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Perspective Piece

Providing gender sensitive mental health care to address the specific needs of women

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Abstract

There has been a renewed focus on improving mental health outcomes and experiences for women with the publication of 'Embedding Women's Mental Health in Sharing the Vision', but much needs to be done to translate this policy into tangible improvements in delivered care. Historical biases in medical education and practice, as well as in research, have led to serious deficiencies in how illnesses are diagnosed and managed in women. This is not solely observed in mental health, and andronormative perspectives and gender blindness are widespread throughout medicine. Trauma informed practices should be adopted in all healthcare settings that treat women. Consideration also needs to be given to reproductive life stage in psychotropic prescribing beyond concerns of the risk of teratogenicity. Medical education and training should play a central role in increasing gender awareness among healthcare professionals. Combining top-down policy initiatives with bottom-up education and training is required to meaningfully integrate gender awareness into mental healthcare and address historical shortcomings in care for women. Implementing gender-sensitive practices is an important step toward delivering more individualised, patient-centred mental health services.

Keywords: Gender medicine; gender awareness; women's mental health

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Introduction

Mental illness disproportionately affects women, with nearly 60% of the burden of mental disorders typically treated by general adult psychiatrists (i.e. affective disorders, schizophrenia, anxiety disorders and eating disorders) being borne by females (World Health Organization (WHO) 2024). Research funding for conditions primarily affecting women still lags behind those that primarily affect men (Mirin, 2021). In Ireland, less than 6% of the health budget was allocated to mental health in 2025 falling short of the targeted 10%, and this has an outsize effect on women who require the services more. Further to the Scoping Inquiry into the CervicalCheck Screening Programme in Ireland (Scally, 2018), the Women's Health Taskforce was established by the government in 2019 to address shortcomings in outcomes and experience of healthcare for women. While this has contributed to funding for mental health initiatives including perinatal mental health services, there has been little progress on incorporating trauma informed and mental healthcare within physical health service developments, such as menopause and endometriosis hubs. Violence against women and girls also remains stubbornly high with 26% experiencing domestic or sexual violence in their lifetime (World Health Organization (WHO) 2018) which nearly triples their risk of developing mental illness (Chandan *et al.* 2020).

'Embedding Women's Mental Health in Sharing the Vision' (Department of Health, 2022), published in 2022, is the first time a gender perspective has been taken in Irish government mental health policy (Bergin *et al.* 2013). 'Gender-sensitive Mental Health' (GSMH) (The National Women's Council of Ireland 2023) followed in 2023, with both reports calling for structural and clinical changes to how mental health care is delivered. There is a pressing need to translate this policy into practice and integrate gender awareness into mental healthcare delivery. Achieving this calls for an approach that combines both top-down policy and government initiatives with bottom-up education of trainees and staff (Celik *et al.* 2011). Providing gender-aware care requires a professional to appreciate the inequalities and differing healthcare needs of women and men (Verdonk *et al.* 2009b) to have insight into attitudes, biases or stereotypes toward female and male patients and doctors, and knowledge of gender differences in illness course and treatment (Miller *et al.* 1999).

Sex and gender are terms often used interchangeably though are not synonymous (Miller *et al.* 2013). The Institute of Medicine defines sex as a classification based on reproductive anatomy and chromosomes, whereas gender is a person's representation of themselves as male or female, and how they are perceived and responded to by society based on their gender presentation, which is influenced by biology, and life experiences (Institute of Medicine, 2001). In many cases, due to lack of clear examination

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in the literature, it is not possible to fully separate the discussion of sex and gender as distinct variables and of course they are highly interrelated. More research is needed where these variables are examined more closely. For readability, we use gender specific language in this article. When we refer to biological differences, we are referring to those of that biological sex but when referring to sociocultural differences, we are referring to those who identify as that gender.

The authors recognise that men also have certain disadvantages pertaining to their mental health, particularly an under-recognition of their mental health problems, higher rates of suicide and incarceration, pressure to conform to masculine norms and a tendency to present with substance use disorders that can mask underlying anxiety or depression (European Commission Directorate-General for Health Consumers, 2011). Women are also protected from mental illness by their relatively higher social connectedness (Wickramaratne *et al.* 2022). These considered, a full discussion of the mental health disparities faced by men is beyond the scope of this paper.

Social, as well as biological factors, can influence outcomes in health and disease (McGregor *et al.* 2013). Gender influences health through help seeking, risk taking, lifestyle behaviours, access to healthcare including interactions between patients and doctors (Hamberg, 2008; Heidari *et al.* 2016; Mauvais-Jarvis *et al.* 2020) and exposure to other risks such as gender based discrimination and sexual violence (Trevillion *et al.* 2012; Zelek *et al.* 1997). For example, the increased incidence of depression in adolescents and young people in recent years has been linked to the emergence of social media and girls are more vulnerable to this than boys (Kelly *et al.* 2018). Individuals in caring roles face barriers accessing and engaging with mental health services, and these roles are disproportionally undertaken by women. Personal wealth also has a major impact on accessing mental health care and again, women are disadvantaged by the gender pay, promotion and pension gap (National Women's Council of Ireland, 2007). Gender intersects with other social characteristics such as socioeconomic status, race, ethnic group, age, and sexual orientation to compound inequities (i.e. intersectionality) (Howard *et al.* 2017; Sen & Ostlin 2008; The National Women's Council of Ireland 2023). In Ireland, this is particularly the case for women from the Travelling community, migrant women and women from other minority ethnic backgrounds, who experience additional challenges to their mental health and access to mental healthcare, and therefore need enhanced supports.

While men die younger, women live a greater proportion of their life with disability, often referred to as the 'male-female health-survival paradox' (Gordon *et al.* 2017). The female survival advantage is balanced with a higher rate of immune disorders and there is evidence of a relationship between stress exposure, mental disorders and inflammation (Brown *et al.* 2022). This differing immune function is potentially a pathway that contributes to the increased risk of mental disorders, particularly anxiety and depression, in women (Brown *et al.* 2022). Reproductive hormone fluctuations can also trigger or exacerbate psychiatric symptoms in some women (Soares, 2017). While the previously mentioned social factors significantly contribute to gender differences in diagnosis, treatment and outcome of many mental disorders, ignoring the relevance of biological factors perpetuates health disparities (Maldonado *et al.* 2024; Verdonk *et al.* 2006). There is a clear need for an integrated biopsychosocial approach.

In this paper we have examined key areas that relate to gender in providing mental healthcare and have laid out top-down (Box 1) and bottom up (Box 2) approaches that can be taken to promote greater gender awareness.

Box 1: Top-down interventions to address gender disparities

- Proportionate funding should be allocated for conditions that affect predominantly women for both services and research.
- Andronormativity (where the male experience of illness is considered the norm) should be addressed in healthcare and medical research policy. Mental health policy and legislation should be gender aware rather than striving to be gender blind.
- Gender specific policy should be integrated with general polices and not siloed in its own separate policy.
- Gender medicine should be fully integrated into medical and nursing curricula.
- Gender balance should be promoted at all levels of research.
- Sex and gender disaggregated research data should also be made available. All routine data collected should be disaggregated and analysed by sex and gender.
- Evidence based information on women's mental health should be available to the public, particularly regarding premenstrual disorders and perimenopausal depression/anxiety.
- The health system as a whole should begin to adopt the practices of Trauma Informed Care and systematically reform the system in line with these practices.

Box 2: Bottom-up interventions to address gender disparities

- Andronormativity and its consequences and biases should be addressed as part of medical education.
- Clinicians should be encouraged and supported in reflecting on their own biases.
- Prescribers should be offered further education on prescribing for women.
- Professional education on women's mental health should consider the entire female life cycle rather than focusing on perinatal mental health.
- Clinicians should be conscious of the sociocultural environment that their female patients inhabit, particularly with regard to the intersecting layers of inequality they may face, i.e. race, ethnicity, poverty etc., in addition to recognising the impact of gender-based and domestic violence.
- Training in trauma informed care should be easily available to all mental health professionals and non-clinical staff working in mental health.

Sex & gender bias in medicine

Medicine from inception has been male dominated and there remains a majority of male doctors, particularly in senior positions (Irish Medical Council, 2022; Lombarts & Verghese 2022). There is a long history of attributing blame for so called 'mental illness' on female reproductive organs (Maldonado *et al.* 2024; Ussher, 2013), which originated in classical times as the 'wandering womb' (Scull, 2009). Hysteria as a diagnosis emerged in the latter 1600s and was thought to be a nervous disease of gynaecological origin which primarily affected females due to their 'delicate' nerves and 'brains more susceptible to breakdown' (Scull, 2009). Though the diagnosis of hysteria has now fallen out of fashion, the 'hysterical patient' trope remains, such as in the treatment by many medical professionals of sufferers of functional neurological disorders (McLoughlin *et al.* 2023) and chronic pain conditions (Hoffmann & Tarzian 2001), most of whom are women. Women are more likely to have their physical symptoms attributed to psychological processes (Clareus & Renstrom 2019), receive less thorough medical work-up (Ballering *et al.* 2021) and even have their pain underestimated and undertreated compared to male counterparts

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(Zhang *et al.* 2021). Mental health professionals have a major role in advocating for our patients with our medical colleagues to ensure biases do not prevent appropriate diagnosis and treatment. Andronormativity, where the male presentation is considered the norm and female is considered atypical (Verdonk *et al.* 2009b) is exemplified in psychiatry where women experience what are referred to as 'atypical' depressive symptoms (Kuehner, 2017) which mirrors the male biased description of female presentations in other conditions such as acute coronary syndrome (Al Hamid *et al.* 2024).

Implicit biases are automatic 'habit(s) of mind' that we are all subject to that bypass our conscious thinking (Chapman *et al.* 2013). Gender bias can occur by either assuming differences when there are none or by assuming sameness when there are differences, (Risberg *et al.* 2009), that is being 'gender blind' (Verdonk *et al.* 2009b). Many health professionals have an andronormative bias taught to them throughout their undergraduate and postgraduate training. This can equally affect male and female clinicians, and many are unaware of this bias. Clinicians are subject to the same cultural gender norms and biases as the rest of the population, which may unconsciously affect their clinical practice and patient outcomes (Chapman *et al.* 2013; FitzGerald & Hurst 2017), recognition of which is essential to counteract the gender health gap (The National Women's Council of Ireland 2023). For example, diagnostic biases exist for autism, which has been traditionally viewed as the 'extreme male brain' (Baron-Cohen, 2002). Earlier epidemiological studies relied on referred populations to determine sex ratios, though as females have less externalising symptoms than males, they come to less attention and are less likely to be referred for assessment (Cruz *et al.* 2024). In addition to this, females employ masking more than males to present themselves in a neurotypical manner in social situations, and their repetitive and restricted interests may seem more socially normalised, for example in fashion or celebrities (Brickhill *et al.* 2023). As assessment tools were developed in predominantly male populations, they are also inherently less likely to detect this female phenotype (Brickhill *et al.* 2023). A similar pattern occurs in attention deficit hyperactivity disorder, where externalising symptoms are predictive of receiving a diagnosis with females displaying less hyperactivity and more inattentive symptoms compared to males (Loyer Carbonneau *et al.* 2021). Delivering gender sensitive care requires a careful balance, with the need to avoid normalisation of suffering, and avoid inadvertent or intentional pathologisation of normal experiences and physiological processes. It is also important to beware the nuanced transition from epidemiological evidence to stereotyping (Zelek *et al.* 1997). Observed associations that may be a product of inequality, discrimination or the intersection of vulnerability, can easily be causally attributed to a population, creating a stereotype.

Sex & gender bias in research

Much of the information we know about human health and disease originates from research on male subjects by male researchers (Verdonk *et al.* 2009b; Zelek *et al.* 1997) and is applied to female patients on the assumption that the only difference between male and female bodies is the reproductive function (Dijkstra *et al.* 2008). Until the 1990s, women were excluded from clinical trials due to concerns about teratogenicity and fluctuating hormone levels with results being extrapolated from male only studies (Hamberg, 2008; Howard *et al.* 2017; Mazure & Jones 2015; McGregor *et al.* 2013). Balanced use of male and female cell lines and animals in preclinical research was only mandated in the United States in 2016 with primarily male cells and animals used prior to this (Mazure & Jones 2015; Zakiniaeiz *et al.* 2016) though more work is needed now to ensure that results are analysed by sex (Howard *et al.* 2017; Mazure & Jones 2015). Research funding for female dominated conditions still lags behind that of conditions primarily affecting men (Mirin, 2021). There is therefore an extraordinary disparity in what is known about mental disorders and their treatments in females, particularly about what is known about medical treatments in pregnancy (Kim *et al.* 2010). Considering that the reproductive years coincide with the onset of most major mental illness, this has serious implications for our patients. The Sex and Gender Equity in Research (SAGER) guidelines were developed to counteract historical biases and encourage comprehensive reporting of gender and sex in academic research (Heidari *et al.* 2016). It has been demonstrated that inclusion of women in clinical trials is correlated with female authorship (Chhaya *et al.* 2023). Many health research funding bodies have adopted gender policies to ensure balanced representation in research grants, including the Irish Health Research Board (Health Research Board, 2022).

Gender considerations in prescribing

It is important to be aware of historical biased research practices when prescribing. There are important sex differences in response to medications through differing pharmacokinetics (absorption, distribution, metabolism and elimination) and pharmacodynamics (the effects of the drug on the body) and this changes across the reproductive life cycle (Brand *et al.* 2022). Combined with the underrepresentation of females in clinical trials, this means that women are more vulnerable to side effects, adverse reactions and poor treatment response (Kim *et al.* 2010; Marazziti *et al.* 2013).

Reproductive hormones have important interactions with commonly used psychotropic medications. There are limited sex disaggregated analyses of antipsychotic medications and available evidence arises from largely male research participants resulting in female patients being more prone to side effects, partly due to being overdosed (Brand *et al.* 2022; Brand *et al.* 2022). As oestrogen increases bioavailability and sensitivity to dopamine, dosing decisions of antipsychotics should consider menstrual and menopausal status – with higher doses needed in low oestrogen states such as the late luteal and perimenstrual phases of the menstrual cycle and postmenopause (Brand *et al.* 2022; Brand *et al.* 2021; Brand *et al.* 2022; Seeman, 2020). In reproductive years, women require lower doses of antipsychotics compared to men and postmenopausal women (Brand *et al.* 2022; Seeman, 2020) and have lower relapse and admission rates, though around the time of menopause, antipsychotic response deteriorates (Sommer *et al.* 2023). Prolactin-sparing antipsychotics should be favoured for women both from a physical perspective – to avoid suppression of the gonadal endocrine axis with resultant hypo-oestrogenic side effects of subfertility, bone mineral loss, and increased cardiovascular risk etc – and the treatment effect of the medication itself (Brand *et al.* 2022; Brand *et al.* 2021; Riecher-Rossler, 2017). Similar to antipsychotic response, women in reproductive years also respond better than men to serotonergic antidepressants with this advantage also subsiding after menopause (Marazziti *et al.* 2013; Sramek *et al.* 2016).

With regard to perinatal prescribing, there is increasing awareness of hormonally mediated alterations in metabolism of medications in pregnancy and the impact of genetics on treatment

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response (Betcher & George 2020). This can lead to the under treatment of some conditions or increased side effects. For example, SSRIs, quetiapine, aripiprazole and lamotrigine metabolism can increase though conversely, metabolism of antipsychotics such as olanzapine and clozapine can decrease (Betcher *et al.* 2019). A limited awareness of this can heighten the risk of relapse at a formative period in a women's life, compromising her health and early bonding with her baby, not to mention the longer-term impact on the infant's psychological and cognitive development.

Menstrual cycle effects on mental disorders

Premenstrual dysphoric disorder (PMDD) is a menstrual related mood disorder affecting 3–5% of women of reproductive age (Epperson *et al.* 2012) with comparable disability adjusted life years lost as major depression (Halbreich *et al.* 2003). Symptoms last for 1–2 weeks of every menstrual cycle and considering the prevalence, this is an enormous burden of illness on women in a critical time of their life. It is poorly recognised and managed by healthcare professionals (Funnell *et al.* 2024) and can often be misdiagnosed as depressive or personality disorders which precludes appropriate treatment (Matthews & Riddell 2023). An appreciation of the temporal pattern of symptoms with the menstrual cycle through prospective symptom tracking is crucial to the diagnosis.

Perimenstrual exacerbation of underlying mental disorders is also common and occurs in psychosis, depression, eating disorders, ADHD and borderline personality disorder (Nolan & Hughes 2022). A thorough understanding of a patient's cyclical symptoms facilitates tailored supports, treatments and medication doses for when their symptoms are most severe. The menstrual cycle may play a role in predicting suicide risk as higher rates of completed suicide, attempted suicide and psychiatric admission are observed in the luteal and perimenstrual phases (Jang & Elfenbein 2019). Those with PMDD have high rates of suicidality, even in the absence of mental health co-morbidities, and are over-represented in those who present with suicidal thoughts and behaviours (Eisenlohr-Moul *et al.* 2022; Prasad *et al.* 2021). Given the low specificity of suicide risk assessment, this presents a potentially predictable and modifiable risk factor for preventing suicide.

The menopausal transition is a further window of vulnerability for relapse or new onset of mental disorder. As previously discussed, oestrogen is protective against psychosis, and there is a second midlife peak of incidence only observed in female patients coinciding with reducing oestrogen levels (Sommer *et al.* 2020). Perimenopause is also associated with heightened risk for major depressive disorder, though usually in those who have experienced prior episodes (de Kruif *et al.* 2016) but also a new onset of mania (Shitomi-Jones *et al.* 2024). The reasons for this are likely multifactorial and not simply hormone related. Stressful life events are common in this time period, and physical symptoms of menopause, particularly sleep disturbance, are prone to trigger mental health symptoms. Ensuring our patients with major mental illness are informed about the benefits and risks of hormone replacement and facilitated to access it, should be a high priority for all psychiatrists.

Delivering gender sensitive mental health care

Gender neutral approaches do not consider the specific needs of female patients (Judd *et al.* 2009) and there is a need for mental health professionals and services to ensure they are responsive to the needs of women. More women attending mental health services are victims of domestic violence than the general population and so it is essential for services and professionals to recognise and respond to this (Oram *et al.* 2017; Trevillion *et al.* 2012). Being the victim of intimate partner violence infers nearly three times the risk of developing a subsequent mental illness in women (Chandan *et al.* 2020) and also a heightened risk of suicide (MacIsaac *et al.* 2017). Women with psychosis have higher rates of childhood physical and sexual abuse than their counterparts without psychosis; this association is not seen in men (Fisher *et al.* 2009).

Psychiatric care, particularly in services with high levels of restrictive practices, has the potential to retraumatise survivors of abuse (Judd *et al.* 2009; Sweeney *et al.* 2018). Feeling powerless or unheard is an important predictor of being traumatised by an experience (Sweeney *et al.* 2018). Trauma informed care (TIC) has been demonstrated to reduce the need for such restrictive practices but needs to be meaningfully adopted (Saunders *et al.* 2023). Clinical leadership, organisational change, staff training, time for staff reflective practice and most importantly sufficient resourcing and investment are all required to achieve this (Huo *et al.* 2023; Saunders *et al.* 2023). TIC should not be restricted to mental health settings but adopted across all healthcare settings, particularly maternity hospitals (Sperlich *et al.* 2017), emergency departments (Molloy *et al.* 2020) and women's health clinics.

Consideration of women in mental health policy

In care on psychiatric wards and in wider mental health services, there needs to be a consideration for sexual and reproductive health of all patients. Women and people who menstruate feel inadequately supported around their period with difficulty accessing menstrual products, pain relief or privacy (Porter, 2024). Pregnancy and breastfeeding are not sufficiently addressed in mental health ward policy (McGuire *et al.* 2023a) despite there being several key aspects of inpatient psychiatric care that can affect the physical health of a mother and her baby, and risk causing undue psychological distress (McGuire *et al.* 2023). This is particularly crucial given the lack of a mother and baby unit in Ireland which results in mothers with severe mental illness in the perinatal period being treated in general psychiatric units. Separation from their babies is inevitable in this circumstance which has repercussions for maternal mental health, bonding and feeding. Consideration of gender, pregnancy, sexual health and reproductive health should therefore not be siloed in isolated polices but rather integrated into all general policy where appropriate.

Gender is rarely considered in mental health legislation (Hoare *et al.* 2024) and the opportunity to address this lacuna should not be missed with the upcoming revision of the Mental Health Act. Gender sensitive provisions have been included in legislation across the world, however there is massive heterogeneity in what is included. Some of the provisions have worsened the care that women receive, such as by reducing access to specialised treatment through ward gender separation, and further ingraining gender-based discrimination and stereotypes, through removing sexual autonomy from women on the basis of having a mental illness. However, Hoare *et al.* (2024) also identify legislative previsions that can improve the mental healthcare women receive. These include giving consideration to gender balance on the mental health commission and tribunals, the need for seclusion, restraint and searches to be carried out in a way that protects women, the

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need for trauma informed principles to be imbedded in practice, and gender disaggregated data to be collected on all routine data. Where this is not included in legislation it should be present in policy.

Integration with physical healthcare

Gender also influences the interaction between physical and mental health, and this interaction is bidirectional. Physiological states and medical conditions specific to women can influence mental health. Women with major mental illness have changing needs as they enter perimenopause and beyond, when their metabolic and cardiovascular risk factors elevate (Seeman, 2012). Despite similar rates of cardiovascular disease to men, cardiac events in women are less well identified by both healthcare professionals and patients due to gender biases and differing symptom profiles (Al Hamid *et al.* 2024). Physical health monitoring of psychotropic medications needs to be sensitive to reproductive status and a proactive approach needs to be taken to ensuring women are informed of their individualised balance of benefits and risks for hormone replacement at time of menopause. Assessment, management and psychoeducation of menopause needs to be integrated into general psychiatric care to improve both somatic and psychiatric outcomes (Brand *et al.* 2022).

Being affected by a reproductive system disorder such as endometriosis or polycystic ovary syndrome is associated with 2-3 times the risk of a psychiatric disorder and chronic pelvic pain is associated with nearly four times the risk (Zaks *et al.* 2023). But conversely, psychological ill health can impact physical health in women. Women with serious mental illness are more likely to have gynaecological diseases, experience recurrent miscarriage and are less likely to attend for cervical screening than the general population (Hope *et al.* 2022). Women with schizophrenia have a higher incidence of a number of cancers (as do their male counterparts), but specifically have higher rates of breast and cervical cancer (Wootten *et al.* 2022; Xiping *et al.* 2019), and are more likely to be diagnosed with metastases already present (Wootten *et al.* 2022). Ensuring this population attend cancer screening is crucial and close working relationships with primary care and other medical specialties are key to delivering integrated mental and physical healthcare (Kulkarni *et al.* 2019).

Medical education and training

It is essential to begin to introduce teaching on the impact of sex and gender on health and healthcare delivery (i.e. gender medicine) early into medical training (McGregor *et al.* 2013) to counteract gender biases (Sen & Ostlin 2008) and increase gender awareness among healthcare professionals. The GSMH report recommends undergraduate and postgraduate training for mental health professionals which echoes the WHO's earlier call for this in 2006 (The National Women's Council of Ireland 2023; World Health Organization (WHO) 2006). However, systemic organisational change will be required to truly achieve gender equity in our health services (Celik *et al.* 2011). Integrating this solely into undergraduate psychiatry curricula may prove difficult given the restricted time allotted to the subject in Irish medical schools, in some universities as low as four weeks (Byrne *et al.* 2020). While the responsibility for implementing these changes should not be placed solely on the shoulders of mental health educators, psychiatrists should take an active role in light of their expertise relative to other medical specialties in the biopsychosocial model and in reflective practice. Sex and gender medicine should be incorporated throughout the medical curriculum, ideally in a longitudinal format over multiple academic years (Khamisy-Farah & Bragazzi, 2022; Ludwig *et al.* 2015; McGregor *et al.* 2013). It has been introduced into medical curricula in Europe and North America (Ludwig *et al.* 2015), with much of the academic literature on the subject arising from the Netherlands where a national programme in gender medicine commenced in 2002 (Verdonk *et al.* 2009a). It has been reported to be difficult to incorporate non-biological topics like gender based violence into curricula though support from other disciplines within universities could be beneficial in this regard (Verdonk *et al.* 2009a). Aligning the project with medical professional values of providing excellent care (Miller *et al.* 2013) and gaining institutional and senior academic support facilitates the integration of gender awareness into core medical curricula (Celik *et al.* 2011).

Conclusion

Gender awareness is not a new concept and incorporating it into the delivery of mental healthcare is a step toward individualised and precision medicine (Khamisy-Farah & Bragazzi 2022; McGregor *et al.* 2013) particularly for female patients who have been underserved by psychiatry and medicine as a whole. This article intends to be a starting point for mental health practitioners to examine their own knowledge and practice, particularly those who have a role in training new professionals. In order to fully understand the complex interplay between sex, gender, and their impact on various mental health and social outcomes, it is essential to conduct future studies that explore these variables both separately and in combination.

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References

Al Hamid A, Beckett R, Wilson M, Jalal Z, Cheema E, Al-Jumeily Obe D, Coombs T, Ralebitso-Senior K, Assi S (2024). Gender bias in diagnosis, prevention, and treatment of cardiovascular diseases: a systematic review. *Cureus* **16**, e54264. doi:10.7759/cureus.54264.

Ballering AV, Muijres D, Uijen AA, Rosmalen JGM, Olde Hartman TC (2021). Sex differences in the trajectories to diagnosis of patients presenting with common somatic symptoms in primary care: an observational cohort study. *Journal of Psychosomatic Research* **149**, 110589. doi:10.1016/j.jpsychores.2021.110589.

Baron-Cohen S (2002). The extreme male brain theory of autism. *Trends in Cognitive Sciences* **6**, 248–254. doi:10.1016/s1364-6613(02)01904-6.

Bergin M, Wells JS, Owen S (2013). Towards a gendered perspective for Irish mental health policy and service provision. *Journal of Mental Health* **22**, 350–360. doi:10.3109/09638237.2012.714513.

Betcher HK, George AL Jr (2020). Pharmacogenomics in pregnancy. *Seminars in Perinatology* **44**, 151222. doi:10.1016/j.semperi.2020.151222.

Betcher HK, Montiel C, Clark CT (2019). Use of antipsychotic drugs during pregnancy. *Current Treatment Options in Psychiatry* **6**, 17–31. doi:10.1007/s40501-019-0165-5.

Brand BA, de Boer JN, Dazzan P, Sommer IE (2022). Towards better care for women with schizophrenia-spectrum disorders. *Lancet Psychiatry* **9**, 330–336. doi:10.1016/S2215-0366(21)00383-7.

Brand BA, de Boer JN, Sommer IEC (2021). Estrogens in schizophrenia: progress, current challenges and opportunities. *Current Opinion in Psychiatry* **34**, 228–237. doi:10.1097/YCO.0000000000000699.

Brand BA, Haveman YRA, de Beer F, de Boer JN, Dazzan P, Sommer IEC (2022). Antipsychotic medication for women with schizophrenia spectrum disorders. *Psychological Medicine* **52**, 649–663. doi:10.1017/S0033291721004591.

Brickhill R, Atherton G, Piovesan A, Cross L (2023). Autism, thy name is man: exploring implicit and explicit gender bias in autism perceptions. *PLoS One* **18**, e0284013. doi:10.1371/journal.pone.0284013.

Brown CM, Wong Q, Thakur A, Singh K, Singh RS (2022). Origin of sex-biased mental disorders: do males and females experience different selective regimes? *Journal of Molecular Evolution* **90**, 401–417. doi:10.1007/s00239-022-10072-2.

Byrne F, Murphy R, O'Rourke L, Cotter D, Murphy KC, Guerandel A, Meagher D, Sweeney E, Gill M, Campbell A, McDonald C, Hallahan B (2020). A comparison of undergraduate teaching of psychiatry across medical schools in the Republic of Ireland. *Irish Journal of Psychological Medicine* **37**, 77–88. doi:10.1017/ipm.2016.22.

Celik H, Lagro-Janssen TA, Widdershoven GG, Abma TA (2011). Bringing gender sensitivity into healthcare practice: a systematic review. *Patient Education and Counseling* **84**, 143–149. doi:10.1016/j.pec.2010.07.016.

Chandan JS, Thomas T, Bradbury-Jones C, Russell R, Bandyopadhyay S, Nirantharakumar K, Taylor J (2020). Female survivors of intimate partner violence and risk of depression, anxiety and serious mental illness. *The British Journal of Psychiatry* **217**, 562–567. doi:10.1192/bjp.2019.124.

Chapman EN, Kaatz A, Carnes M (2013). Physicians and implicit bias: how doctors may unwittingly perpetuate health care disparities. *Journal of General Internal Medicine* **28**, 1504–1510. doi:10.1007/s11606-013-2441-1.

Chhaya VY, Binion CC, Mulles SM, Tannhauser PA, Aziz DZ, Greenwood JD, Barlek MH, Rouan JR, Wyatt TG, Kibbe MR (2023). Gender bias in clinical trial enrollment: female authorship matters. *Annals of Vascular Surgery* **95**, 233–243. doi:10.1016/j.avsg.2023.03.008.

Clareus B, Renstrom EA (2019). Physicians' gender bias in the diagnostic assessment of medically unexplained symptoms and its effect on patient-physician relations. *Scandinavian Journal of Psychology* **60**, 338–347. doi:10.1111/sjop.12545.

Cruz S, Zubizarreta SC, Costa AD, Araujo R, Martinho J, Tubio-Fungueirino M, Sampaio A, Cruz R, Carracedo A, Fernandez-Prieto M (2024). Is there a bias towards males in the diagnosis of autism? a systematic review and meta-analysis *Neuropsychology Review* **35**, 153–176. doi:10.1007/s11065-023-09630-2.

de Kruif M, Spijker AT, Molendijk ML (2016). Depression during the perimenopause: a meta-analysis. *Journal of Affective Disorders* **206**, 174–180. doi:10.1016/j.jad.2016.07.040.

Department of Health (2022). Embedding Women's Mental Health in Sharing the Vision. Department of Health, Ireland (https://www.gov.ie/pdf/?file=https://assets.gov.ie/249840/560b78e4-416a-49e4-8098-2cceb89917c0.pdf#page=null) Accessed 19 November 2024.

Dijkstra AF, Verdonk P, Lagro-Janssen AL (2008). Gender bias in medical textbooks: examples from coronary heart disease, depression, alcohol abuse and pharmacology. *Medical Education* **42**, 1021–1028. doi:10.1111/j.1365-2923.2008.03150.x.

Eisenlohr-Moul T, Divine M, Schmalenberger K, Murphy L, Buchert B, Wagner-Schuman M, Kania A, Raja S, Miller AB, Barone J, Ross J (2022). Prevalence of lifetime self-injurious thoughts and behaviors in a global sample of 599 patients reporting prospectively confirmed diagnosis with premenstrual dysphoric disorder. *BMC Psychiatry* **22**, 199. doi:10.1186/s12888-022-03851-0.

Epperson CN, Steiner M, Hartlage SA, Eriksson E, Schmidt PJ, Jones I, Yonkers KA (2012). Premenstrual dysphoric disorder: evidence for a new category for DSM-5. *American Journal of Psychiatry* **169**, 465–475. doi:10.1176/appi.ajp.2012.11081302.

European Commission: Directorate-General for Health and Consumers (2011). The state of men's health in Europe, Publications Office (https://data.europa.eu/doi/10.2772/60721) Accessed 19 November 2024.

Fisher H, Morgan C, Dazzan P, Craig TK, Morgan K, Hutchinson G, Jones PB, Doody GA, Pariante C, McGuffin P, Murray RM, Leff J, Fearon P (2009). Gender differences in the association between childhood abuse and psychosis. *British Journal of Psychiatry* **194**, 319–325. doi:10.1192/bjp.bp.107.047985.

FitzGerald C, Hurst S (2017). Implicit bias in healthcare professionals: a systematic review. *BMC Medical Ethics* **18**, 19. doi:10.1186/s12910-017-0179-8.

Funnell EL, Martin-Key NA, Spadaro B, Bahn S (2024). Help-seeking behaviours and experiences for mental health symptoms related to the menstrual cycle: a UK-wide exploratory survey. *npj Women's Health* **2**, 2. doi:10.1038/s44294-023-00004-w.

Gordon EH, Peel NM, Samanta M, Theou O, Howlett SE, Hubbard RE (2017). Sex differences in frailty: a systematic review and meta-analysis. *Experimental Gerontology* **89**, 30–40. doi:10.1016/j.exger.2016.12.021.

Halbreich U, Borenstein J, Pearlstein T, Kahn LS (2003). The prevalence, impairment, impact, and burden of premenstrual dysphoric disorder (PMS/PMDD). *Psychoneuroendocrinology* **28**, 1–23. doi:10.1016/s0306-4530(03)00098-2. Suppl 3.

Hamberg K (2008). Gender bias in medicine. *Women's Health (London)* **4**, 237–243. doi:10.2217/17455057.4.3.237.

Health Research Board. (2022). Gender Equality Plan 2022-2024, Dublin, Ireland: Health Research Board (https://www.hrb.ie/fileadmin/1._Non-plugin_related_files/RSF_files/Policies_and_principles/Guiding_principles/Gender/HRB_GEP_2022-2024.pdf) Accessed 19 November 2024.

Heidari S, Babor TF, De Castro P, Tort S, Curno M (2016). Sex and gender equity in research: rationale for the SAGER guidelines and recommended use. *Research Integrity and Peer Review* **1**, 2. doi:10.1186/s41073-016-0007-6.

Hoare F, Murphy N, O'Donoghue A, Allen S, Duffy RM (2024). Gender-based provisions in mental health legislation: a review of English language jurisdictions. *Irish Journal of Psychological Medicine* **42**, 1–7. doi:10.1017/ipm.2024.48.

Hoffmann DE, Tarzian AJ (2001). The girl who cried pain: a bias against women in the treatment of pain. *The Journal of Law, Medicine & Ethics* **29**, 13–27. doi:10.1111/j.1748-720x.2001.tb00037.x.

Hope H, Pierce M, Johnstone ED, Myers J, Abel KM (2022). The sexual and reproductive health of women with mental illness: a primary care registry study. *Archives of Womens Mental Health* **25**, 585–593. doi:10.1007/s00737-022-01214-y.

Howard LM, Ehrlich AM, Gamlen F, Oram S (2017). Gender-neutral mental health research is sex and gender biased. *Lancet Psychiatry* **4**, 9–11. doi:10.1016/S2215-0366(16)30209-7.

Huo Y, Couzner L, Windsor T, Laver K, Dissanayaka NN, Cations M (2023). Barriers and enablers for the implementation of trauma-informed care in healthcare settings: a systematic review. *Implementation Science Communications* **4**, 49. doi:10.1186/s43058-023-00428-0.

Institute of Medicine (2001). The national academies collection: reports funded by National Institutes of Health. In *Exploring the Biological Contributions to Human Health: Does Sex Matter?* (ed. T. M. Wizemann and M. L. Pardue), National Academies Press (US): Washington (DC).

Irish Medical Council (2022). Medical Workforce Intelligence Report. Irish Medical Council (https://www.medicalcouncil.ie/news-and-publications/reports/2022-medical-workforce-intelligence-consolidated-report.pdf) Accessed 19 November 2024.

Jang D, Elfenbein HA (2019). Menstrual cycle effects on mental health outcomes: a meta-analysis. *Archives of Suicide Research* **23**, 312–332. doi:10.1080/13811118.2018.1430638.

Judd F, Armstrong S, Kulkarni J (2009). Gender-sensitive mental health care. *Australasian Psychiatry* **17**, 105–111. doi:10.1080/10398560802596108.

Kelly Y, Zilanawala A, Booker C, Sacker A (2018). Social media use and adolescent mental health: findings from the UK millennium cohort study. *EClinicalMedicine* **6**, 59–68. doi:10.1016/j.eclinm.2018.12.005.

Khamisy-Farah R, Bragazzi NL (2022). How to integrate sex and gender medicine into medical and allied health profession undergraduate, graduate, and post-graduate education: insights from a rapid systematic literature review and a thematic meta-synthesis. *Journal of Personalized Medicine* **12**, 612. doi:10.3390/jpm12040612.

Kim AM, Tingen CM, Woodruff TK (2010). Sex bias in trials and treatment must end. *Nature* **465**, 688–689. doi:10.1038/465688a.

Kuehner C (2017). Why is depression more common among women than among men? *Lancet Psychiatry* **4**, 146–158. doi:10.1016/S2215-0366(16)30263-2.

Kulkarni J, Butler S, Riecher-Rossler A (2019). Estrogens and SERMS as adjunctive treatments for schizophrenia. *Frontiers in Neuroendocrinology* **53**, 100743. doi:10.1016/j.yfrne.2019.03.002.

Lombarts KMJ, Verghese A (2022). Medicine is not gender-neutral — she is male. *New England Journal of Medicine* **386**, 1284–1287. doi:10.1056/NEJMms2116556.

Loyer Carbonneau M, Demers M, Bigras M, Guay MC (2021). Meta-analysis of sex differences in ADHD symptoms and associated cognitive deficits. *Journal of Attention Disorders* **25**, 1640–1656. doi:10.1177/1087054720923736.

Ludwig S, Oertelt-Prigione S, Kurmeyer C, Gross M, Gruters-Kieslich A, Regitz-Zagrosek V, Peters H (2015). A successful strategy to integrate sex and gender medicine into a newly developed medical curriculum. *Journal of Women's Health (Larchmont)* **24**, 996–1005. doi:10.1089/jwh.2015.5249.

MacIsaac MB, Bugeja LC, Jelinek GA (2017). The association between exposure to interpersonal violence and suicide among women: a systematic review. *Australian and New Zealand Journal of Public Health* **41**, 61–69. doi:10.1111/1753-6405.12594.

Maldonado B, Marsella J, Higgins A, Richardson SS (2024). Malicious midwives, fruitful vines, and bearded women — sex, gender, and medical expertise in the *Journal*. *New England Journal of Medicine* **390**, 1941–1947. doi:10.1056/NEJMp2404784.

Marazziti D, Baroni S, Picchetti M, Piccinni A, Carlini M, Vatteroni E, Falaschi V, Lombardi A, Dell'Osso L (2013). Pharmacokinetics and pharmacodynamics of psychotropic drugs: effect of sex. *CNS Spectrums* **18**, 118–127. doi:10.1017/S1092852912001010.

Matthews L, Riddell J (2023). *Premenstrual Dysphoric Disorder (PMDD): The UK Research Agenda*. University of the West of Scotland. https://www.sandyford.scot/media/4328/pmdd-research-june-2023.pdf:.

Mauvais-Jarvis F, Bairey Merz N, Barnes PJ, Brinton RD, Carrero JJ, DeMeo DL, De Vries GJ, Epperson CN, Govindan R, Klein SL, Lonardo A, Maki PM, McCullough LD, Regitz-Zagrosek V, Regensteiner JG, Rubin JB, Sandberg K, Suzuki A (2020). Sex and gender: modifiers of health, disease, and medicine. *Lancet* **396**, 565–582. doi:10.1016/S0140-6736(20)31561-0.

Mazure CM, Jones DP (2015). Twenty years and still counting: including women as participants and studying sex and gender in biomedical research. *BMC Women's Health* **15**, 94. doi:10.1186/s12905-015-0251-9.

McGregor AJ, Templeton K, Kleinman MR, Jenkins MR (2013). Advancing sex and gender competency in medicine: sex & gender women's health collaborative. *Biology of Sex Differences* **4**, 11. doi:10.1186/2042-6410-4-11.

McGuire E, Curtis C, Duffy RM (2023a). Fertile ground: reproductive health consideration in mental health ward policy. *Irish Journal of Psychological Medicine* **40**, 571–576. doi:10.1017/ipm.2020.27.

McGuire E, Murray S, Duffy RM (2023b). Pregnancy and breastfeeding in mental health policy: a narrative review. *Irish Journal of Psychological Medicine* **40**, 592–600. doi:10.1017/ipm.2023.32.

McLoughlin C, Hoeritzauer I, Cabreira V, Aybek S, Adams C, Alty J, *et al.* (2023). Functional neurological disorder is a feminist issue. *Journal of Neurology, Neurosurgery & Psychiatry* **94**, 855–862. doi:10.1136/jnnp-2022-330192.

Miller P, King L, Wolfe J, King D (1999). Gender ideology, sensitivity and knowledge: a model of gender awareness in VA health care. *Veterans Health System Journal* **4**, 27–30.

Miller VM, Rice M, Schiebinger L, Jenkins MR, Werbinski J, Nunez A, Wood S, Viggiano TR, Shuster LT (2013). Embedding concepts of sex and gender health differences into medical curricula. *Journal of Women's Health (Larchmont)* **22**, 194–202. doi:10.1089/jwh.2012.4193.

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

Molloy L, Fields L, Trostian B, Kinghorn G (2020). Trauma-informed care for people presenting to the emergency department with mental health issues. *Emergency Nurse* **28**, 30–35. doi:10.7748/en.2020.e1990.

National Women's Council of Ireland (2007). A Guide to Creating Gender-Sensitive Health Services Dublin, National Women's Council of Ireland (https://www.lenus.ie/bitstream/handle/10147/298907/gendermanual.pdf?sequence=1&isAllowed=y) Accessed 19 November 2024.

Nolan LN, Hughes L (2022). Premenstrual exacerbation of mental health disorders: a systematic review of prospective studies. *Archives of Women's Mental Health* **25**, 831–852. doi:10.1007/s00737-022-01246-4.

Oram S, Khalifeh H, Howard LM (2017). Violence against women and mental health. *The Lancet Psychiatry* **4**, 159–170. doi:10.1016/S2215-0366(16)30261-9.

Porter H (2024). Menstrual health in psychiatric inpatient settings. National Survivor User Network (https://www.nsun.org.uk/wp-content/uploads/2024/05/Menstrual-health-in-psychiatric-inpatient-settings-2024.pdf) Accessed 19 November 2024.

Prasad D, Wollenhaupt-Aguiar B, Kidd KN, de Azevedo Cardoso T, Frey BN (2021). Suicidal risk in women with premenstrual syndrome and premenstrual dysphoric disorder: a systematic review and meta-analysis. *J Womens Health (Larchmt)* **30**, 1693–1707. doi:10.1089/jwh.2021.0185.

Riecher-Rossler A (2017). Oestrogens, prolactin, hypothalamic-pituitary-gonadal axis, and schizophrenic psychoses. *Lancet Psychiatry* **4**, 63–72. doi:10.1016/S2215-0366(16)30379-0.

Risberg G, Johansson EE, Hamberg K (2009). A theoretical model for analysing gender bias in medicine. *International Journal for Equity in Health* **8**, 28. doi:10.1186/1475-9276-8-28.

Saunders KRK, McGuinness E, Barnett P, Foye U, Sears J, Carlisle S, *et al.* (2023). A scoping review of trauma informed approaches in acute, crisis, emergency, and residential mental health care. *BMC Psychiatry* **23**, 567. doi:10.1186/s12888-023-05016-z.

Scally G (2018). Scoping inquiry into the cervicalCheck screening programme. (https://assets.gov.ie/9785/9134120f5b2c441c81eeed06808351c7.pdf) Accessed 19 November 2024.

Scull A (2009). *The Disturbing History of Hysteria*. Oxford University Press: Oxford, UK.

Seeman MV (2012). Treating schizophrenia at the time of menopause. *Maturitas* **72**, 117–120. doi:10.1016/j.maturitas.2012.03.008.

Seeman MV (2020). Men and women respond differently to antipsychotic drugs. *Neuropharmacology* **163**, 107631. doi:10.1016/j.neuropharm.2019.05.008.

Sen G, Ostlin P (2008). Gender inequity in health: why it exists and how we can change it. *Global Public Health* **3**, 1–12. doi:10.1080/17441690801900795. Suppl 1(sup1)

Shitomi-Jones LM, Dolman C, Jones I, Kirov G, Escott-Price V, Legge SE, Di Florio A (2024). Exploration of first onsets of mania, schizophrenia spectrum disorders and major depressive disorder in perimenopause. *Nature Mental Health* **2**, 1161–1168. doi:10.1038/s44220-024-00292-4.

Soares CN (2017). Depression and menopause: current knowledge and clinical recommendations for a critical window. *Psychiatr Clin North Am* **40**, 239–254. doi:10.1016/j.psc.2017.01.007.

Sommer IE, Brand BA, Gangadin S, Tanskanen A, Tiihonen J, Taipale H (2023). Women with schizophrenia-spectrum disorders after menopause: a vulnerable group for relapse. *Schizophrenia Bulletin* **49**, 136–143. doi:10.1093/schbul/sbac139.

Sommer IE, Tiihonen J, van Mourik A, Tanskanen A, Taipale H (2020). The clinical course of schizophrenia in women and men—a nation-wide cohort study. *npj Schizophrenia* **6**, 12. doi:10.1038/s41537-020-0102-z.

Sperlich M, Seng JS, Li Y, Taylor J, Bradbury-Jones C (2017). Integrating trauma-informed care into maternity care practice: conceptual and practical issues. *Journal of Midwifery & Women's Health* **62**, 661–672. doi:10.1111/jmwh.12674.

Sramek JJ, Murphy MF, Cutler NR (2016). Sex differences in the psychopharmacological treatment of depression. *Dialogues in clinical neuroscience* **18**, 447–457. doi:10.31887/DCNS.2016.18.4/ncutler.

Sweeney A, Filson B, Kennedy A, Collinson L, Gillard S (2018). A paradigm shift: relationships in trauma-informed mental health services. *BJPsych Advances* **24**, 319–333. doi:10.1192/bja.2018.29.

https://doi.org/10.1017/ipm.2025.23 Published online by Cambridge University Press

The National Women's Council of Ireland (2023). Gender-sensitive Mental Health: Developing Policy and Services Which Meet the Particular Needs of Women and Girls. The National Women's Council of Ireland (https://www.nwci.ie/images/uploads/NWC_GenderSensitiveMHReport_V3_%281%29.pdf) Accessed 19 November 2024.

Trevillion K, Oram S, Feder G, Howard LM (2012). Experiences of domestic violence and mental disorders: a systematic review and meta-analysis. *PLoS One* **7**, e51740. doi:10.1371/journal.pone.0051740.

Ussher JM (2013). Diagnosing difficult women and pathologising femininity: gender bias in psychiatric nosology. *Feminism & Psychology* **23**, 63–69. doi:10.1177/0959353512467968.

Verdonk P, Benschop Y, de Haes H, Mans L, Lagro-Janssen T (2009a). Should you turn this into a complete gender matter? Gender mainstreaming in medical education. *Gender and Education* **21**, 703–719. doi:10.1080/09540250902785905.

Verdonk P, Benschop YW, de Haes HC, Lagro-Janssen TL (2009b). From gender bias to gender awareness in medical education. *Advances in Health Sciences Education* **14**, 135–152. doi:10.1007/s10459-008-9100-z.

Verdonk P, Mans LJL, Lagro-Janssen TLM (2006). How is gender integrated in the curricula of Dutch medical schools? A quick-scan on gender issues as an instrument for change. *Gender and Education* **18**, 399–412. doi:10.1080/09540250600805070.

Wickramaratne PJ, Yangchen T, Lepow L, Patra BG, Glicksburg B, Talati A, Adekkanattu P, Ryu E, Biernacka JM, Charney A, Mann JJ, Pathak J, Olfson M, Weissman MM (2022). Social connectedness as a determinant of mental health: a scoping review. *PLoS One* **17**, e0275004. doi:10.1371/journal.pone.0275004.

Wootten JC, Wiener JC, Blanchette PS, Anderson KK (2022). Cancer incidence and stage at diagnosis among people with psychotic disorders: systematic review and meta-analysis. *Cancer Epidemiology* **80**, 102233. doi:10.1016/j.canep.2022.102233.

World Health Organization (WHO) (2006). *Integrating Gender Into the Curricula for Health Professionals*. World Health Organization: Geneva, Switzerland.

World Health Organization (WHO) (2018). Violence Against Women Prevalence Estimates. (https://www.who.int/publications/i/item/9789240022256) Accessed 19 November 2024.

World Health Organization (WHO) (2024). *Global Health Estimates 2021: YLDs by Age, Sex and Cause*. World Health Organization. *Available at* https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/global-health-estimates-leading-causes-of-dalys:.

Xiping Z, Shuai Z, Feijiang Y, Bo C, Shifeng Y, Qihui C (2019). Meta-analysis of the correlation between schizophrenia and breast cancer. *Clinical Breast Cancer* **19**, e172–e185. doi:10.1016/j.clbc.2018.10.012.

Zakiniaeiz Y, Cosgrove KP, Potenza MN, Mazure CM (2016). Balance of the sexes: addressing sex differences in preclinical research. *The Yale journal of biology and medicine* **89**, 255–259.

Zaks N, Batuure A, Lin E, Rommel AS, Reichenberg A, Grice D, Bergink V, Fox NS, Mahjani B, Janecka M (2023). Association between mental health and reproductive system disorders in women: a systematic review and meta-analysis. *JAMA Network Open* **6**, e238685. doi:10.1001/jamanetworkopen.2023.8685.

Zelek B, Phillips SP, Lefebvre Y (1997). Gender sensitivity in medical curricula. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* **156**, 1297–1300.

Zhang L, Losin EAR, Ashar YK, Koban L, Wager TD (2021). Gender biases in estimation of others' pain. *The Journal of Pain* **22**, 1048–1059. https://doi.org/10.1016/j.jpain.2021.03.001

https://doi.org/10.1017/ipm.2025.23 Published online by Cambridge University Press