Gac Sanit. 2026;40(S4):411

Gaceta Sanitaria

https://www.gacetasanitaria.org

303 - WORK SHIFT IS ASSOCIATED WITH THYROID DYSREGULATION IN EUTHYROID MEN

M. Gulias-Suárez, M. Laclaustra, B. Moreno-Franco, J. Rey-García, J.M. Lou-Bonafonte, V. Alonso-Ventura, F. Calvo-Gracia, E. López-García, P. Guallar-Castillón

Universidad Autónoma de Madrid; Universidad de Zaragoza; CIBERCV; Instituto de Investigación Sanitaria Aragón; IMDEA Food Institute; New York University-GPH; Hospital Universitario Miguel Servet.

Resumen

Background/Objectives: Circadian rhythms regulate a wide range of physical functions, including the hypothalamic-pituitary-thyroid (HPT) axis. Work shifts affect circadian rhythms and have been associated with clinical thyroid disorders. We aim to investigate the association between work shifts and HPT axis dysregulation in euthyroid Spanish male workers.

Methods: We examined 1,115 euthyroid male adults aged 40-60 from the Aragon Worker's Study. Information on the distribution of logTSH and free T4 hormone was used to calculate the Parametric Thyroid Feedback Quantile-based Index (PTFQI), which provides information on thyroid dysregulation affecting the HPT axis. Depending on their quartile position on the PTFQI, participants were classified as having a downregulation (lowest PTFQI quartile indicating lower TSH relative to free T4 level) or upregulation (highest PTFQI quartile indicating higher TSH relative to free T4 level) status. Work shifts included 2 fixed shifts (central and night) and 2 rotating shifts (Morning-Evening and Morning-Evening-Night). Analyses were performed using logistic regression models and multivariate linear regression adjusted for relevant confounders, including lifestyle and comorbidity.

Results: Night shift workers showed a higher risk of thyroid downregulation when compared to the central shift even in the fully adjusted model OR: 2.27 (95%CI 1.02, 5.08; $p < 0.05$). Workers in the rotating Morning-Evening-Night shift showed a higher

0213-9111 © 2026 SESPAS. Publicado por Elsevier España, S.L.U. Todos los derechos reservados

risk of thyroid upregulation when compared to the central shift in the fully adjusted model OR: 1.89 (95%CI 1.02, 3.50; $p < 0.05$). When the association between work shifts and PTFQI as a continuous variable was examined, night shift workers had lower index values ($\beta = -0.10$; $p = 0.097$).

Conclusions/Recommendations: Workers on night and rotating Morning-Evening-Night shifts showed thyroid function dysregulations. Therefore, workers with shift schedules that affect circadian rhythms require routine and close assessment of their thyroid function.

Funding: Health Research Fund FIS PI20-144 and PI23-240 (State Secretary of R+D and FEDER/FSE. Instituto de Salud Carlos III. Spain).

0213-9111 © 2026 SESPAS. Publicado por Elsevier España, S.L.U. Todos los derechos reservados