aeet
ASOCIACIÓN ESPAÑOLA DE ECOLOGÍA TERRESTRE

Ecosistemas 34(1): 2913 [January-April / enero-abril, 2025]
https://doi.org/10.7818/ECOS.2913

Associate editor / Editora asociada: Laura Hernández-Mateo

RESEARCH ARTICLE / ARTÍCULO DE INVESTIGACIÓN

ecosistemas

ISSN 1697-2473

Blood, Sweat, and Research: Menstruation's Impact on Fieldwork in Natural Science

Sara Gamboa[1,2,3,*], Elena Cuesta[2,4], Virginia Domínguez-García[3,5], Ana García-Muñoz[3,6,7], Ana Rosa Gómez Cano[2,8], Paloma López-Guerrero[2], Iris Menéndez[2,9], Adriana Oliver[1,2], Elena Velado-Alonso[3,5,10,11], Patricia M. Carro-Rodríguez[2], Dánae Sanz-Pérez[2,12]

(1) MAPAS Lab, Centro de Investigación Mariña, Departamento de Ecoloxía e Bioloxía Animal, Universidade de Vigo, Campus Lagoas-Marcosende, 36310 Vigo, España.
(2) Asociación Mujeres con los pies en la Tierra. Calle José Antonio Novais 12, 28040, Madrid, España.
(3) Comisión de Igualdad. Asociación Española de Ecología Terrestre. Edificio Departamental II, C. Tulipán, s/n, 28933 Móstoles, Madrid, España.
(4) Department für Geo- und Umweltwissenschaften and GeoBio Center, Ludwig-Maximillians Universität, Richard Wagner Str. 10, 80333, Munich, Germany.
(5) Estación Biológica de Doñana (EBD-CSIC), Sevilla, España.
(6) Área de Biodiversidad y Conservación, Departamento de Biología y Geología, Física y Química Inorgánica, Universidad Rey Juan Carlos, Móstoles, España.
(7) Instituto de Investigación en Cambio Global (IICG-URJC), Universidad Rey Juan Carlos, Móstoles, España.
(8) Transmitting Science, C/ Gardenia, 2 08784 Piera, Barcelona, España.
(9) Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Invalidenstrasse 43, 10115 Berlin, Germany.
(10) Plant Ecology & Nature Conservation Group, Wageningen University, Wagenigen, The Netherlands.
(11) Functional Agrobiodiversity & Agroecology Group, Georg-August University, Göttingen, Germany.
(12) Departamento de Geodinámica, Estratigrafía y Paleontología, Departamento de Geodinámica, Estratigrafía y Paleontología, Universidad Complutense de Madrid, C/ Jose Antonio Novais 12, 28040, Madrid, España.

* Correspondig author / Autora para correspondencia: Sara Gamboa [sara.gamboa@uvigo.es]

> Received / Recibido: 18/11/2024 – Accepted / Aceptado: 24/02/2025

How to cite / Cómo citar: Gamboa, S., Cuesta, E., Domínguez-García, V., García-Muñoz, A., Gómez Cano, A.R., López-Guerrero, P., Menéndez, I., Oliver, A., Velado-Alonso, E., Carro-Rodríguez, P.M., Sanz-Pérez, D. 2025. Blood, Sweat, and Research: Menstruation's Impact on Fieldwork in Natural Science. *Ecosistemas* 34(1): 2913. https://doi.org/10.7818/ECOS.2913

Blood, Sweat, and Research: Menstruation's Impact on Fieldwork in Natural Science

Abstract: In this article, we examine the often-overlooked impact of menstruation on fieldwork experiences in natural sciences disciplines. We conducted a cross-sectional survey of 429 participants, predominantly women (86.0%) with limited non-binary representation and no transgender men, to investigate the logistical, social, and health-related challenges faced during fieldwork.

The survey, combining quantitative and qualitative data, revealed that 86% of respondents have experienced menstruation, with nearly half (48%) reporting significant menstrual pain while working in the field. Quantitative findings indicate that fieldwork logistics rarely accommodate menstrual health needs: 85% of participants reported that standard first aid kits do not include menstrual hygiene products. Additionally, qualitative data highlighted difficulties in communication about menstrual issues, with only 30.5% of respondents feeling comfortable discussing these issues with male supervisors, compared to 59.9% with female supervisors.

These findings underscore significant gaps in support for menstrual health during fieldwork. They suggest that practical measures—such as ensuring menstrual products are available in first aid kits and fostering more open dialogue about menstrual health—could improve support for menstruating researchers. However, our results also highlight the need for further research to explore the broader systemic factors underlying these challenges. Ultimately, addressing these gaps may contribute to creating a more inclusive and equitable environment for all researchers.

Keywords: diversity; equity; gender; hygiene; menstrual health; survey

Sangre, Sudor e Investigación: El Impacto de la Menstruación en el Trabajo de Campo en Ciencias Naturales

Resumen: En este artículo, examinamos el impacto, a menudo pasado por alto, de la menstruación en las experiencias de trabajo de campo en las disciplinas de las ciencias naturales. Realizamos una encuesta transversal a 429 participantes, predominantemente mujeres (86.0%), con una representación limitada de personas no binarias y sin hombres trans, para investigar los desafíos logísticos, sociales y relacionados con la salud que se afrontan durante el trabajo de campo.

La encuesta, que combinó datos cuantitativos y cualitativos, reveló que el 86% de los encuestados ha experimentado la menstruación, y casi la mitad (48%) reportó un dolor menstrual significativo durante el trabajo de campo. Los hallazgos cuantitativos indican que la logística del trabajo de campo rara vez se adapta a las necesidades de salud menstrual: el 85% de los participantes manifestó que los botiquines estándar no incluyen productos de higiene menstrual. Además, los datos cualitativos destacaron dificultades en la comunicación sobre cuestiones menstruales, ya que solo el 30.5% de los encuestados se sintió cómodo discutiendo estos temas con supervisores masculinos, en comparación con el 59.9% con supervisores femeninos.

Estos hallazgos subrayan importantes lagunas en el apoyo a la salud menstrual durante el trabajo de campo. Sugieren que medidas prácticas —como asegurar la disponibilidad de productos menstruales en los botiquines de primeros auxilios y fomentar un diálogo más abierto sobre la salud menstrual— podrían mejorar el apoyo a las investigadoras que menstrúan. Sin embargo, nuestros resultados también destacan la necesidad de realizar investigaciones adicionales para explorar los factores sistémicos más amplios que subyacen a estos desafíos. En última instancia, abordar estas lagunas podría contribuir a crear un entorno más inclusivo y equitativo para todas las personas dedicadas a la investigación.

Palabras clave: diversidad; encuesta; equidad; género; higiene; salud menstrual

Introduction

Fieldwork is a fundamental aspect of research in disciplines such as ecology, palaeontology, biology, archaeology, and geology (Butzer 1982; Vetter 2022; Nordseth et al. 2023). It provides essential data and insights that drive scientific discoveries and foster advancements in these fields. However, fieldwork in natural sciences is often conducted under remote and physically demanding conditions, which are shaped by androcentric norms that prioritise productivity over comfort and basic necessities (Greene et al. 2020; Kojima et al. 2024). These challenging conditions, —characterized by limited access to amenities such as sanitary facilities and private spaces— disproportionately impact those who menstruate. While all field researchers face these harsh conditions, they present unique and compounded difficulties for women and other menstruating individuals, particularly when access to menstrual hygiene products and adequate sanitation facilities is constrained (Das 2023; Nash 2023; Pickering and Khosa 2023).

Despite menstruation affecting approximately half the global population, it remains a largely overlooked topic in fieldwork discussions. The systemic oversight of menstruation is not merely the result of inadvertence but a manifestation of ingrained sexist biases and an androcentric worldview that has historically structured the organization of both academic and scientific fields (EU Commission 2013; Bailey et al. 2019). This worldview centres male experiences as the norm, relegating the needs of women and other minoritized groups —who are neither minor in number nor contributions— to the periphery, thereby silencing and concealing their specific needs (Bailey et al. 2019; Gil 2022). Recognizing the impact of these biases is crucial, as they perpetuate gender disparities in academic and scientific careers, often under the guise of maintaining 'neutral' or 'objective' standards that are in reality anything but (Nash 2023).

The invisibility of menstruation in fieldwork settings is not an isolated phenomenon but is embedded within broader social and cultural dynamics historically shaped by patriarchal systems (Valls-Llobet 2006). These systems have contributed to the masculinisation of public and professional spaces, where female bodies and their specific needs—such as menstrual health—are frequently disregarded or stigmatised (Botello-Hermosa and Casado-Mejía 2015; Peña Axt et al. 2023). Science and academic institutions, often perceived as models of fairness and equity (Phillips 2002; Philip and Azevedo 2017), cannot be separated from the cultural conceptions of social relations and hierarchies that disadvantage women (Esteban 2006). Consequently, the needs of women, and other menstruating individuals, remain sidelined in environments predominantly designed by and for men, perpetuating the notion that female bodies must adapt to androcentric standards rather than transforming these standards to be inclusive (Esteban 2006).

Previous research has repeatedly highlighted the barriers that women, non-binary, and transgender people face within the academic sphere, including discrimination, harassment, and obstructed paths to career advancement (Cortina et al. 1998; Bilimoria and Stewart 2009; Boustani and Taylor 2020; Boivin et al. 2024). Despite growing awareness and discussion around gender equity in science (Budden et al. 2008; Clancy et al. 2014; De Kleijn 2020; Rasmussen et al. 2023), the specific challenges that menstruating researchers encounter—challenges that their non-menstruating counterparts do not face—are often overlooked or minimally explored in scientific literature (Olson et al. 2022). This lack of empirical data limits our understanding of the full spectrum of obstacles that menstruating researchers encounter, particularly in remote or resource-limited settings where such challenges may be most pronounced.

To address this gap, we conducted a cross-sectional survey among 429 participants from various natural science disciplines, recruited through academic networks, professional societies, and social media platforms. This research design allowed us to gather both quantitative and qualitative data on the impact of menstruation on fieldwork, thereby providing a comprehensive picture of the logistical, social, and health-related challenges involved.

This study, initiated by the *Association Mujeres con los Pies en la Tierra* and the Equity Committee of the *Spanish Society of Terrestrial Ecology*, seeks to address this gap by presenting data on the impact of menstruation on fieldwork across various natural science disciplines. By bringing these challenges to the forefront, we aim to raise awareness about the barriers that women, and other menstruating individuals, face in field settings and to advocate for the development of more inclusive policies and practices. Such initiatives are vital not only for ensuring that all researchers, regardless of gender or physiological differences, are supported but also for advancing true equity in scientific research.

Material and Methods

Study Design and Participants

This study was designed as a cross-sectional survey to explore the impact of menstruation on fieldwork experiences across natural science disciplines. The research was initiated and carried out by a volunteer team of young women from the *Association*

Mujeres con los Pies en la Tierra and the *Equity Committee of the Spanish Society of Terrestrial Ecology (AEET)*. While the team comprised feminist activist researchers committed to advancing gender equality in sciences, we recognize our lack of formal academic training in gender studies, which might have influenced our approach and analytical framework. The impetus for this study arose from our shared experiences and realizations of the systemic androcentric biases that we, and many others, faced during fieldwork. These discussions among ourselves highlighted the pervasive nature of such biases and the urgent need to address them systematically. The survey was designed around significant dates such as the International Day of Women and Girls in Science (11th February) and International Women's Day (March 8th), to emphasize the challenges and discrimination women face in science and STEM, including the ongoing stigmatization of menstruation. By openly discussing the composition and background of our research team, we aim to provide transparency and encourage a reflexive understanding of how our identities as young, feminist researchers shape the study's outcomes and its contributions to discussions on gender in science.

Our approach in this survey has focused primarily on women's experiences due to the demographic makeup of our respondents and our own personal and professional backgrounds. However, we have strived to be inclusive in our language and methodology by using the term 'individuals who menstruate', recognizing the existence of non-binary and transgender men who also experience menstruation. Despite this, it's crucial to acknowledge that our sample included only a minor representation of non-binary individuals (two people) and no transgender men, leading our discussion and analysis to predominantly address the experiences of women researchers.

Participants were recruited through various academic networks, including university departments, professional societies, and social media platforms targeting researchers who had participated in fieldwork. The survey was voluntary and open to individuals across all genders, and career stages, from students to senior researchers, and intended to capture a broad spectrum of experiences. To participate, individuals needed to have experience in fieldwork, which may have limited the collection of experiences from individuals who were previously excluded from fieldwork due to menstruation or other factors. The survey used tailored questioning to ensure that respondents only answered questions relevant to their gender, career stage, and experience.

Survey Instrument

The survey, developed following preliminary interviews with field researchers, included both closed-ended and open-ended questions covering:

- **Demographic Information:** Questions to identify gender, age group, academic position, and whether the participant has ever menstruated.
- **Menstrual Experience and Management:** Questions focused on menstrual pain, discomfort, and the availability of menstrual products and sanitation facilities during fieldwork.
- **Fieldwork Logistics:** Questions about the presence and content of first aid kits, arrangements for privacy, and the adequacy of rest stops or breaks during field activities.
- **Impact of Menstruation on Fieldwork:** Questions exploring how menstruation affects participation in fieldwork, including any modifications to schedules or tasks, as well as perceived adaptations to meet the needs of menstruating researchers.
- **Perceptions and Attitudes:** Questions to capture the perspectives of both menstruating and non-menstruating researchers regarding the consideration of menstrual needs in fieldwork planning.
- **Open-Ended Responses:** Inviting participants to provide additional comments about their experiences or suggest improvements to accommodate menstruation during fieldwork.

Data Collection and Analysis

The survey was administered online via a secure platform (Google Forms) to ensure participant anonymity and confidentiality. The survey was available for thirty-four weeks, from 11 February 2024 to 11 October 2024. A total of 429 completed responses were collected and used in the final analysis. Participants provided informed consent before beginning the survey, confirming their voluntary participation and understanding of the study's purpose. They were also assured that their responses would remain confidential. Data were analysed using a combination of descriptive statistics and qualitative assessment of responses.

Results

Based on the voluntary survey responses collected, several key findings have emerged regarding the impact of menstruation on fieldwork experiences and how menstrual health is considered in fieldwork planning.

Demographic overview of participants in the survey

The survey included 429 respondents, the vast majority of whom were women (86.0%), with 13.5% identifying as male, and 0.5% as non-binary (**Fig. 1**). Most respondents fell within the 25-34 (40.8%) and 35-44 (28.2%) age groups, while only one respondent (0.2%) was over 64 years old (**Fig. 1**).

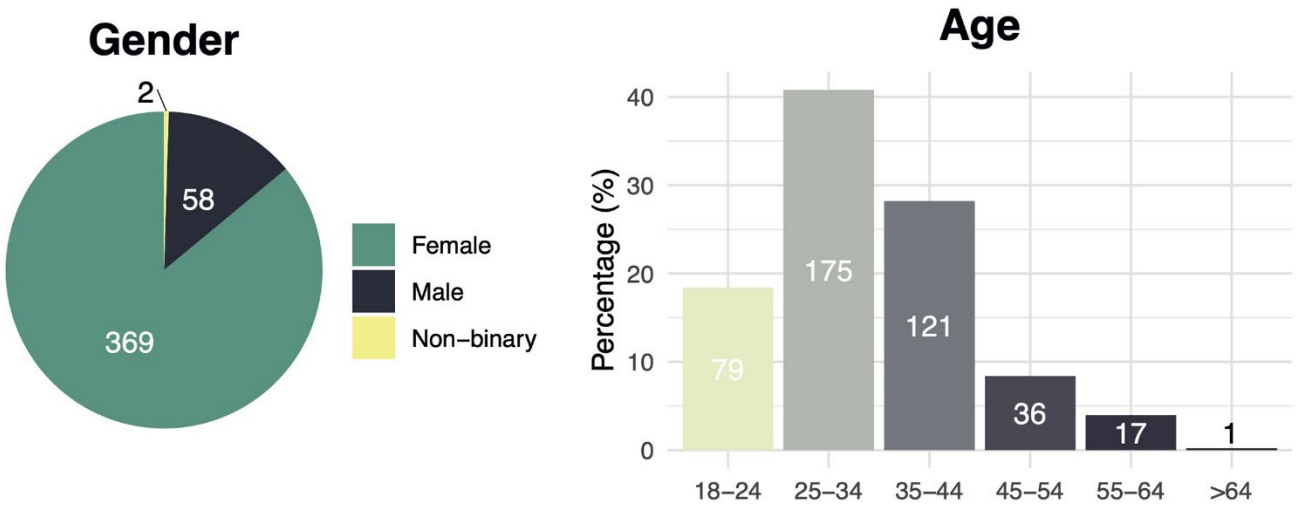

Figure 1. Overview of the demographic diversity of the survey sample by gender (left) and age (right).

Figura 1. Resumen de la diversidad demográfica de la muestra encuestada según género (izquierda) y edad (derecha).

In terms of academic background and occupation, a significant portion of respondents were early-career researchers, with 19.8% of participants pursuing a PhD, 10.7% enrolled in a Master's program, and 7.5% being undergraduate students. Postdoctoral researchers comprised 29.1%, while technical staff represented 15.9% of the sample. Full professors made up the smallest group (0.9%), all of whom were women, alongside one male retired faculty member (0.2%). Most female respondents were postdoctoral researchers, followed by PhD students, while most male respondents were postdoctoral researchers, followed by Master's students.

Menstrual experience of participants in the survey

Among all respondents, 86.0% (369 women and one non-binary person) reported that they were currently menstruating or had menstruated in the past. Among them, 48.0% described their menstrual pain as 'quite painful', and 13.0% reported it as 'very painful'. Only 3.8% of respondents indicated that they experienced no pain during menstruation (Fig. 2).

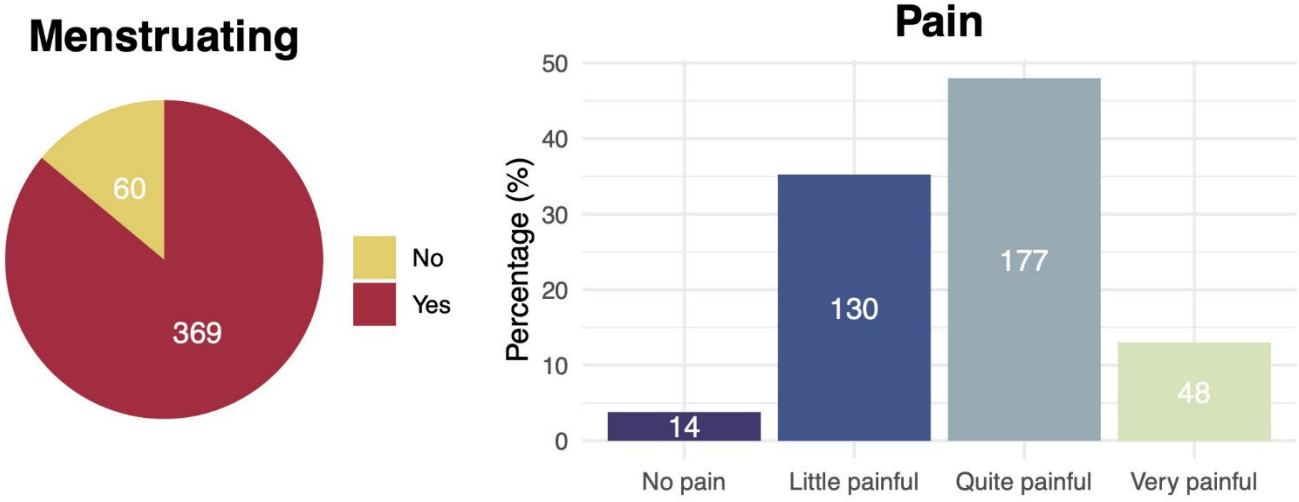

Figure 2. Left, number of menstruating/no-menstruating respondent and, right, rating of their menstrual pain.

Figura 2. A la izquierda, número de personas encuestadas que menstrúan/no menstrúan y, a la derecha, porcentaje de las personas encuestadas que menstrúan con diferente valoración de su dolor menstrual.

The most commonly reported symptoms included "severe menstrual pain" and "fatigue/sleepiness" (both 69.1%), followed by "irritability and mood swings" (63.7%), "low motivation" (57.7%), and "heavy menstrual flow" (57.2%) (Fig. 3). These symptoms were reflected in qualitative responses, with one participant noting: *"The exhaustion during menstruation makes it extremely difficult to keep up with the physical demands of fieldwork, especially when there's no chance to rest."*

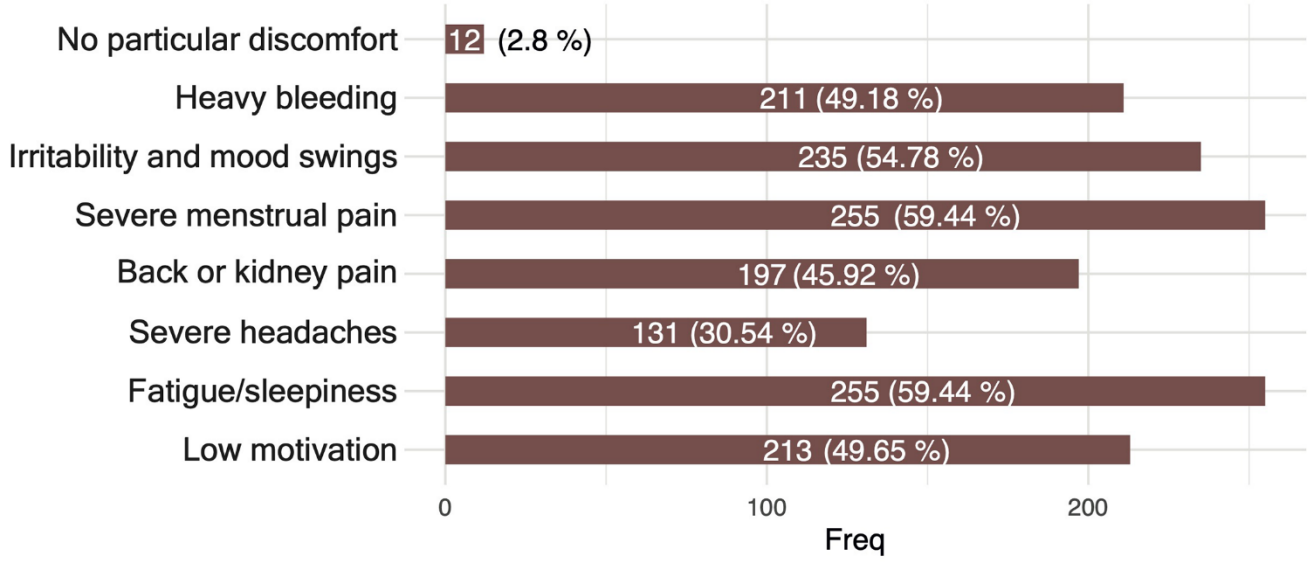

Figure 3. Frequency with which menstruating respondents identify different symptoms of menstrual discomfort.

Figura 3. Frecuencia con las que las personas encuestadas que menstrúan identifican diferentes síntomas de molestias menstruales.

When menstruating during fieldwork, respondents reported using various strategies to communicate discomfort to their supervisors. Responses varied significantly depending on the supervisor's gender: 59.9% of women felt comfortable discussing their menstrual discomfort directly with female supervisors, while only 30.5% felt comfortable doing so with male supervisors. Additionally, when dealing with male supervisors, 30.5% of women preferred to communicate that they were feeling *"unwell"* rather than mentioning menstruation explicitly. One respondent explained: "*It's easier just to say you're not feeling well instead of mentioning menstruation. It avoids awkwardness, especially with male supervisors.*"

Availability and inclusion of menstrual products

Regarding the availability of first aid kits during fieldwork, 13.0% of respondents supervising fieldwork were unaware of whether such kits were present, while 38.1% confirmed their absence. Among those who confirmed the presence of a first aid kit (48.7%), the vast majority (84.8%) reported that these kits did not include menstrual hygiene products. Only a small percentage stated that they ensured the inclusion of menstrual products themselves (13.5%) or that their institution provided them (1.7%).

Qualitative feedback expressed frustration with the lack of available resources: *"It's ridiculous that menstrual products are never included in first aid kits. You have to bring everything yourself, even though it's such a basic need."* Others described the embarrassment they feel when needing to ask for such products, particularly in male-dominated teams.

Perception of fieldwork adaptation to menstrual needs

A substantial 75.3% of respondents stated that fieldwork conditions do not adequately consider menstrual and general health needs, such as medication intake, hygiene facilities or bathroom breaks. Only 24.7% believed their fieldwork experiences were adequately adapted to meet these needs. Additionally, 94.4% of respondents agreed that menstrual health should be explicitly considered in fieldwork planning and other academic activities.

Many qualitative responses reinforced this concern, with one participant stating: *"I've never seen any discussion about how fieldwork could be adapted for menstruating individuals. It's like it's not even acknowledged as a factor."* Another participant expressed: *"There's often no clean toilet available, and it can be embarrassing to try and manage menstruation in these conditions."*

Non-menstruating individuals' perspectives

Although the survey focused on the experiences of women and menstruation-related challenges in fieldwork, 14.0% of respondents (58 men,1 woman, and 1 non-binary person) were non-menstruating individuals who provided their perspectives on the issue. 68.3% of them reported being aware of the difficulties their menstruating colleagues face during fieldwork. Additionally, 96.7% of them agreed that menstrual health should be considered in fieldwork planning. One non-menstruating participant stated: *"Even though I don't menstruate, I can see how difficult it is for my colleagues, and there should be more support for them."*

Discussion

The findings from our voluntary survey provide critical insights into the experiences of many women in academic fieldwork, particularly within the natural sciences. Our data not only highlight the prevalence of menstrual discomfort but also expose broader systemic issues related to gendered dynamics in the perception and discussion of menstruation, coupled with a lack of infrastructural support during fieldwork. These findings underscore the urgent need for structural changes in fieldwork planning and execution to move away from androcentric perspectives and ensure that the needs of all researchers are met, irrespective of their gender or menstruation status. We aimed to include diverse groups such as non-binary and transgender individuals using neutral terminology in our survey; however, the limited number of respondents from these groups constrained our ability to analyse their unique experiences in depth, which remains a crucial area for future research.

The demographic imbalance in the survey, with 87.4% of respondents under 45 years old and a broad majority identifying as women (**Fig. 1**), mirrors a pattern frequently observed in gender and equality research (Wasson et al. 2008). Studies indicate that younger women are more likely to participate in diversity, equity, and inclusion (DEI) initiatives than older individuals or their male colleagues (World Economic Forum 2022; Krivkovich et al. 2023). This overrepresentation of younger women is concerning, as it implies that the burden of addressing DEI issues, such as menstruation in fieldwork, tends to fall disproportionately on those already marginalised by gender and age. Furthermore, senior faculty members, who hold significant decision-making power in academia, are often absent from these conversations, a gap that risks perpetuating the marginalisation of the concerns of minoritized groups and shifting the responsibility of advocacy onto those already disadvantaged (Johnson and Hekman 2016). In addition, the high proportion of female respondents in our survey contrasts sharply with the gender distribution in the natural sciences reported by documents such as CSIC Women Researchers Reports (Mayoral Gastón et al. 2024), which indicate that women account for less than 50% of professionals in these fields. This discrepancy suggests that individuals most affected by issues like menstruation in fieldwork may be overrepresented in our sample, a phenomenon arising not only from a greater personal stake in the outcomes but also reflects a broader societal trend where those facing structural inequities are more actively engaged in addressing them. Together, these dynamics underscore the critical need for more inclusive approaches in academic leadership and research agendas, ensuring that the responsibility for advocacy and change does not fall disproportionately on those most impacted by existing inequalities.

At the same time, we acknowledge that our methodological definition of participants as individuals with fieldwork experience may have limited our ability to capture the full spectrum of experiences. This limitation includes those women previously excluded from fieldwork due to risks such as the potential exposure of non-conforming gender identity or barriers related to disabilities, thereby contributing to the observed demographic imbalance. This oversight highlights a critical area of concern, as fear of gender-based discrimination or the lack of adequate facilities might deter women from participating in field-based roles. In light of these limitations, future studies should consider strategies to engage these underrepresented groups to ensure a more comprehensive understanding of the challenges faced by all menstruating individuals during fieldwork.

The survey also reveals a significant discrepancy in how respondents report menstrual pain. While 69.1% of participants described their pain as "severe" (**Fig. 3**), only 13.0% classified it as “very painful,” with the majority (48.0%) characterized it as “quite painful” (**Fig. 2**). This disparity suggests that women may minimise their pain, reflecting societal norms that normalise discomfort or even suffering among women (Hoffman and Tarzian 2001; Wiggleton-Little 2024). Dysmenorrhea, or painful menstruation, affects a large portion of the global population, with prevalence rates reaching as high as 89.1% in certain regions (Iacovides et al. 2015; Gebeyehu et al. 2017). However, in professional and academic androcentric environments where productivity is valued above all else, women may feel compelled to downplay their pain, thereby preventing them from seeking necessary accommodations (Lahiri-Dutt 2015). This minimisation exacerbates both the physical and emotional toll of menstruation during fieldwork, negatively impacting health and performance. It should be noted that menstrual health problems are underdiagnosed, can be associated with labour discrimination and are increasingly recognised as serious issues—as evidenced by the recent implementation of menstrual leave policies under Spanish law on sexual and reproductive health, championed by labour unions. However, all these policies are insufficient if not coupled with a recognition of the gravity of menstrual discrimination, creating a non-discriminatory environment and dignifying the conditions of menstruators in the workplace (Paudel 2023).

Regarding the availability of first aid kits during fieldwork, our findings reveal a significant gap in the inclusion of menstrual hygiene products, a basic yet overlooked necessity. Although 48.7% of respondents confirmed the presence of first aid kits, a staggering 84.8% reported that these kits lacked menstrual hygiene products. This oversight is not only inconvenient but also reflects a broader androcentric culture that routinely dismisses menstruation as a non-normative condition unworthy of standard consideration (Stone 2021). Following a masculine war epistemology (Gil 2022), first aid kits are conceived primarily to address acute emergencies, while chronic issues, such as menstruation and its associated symptoms (e.g., PMS), are systematically trivialised. In light of Spanish regulations, specifically, Real Decreto 486/1997, first aid kits are mandated to contain essential items like disinfectants, gauzes, and bandages, there is no mention of menstrual products yet. This regulatory gap is especially striking given recent legislative advancements in Spain, such as Ley Orgánica 1/2023, which underscores the importance of access to menstrual products in educational and penal institutions by acknowledging menstrual management as a health necessity. Article 5 quater of Ley Orgánica 1/2023 further mandates that the distribution of menstrual products must respect the users’ choices, ensuring availability without mediation while protecting privacy and confidentiality. This is particularly vital for individuals, especially those from transgender and non-binary communities, who may prefer not to disclose their menstruating status to supervisors or institutions (Rydström 2018). Overall, this legislative context exposes a discrepancy between recognising menstrual health in some public policies and its omission from workplace health and safety standards. The absence of menstrual products in fieldwork settings not only undermines the well-being and dignity of women and other menstruating individuals but also perpetuates a gendered barrier to participation in field-based scientific research. In light of these findings, future regulations must consider

menstrual health products as essential components of first aid kits, particularly in fieldwork contexts where their availability can significantly impact women's ability to work effectively and without discomfort.

In examining the prevalence of symptoms such as severe menstrual pain and fatigue reported by participants, it is essential to consider not only the physiological aspects of menstruation but also the context in which these symptoms occur. Beyond physical discomfort, more than half of the respondents reported experiencing emotional symptoms such as fatigue, irritability, and low motivation, that can adversely affect their performance in field activities by reducing their ability to socialise or participate in team efforts, thereby undermining their professional effectiveness (Maity et al. 2022; Rogers et al. 2023). Fieldwork, known for its physical and psychological demands, undoubtedly exacerbates these symptoms (Hummel and El Kurd 2021), with severe menstrual pain often linked to psychological distress, with affected individuals showing increased levels of depressive and anxiety symptoms (Rogers et al. 2023). While it might be tempting to interpret these symptoms as indicative of reduced performance among women, doing so risks inadvertently reinforcing gender-based biases. Historically, medical research has been critiqued for its androcentric biases (Merone et al. 2021), which have contributed to an incomplete understanding of conditions predominantly affecting women and other menstruating individuals (Bueter 2017; Roh 2019) in demanding environments like fieldwork. Moreover, the assumption that menstruation inherently diminishes one's performance warrants critical examination. Such assumption not only reinforces harmful stereotypes but also overlooks the potential for adaptive strategies that could mitigate these challenges. Despite the prevalence of these issues, they are largely overlooked when planning fieldwork activities. Addressing these challenges requires not only physical accommodations but also robust mental health support systems that recognize the connection between menstrual health and emotional well-being, ensuring that these concerns are never used as a justification for discrimination against women and menstruating individuals.

One significant, though not surprising, finding of our survey is the gendered disparity in communication about menstrual discomfort, which underscores deeply ingrained sexism within fieldwork settings. While 60% of respondents felt comfortable discussing menstrual issues with female supervisors, only 30.3% felt the same ease with male supervisors. This discomfort is not merely an anticipated discrepancy but a reflection of androcentric norms that dismiss menstruation as a trivial 'women's issue,' thereby excluding it from serious consideration in fieldwork planning. Such systemic oversight not only perpetuates discrimination and embarrassment but also impacts perceived performance, leading to unjust penalties for women when their productivity is affected by inadequate support for menstrual health (Schoep et al. 2019; Pao 2023). As one respondent stated: "*It will just become another reason for discrimination, and I don't feel comfortable sharing such personal information with my superiors*".

This communication gap poses a significant barrier to addressing the needs of women in academic fieldwork (Lahme et al. 2018), preventing the inclusion of necessary accommodations in fieldwork planning. Moreover, the reluctance to discuss menstruation openly, particularly in male-dominated environments, reflects a broader societal mandate that women conceal their menstrual status, a directive rooted in androcentric values that deem public acknowledgement of menstruation inappropriate (Roh 2019). This culture of silence further exacerbates the challenges faced by menstruating individuals, especially transgender and non-binary persons, who may fear additional stigmatization. Existing fieldwork conditions, designed without considering menstrual health, force many women and other menstruating individuals to either endure unbearable conditions or leave their positions (Pun 2023), mirroring exclusionary practices observed in sectors like engineering or gaming (Tonso 1996; Kowert et al. 2017). To counteract these inequities, there is a pressing need for a paradigm shift in how menstrual health is integrated into fieldwork planning. By normalising and incorporating menstrual health considerations into occupational health and safety frameworks, we can enhance productivity (Xu 2008), foster inclusivity, and dismantle the sexist structures that marginalize menstruating individuals in scientific research.

The lack of consideration for menstrual health in fieldwork logistics is not merely an oversight; it reflects deeply ingrained gender dynamics within academia that are often disguised as issues of capability. This androcentric approach to designing and organising fieldwork perpetuates a subtle form of discrimination by attributing poor performance to personal limitations rather than recognising the lack of adequate institutional support for women's needs. As universities and other scientific institutions increasingly adopt neoliberal policies focused on productivity and output (Mountz et al. 2015), there is an implicit assumption that all members of the academic community are capable of meeting constant performance demands without consideration for their specific needs. Critiquing these androcentric practices, rather than presumed individual incapacities, helps avoid the pitfall of suggesting that women are inherently less capable. Instead, it underscores the urgent need to rethink field activity planning and management so that all academic community members, regardless of gender or menstrual status, have access to conditions that allow for optimal, discrimination-free performance.

Interestingly, our survey revealed that 82.5% of non-menstruating respondents support the inclusion of menstrual health considerations in fieldwork planning, suggesting high levels of empathy and awareness among these colleagues. However, this broad support contrasts with the frustration expressed by some menstruating individuals, who feel that male colleagues lack an understanding of how debilitating menstruation can be in the field. One respondent noted, "There's a lack of understanding from non-menstruating colleagues, particularly men, about how debilitating menstruation can be in the field." This discrepancy may be partially attributed to a sample bias toward individuals already committed to gender equality, as the survey was voluntary, thereby highlighting a gap between general support for DEI initiatives and the lived experiences of those who menstruate. Direct, open discussions within academic teams are crucial to bridging this gap, translating empathy into concrete action, and ensuring tangible support for menstruating researchers.

The findings from this survey underscore the need for academic institutions to address menstruation as a legitimate health issue in fieldwork. While there is broad support for including menstrual health in planning, implementation lags. To create truly inclusive and non-discriminatory academic institutions and research teams, it must prioritise the health and well-being of all researchers. Moreover, academic institutions must first acknowledge that menstrual discrimination contributes directly to gender-

based discrimination and inequality (Paudel 2023). This issue is closely tied to workplaces built on a male-centered worldview, and addressing it is essential to developing better practices and policies in workplaces. This may involve:

- Challenging and transforming androcentric perspectives in work planning, including fieldwork campaigns. Rather than simply abandoning these perspectives—which might seem overly radical and difficult to implement—institutions can start by critically examining and gradually reshaping ingrained practices. This shift would promote inclusivity by ensuring that work planning reflects the diverse needs of all researchers.
- Including menstrual products in the standard first aid kits and ensuring their availability is well-communicated. This measure helps normalise the conversation and ensures those needing these products feel supported.
- Encouraging open dialogue on menstrual health among all genders, particularly in field campaigns led by men, fosters discussions about menstrual health and addresses the availability of products. This demonstrates awareness of potential challenges and zero tolerance for discrimination.
- Rethinking the ableist structures that prioritise productivity at the expense of personal well-being. Fieldwork environments must be inclusive, allowing individuals to prioritize their health and hygiene without compromising their participation
- Holding preparatory meetings for field campaigns with the most diverse team possible. These meetings help identify potential issues and propose solutions before the campaign begins, ensuring a more inclusive and supportive environment for everyone.

By implementing these changes, academia can move closer to dismantling the barriers that prevent menstruating individuals from fully participating in research, thereby fostering a more equitable and supportive environment for all. Breaking the menstrual taboo has already contributed to overcoming stigma and discrimination, promoting equal opportunities and enriching the academy.

Finally, as we advocate for the inclusion of menstrual products in first aid kits, open dialogues on menstrual health among all genders, and the rethinking of ableist structures that prioritise productivity over well-being, it becomes clear that an interdisciplinary approach is essential. Our own experiences as researchers who have encountered androcentric biases during fieldwork underscore the importance of reflexivity: acknowledging how our personal motivations have shaped both the questions we ask and the solutions we propose. Collaboration with social science experts—particularly those specializing in gender studies—would enrich these initiatives by providing deeper insights into the social dynamics and gendered experiences that influence fieldwork. Such collaboration ensures that our strategies are not only inclusive but also grounded in a comprehensive understanding of the diverse challenges faced by all menstruating individuals. By incorporating social science perspectives into fieldwork planning and execution, we can more effectively dismantle the sexist structures that disadvantage women and other menstruating individuals in science.

Contribution of the authors

Sara Gamboa: Conceptualization, Data Curation, Formal Analysis, Methodology, Writing – Original Draft, Writing – Review and editing. Elena Cuesta: Conceptualization, Writing – Review and editing. Virginia Domínguez-García: Writing – Review and editing. Ana García-Muñoz: Writing – Review and editing. Ana Rosa Gómez Cano: Conceptualization, Writing – Review and editing. Paloma López-Guerrero: Conceptualization, Writing – Review and editing. Iris Menéndez: Conceptualization, Data Curation, Formal Analysis, Visualization, Writing – Review and editing. Adriana Oliver: Conceptualization, Writing – Review and editing. Elena Velado-Alonso: Writing – Review and editing. Patricia M. Carro-Rodríguez: Conceptualization, Methodology, Writing – Review and editing. Dánae Sanz-Pérez: Conceptualization, Methodology, Writing – Review and editing.

Data availability

The data supporting the findings of this study (Cross-sectional survey with 429 participants) have been included in the digital repository Figshare (https://doi.org/10.6084/m9.figshare.28512839).

Financing, required permits, potential conflicts of interest and acknowledgments

This work was supported by the European Research Council under the European Union's Horizon 2020 research and innovation program (grant agreement 947921). SG was founded by the Spanish Ministry of Universities and the Next Generation European Union programme through a Margarita Salas Grant from Universidad Complutense de Madrid, grant CT31/21. DSP was financed by the PID2022-138275NB-I00 project (Ministerio de Ciencia e Innovación, Spain). IM was funded by a Humboldt Research Fellowship for postdoctoral researchers from the Alexander von Humboldt Foundation. EC was funded by a Marie S. Curie Postdoctoral Fellowship from Horizon Europe. This project has received funding from the European Union's Horizon 2021 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 101064340 to V.D.-G. E.V.-A. is supported by the InterRest project, funded through the 2020-2021 Biodiversa+ and Water JPI joint call for research projects, under the BiodivRestore ERA-NET Cofund (GA N°101003777), with the EU and the funding organizations Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) through research grant 491739988, Swedish Environmental Protection Agency through research grant 2022-00027, Estonian Research Council, the Spanish Ministry of Science, Innovation and Universities and the Spanish State Investigation Agency through the grant PCI2022-1329.

The authors declare no conflict of interest.

References

Bailey, A.H., LaFrance, M., Dovidio, J.F. 2019. Is man the measure of all things? A social cognitive account of androcentrism. *Personality and social psychology review* 23(4): 307-331. https://doi.org/10.1177/1088868318782848

Bilimoria, D., Stewart, A.J. 2009. "Don't ask, don't tell": The academic climate for lesbian, gay, bisexual, and transgender faculty in science and engineering. *The National Women's Studies Association Journal* 21(2): 85-103. https://doi.org/10.1353/ff.2009.a316151

Boivin, N., Täuber, S., Beisiegel, U., Keller, U., Hering, J.G. 2024. Sexism in academia is bad for science and a waste of public funding. *Nature Reviews Materials* 9(1): 1-3. https://doi.org/10.1038/s41578-023-00624-3

Botello-Hermosa, A., Casado-Mejía, R. 2015. Miedos y temores relacionados con la menstruación: estudio cualitativo desde la perspectiva de género. *Texto and Contexto-Enfermagem* 24: 13-21. https://doi.org/10.1590/0104-07072015000260014

Boustani, K., Taylor, K.A. 2020. Navigating LGBTQ+ discrimination in academia: where do we go from here? *The biochemist* 42(3): 16-20. https://doi.org/10.1042/BIO20200024

Budden, A.E., Tregenza, T., Aarssen, L.W., Koricheva, J., Leimu, R., Lortie, C.J. 2008. Double-blind review favours increased representation of female authors. *Trends in ecology and evolution* 23(1): 4-6. https://doi.org/10.1016/j.tree.2007.07.008

Bueter, A. 2017. Androcentrism, feminism, and pluralism in medicine. *Topoi* 36: 521-530. https://doi.org/10.1007/s11245-015-9339-y

Butzer, K.W. 1982. *Archaeology as human ecology: method and theory for a contextual approach*. Cambridge University Press, Cambridge, United Kingdom. https://doi.org/10.1017/CBO9780511558245

Clancy, K.B., Nelson, R.G., Rutherford, J.N., Hinde, K. 2014. Survey of academic field experiences (SAFE): Trainees report harassment and assault. PloS one, 9(7): e102172. https://doi.org/10.1371/journal.pone.0102172

Cortina, L.M., Swan, S., Fitzgerald, L.F., Waldo, C. 1998. Sexual harassment and assault: Chilling the climate for women in academia. *Psychology of Women Quarterly* 22(3): 419-441. https://doi.org/10.1111/j.1471-6402.1998.tb00166.x

Das, S. 2023. Navigating fieldwork amidst my menstrual cycle: Being a female ethnographer in a remote Indian region. In: Badiozaman, I.F.A., Voon, M.L., Sandhu, K. (Eds.), *Women Practicing Resilience, Self-care and Wellbeing in Academia*, pp. 92-102. Routledge, London, United Kingdom. https://doi.org/10.4324/9781003341482-10

De Kleijn, M. 2020. *The researcher journey through a gender lens: An examination of research participation, career progression and perceptions across the globe*. Elsevier, Amsterdam, Netherlands. Available at: https://www.elsevier.com/insights/gender-and-diversity-in-research/researcher-journey-2020

Esteban, M.L. 2006. El estudio de la salud y el género: las ventajas de un enfoque antropológico y feminista. *Salud colectiva* 2: 9-20. https://doi.org/10.18294/sc.2006.52

European Commission: Directorate-General for Research and Innovation 2013. *Gendered innovations – How gender analysis contributes to research – Report of the expert group 'Innovation through gender'*, Publications Office, 2013, https://data.europa.eu/doi/10.2777/11868

Gebeyehu, M.B., Mekuria, A.B., Tefera, Y.G., Andarge, D.A., Debay, Y.B., Bejiga, G.S., Gebresillassie, B.M. 2017. Prevalence, impact, and management practice of dysmenorrhea among University of Gondar students, northwestern Ethiopia: A cross-sectional study. *International journal of reproductive medicine* 2017(1): 3208276. https://doi.org/10.1155/2017/3208276

Gil, S.L. 2022. No solo dolor: discursos subversivos sobre la regla. *El Salto Diario*. [online] accesed on: 04-02-2025. Available at: https://www.elsaltodiario.com/salud/no-solo-dolor-discursos-subversivo-sobre-regla

Greene, S., Ashley, K., Dunne, E., Edgar, K., Giles, S., Hanson, E. 2020. *Toilet stops in the field: An educational primer and recommended best practices for field-based teaching*. University of Birmingham. Birmingham, UK. https://doi.org/10.31219/osf.io/gnhj2

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

Hummel, C., El Kurd, D. 2021. Mental health and fieldwork. *PS: Political Science and Politics* 54(1): 121-125. https://doi.org/10.1017/S1049096520001055

Iacovides, S., Avidon, I., Baker, F.C. 2015. What we know about primary dysmenorrhea today: a critical review. *Human reproduction update* 21(6): 762-778. https://doi.org/10.1093/humupd/dmv039

Johnson, S.K., Hekman, D.R. 2016. Women and minorities are penalized for promoting diversity. *Harvard Business Review* 60(2): 771-797. https://doi.org/10.5465/amj.2014.0538

Kojima, Y., Takahashi, K., Matsuura, N., Shimada, M. 2023. A study on psychological traits of long-term fieldworkers. *International Journal of Mental Health and Psychiatry* 9(3). https://doi.org/10.21203/rs.3.rs-3233535/v1

Krivkovich, A., Kulik, J., Yee, L., Silverman, R. 2023. *Women in the workplace 2023*. McKinsey and Company, New York, USA. [online] accesed on: 11-02-2025. Available at: https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace

Kowert, R., Breuer, J., Quandt, T. 2017. Women are from FarmVille, men are from ViceCity: The cycle of exclusion and sexism in video game content and culture. In: Kowert, R., Quandt, T. (Eds.) *New perspectives on the social aspects of digital gaming*, pp. 136-150. Routledge, New york, USA. https://doi.org/10.4324/9781315629308-9

Lahiri-Dutt, K. 2015. Medicalising menstruation: a feminist critique of the political economy of menstrual hygiene management in South Asia. *Gender, Place and Culture* 22(8): 1158-1176. https://doi.org/10.1080/0966369X.2014.939156

Lahme, A.M., Stern, R., Cooper, D. 2018. Factors impacting on menstrual hygiene and their implications for health promotion. *Global health promotion* 25(1): 54-62. https://doi.org/10.1177/1757975916648301

Ley Orgánica 1/2023, de 28 de febrero, por la que se modifica la Ley Orgánica 2/2010, de 3 de marzo, de salud sexual y reproductiva y de la interrupción voluntaria del embarazo. *Boletín Oficial del Estado* núm. 51, de 01/03/2023. https://www.boe.es/eli/es/lo/2023/02/28/1/con

Maity, S., Wray, J., Coffin, T., Nath, R., Nauhria, S., Sah, R., Waechter, R., Ramdass, P., Nauhria, S. 2022. Academic and social impact of menstrual disturbances in female medical students: A systematic review and meta-analysis. *Frontiers in medicine* 9: 821908. https://doi.org/10.3389/fmed.2022.821908

Mayoral Gastón, M.D.C., Cuesta Ruiz, M., Valdés-Solís Iglesias, T., Suárez González, T., González-Sampériz, P., Pozo-Bayón, M.Á., Campillo, N., et al. 2024. 2024 *Women Researchers Report*. Consejo Superior de Investigaciones Científicas, España. https://doi.org/10.20350/digitalCSIC/16534

Merone, L., Tsey, K., Russell, D., Nagle, C. 2021. Sex and gender gaps in medicine and the androcentric history of medical research. *Australian and New Zealand Journal of Public Health* 45(5): 424-426. https://doi.org/10.1111/1753-6405.13139

Mountz, A., Bonds, A., Mansfield, B., Loyd, J., Hyndman, J., Walton-Roberts, M., Basu, R., et al. 2015. For slow scholarship: A feminist politics of resistance through collective action in the neoliberal university. *ACME: An International Journal for Critical Geographies* 14(4): 1235-1259. Available at: http://acme-journal.org/index.php/acme/article/view/1058/1141

Nash, M. 2023. Breaking the silence around blood: managing menstruation during remote Antarctic fieldwork. *Gender, Place and Culture* 30(8): 1083-1103. https://doi.org/10.1080/0966369X.2022.2066635

Nordseth, A.E., Gerson, J.R., Aguilar, L.K., Dunham, A.E., Gentles, A., Neale, Z., Rebol, E. 2023. The Fieldwork Wellness Framework: a new approach to field research in ecology. *Frontiers in Ecology and the Environment* 21(6): 297-303. https://doi.org/10.1002/fee.2649

Pao, P.S. 2023. Social Stigma Centred around Menstruation: A Reflective Review. *Frontier Anthropology* 11: 51-58. https://doi-ds.org/doilink/01.2023-14175947/Frontier

Paudel, R. 2023. M*enstrual discrimination and its impact on decent work*. Global South Coalition for dignified menstruation. Kathmandu, Nepal. https://doi.org/10.13140/RG.2.2.11020.08329

Peña Axt, J.C., Boll Henríquez, V., Riquelme Brevis, H. 2023. Masculinización de lo público: Percepciones sobre la utilización del espacio público en universidades chilenas de la zona centro y centro sur del país. *urbe. Revista Brasileira de Gestão Urbana* 15: e20220177. https://doi.org/10.1590/2175-3369.015.e20220177

Philip, T.M., Azevedo, F.S. 2017. Everyday science learning and equity: Mapping the contested terrain. *Science Education* 101(4): 526-532. https://doi.org/10.1002/sce.21286

Phillips, D. 2002. *Perceptions of Fairness of Discipline Events in the Work Place*. Masters Theses and Specialist Projects. Paper 630. Available at: https://digitalcommons.wku.edu/theses/630

Pickering, R., Khosa, R. 2023. The geological period no one talks about: menstruation in the field. *EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-167*. https://doi.org/10.5194/egusphere-egu23-167

Pun, I. 2023. *Beliefs About and Attitudes Towards Menstruation Among American Youths and Their Suggestions to Improve Early Menstrual Communication*. Master's thesis, East Carolina University, Greenville, NC. USA. Available at: http://hdl.handle.net/10342/12875

Olson, M.M., Alhelou, N., Kavattur, P.S., Rountree, L., Winkler, I.T. 2022. The persistent power of stigma: A critical review of policy initiatives to break the menstrual silence and advance menstrual literacy. *PLOS Global Public Health* 2(7): e0000070. https://doi.org/10.1371/journal.pgph.0000070

Rasmussen, K., Chen, J., Colquhoun, R.L., Frentz, S., Hiatt, L., Kosciesza, A.J., Olsen, C., et al. 2023. *Gender inclusive methods in studies of STEM practitioners*. arXiv preprint. https://doi.org/10.48550/arXiv.2307.15802

Real Decreto 486/1997, de 14 de abril, por el que se establecen las disposiciones mínimas de seguridad y salud en los lugares de trabajo. *Boletín Oficial del Estado,* núm. 97, de 23/04/1997 https://www.boe.es/eli/es/rd/1997/04/14/486/con

Rogers, S.K., Ahamadeen, N., Chen, C.X., Mosher, C.E., Stewart, J.C., Rand, K.L. 2023. Dysmenorrhea and psychological distress: a meta-analysis. *Archives of Women's Mental Health* 26(6): 719-735. https://doi.org/10.1007/s00737-023-01365-6

Roh, J. 2019. Feminist menstrual activism in South Korea (1999–2012). *Asian Journal of Women's Studies* 25(1): 96-116. https://doi.org/10.1080/12259276.2019.1577031

Rydström, K. 2018. *Trans Menstruators Matter: A Qualitative Research Exploring Swedish Trans*. MA Thesis. University of Oviedo (Spain) and University of Hull (UK).

Schoep, M.E., Adang, E.M., Maas, J.W., De Bie, B., Aarts, J.W., Nieboer, T.E. 2019. Productivity loss due to menstruation-related symptoms: a nationwide cross-sectional survey among 32 748 women. *BMJ open* 9(6): e026186. https://doi.org/10.1136/bmjopen-2018-026186

Stone, M.M. 2021. *Rhetorics of menstruation: Mattering menstrual healthcare technologies*. Doctoral Thesis. North Carolina State University, Raleigh, NC, USA. Available at https://repository.lib.ncsu.edu/server/api/core/bitstreams/4790241d-7ac5-4d05-a0c5-9ccc04d7203a/content

Tonso, K.L. 1996. Creating engineers: Processes that exclude women. *In: Proceedings of the 1996 WEPAN National Conference: "Capitalizing on Today's Challenges" / The Experience of Being a Woman Engineering Student: Perspectives and Coping. June 1-4, 1996 at Denver, Colorado, pp*. 93-98. Available at: https://journals.psu.edu/wepan/article/view/57853

Valls-Llobet, C. 2006. La menstruación: de la invisibilidad a la abolición. *Duoda: Revista d'estudis feministes* 31: 71-84. Available at: https://www.raco.cat/index.php/DUODA/article/view/63189/91493

Vetter, J. 2022. The History of Fieldwork. *Histories* 2(4): 457-465. https://doi.org/10.3390/histories2040032

Wasson, C., Brondo, K., LeMaster, B., Turner, T., Cudhea, M., Moran, K., Adams, I., et al. 2008. We've come a long way, maybe: Academic climate report of the committee of the status of women in anthropology. *American Anthropology Association*: 1-188. https://doi.org/10.1037/e598242011-001

Wiggleton-Little, J. 2024. "Just" a painful period: A philosophical perspective review of the dismissal of menstrual pain. *Women's Health* 20: 17455057241255646. https://doi.org/10.1177/17455057241255646

World Economic Forum. 2022. *Female leaders are twice as likely as their male counterparts to drive diversity, equity and inclusion at work, report finds*. World Economic Forum. [online] accesed on: 12-01-2025. Available at: https://www.weforum.org/agenda/2022/10/female-leaders-male-work-diversity-equity-inclusion/

Xu, Y.J. 2008. Gender disparity in STEM disciplines: A study of faculty attrition and turnover intentions. *Research in higher education* 49: 607-624. https://doi.org/10.1007/s11162-008-9097-4