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Association between ramadan fasting, sleep disturbances, fatigue, and academic performance among Iraqi university students: A cross-sectional study



Abstract:

Background Ramadan fasting intersects with university students' academic and health behaviors, but its effects on sleep, fatigue, and academic performance remain contested. This study examines these relationships in Iraqi medical students, a population experiencing both academic rigor and cultural observance.

Methods A cross-sectional web-based survey was conducted among 922 Iraqi medical students from March 26 to April 9, 2024. Validated Arabic versions of the Epworth Sleepiness Scale (ESS-AR; range: 0–24) and the Fatigue Questionnaire (FQ-AR; total score: 0–11, with subscales for physical [0–7] and mental fatigue [0–4]) were administered. ESS-AR scores were interpreted as follows: 0–5 = low sleepiness, 6–10 = normal, 11–12 = mild, 13–15 = moderate, and 16–24 = severe. An FQ-AR total score > 4 indicated severe fatigue. Academic performance was assessed using a pre-tested, culturally adapted questionnaire.

Results Most students (90.1%) reported fasting-related sleep disruptions. Low academic performance was observed in 61.4% of students, and it was associated with higher levels of physical fatigue (adjusted odds ratio [aOR] = 0.72, $p < 0.01$) and mental fatigue (aOR = 0.60, $p < 0.01$). Counterintuitively, stress (aOR = 1.68, $p < 0.01$) and sleep disturbances (aOR = 2.54, $p < 0.01$) were linked to better performance. This may reflect reverse causality: high-achieving students maintain rigorous study habits during Ramadan, inadvertently increasing their stress and sleep disruptions.

Conclusions Our findings demonstrate that Ramadan fasting significantly impacts students' sleep patterns and fatigue levels, with nuanced effects on academic performance. While fatigue negatively correlated with outcomes, the counterintuitive stress-performance association suggests high-achievers may maintain performance despite challenges. Future research should explore targeted interventions to support student wellbeing during religious observances, while institutions should adapt policies to accommodate the unique challenges faced by fasting students.