

Prevalence and Contributing Factors of Menstruation-related Absenteeism among Schoolgirls: A Systematic Review Meta-Analysis



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Supplementary Table 1. Risk of bias for the observational studies.

Name	NIH Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies															Quality rating: good (11-14 points) or fair (7.5-10.5 points) or poor (0-7 points)
	1. Was the research question or objective in this paper clearly stated?	2. Was the study population clearly specified and defined?	3. Was the participation rate of eligible persons at least 50%?	4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?	5. Was a sample size justification, power description, or variance and effect estimates provided?	6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?	7. Was the time frame sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?	8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (eg, categories of exposure, or exposure measured as continuous variable)?	9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	10. Was the exposure(s) assessed more than once over time?	11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	12. Were the outcome assessors blinded to the exposure status of participants?	13. Was loss to follow-up after baseline 20% or less?	14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?	total scores	
	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)	Yes / No / Not reported (NR) or cannot determine (CD) or not applicable (NA)		
AbdEl Mawgod 2016	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	6	Poor
Acheampong 2019	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	6.5	Poor
Ahmed 2024	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Ahmed 2012	Yes	Yes	Yes	No	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	7.5	Fair
Al kindi 2011	Yes	Yes	Yes	No	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	6.5	Poor
Alam 2017	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	7.5	Fair
Alenur 2023	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	7	Poor
Al Matouq 2019	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	7.5	Fair
Arafa 2019	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Armour 2020	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	7.5	Fair

Quality rating: good (11-14 points) or fair (7.5-10.5 points) or poor (0-7 points)

(Table S1) *contd....*

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Asumah 2023	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Banikarim 2000	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	7.5	Fair
Boosey 2014	Yes	Yes	Yes	Yes	No	NA	Yes	No	Yes	NA	Yes	NA	NA	No	6.5	Poor
Cameron 2024	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Chongpensuklert 2008	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	7	Poor
Davis 2018	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	7.5	Fair
Dayalan 2017	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	No	NA	No	NA	NA	No	6	Poor
Defert 2024	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Edet 2022	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	No	7	Poor
Esen 2016	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Femi Agboola, 2017	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Gumanga 2012	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	7	Poor

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Habtegiorgis 2021	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Hasan 2021	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	7.5	Fair
Hirai 2024	Yes	Yes	Yes	Yes	No	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	7	Poor
Hoppenbrouwers 2015	Yes	Yes	No	No	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	7.5	Fair
HounkpatinB 2016	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	8.5	Fair
Ikpeama 2022	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	8.5	Fair
Inthaphatha 2021	Yes	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Jahan 2024	Yes	Yes	Yes	Yes	NA	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	7.5	Fair
Kassaw 2014	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Krishnaiah 2023	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	No	8	Fair
Kumbeni 2021	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	8.5	Fair

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Lghoul 2020	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Marques 2022	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Method 2024	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Miirio 2018	Yes	Yes	Yes	No	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Mohammed 2020	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	9	Fair
Ortiz 2009	Yes	Yes	Yes	No	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	7.5	Fair
Pitangui 2013	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	8.5	Fair
Rupe 2022	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	No	8	Fair
Santina 2014	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Kuhlmann 2020	Yes	Yes	Yes	No	No	NA	Yes	No	Yes	NA	Yes	NA	NA	No	7	Poor
Kuhlmann 2021	Yes	Yes	Yes	Yes	No	NA	Yes	No	Yes	NA	Yes	NA	NA	No	7.5	Fair
Shah 2022	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	9	Fair
Sivakami 2018	Yes	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Soderman 2018	Yes	Yes	No	No	No	NA	Yes	Yes	No	NA	No	NA	NA	No	6	Poor

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Stoilova 2022	Yes	Yes	Yes	No	Yes	NA	Yes	No	Yes	NA	Yes	NA	NA	Yes	8	Fair
Swe 2022	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	9	Fair
Tadakawa 2016	Yes	Yes	No	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8	Fair
Tangchai 2004	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Tanton 2021	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	8.5	Fair
Taş 2021	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	9	Fair
Ubochi 2023	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	8	Fair
Vashisht 2018	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	Yes	10	Fair
Yaliwal 2020	Yes	Yes	Yes	Yes	No	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	8	Fair
Yucel 2018	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	Yes	NA	Yes	NA	NA	No	8	Fair

Supplementary Table 2. Pairwise comparison of menstrual absenteeism by pain severity groups.

Pain Severity Groups Compared	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Severe vs. Moderate	4.86	3.25 to 7.28	<0.0001
Severe vs. Mild	5.76	3.89 to 8.53	<0.0001
Moderate vs. Mild	1.19	0.83 to 1.71	0.342

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