examines delayed diagnosis, neurodevelopmental conditions in girls, and the health inequities facing trans and gender-diverse young people.

6.1 Women are diagnosed later across hundreds of diseases

A study of hospital records for 6.9 million people in Denmark, covering 770 disease types, found that women were diagnosed on average about four years later than men (Westergaard et al., 2019). The gap was around 2.5 years for cancers and about 4.5 years for metabolic diseases such as diabetes (Westergaard et al., 2019). One of the largest gaps the researchers highlighted was for attention-deficit/hyperactivity disorder (ADHD), where girls were diagnosed years later than boys (Westergaard et al., 2019).

Diagnostic delay is not just an inconvenience. For young people, years without a diagnosis can mean years without treatment, support at school, or an explanation for what they are experiencing. The Victorian Inquiry found that 23% of respondents had seen more than 10 services before getting answers about their pain (Victorian Department of Health, 2025).

6.2 Autism in girls is under-recognised

Autism has long been seen as a condition that mainly affects boys. A systematic review and meta-analysis of 54 studies estimated the male-to-female ratio at about 4.2 to 1, but in studies that actively screened whole populations rather than relying on existing diagnoses, the ratio fell to about 3.25 to 1 (Loomes et al., 2017). The gap between these two figures suggests that many girls who meet criteria for autism are not being identified through usual clinical pathways (Loomes et al., 2017).

One reason is that autistic girls may present differently. A meta-analysis found that diagnostic criteria built around core symptoms should take typical sex and gender differences into account, so that people who do not fit the usual presentation are not missed (Hull et al., 2017). In interviews with women diagnosed late, participants described "masking", or copying social behaviour to fit in, and said that teachers and clinicians often mistook their quiet, compliant behaviour for shyness (Bargiela et al., 2016). Most had experienced anxiety or depression before their autism was recognised (Bargiela et al., 2016).

6.3 ADHD in girls is often quieter and overlooked

An international expert consensus statement on females with ADHD concluded that the large gap in diagnosis between boys and girls is likely due, at least in part, to "lack of recognition and/or referral bias in females" (Young et al., 2020). Girls are more likely to show inattentive, internalised symptoms rather than the disruptive behaviour that tends to trigger referral, and they often develop coping strategies that mask their difficulties (Young et al., 2020).

The experts recommended that clinicians move away from seeing ADHD mainly as a behavioural disorder and take a lifespan approach, since symptoms and pressures change through adolescence and early adulthood (Young et al., 2020). When ADHD is missed, girls are more likely to be treated for secondary problems such as anxiety or low mood, without the underlying condition being recognised. This connects to the high rates of mental disorder among young Australian women described earlier (ABS, 2023).

> "lack of recognition and/or referral bias in females" (Young et al., 2020)

6.4 Trans and gender-diverse young people face profound health inequities

The male default leaves little room for anyone outside a binary model of sex and gender. Writing Themselves In 4, a national survey of 6,418 LGBTQA+ young people aged 14–21, found that 86.8% of trans and gender-diverse participants had been misgendered in the previous 12 months, and that while 72.3% had wanted to affirm their gender medically, only 29.4% had been able to do so (Hill et al., 2021). Rates of recent suicide attempts were highest among trans women (20.0%) and trans men (16.7%), compared with 9.1% of cisgender women and 6.7% of cisgender men in the same LGBTQA+ sample (Hill et al., 2021).

The Trans Pathways study of 859 trans and gender-diverse Australians aged 14–25 found very high rates of diagnosed depression (74.6%) and anxiety (72.2%), alongside high rates of peer rejection, bullying and discrimination (Strauss et al., 2017; Strauss et al., 2020). Poor mental health outcomes were strongly associated with negative life experiences, especially unstable housing and problems in educational settings (Strauss et al., 2020). Many participants reported feeling isolated from medical and mental health services (Strauss et al., 2017). These findings point to discrimination and exclusion, not gender diversity itself, as key drivers of poor health.

6.5 Australian policy is moving, but young people are rarely centred

Australia's National Women's Health Strategy 2020–2030 sets five priority areas: maternal, sexual and reproductive health; healthy ageing; chronic conditions and preventive health; mental health; and the health impacts of violence against women and girls (Department of Health, 2018). It identifies adolescent health checks, eating disorder programs and co-design of mental health services with young women as actions, and states that its language is not intended to exclude trans or intersex women (Department of Health, 2018). The NHMRC statement now asks researchers to consider sex, gender, variations of sex characteristics and sexual orientation, to collect accurate data, and to consider intersecting factors such as culture, language and age (NHMRC & Department of Health and Aged Care, 2024).

In Victoria, the Inquiry into Women's Pain made 27 recommendations across areas including research, training, models of care and affordable health care, and recommended expanded school education on women's pain and health literacy (Victorian Department of Health, 2025). The Victorian Government announced a children and adolescent clinic at the Royal Children's Hospital focused on sexual and reproductive health and pain conditions such as endometriosis, as part of a network of women's health clinics (Premier of Victoria, 2025). These are significant steps. However, with only about 1% of Inquiry survey respondents aged 12–17, there is a clear need for young people to be directly involved in shaping how these reforms are designed and delivered (Victorian Department of Health, 2025).

6.6 Implications and recommendations

Recognise the girls who are missed

- *Gender-informed screening tools.* Update autism and ADHD assessment tools and training to recognise masking and internalised presentations.

- *School-to-clinic pathways.* Train teachers and school nurses to refer quiet, struggling students, not only disruptive ones.

Make health care safe for gender-diverse youth

- *Affirming practice standards.* Use correct names and pronouns, and record gender inclusively in health systems.
- *Address the drivers.* Fund housing, anti-bullying and inclusion programs, given their strong links to mental health.

Put young people in the policy room

- *Youth advisory roles.* Include young people, especially girls, gender-diverse and CALD youth, on women's health and pain implementation committees.
- *Count young people.* Report national women's health data for adolescents and young adults as distinct age groups.

7. Conclusion

Six main conclusions emerge from the evidence reviewed:

1. *Medicine was built on a male default.* For decades, women were formally excluded from early drug trials and most laboratory research used male animals. Although inclusion has improved, many studies still do not analyse results by sex, and some disease areas, including paediatrics, still under-enrol females.
2. *Women experience more harm from medicines.* Women have higher drug exposure for most medicines studied, which predicts their higher rate of side effects. Dosing changes, such as halving the zolpidem dose for women, show that these differences can be corrected when they are recognised.
3. *Different symptoms are treated as wrong symptoms.* Young women having heart attacks often report additional symptoms beyond chest pain, and more than half were told their symptoms were not heart-related. Teaching women's presentations as "atypical" contributes to dangerous delays.
4. *The gender pain gap starts in childhood.* Adults rate girls' pain as lower than boys', and women wait longer for pain relief in emergency departments. Severe period pain is common among Australian students, yet few seek help and many miss school.
5. *Girls and gender-diverse young people are hidden in plain sight.* Women are diagnosed years later than men across hundreds of diseases, and girls' autism and ADHD are frequently missed or masked. Trans and gender-diverse young people experience very high rates of distress, driven largely by discrimination and exclusion.
6. *Reform must include young people.* The National Women's Health Strategy, the NHMRC statement and the Victorian Inquiry into Women's Pain are important commitments. Their success depends on counting, hearing and involving adolescents, especially those from LGBTQIA+ and CALD communities.

Support services (Australia)

Kids Helpline; free, confidential 24/7 counselling for young people aged 5 to 25; 1800 55 1800 / kidshelpline.com.au

Lifeline; 24/7 crisis support and suicide prevention; 13 11 14 / lifeline.org.au

QLife; free, anonymous LGBTIQ+ peer support and referral, 3pm to 9pm daily; 1800 184 527 / qlife.org.au

Jean Hailes for Women's Health; trusted women's health information, including periods and pelvic pain; jeanhailes.org.au

Emergency; if you or someone else is in immediate danger; 000

In an emergency, call 000. This article is health education, not medical advice.

Declarations

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References

Australian Bureau of Statistics. (2023). *Two in five Australians have experienced a mental disorder* [Media release, National Study of Mental Health and Wellbeing 2020–2022]. https://www.abs.gov.au/media-centre/media-releases/two-five-australians-have-experienced-mental-disorder

Australian Institute of Health and Welfare. (n.d.). *Endometriosis in Australia* (Cat. no. PHE 329). https://www.aihw.gov.au/reports/chronic-disease/endometriosis-in-australia

Bargiela, S., Steward, R., & Mandy, W. (2016). The experiences of late-diagnosed women with autism spectrum conditions: An investigation of the female autism phenotype. *Journal of Autism and Developmental Disorders, 46*(10), 3281–3294. https://doi.org/10.1007/s10803-016-2872-8

Beery, A. K., & Zucker, I. (2011). Sex bias in neuroscience and biomedical research. *Neuroscience & Biobehavioral Reviews, 35*(3), 565–572. https://doi.org/10.1016/j.neubiorev.2010.07.002

Chen, E. H., Shofer, F. S., Dean, A. J., Hollander, J. E., Baxt, W. G., Robey, J. L., Sease, K. L., & Mills, A. M. (2008). Gender disparity in analgesic treatment of emergency department patients with acute abdominal pain. *Academic Emergency Medicine, 15*(5), 414–418. https://doi.org/10.1111/j.1553-2712.2008.00100.x

Department of Health. (2018). *National Women's Health Strategy 2020–2030*. Commonwealth of Australia. https://www.health.gov.au/resources/publications/national-womens-health-strategy-2020-2030

Earp, B. D., Monrad, J. T., LaFrance, M., Bargh, J. A., Cohen, L. L., & Richeson, J. A. (2019). Gender bias in pediatric pain assessment. *Journal of Pediatric Psychology, 44*(4), 403–414. https://doi.org/10.1093/jpepsy/jsy104

Hill, A. O., Lyons, A., Jones, J., McGowan, I., Carman, M., Parsons, M., Power, J., & Bourne, A. (2021). *Writing Themselves In 4: The health and wellbeing of LGBTQA+ young people in Australia. National report* (ARCSHS Monograph Series No. 124). Australian Research Centre in Sex, Health and Society, La Trobe University. https://doi.org/10.26181/6010fad9b244b

Hoffmann, D. E., Fillingim, R. B., & Veasley, C. (2022). The woman who cried pain: Do sex-based disparities still exist in the experience and treatment of pain? *Journal of Law, Medicine & Ethics, 50*(3), 519–541. https://doi.org/10.1017/jme.2022.91

Hoffmann, D. E., & Tarzian, A. J. (2001). The girl who cried pain: A bias against women in the treatment of pain. *Journal of Law, Medicine & Ethics, 29*(1), 13–27. https://doi.org/10.1111/j.1748-720X.2001.tb00037.x

Hull, L., Mandy, W., & Petrides, K. V. (2017). Behavioural and cognitive sex/gender differences in autism spectrum condition and typically developing males and females. *Autism, 21*(6), 706–727. https://doi.org/10.1177/1362361316669087

Lichtman, J. H., Leifheit, E. C., Safdar, B., Bao, H., Krumholz, H. M., Lorenze, N. P., Daneshvar, M., Spertus, J. A., & D'Onofrio, G. (2018). Sex differences in the presentation and perception of symptoms among young patients with myocardial infarction: Evidence from the VIRGO study (Variation in Recovery: Role of Gender on Outcomes of Young AMI Patients). *Circulation, 137*(8), 781–790. https://doi.org/10.1161/CIRCULATIONAHA.117.031650

Liu, K. A., & DiPietro Mager, N. A. (2016). Women's involvement in clinical trials: Historical perspective and future implications. *Pharmacy Practice, 14*(1), 708. https://doi.org/10.18549/PharmPract.2016.01.708

Loomes, R., Hull, L., & Mandy, W. P. L. (2017). What is the male-to-female ratio in autism spectrum disorder? A systematic review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(6), 466–474. https://doi.org/10.1016/j.jaac.2017.03.013

Mirin, A. A. (2021). Gender disparity in the funding of diseases by the U.S. National Institutes of Health. *Journal of Women's Health, 30*(7), 956–963. https://doi.org/10.1089/jwh.2020.8682

National Health and Medical Research Council, & Department of Health and Aged Care. (2024). *Statement on sex, gender, variations of sex characteristics and sexual orientation in health and medical research*. https://www.nhmrc.gov.au/research-policy/gender-equity/statement-sex-and-gender-health-and-medical-research

National Institutes of Health Office of Research on Women's Health. (2024). *History of women's participation in clinical research*. https://orwh.od.nih.gov/toolkit/recruitment/history

Premier of Victoria. (2025). *Women's pain is real* [Media release]. https://www.premier.vic.gov.au/womens-pain-real

Samulowitz, A., Gremyr, I., Eriksson, E., & Hensing, G. (2018). "Brave men" and "emotional women": A theory-guided literature review on gender bias in health care and gendered norms towards patients with chronic pain. *Pain Research and Management, 2018*, 6358624. https://doi.org/10.1155/2018/6358624

Steinberg, J. R., Turner, B. E., Weeks, B. T., Magnani, C. J., Wong, B. O., Rodriguez, F., Yee, L. M., & Cullen, M. R. (2021). Analysis of female enrollment and participant sex by burden of disease in US clinical trials between 2000 and 2020. *JAMA Network Open, 4*(6), e2113749. https://doi.org/10.1001/jamanetworkopen.2021.13749

Strauss, P., Cook, A., Winter, S., Watson, V., Wright Toussaint, D., & Lin, A. (2017). *Trans Pathways: The mental health experiences and care pathways of trans young people. Summary of results*. Telethon Kids Institute. https://thekids.org.au/globalassets/media/documents/brain--behaviour/trans-pathways-report.pdf

Strauss, P., Cook, A., Winter, S., Watson, V., Wright Toussaint, D., & Lin, A. (2020). Associations between negative life experiences and the mental health of trans and gender diverse young people in Australia: Findings from Trans Pathways. *Psychological Medicine, 50*(5), 808–817. https://doi.org/10.1017/S0033291719000643

Tomsett, K. I., Mardon, A. K., Gao, O. W., Simpson, A. K., Squire, B. C., Warner, I. G., & Evans, S. F. (2026). Prevalence and impact of period and pelvic pain in Australian adolescents: The PPEP Talk schools program. *Australian and New Zealand Journal of Obstetrics and Gynaecology, 66*(1), e70015. https://doi.org/10.1111/ajo.70015

United States General Accounting Office. (2001). *Drug safety: Most drugs withdrawn in recent years had greater health risks for women* (GAO-01-286R). https://www.gao.gov/products/gao-01-286r

U.S. Food and Drug Administration. (2013). *Questions and answers: Risk of next-morning impairment after use of insomnia drugs; FDA requires lower recommended doses for certain drugs containing zolpidem (Ambien, Ambien CR, Edluar, and Zolpimist)*. https://www.fda.gov/drugs/drug-safety-and-availability/questions-and-answers-risk-next-morning-impairment-after-use-insomnia-drugs-fda-requires-lower

Victorian Department of Health. (2025). *Bridging the gender pain gap: The Inquiry into Women's Pain 2025*. State of Victoria. https://www.health.vic.gov.au/sites/default/files/2025-11/bridging-the-gender-pain-gap-pain-inquiry-report.pdf

Westergaard, D., Moseley, P., Sørup, F. K. H., Baldi, P., & Brunak, S. (2019). Population-wide analysis of differences in disease progression patterns in men and women. *Nature Communications, 10*(1), 666. https://doi.org/10.1038/s41467-019-08475-9

Woitowich, N. C., Beery, A., & Woodruff, T. (2020). A 10-year follow-up study of sex inclusion in the biological sciences. *eLife, 9*, e56344. https://doi.org/10.7554/eLife.56344

World Economic Forum. (2024). *Closing the women's health gap: A $1 trillion opportunity to improve lives and economies*. https://www.weforum.org/publications/closing-the-women-s-health-gap-a-1-trillion-opportunity-to-improve-lives-and-economies/

Young, S., Adamo, N., Ásgeirsdóttir, B. B., Branney, P., Beckett, M., Colley, W., Cubbin, S., Deeley, Q., Farrag, E., Gudjonsson, G., Hill, P., Hollingdale, J., Kilic, O., Lloyd, T., Mason, P., Paliokosta, E., Perecherla, S., Sedgwick-Müller, J., Skirrow, C., … Woodhouse, E. (2020). Females with ADHD: An expert consensus statement taking a lifespan approach providing guidance for the identification and treatment of attention-deficit/hyperactivity disorder in girls and women. *BMC Psychiatry, 20*, 404. https://doi.org/10.1186/s12888-020-02707-9