



ORIGINAL RESEARCH PAPER

Physiotherapy

NORMATIVE DATA OF MENSTRUAL DISTRESS QUESTIONNAIRE (MEDI-Q) IN REPRODUCTIVE AGE GROUP: A CROSS-SECTIONAL STUDY

KEY WORDS: Menstrual Distress; MEDI-Q; Menstrual Symptoms; Women; Physiotherapy

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ABSTRACT

Background: Menstrual distress includes physical, emotional and psychological symptoms that may affect daily functioning and quality of life. The Menstrual Distress Questionnaire (MEDI-Q) is a validated multidimensional tool for assessing menstruation-related distress. Objective: To estimate normative MEDI-Q values among women aged 15–45 years. **Methods:** An observational cross-sectional study was conducted using convenience sampling. A total of 141 women were equally divided into 15–24, 25–34 and 35–45-year groups (47 each). MEDI-Q and demographic data were collected and analysed using descriptive statistics. **Results:** Overall MEDI-Q Total was 15.06 ± 8.34 ; MS, MSD and MESI were 8.56 ± 3.33 , 1.79 ± 0.50 and 0.81 ± 0.17 , respectively. The 15–24-year group had the highest MEDI-Q Total (19.91 ± 8.86), MS (10.02 ± 3.47) and MSD (1.96 ± 0.56), while the 35–45-year group had the lowest values. Pain was the predominant associated symptom (80%). **Conclusion:** Preliminary normative MEDI-Q values were established for the studied population, with an age-associated decrease in total distress, symptom burden and symptom distress.

INTRODUCTION

Menstrual health is an essential component of women's overall well-being. Menstruation may involve physical, emotional and psychological symptoms that vary between individuals and can affect daily activities, education, work and quality of life. These experiences are influenced by biological, cultural and socioeconomic factors, highlighting the importance of population-specific reference data.^{1,2,12,14,16}

The Menstrual Distress Questionnaire (MEDI-Q) is a multidimensional self-report instrument comprising 25 items that assess menstruation-related symptoms and distress. It provides a Total Score and indices, including Menstrual Symptoms (MS), Menstrual Symptoms Distress (MSD) and Menstrual Specificity Index (MESI). Its reliability and validity have been reported by Vannuccini et al. and Cassioli et al.^{1,3}

Dysmenorrhoea is common among adolescents and young adults and may be accompanied by headache, nausea, back pain and fatigue. Increased prostaglandin activity can cause stronger uterine contractions and reduced uterine blood flow, contributing to pain. However, menstrual distress also includes mood changes, fatigue and functional limitations.^{3,6,12,13,15,18}

Normative data help interpret questionnaire scores within an appropriate population, as menstrual experiences may differ across geographical, cultural and sociodemographic groups. Previous research has also highlighted the effects of menstrual symptoms on education, work productivity and quality of life.^{4,8,14,16,18}

Therefore, this study aimed to establish normative MEDI-Q values among women aged 15–45 years. It sought to describe overall menstrual distress and related indices across three age groups, providing population-specific reference information to support assessment, clinical interpretation and future research.^{1,2,4,18}

METHODS

The study adopted an observational, cross-sectional design and was conducted in Kharghar and Mumbai. Participants were recruited from schools and colleges, workplaces and corporate offices, community centres, healthcare institutions and residential areas. A total of 141 women aged 15–45 years were recruited through convenience sampling. The sample size was calculated using OpenEpi software, version 3, at a 95% confidence level. Participants were equally divided into three age groups: 15–24 years, 25–34 years and 35–45 years, with 47 participants in each group.

Women aged 15–45 years who were willing to participate were included in the study. Women who had attained menopause, were pregnant or were receiving hormonal treatment that suppressed menstruation were excluded. The study used the Menstrual Distress Questionnaire (MEDI-Q), a participant information sheet, a written informed consent form and a structured demographic and menstrual-history form. Information regarding age, age at menarche, menstrual-cycle pattern and length, duration and intensity of menstrual flow, associated symptoms, medication use and relevant medical history was collected. The primary outcome measures were the MEDI-Q Total Score, Menstrual Symptoms (MS), Menstrual Symptoms Distress (MSD) and Menstrual Specificity Index (MESI).

Ethical approval was obtained from the Institutional Ethics Committee of TMV's Lokmanya Tilak College of Physiotherapy, Kharghar. Before recruitment, permission was obtained from the relevant society committees or institutional heads. Potential participants were approached through public notices and door-to-door recruitment and were screened according to the inclusion and exclusion criteria. The investigator explained the study's purpose, procedures, voluntary nature, estimated completion time of 10–15 minutes and confidentiality measures. Written informed consent was obtained before data collection. Participants were also informed of their right to withdraw at any time without any adverse effect on their relationship with the institution or investigator.

Following consent, demographic and menstrual-history details were recorded using the structured form. The MEDI-Q was then administered in a printed, self-reported format. The investigator explained the instructions and response options before participants completed the questionnaire. Each item was rated with reference to symptom frequency and distress during the menstrual, premenstrual and intermenstrual phases. The investigator remained available to clarify procedural questions without influencing participants' responses. After completion, the forms were checked for completeness, and the collected information was entered for statistical analysis.

The 25 MEDI-Q items were scored according to the prescribed scoring procedure. For each item, the frequency response (A) was scored from 0 to 2, while menstrual distress (B), premenstrual distress (C) and intermenstrual distress (D) were each scored from 0 to 3. The change in distress was calculated by subtracting D from B, and negative values were

assigned a score of zero. The final item score was determined using the MEDI-Q scoring table, which combined frequency and change in distress, with a maximum score of 5 per item. The MEDI-Q Total Score was calculated by summing the final scores of all 25 items, giving a range of 0–125. MS represented the number of items with a final score greater than zero, ranging from 0 to 25. MSD was calculated by dividing the MEDI-Q Total Score by MS, representing the average distress associated with symptoms exacerbated during menstruation. MESI was calculated by dividing the number of items for which B exceeded both C and D by MS. Its value ranged from 0 to 1 and represented the proportion of symptoms that were more specifically exacerbated during menstruation.

The collected data were entered into Microsoft Excel and analysed using descriptive statistics. Continuous variables were summarised as means and standard deviations (mean $\pm$ SD), while categorical variables were presented as frequencies and percentages. The results were organised into tables presenting overall MEDI-Q scores and indices, as well as comparisons across the three age groups.

RESULTS

The mean age of the 141 participants was 30.14 ± 8.49 years, and the mean age at menarche was 13.73 ± 1.23 years. Mean menstrual-cycle length was 27.29 ± 6.17 days and mean flow duration was 3.66 ± 1.15 days. Most participants reported regular cycles (125/141) and moderate flow (92/141). Seventy-five participants were unmarried and 66 were married; 134 reported no medication use.

Table 1. Overall Normative MEDI-Q Values

Measure	Mean $\pm$ SD
MEDI-Q Total	15.06 ± 8.34
MS	8.56 ± 3.33
MSD	1.79 ± 0.50
MESI	0.81 ± 0.17

Table 2. Age-wise Normative MEDI-Q Values

Age group	MEDI-Q Total	MS	MSD	MESI
15–24 (n=47)	19.91 ± 8.86	10.02 ± 3.47	1.96 ± 0.56	0.78 ± 0.18
25–34 (n=47)	14.59 ± 8.69	8.25 ± 3.25	1.74 ± 0.51	0.81 ± 0.16
35–45 (n=47)	12.31 ± 5.15	7.40 ± 2.73	1.67 ± 0.40	0.83 ± 0.18

Pain was the predominant associated symptom and was reported by 80% of participants. A further 15% reported pain with mood changes, while 5% reported multiple symptoms, including pain, mood changes, headache, cramps, backache and leg pain. MEDI-Q Total, MS and MSD values decreased across the older age groups, whereas MESI showed a slight increase.

DISCUSSION

The present study established preliminary normative MEDI-Q values among 141 women aged 15–45 years. The overall MEDI-Q Total was 15.06 ± 8.34 , while MS was 8.56 ± 3.33 , MSD was 1.79 ± 0.50 and MESI was 0.81 ± 0.17 . Vannuccini et al. developed MEDI-Q as a multidimensional measure of menstruation-related distress, and Cassioli et al. reported strong reliability and validity for its English version. These findings supported assessing menstrual symptom burden beyond pain alone.^{1,3}

The MEDI-Q Total decreased from 19.91 ± 8.86 in the 15–24-year group to 14.59 ± 8.69 and 12.31 ± 5.15 in the older groups. De Sanctis et al. described dysmenorrhoea as common among adolescents and young adults, with associated headache, gastrointestinal symptoms, back pain and fatigue. Maqbool et al. reported that menstrual distress could affect physical, emotional and psychological well-being and interfere with daily activities, education and work. The present findings therefore showed a greater overall

burden among younger participants; however, the cross-sectional design did not establish age as a causal factor.^{2,6,13}

MS decreased from 10.02 ± 3.47 to 8.25 ± 3.25 and 7.40 ± 2.73 across the three age groups. This pattern indicated fewer symptoms with greater menstrual-phase distress in the older groups. MSD also decreased from 1.96 ± 0.56 to 1.74 ± 0.51 and 1.67 ± 0.40 , suggesting lower average distress among the symptoms reported by older participants. Menstrual pain was associated with prostaglandin-mediated uterine contractions and vasoconstriction, while psychological and behavioural factors could also influence pain perception. These findings were descriptive and did not identify the mechanisms responsible for age-group differences.^{2,6,15,17}

Pain was reported by 80% of participants, 15% reported pain with mood changes and 5% reported multiple symptoms. De Sanctis et al. described dysmenorrhoea and associated back or thigh pain, headache and gastrointestinal symptoms as common menstrual complaints. The predominance of pain in this study was consistent with the contribution of prostaglandins to uterine contractions and pain. Mood changes and multiple associated symptoms also illustrated the multidimensional nature of menstrual distress. Clinical assessment therefore needed to consider pain alongside emotional and functional symptoms.^{2,6,12,18}

The normative values could provide preliminary reference information for physiotherapists assessing women aged 15–45 years and could support identification of relatively higher symptom burden and individualized symptom-focused management or referral. The study had limitations: its cross-sectional design prevented causal inference; convenience sampling and geographically limited recruitment reduced generalizability; the sample was relatively small for wider Indian normative application; and self-reported responses could have been affected by recall and individual perception. The study also did not assess symptom changes across multiple cycles or examine psychological, lifestyle and functional measures in detail.^{4,14,16}

Future studies should recruit larger multicentric Indian samples, use probability-based sampling, develop age-specific percentile/reference ranges and follow participants across multiple menstrual cycles. Further research should examine stress, anxiety, depression, sleep, quality of life, physical activity, academic and occupational functioning, and activity restrictions. Intervention studies could evaluate therapeutic exercise, stretching, aerobic exercise, relaxation and pain-management approaches among women with higher menstrual distress. Urban–rural, socioeconomic and cultural comparisons and validation of MEDI-Q in Indian languages could improve clinical and community applicability.^{4,8,14,16,18}

REFERENCES

- Vannuccini S, Rossi E, Cassioli E, Cirone D, Castellini G, Ricca V, Petraglia F. Menstrual Distress Questionnaire (MEDI-Q): a new tool to assess menstruation-related distress. *Reprod Biomed Online*. 2021;43(6):1107–1116. doi:10.1016/j.rbmo.2021.08.029.
- Maqbool R, Maqbool M, Zehravi M, Ara I. Menstrual distress in females of reproductive age: a literature review. *Int J Adolesc Med Health*. 2021;34(2):11–17. doi:10.1515/ijamh-2021-0081.
- Cassioli E, Rossi E, Melani G, et al. The menstrual distress questionnaire (MEDI-Q): reliability and validity of the English version. *Gynecol Endocrinol*. 2023;39(1):2227275. doi:10.1080/09513590.2023.2227275.
- Garg S, Marimuthu Y, Bhatnagar N, et al. Development and Validation of a Menstruation-Related Activity Restriction Questionnaire among Adolescent Girls in Urban Resettlement Colonies of Delhi. *Indian J Community Med*. 2021;46(1):57–61. doi:10.4103/ijcm.IJCM_183_20.
- Hobbs AK, Cheng HL, Tee EYF, Steinbeck KS. Menstrual Dysfunction in Adolescents with Chronic Illness: A Systematic Review. *J Pediatr Adolesc Gynecol*. 2023;36(4):338–348. doi:10.1016/j.jpog.2023.05.005.
- De Sanctis V, Soliman AT, Elsedfy H, et al. Dysmenorrhea in adolescents and young adults: a review in different country. *Acta Biomed*. 2016;87(3):233–246.
- Bautrant E, Lacoste C, Lhuillery D. Dysménorrhée sévère et endométriose [Severe dysmenorrhea and endometriosis]. *Rev Prat*. 2025;75(4):425–431.
- Harzif AK, Ikhsan M, Puspawardani AR, et al. Validation of the Indonesian version of the Menstrual Distress Questionnaire (MEDI-Q): A reliability study. *Eur J Obstet Gynecol Reprod Biol*. 2025;311:113996. doi:10.1016/j.ejogrb.2025.113996.

9. Betsu BD, Medhanyie AA, Gebrehiwet TG, Wall LL. Menstrual hygiene management interventions and their effects on schoolgirls' menstrual hygiene experiences in low and middle countries: A systematic review. *PLoS One*. 2024;19(8):e0302523. doi:10.1371/journal.pone.0302523.
10. Orionzi B. Adolescent Menstrual Health Equity. *Pediatr Ann*. 2026;55(8): e296–e299. doi:10.3928/19382359-20260609-03.
11. Görlich Y, Richter E. The Menstrual Distress Questionnaire (MEDI-Q): reliability and validity of the German version. *BMC Womens Health*. 2026;26(1):357. doi:10.1186/s12905-026-04608-7.
12. Dutta A, Sharma A. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in India: A systematic review and meta-analysis. *Health Promot Perspect*. 2021;11(2):161–170. doi:10.34172/hpp.2021.20.
13. Armour M, Parry K, Manohar N, et al. The Prevalence and Academic Impact of Dysmenorrhea in 21,573 Young Women: A Systematic Review and Meta-Analysis. *J Womens Health (Larchmt)*. 2019;28(8):1161–1171. doi:10.1089/jwh.2018.7615.
14. Das P, Jungari S. Prevalence, risk factors and health-seeking behavior of menstrual disorders among women in India: a review of two-decade evidence. *Glob Health Action*. 2024;17(1):2433331. doi:10.1080/16549716.2024.2433331.
15. Mitsuhashi R, Sawai A, Kiyohara K, Shiraki H, Nakata Y. Factors Associated with the Prevalence and Severity of Menstrual-Related Symptoms: A Systematic Review and Meta-Analysis. *Int J Environ Res Public Health*. 2022;20(1):569. doi:10.3390/ijerph20010569.
16. Chen CX, Rogers SK, Li R, et al. Social Determinants of Health and Dysmenorrhea: A Systematic Review. *J Pain*. 2024;25(9):104574. doi:10.1016/j.jpain.2024.104574.
17. Vannuccini S, Clemenza S, Cassioli E, et al. Uterine Fibroids, Perceived Stress, and Menstrual Distress: a Key Role of Heavy Menstrual Bleeding. *Reprod Sci*. 2023;30(5):1608–1615. doi:10.1007/s43032-022-01126-3.
18. Nariai M, Wada-Hiraike O, Enomoto Y, et al. Beyond Pain—Associations Between Menstrual Symptoms, Work Productivity and Quality of Life: A Large-Scale Web-Based Cross-Sectional Study. *BJOG*. 2026;133(8):1561–1571. doi:10.1111/1471-0528.70178.
19. Nooh AM, Abdul-Hady A, El-Attar N. Nature and Prevalence of Menstrual Disorders among Teenage Female Students at Zagazig University, Zagazig, Egypt. *J Pediatr Adolesc Gynecol*. 2016;29(2):137–142. doi:10.1016/j.jpag.2015.08.008.
20. Liang HY, Lee LW, Kelsen BA, et al. Attitudes toward menstruation in females with schizophrenia or schizoaffective disorders in Taiwan. *Climacteric*. 2013;16(6):682–688. doi:10.3109/13697137.2012.753872.