



FIP Development Goals

Gender-based disparities in the management of pain in pharmacy: “The gender pain gap”

A literature review

2024



Copyright 2024 International Pharmaceutical Federation (FIP)

International Pharmaceutical Federation (FIP)
Andries Bickerweg 5
2517 JP The Hague
The Netherlands
www.fip.org

All rights reserved. No part of this publication may be stored in any retrieval system or transcribed by any form or means – electronic, mechanical, recording, or otherwise without citation of the source. FIP shall not be held liable for any damages incurred resulting from the use of any data and information from this report. All measures have been taken to ensure accuracy of the data and information presented in this report.

Authors:

Hanadi Alolimi, FIP programme coordinator – Equity
Lina Bader, FIP lead for equity, sustainability policy and development
Nour Eltahla, FIP projects coordinator for equity, sustainability policy and development
Samira Majzoub, FIP intern
Nisa Masyitah, FIP project and data support coordinator

Recommended citation:

International Pharmaceutical Federation (FIP). Gender-based disparities in the management of pain in pharmacy “The Gender Pain Gap”: A literature review. The Hague: International Pharmaceutical Federation, 2024

Cover image: © iStock | istockphoto.com

Contents

Acknowledgements	4
1 Introduction	5
1.1 The imperative for addressing the "gender pain gap"	5
1.2 The gender pain gap as a priority for FIP	5
1.3 Objectives of this review	6
2 Understanding the gender pain gap in health and pharmacy	7
2.1 Gender differences in pain	7
2.2 Gender bias, stereotypes and pain management	7
3 Tools, frameworks and resources to address gender-based disparities in the management of pain	9
3.1 Multidisciplinary approaches	9
3.2 Pain assessment tools.....	9
3.3 Education and awareness programmes	9
3.4 Policy and guideline development	10
3.5 Pharmacy-based interventions.....	10
3.6 Collaborative practice models	10
3.7 Technology and digital tools.....	11
3.8 Research and development.....	11
3.9 Advocacy and community engagement	11
4 Conclusions	12
5 References.....	13

Acknowledgements

FIP acknowledges that this literature review was supported through unrestricted funds from Reckitt.

1 Introduction

1.1 The imperative for addressing the "gender pain gap"

Pain, a universal human experience, is as complex as it is subjective, influenced not only by physiological and psychological factors but also by the intricate web of social determinants and cultural norms. Recent research has illuminated a stark disparity in the experience and treatment of pain across gender lines—a phenomenon known as the gender pain gap.

This literature review by the International Pharmaceutical Federation (FIP) aims to identify the elements contributing to this gap, exploring the biopsychosocial elements that contribute to the different pain experiences of men and women and understanding the role of health care providers, including pharmacists, in both perpetuating and addressing these differences.

The gender pain gap presents itself through various perspectives: from conditions that disproportionately afflict women—like endometriosis and fibromyalgia, to the social biases that colour the perception of pain in men and women. These disparities raise fundamental questions about the equity and effectiveness of pain management in healthcare and, by extension, in the field of pharmacy.

The perpetuation of gender stereotypes in pain assessment and subsequent treatment decisions have significant implications for the equality and quality of care delivery. Within the walls of pharmacies on the frontlines of primary care, where many individuals first seek relief for their pain, there exists a profound opportunity to challenge these stereotypes and implement equitable pain management practices.

This literature review explores how gender impacts treatment outcomes and the acceptance of pain therapies, and how pharmacists can become advocates for change, ensuring that their practices are not only informed by the latest evidence but also free from the biases that have long influenced pain management.

This review will inform a call to action for the pharmacy profession at the crossroads of scientific evidence and patient care. As pharmacists, the responsibility to bridge the gender pain gap is both a professional obligation and a moral imperative. By shedding light on the available interventions that can be applied in the pharmacy setting, this review can be used to inform the development of tools and solutions for reducing the gender pain gap to pave the way for more equitable pain management, where gender disparities are acknowledged, addressed and, ultimately, eradicated.

1.2 The gender pain gap as a priority for FIP

Addressing the gender pain gap is directly aligned with the FIP Development Goal 10 “Equity and equality”. The FIP Development Goals are set to transform global pharmacy by providing a systematic and integrated framework that can support the transformation of pharmacy practice, science, and workforce and education. Of the 21 Goals, FIP Development Goal 10 impacts us all.

The Equity & Equality DG calls for clear strategies to address inequalities in the pharmaceutical workforce, widen access and equity of pharmaceutical care services, as well as equity in the global capacity for pharmaceutical sciences development. FIP-EquityRx – FIP’s programme on Equity & Equality in pharmacy – is driving FIP DG 10’s global implementation.

As part of the FIP-EquityRx programme, we are dedicated to addressing the gender pain gap in health and pharmacy. The programme’s objectives are to:

- 1) Identify the main reasons for and implications of the gender pain gap;
- 2) Discuss the role of pharmacy in reducing the gender pain gap; and,
- 3) Develop tools and resources for pharmacy.

Within these objectives, FIP convened an international insight board of experts and pharmacists in 2022 to get a better understanding of:

- 1) Pharmacists’ awareness of gender inequalities in pain research;
- 2) Pharmacists’ awareness of gender gaps in treatment offers for pain management;

- 3) Pharmacists' unconscious bias towards women in pain management;
- 4) The knowledge, attitudes and practices that pharmacists have in order to close the gender pain gap; and,
- 5) How pharmacists can be supported with, for example, training and tools to address gender inequalities in pain management, closing the gender pain gap and achieving behavioural change towards women.

The insights were summarised in an internal FIP report “The role of pharmacists in closing the gender pain gap: Report from an international insight board” which highlights the existence of gender differences in pain experiences and pain management. A key principle was established: the clinical goal of pain management must be to provide quality, fair and equitable patient-centred treatment. A gender responsive pharmaceutical care approach is required to ensure gender-based differences in physiological pain mechanisms or psychosocial factors are managed equitably. Pharmacists play a key role in pain management, including medication counselling and referrals, and thus they must be unbiased as well as gender-responsive towards pain management during their practice.

Understanding and addressing the gender pain gap not only reduces health inequalities, but also empowers patients to self-care. Pharmacy's role in enabling self-care is well established and this is another area of priority for FIP. Empowering patient self-care improves health outcomes and reduces the burden of diseases. Improving health and self-care literacy is key to empowering pharmacy-based self-care.

Subsequently, in 2023, FIP hosted an online webinar on “[The role of pharmacist in closing the gender pain gap](#)” as part of a programme on shaping the future of self-care through pharmacy which focused on health and self-care literacy for the management of minor ailments in the pharmacy.

The event, aimed at pharmacy and health professionals, especially in the community pharmacy setting, sought to define the gender pain gap, increase awareness about the gender pain gap, describe how pharmacists can be supported to address the issue, and the knowledge and training available for pharmacists to address gender-based disparities in addressing pain management.

1.3 Objectives of this review

The objectives of this review are two-fold:

1. To provide a high-level review of the evidence on the gender pain gap and its impact on pain management and care in all settings, with particular emphasis on primary care;
2. To describe the existing types of interventions, solutions and tools that can be used to reduce the gender pain gap.

This review included both scientific research and grey literature (e.g., reports, guidelines and abstracts). Primarily, the databases PubMed (National Library of Medicine), Embase (Elsevier), and Scopus (Elsevier) were searched from inception to August 2023.

A total of 23 sources were included in this review and only resources available in English were included, which may have resulted in missing essential resources that could be available in other languages.

2 Understanding the gender pain gap in health and pharmacy

The gender pain gap, a term that encapsulates the disparities in pain prevalence, treatment, and management between genders, presents a significant challenge in healthcare and pharmacy practice. This section of the literature review examines gender-specific pain conditions and treatments, the prevalence of and inequitable experiences, healthcare disparities, and the clinical and experimental findings that underpin our current understanding. A focus on sex and gender differences will guide our exploration of how societal, psychological and biological factors contribute to the gender pain gap. Through a synthesis of current research and clinical reports, this review will highlight the imperative for gender-informed practices in the management of pain within pharmacy settings.

2.1 Gender differences in pain

Evidence strongly suggests that there are sex-based differences in pain sensitivity and analgesic response¹. This is true across all types of clinical pain, both acute and chronic, but there is less clarity on the underlying factors behind these differences. Understanding those factors and mechanisms better can inform improved gender-based treatments².

Research indicates a higher prevalence of certain pain conditions like endometriosis and fibromyalgia among women^{3,4}. A recent review highlights the necessity for gender-specific treatment approaches, which include both pharmacological and non-pharmacological strategies. Pharmacological treatments often involve a combination of pain relievers and hormonal therapies, while non-pharmacological approaches include physical therapy and psychological support. The research underscores the importance of personalised treatment plans considering the unique aspects of these conditions in women⁵.

Recent clinical and experimental findings show significant sex differences in responses to pain treatment. Women are found to be at increased risk for chronic pain and may experience more severe clinical pain. These differences are attributed to a variety of factors, including biological (e.g., hormonal variations) and psychosocial elements^{2,3,6}. Such findings are pivotal for developing gender-sensitive pain management protocols⁷.

In addition, studies consistently demonstrate that women report higher pain severity and prevalence compared to men^{6,8,9}. This has led to a growing recognition in pharmaceutical practice of the need for gender-informed approaches to pain management, including consideration of sex-specific pharmacodynamics and patient education tailored to these differences¹⁰.

2.2 Gender bias, stereotypes and pain management

Gender bias in health care settings have been highlighted repeatedly, especially when it comes to pain management. This is largely attributed to gender stereotyping which impacts the way female pain is analysed, interpreted and treated by health care professionals who underestimate the pain^{11,12}. Investigations into pain management practices reveal that patient and provider gender can influence treatment approaches¹³. Research advocates for gender-neutral pain management strategies and standardised protocols that account for gender differences, ensuring equitable care for all patients¹¹.

A 2021 study on gender inequalities in chronic pain across 19 European countries showed significant gender inequalities in pain, with women experiencing more chronic pain than men. The variation in the gender pain gap across countries points to a mix of biological, social and cultural factors influencing these disparities. These findings have significant implications for public health policies and pain management strategies in various healthcare settings, reiterating that the gender pain divide poses a public health concern and should be considered in any pain management and prevention strategy by healthcare providers⁸.

Gender bias when it comes to pain are not limited to health care providers. It extends to perceptions of others' pain, pain estimation, and treatment by caregivers and prescribers in general. In two experiments, researchers reported that female patients' pain was underestimated by lay perceivers compared with male patients' pain¹⁴. Women's pain was perceived as less intense and benefiting more from psychotherapy than men's pain, which was seen to benefit more

from pain medication^{3,11,14,15}. These results indicate that biases based on gender in assessing pain could pose a barrier to providing effective pain treatment¹⁶.

The gender bias affects not only women, but also girls. A 2019 study on paediatric pain assessment showed that adult gender biases can influence how children's pain is perceived and treated. It found that – despite identifying clinical symptoms and pain behaviour – boys were rated as experiencing more pain than girls. This has led to a call for the use of validated, gender-neutral pain assessment tools in paediatric care. Paediatric pharmacists are emphasised as key players in ensuring that children receive appropriate and unbiased pain management¹⁷.

Although there is extensive research on the differences in pain perception between sexes, understanding how gender affects interactions between patients and providers remains limited. One study aimed to examine existing literature on societal norms regarding pain in men and women and explore the presence of gender bias in pain treatment. It specifically focused on identifying gender bias within the dynamics of patient-provider interactions and the treatment choices made by healthcare professionals. The review identified that gender bias in pain treatment exists¹².

In terms of treatment for pain through medication, the evidence on gender bias is mixed but shows evidence of disparities in effective treatment. One study of electronic medical records at a hospital emergency department sought to assess potential health care provider bias in prescribing opioid analgesics. The study revealed that providers were notably more inclined to prescribe opioids to patients identified as middle-aged, white, and married, yet it did not uncover any bias favouring women in opioid prescriptions¹⁰. In other research, it is reported that women receive less intensive and effective treatment for their pain despite them reporting and experiencing more pain than men and that this mistrust in women's experiences of pain can undermine the quality, efficacy and equality of care¹⁵.

Evidence suggests that women often receive less aggressive pain management compared to men^{14,20}. This disparity is influenced by factors such as gender biases and stereotypes in clinical settings²¹. The research calls for increased awareness and education among healthcare providers, including pharmacists, to ensure equitable pain treatment²².

More research is underway to better understand gender bias in different types of pain. For example, a scoping review is being carried out by a group of international researchers to better understand the international perspective on healthcare provider gender bias specifically in musculoskeletal pain management²³.

Gender differences significantly affect pain treatment outcomes. Studies suggest that women may face unique challenges in pain treatment, impacting their medication adherence and acceptance of therapies. This emphasises the need for pharmacists to provide gender-sensitive counselling and support, recognising the various social and psychological factors that influence treatment outcomes²⁴.

The interrelation between pain and depression is more pronounced in women, who have a higher co-morbidity rate²⁵. Studies highlight the role of pharmacists in managing these conditions through careful medication management and patient counselling. This integrated approach is crucial for effective treatment of both pain and depression.

3 Tools, frameworks and resources to address gender-based disparities in the management of pain

The mitigation of gender bias in healthcare requires a selection of tools and educational strategies that transcend traditional practices. This section will review the general tools available to healthcare professionals, including gender-neutral pain assessment tools, bias training programmes, and frameworks that promote gender equality in clinical practice. It will also delve into the educational reforms necessary to foster a healthcare system that is conscious of and responsive to gender-based disparities in pain perception and treatment. Pharmacy professionals encounter the gender pain gap within diverse facets of their practice, necessitating tailored tools and training to address this issue effectively. This section will focus on pharmacy-specific applications, detailing the resources and educational initiatives that can enhance the pharmacist's ability to recognise and correct gender bias. By examining the literature and case studies specific to pharmacy practice, the review will underscore the role of pharmacists as pivotal healthcare providers in bridging the gender pain gap.

3.1 Multidisciplinary approaches

The effectiveness of multidisciplinary care approaches in addressing the gender pain gap has been increasingly recognised. Such care models are essential for addressing complex pain conditions that require a nuanced understanding of both biological and psychosocial aspects of pain experienced by different genders. These models often integrate insights from various healthcare fields, including pharmacy, medicine, psychology and physical therapy. Research, such as longitudinal observational studies, has shown improved patient outcomes, particularly in managing chronic pain conditions, where gender-specific considerations are vital²⁴.

A recent study investigated gender differences in multidisciplinary treatment outcomes and whether pain acceptance plays a factor in gender differences. The study showed that women showed greater improvements than men upon being discharged from a multidisciplinary pain rehabilitation programme¹⁴. This may highlight the importance of an interprofessional approach when it comes to managing pain differences²⁴.

3.2 Pain assessment tools

The development of gender-neutral pain assessment tools is a crucial step towards equitable pain management²⁶. These tools are typically evaluated through rigid processes, including randomised controlled trials and validation studies, to ensure their reliability and validity across genders. The research process often involves iterative phases, where tools are refined based on feedback from both patients and healthcare professionals²⁷. Studies employing psychometric analysis are used to gauge the tool's accuracy in different settings, including clinical and research environments. The implementation of these tools in practice is further examined through pilot studies and real-world evaluations, ensuring they are practical and effective in diverse healthcare settings. The widespread adoption of these validated tools, as recommended in clinical practice guidelines, is critical for overcoming historical biases in pain assessment and treatment²⁸.

3.3 Education and awareness programmes

In terms of educational approaches to address the issues, the role of undergraduate education must be considered. Research suggests that embedding the topic in medical education at the undergraduate level can play a role in addressing gender bias in clinical practice. A group of medical academics, for example, suggest that a foundational course should become integral to the curriculum, starting from the first year until the end of the studies, with practical workshops embedded to support clinical experience¹¹.

Recognising and understanding gendered norms is crucial in both research and clinical settings. This awareness is key to combating gender bias in healthcare and equipping healthcare professionals with the ability to offer more equitable and effective care that adequately addresses the needs of all patients, regardless of their gender⁵.

Educational and awareness programmes targeting healthcare professionals and patients play a pivotal role in addressing gender biases in pain treatment. These programmes are often designed based on educational research methodologies, including curriculum development theories and instructional design models¹⁴. The effectiveness of these programmes is evaluated through intervention studies, which assess changes in knowledge, attitudes and practices among healthcare providers, including pharmacists. Patient-focused educational initiatives are similarly assessed using methodologies like patient outcome studies and satisfaction surveys. These programmes aim to increase awareness of the gender pain gap, enhance provider-patient communication, and empower patients in managing their pain. The success of these programmes is crucial in changing long-standing misconceptions and practices in pain management and is often shared through public health journals and educational conference presentations²³.

3.4 Policy and guideline development

The development of policies and guidelines to address the gender pain gap involves a comprehensive approach, integrating findings from a range of studies including epidemiological research, clinical trials and expert consensus panels. This process often starts with systematic reviews of existing literature to identify evidence-based practices in pain management. Following this, expert panels comprising healthcare professionals, policymakers and patient advocates convene to discuss and develop guidelines, utilising a Delphi method or similar consensus-building approach. These guidelines are then disseminated through policy papers, clinical practice guidelines, and recommendations published in medical and pharmaceutical journals. They serve as a critical resource for healthcare providers, informing clinical decisions and helping to standardise care across different settings, ensuring that gender-specific considerations are incorporated into pain management practices²⁷.

3.5 Pharmacy-based interventions

A 2020 scoping review of interventions to overcome or reduce gender bias in clinical practice (not limited to pain) identified only 22 recorded interventions. The types of interventions include decision support guidelines and standardised protocols, staff, clinic and community interventions, and interventions managed by an all women team for female patients among other types. The majority of these interventions are based in the secondary setting and the review specifically highlighted the lack of studies in addressing this problem in primary healthcare – which includes pharmacy²⁹.

Pharmacy-based interventions to reduce gender disparities in pain management encompass a variety of strategies, as documented in clinical pharmacy research and practice improvement studies. These interventions often include personalised medication management, considering factors like drug-gender interactions, side effects and compliance issues. Pharmacies employ methods such as retrospective chart reviews and patient follow-up studies to assess the impact of these interventions on pain management outcomes. Additionally, pharmacists engage in medication therapy management (MTM) and patient education programmes, tailored to address gender-specific needs. The effectiveness of these interventions is further evaluated through qualitative methods like patient interviews and focus groups, providing insights into patient experiences and satisfaction²⁷. The adoption of these tailored strategies in pharmacy practice is critical for providing gender-sensitive care and improving overall pain management outcomes for patients.

3.6 Collaborative practice models

Collaborative practice models in pain management are increasingly being explored through research methodologies such as comparative effectiveness studies and qualitative evaluations. These approaches encourage the integration of pharmacists into broader healthcare teams, facilitating a comprehensive approach to pain management. Research has shown that such collaborations lead to better patient outcomes, particularly in chronic pain management where multiple aspects of patient care need to be coordinated. Observational studies, often conducted in clinical settings, examine the dynamics of these collaborative models, assessing factors such as communication, role clarity and patient satisfaction. The success of these models hinges on effective interprofessional collaboration, which is increasingly being recognised as essential for addressing complex healthcare challenges like the gender pain gap⁵.

3.7 Technology and digital tools

The integration of technology in pain management, particularly in bridging the gender pain gap, has been a focus of recent digital health research. Studies utilising digital applications for pain assessment and management are often evaluated through user experience research, including usability testing and feedback surveys. The effectiveness of digital tools in improving pain management is further assessed through comparative studies, comparing outcomes with traditional pain management approaches. Telemedicine and e-health platforms are also evaluated for their ability to provide accessible, gender-sensitive care, especially in underserved populations. Research methodologies like randomised controlled trials and longitudinal studies are employed to assess the efficacy and long-term impact of these digital interventions. The increasing reliance on technology in healthcare underscores the importance of these tools in enhancing patient-centred care and addressing gender-specific needs in pain management³⁰.

3.8 Research and development

Ongoing research and development in pain management is essential to continuously evolve and improve practices, especially concerning gender differences. This involves pharmacological research, where new pain medications are tested for efficacy and safety in different genders through clinical trials. Research methodologies in this area include dose-response studies, pharmacokinetic and pharmacodynamic modelling and side effect profiling³¹. Additionally, meta-analyses of existing research help in identifying trends and gaps in the current understanding of pain management across genders. These research efforts are critical in developing new treatments and refining existing protocols, ensuring they are effective and equitable for all patients, regardless of gender.

3.9 Advocacy and community engagement

Advocacy and community engagement are critical in raising awareness of the gender pain gap and promoting equitable pain management practices. Public health initiatives aimed at addressing this gap often utilise community-based participatory research methodologies, engaging directly with patients and communities to understand their needs and experiences. Impact assessments and programme evaluations are conducted to gauge the effectiveness of these initiatives in changing perceptions and practices related to pain management. Additionally, advocacy efforts by healthcare professionals, including pharmacists, are documented through case studies and qualitative research, highlighting successful strategies and challenges in promoting gender-sensitive pain management at the community level. These efforts play a vital role in influencing policy, shaping public opinion, and ultimately improving pain management practices across healthcare settings²⁶.

4 Conclusions

Collaboration across various medical specialties is essential for creating diagnostic and therapeutic guidelines that address gender-specific needs. Additionally, healthcare professionals should enhance their skills in effectively managing pain by utilising existing diagnostic instruments and treatment options.

Research indicates that gender biases and stereotypes can lead to differential treatment of pain. Women's pain is often underestimated and undertreated compared to men's. This calls for the implementation of standardised, gender-neutral pain assessment tools in clinical practice and increased training for healthcare providers to recognise and mitigate these biases.

In addition to the evidence and research summarised in this literature review, the FIP 2022 insight board "The role of pharmacist in closing the gender pain gap" supports the notion that pharmacy professionals undoubtedly have a role to play in addressing the gender pain gap.

FIP will continue to provide tools, frameworks, and events to support pharmacists and our member organisations in nations to provide the best pain management possible to all patients and genders.

5 References

1. Vallerand AH, Polomano RC. The relationship of gender to pain. *Pain Manag Nurs* [Internet]. 2000;1(3):8–15. Available from: <http://dx.doi.org/10.1053/jpmn.2000.9759>
2. Bartley EJ, Fillingim RB. Sex differences in pain: a brief review of clinical and experimental findings. *Br J Anaesth* [Internet]. 2013;111(1):52–8. Available from: <http://dx.doi.org/10.1093/bja/aet127>
3. Women and pain: Disparities in experience and treatment [Internet]. Harvard Health. 2017 [cited 2023 Dec 22]. Available from: <https://www.health.harvard.edu/blog/women-and-pain-disparities-in-experience-and-treatment-2017100912562>
4. LeResche L. Defining gender disparities in pain management. *Clin Orthop Relat Res* [Internet]. 2011;469(7):1871–7. Available from: <http://dx.doi.org/10.1007/s11999-010-1759-9>
5. Casale R, Atzeni F, Bazzichi L, Beretta G, Costantini E, Sacerdote P, et al. Pain in women: A perspective review on a relevant clinical issue that deserves prioritization. *Pain Ther* [Internet]. 2021 [cited 2023 Dec 19];10(1):287–314. Available from: <https://pubmed.ncbi.nlm.nih.gov/33723717/>
6. Bernardes SF, Keogh E, Lima ML. Bridging the gap between pain and gender research: A selective literature review. *Eur J Pain* [Internet]. 2008;12(4):427–40. Available from: <http://dx.doi.org/10.1016/j.ejpain.2007.08.007>
7. Pieretti S, Di Giannuario A, Di Giovannandrea R, Marzoli F, Piccaro G, Minosi P, et al. Gender differences in pain and its relief. *Ann Ist Super Sanita* [Internet]. 2016 [cited 2023 Dec 19];52(2):184–9. Available from: <https://pubmed.ncbi.nlm.nih.gov/27364392/>
8. Bimpong K, Thomson K, Mcnamara CL, et al. The Gender Pain Gap: gender inequalities in pain across 19 European countries. *Scand J Public Health*. 2022;50(2):287–294. Available from: <https://journals.sagepub.com/doi/full/10.1177/1403494820987466>
9. Fillingim RB, King CD, Ribeiro-Dasilva MC, Rahim-Williams B, Riley JL III. Sex, gender, and pain: A review of recent clinical and experimental findings. *J Pain* [Internet]. 2009;10(5):447–85. Available from: <http://dx.doi.org/10.1016/j.jpain.2008.12.001>
10. Allegra S, Chiara F, Di Grazia D, Gaspari M, De Francia S. Evaluation of sex differences in preclinical pharmacology research: how far is left to go? *Pharmaceuticals*. 2023;16(6):786. doi: 10.3390/ph16060786. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10300853/>
11. Moretti C, De Luca E, D'Apice C, Artioli G, Sarli L, Bonacaro A. Gender and sex bias in prevention and clinical treatment of women's chronic pain: hypotheses of a curriculum development. *Front Med (Lausanne)* [Internet]. 2023;10. Available from: <http://dx.doi.org/10.3389/fmed.2023.1189126>
12. Colameco S, Becker LA, Simpson M, Samulowitz A, Gremyr I, Eriksson E, et al. "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 Res Manage* [Internet]. 1983;6:1–14. Available from: <http://dx.doi.org/10.1155/2018/6358624>
13. Safdar B, Heins A, Homel P, Miner J, Neighbor M, DeSandre P, et al. Impact of physician and patient gender on pain management in the emergency department—A multicenter study. *Pain Med* [Internet]. 2009;10(2):364–72. Available from: <http://dx.doi.org/10.1111/j.1526-4637.2008.00524.x>
14. Hoffmann DE, Tarzian AJ. The girl who cried pain: A bias against women in the treatment of pain. *J Law Med Ethics* [Internet]. 2001;29(1):13–27. Available from: <http://dx.doi.org/10.1111/j.1748-720x.2001.tb00037.x>
15. Lloyd EP, Paganini GA, ten Brinke L. Gender stereotypes explain disparities in pain care and inform equitable policies. *Policy Insights Behav Brain Sci* [Internet]. 2020;7(2):198–204. Available from: <http://dx.doi.org/10.1177/2372732220942894>
16. Zhang L, Losin EAR, Ashar YK, Koban L, Wager TD. Gender biases in estimation of others' pain. *J Pain* [Internet]. 2021;22(9):1048–59. Available from: <https://www.sciencedirect.com/science/article/pii/S1526590021000353>
17. Earp BD, Monrad JT, LaFrance M, Bargh JA, Cohen LL, Richeson JA. Featured article: Gender bias in pediatric pain assessment. *J Pediatr Psychol* [Internet]. 2019;44(4):403–14. Available from: <http://dx.doi.org/10.1093/jpepsy/jsy104>
18. Chen EH, Shofer FS, Dean AJ, Hollander JE, Baxt WG, Robey JL, et al. Gender disparity in analgesic treatment of emergency department patients with acute abdominal pain. *Acad Emerg Med* [Internet]. 2008;15(5):414–8. Available from: <http://dx.doi.org/10.1111/j.1553-2712.2008.00100.x>
19. Keister LA, Stecher C, Aronson B, McConnell W, Hustedt J, Moody JW. Provider Bias in prescribing opioid analgesics: a study of electronic medical Records at a Hospital Emergency Department. *BMC Public Health* [Internet]. 2021 [cited 2023 Dec 19];21(1). Available from: <https://pubmed.ncbi.nlm.nih.gov/34362330/>
<https://pubmed.ncbi.nlm.nih.gov/34362330/>

20. Weisse CS, Sorum PC, Sanders KN, Syat BL. Do gender and race affect decisions about pain management? *J Gen Intern Med* [Internet]. 2001;16(4):211–7. Available from: <http://dx.doi.org/10.1046/j.1525-1497.2001.016004211.x>
21. Hampton SB, Cavalier J, Langford R. The influence of race and gender on pain management: A systematic literature review. *Pain Manag Nurs* [Internet]. 2015;16(6):968–77. Available from: <http://dx.doi.org/10.1016/j.pmn.2015.06.009>
22. Paulson M, Dekker A. Healthcare Disparities in Pain Management. *Journal of Osteopathic Medicine*. 2005;105(s63): 14-17. Available from: <https://www.degruyter.com/document/doi/10.7556/jaoa.2005.20032/html>
23. Wilford KF, Mena-Iturriaga MJ, Vugrin M, Wainer M, Sizer PS, Seeber GH. International perspective on healthcare provider gender bias in musculoskeletal pain management: a scoping review protocol. *BMJ Open*. 2022. Available from: <https://pubmed.ncbi.nlm.nih.gov/35715190/>
24. Pester BD, Crouch TB, Christon L, Rodes J, Wedin S, Kilpatrick R, et al. Gender differences in multidisciplinary pain rehabilitation: The mediating role of pain acceptance. *J Contextual Behav Sci* [Internet]. 2022;23:117–24. Available from: <https://www.sciencedirect.com/science/article/pii/S2212144722000023>
25. Calvó-Perxas L, Vilalta-Franch J, Turró-Garriga O, López-Pousa S, Garre-Olmo J. Gender differences in depression and pain: A two year follow-up study of the Survey of Health, Ageing and Retirement in Europe. *J Affect Disord* [Internet]. 2016;193:157–64. Available from: <https://www.sciencedirect.com/science/article/pii/S0165032715312623>
26. Hammarström A, Wiklund M, Stålnacke B-M, Lehti A, Haukenes I, Fjellman-Wiklund A. Developing a tool for increasing the awareness about gendered and intersectional processes in the clinical assessment of patients – A study of pain rehabilitation. *PLoS One* [Internet]. 2016 [cited 2023 Dec 20];11(4):e0152735. Available from: <http://dx.doi.org/10.1371/journal.pone.0152735>
27. Bostick GP, Dick BD, Wood M, Luckhurst B, Tschofen J, Wideman TW. Pain assessment recommendations for women, made by women: A mixed methods study. *Pain Med* [Internet]. 2018;19(6):1147–55. Available from: <http://dx.doi.org/10.1093/pm/pnx137>
28. Hawker GA, Mian S, Kendzerska T, French M. Measures of adult pain: Visual analog scale for pain (VAS pain), numeric rating scale for pain (NRS pain), McGill pain questionnaire (MPQ), short-form McGill pain questionnaire (SF-MPQ), chronic pain grade scale (CPGS), short form-36 bodily pain scale (SF-36 BPS), and measure of intermittent and constant osteoarthritis pain (ICOAP). *Arthritis Care Res (Hoboken)* [Internet]. 2011;63(S11). Available from: <http://dx.doi.org/10.1002/acr.20543>
29. Alcalde-Rubio L, Hernández-Aguado I, Parker LA, Bueno-Vergara E, Chilet-Rosell E. Gender disparities in clinical practice: are there any solutions? Scoping review of interventions to overcome or reduce gender bias in clinical practice. *Int J Equity Health* [Internet]. 2020;19(1). Available from: <http://dx.doi.org/10.1186/s12939-020-01283-4>
30. Keogh E, Rosser BA, Eccleston C. e-Health and chronic pain management: Current status and developments. *Pain* [Internet]. 2010;151(1):18–21. Available from: <http://dx.doi.org/10.1016/j.pain.2010.07.014>
31. Dowell D, Ragan KR, Jones CM, Baldwin GT, Chou R. CDC clinical practice guideline for prescribing opioids for pain—United States, 2022. *MMWR Recomm Rep* [Internet]. 2022 [cited 2023 Dec 25];71(3):1–95. Available from: <https://www.cdc.gov/mmwr/volumes/71/rr/rr7103a1.htm>

International
Pharmaceutical
Federation

Fédération
Internationale
Pharmaceutique

Andries Bickerweg 5
2517 JP The Hague
The Netherlands-

T +31 (0)70 302 19 70
F +31 (0)70 302 19 99
fip@fip.org.