



# Menstrual distress in medical students: symptomatic burden, attitudes, and perceived unmet educational needs

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Menstrual health is defined as a state of complete physical, mental, and social well-being in relation to the menstrual cycle.<sup>1</sup> Despite its fundamental importance, it remains an overlooked and stigmatized topic, even within healthcare and academic settings.<sup>2</sup> Menstrual distress—the physical, psychological and social burden accompanying menstruation<sup>1</sup>—appears to be highly prevalent at the global level.<sup>1</sup> Converging evidence demonstrates a substantial impact of menstrual distress on quality of life,<sup>2</sup> warranting an urgent call to strengthen clinical education and more effectively address neglected healthcare needs. This urgent call is particularly warranted given that the burden disproportionately affects young women of reproductive age,<sup>1</sup> and that addressing these needs may advance gender equality promoting education both directly and indirectly.<sup>2</sup>

Menstrual health closely interact with psychological well-being,<sup>3</sup> and menstrual distress may in turn be associated with mental distress. This psychological burden of menstrual distress may be particularly challenging for populations under chronic stress, including medical students.<sup>4</sup> For instance, a recent meta-analysis estimated a pooled prevalence of 73% for dysmenorrhea within female medical students,<sup>4</sup> yet a consensus on menstrual distress beyond dysmenorrhea within this population is currently lacking.

Medical students' knowledge, attitudes, and perceptions regarding menstrual health may vary considerably by gender, with important implications for clinical training and medical education. This survey report addresses key gaps identified

in recent literature by examining attitudes towards menstrual distress and related perceived unmet educational needs in medical students. Moreover, the report aimed to assess the symptomatic burden of menstrual distress in female students (beyond dysmenorrhea alone, including potentially associated psychological distress). By capturing a broader spectrum of symptoms of menstrual distress at the individual level, we aim to provide a more comprehensive understanding of this under-researched issue in medical education.

The present study was conducted at the University of Florence. All participants provided written informed consent for participation and publication of results. The study protocol was approved by the local Ethics Committee (University Hospital of Florence). Medical students attending an elective course at the Medical School of the University of Florence on menstrual distress were invited to participate in the study. All participants completed psychometric questionnaires between April and May 2025 using a locally hosted REDCap platform. The psychometric questionnaires and statistical methods are described in the Supplemental Materials (eMethods 1).

Of 229 attending students, 150 consented to participate in the study (65.50% response rate), including 30 males and 120 females. Psychopathology questionnaires were administered to all participants, whereas menstrual distress measures were administered to female participants only (Supplementary Table S1: descriptive statistics). Most participants indicated a positive attitude toward

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receiving additional education on the topic (71%). Most females reported exposure to courses on menstrual distress, while males did not (46.66% males vs 67.50% females,  $\chi^2 = 4.486$ ,  $P = .033$ , [Supplementary Table S2](#)). Most females were exposed to content on menstrual distress through social media, whereas males through medical school course ([Supplementary Table S2](#)). Most participants, males included, reported a perceived need for further education on menstrual distress (98.67%) and reported perceived stigma in both the academic (79.33%) and healthcare settings (86.66%). Nonetheless, females were more likely to report perceived needs and stigma towards the topic, as well as a positive attitude towards further education ([Supplementary Table S2](#)).

Among the 120 female participants, 48 screened positive for clinically relevant menstrual distress (40%, 95% CI, 0.29-0.51). Individuals screened positive for clinically relevant menstrual distress reported higher levels of somatization and higher mental distress, including obsessive-compulsive symptoms ([Supplementary Table S3](#)). Individuals who screened positive for clinically relevant menstrual distress were more likely to report an interest in menstrual distress and mental health ( $\chi^2 = 4.533$ ,  $P = .033$ ), as well as a higher exposure to content on menstrual distress by university courses ( $\chi^2 = 5.119$ ,  $P = .024$ ). Conversely, they did not report higher interaction with content on the topic ( $\chi^2 = 0.251$ ,  $P = .617$ ), higher educational needs on menstrual distress ( $\chi^2 = 1.549$ ,  $P = .213$ ), higher stigma in academic ( $\chi^2 = 0.796$ ,  $P = .372$ ) or healthcare settings ( $\chi^2 = 0.513$ ,  $P = .474$ ), nor a more positive attitude towards further education on the topic ( $\chi^2 = 0.049$ ,  $P = .825$ ).

In summary, our findings support the view that menstrual distress embraces psychosocial dimensions and intersects with mental health. While overall interest in menstrual health was high, perceived unmet educational needs were also widely reported by medical students, highlighting a gap in medical training on the topic. Indeed, although most students expressed interest and recognized the need for education, only a minority reported having received adequate formal education on menstrual health.

In the present survey, female students were more likely to report unmet educational needs, perceived stigma in academic and healthcare settings, as well as to seek additional education on menstrual health. Females also accessed information more frequently through social media and peers, whereas male students more often cited academic instruction as their source. Aside from higher somatization in female students, no significant gender differences emerged in depression, anxiety, general psychopathology, or obsessive-compulsive symptoms. This indicates that gendered patterns in attitudes towards menstrual distress are unlikely to reflect indirect influences due to differences in mental health (eg, reduced stigma through direct exposure). Rather, results suggest that gender differences may reflect diverging informational environments and general exposure due to sociocultural factors.

In fact, 40% of female students screened positive for clinically relevant menstrual distress. Those with higher menstrual distress also reported increased somatization, general mental distress, and obsessive-compulsive symptoms, consistent with prior

evidence. However, menstrual distress was not associated with perceived stigma, educational needs, exposure to menstrual content, or attitudes toward training, suggesting that interest and perceived needs are shared among female students regardless of symptom burden. The present report has key limitations that should be acknowledged. The cross-sectional design precludes causal inference, and the reliance on self-report measures may be subject to desirability and recall biases. Additionally, the single-center design, the recruitment of students attending an elective course on menstrual distress, and the limited sample size may have introduced selection bias.

To conclude, these findings reinforce the relevance of addressing menstrual health as a multidimensional issue that intersects with mental health and education. Medical students reported insufficient formal training and pervasive perceived stigma, highlighting the need to integrate evidence-based and stigma-free menstrual health education into medical curricula. Strengthening menstrual health training may improve students' well-being and equip future clinicians with the knowledge and empathy required to provide high-quality, patient-centered care.

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## Conflicts of interest

The authors declare they do not have conflict of interest.

## References

1. Hennegan J, Winkler IT, Bobel C, *et al*. Menstrual health: a definition for policy, practice, and research. *Sex Reprod Health Matters*. 2021;29:31–38. <https://doi.org/10.1080/26410397.2021.1911618>
2. Munro AK, Hunter EC, Hossain SZ, Keep M. A systematic review of the menstrual experiences of university students and the impacts on their education: a global perspective. *PLoS One*. 2021;16:e0257333. <https://doi.org/10.1371/journal.pone.0257333>
3. Vannuccini S, Rossi E, Cassioli E, *et al*. Menstrual Distress Questionnaire (MEDI-Q): a new tool to assess menstruation-related distress. *Reprod Biomed Online*. 2021;43:1107–1116. <https://doi.org/10.1016/j.rbmo.2021.08.029>
4. Maity S, Wray J, Coffin T, *et al*. Academic and social impact of menstrual disturbances in female medical students: a systematic review and meta-analysis. *Front Med*. 2022;9:821908. <https://doi.org/10.3389/fmed.2022.821908>