



## Musculoskeletal disorders in university professors who telework due to COVID-19 pandemic

Trastornos musculoesqueléticos en docentes universitarios que realizan teletrabajo en el marco de la pandemia con COVID-19

Angy Natalia Cristancho<sup>1</sup> [orcid.org/0000-0003-3096-273X](https://orcid.org/0000-0003-3096-273X)

Andrea Almario Barrera<sup>1</sup> [orcid.org/0000-0002-8020-4091](https://orcid.org/0000-0002-8020-4091)

Yeny Castellanos-Domínguez<sup>1\*</sup> [orcid.org/0000-0001-5881-1998](https://orcid.org/0000-0001-5881-1998)

1. Facultad de Odontología, Universidad Santo Tomás. Bucaramanga, Colombia.

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### Abstract

**Introduction:** Teaching virtually can cause symptoms related to muscle pain due to bad postures when working with computers. **Objective:** To determine the presence of musculoskeletal disorders in university professors who telework during the COVID-19 pandemic. **Materials and methods:** Analytical cross-sectional study in professors from health programs at a northeastern Colombian university. The validated Spanish version of the Nordic Kuorinka questionnaire was used (Cronbach's alpha 0.8-0.9). Using non-probabilistic sampling and an instrument applied virtually, 68 professors were included in the study. The dependent variable was presence of musculoskeletal disorder, whereas the independent ones were the sociodemographic conditions related to telework. The Fisher or were used for qualitative variables. Comparison of means were carried out through Student's t test.  $p < 0.05$  values were interpreted as statistical association. **Results:** 67.7% of participants reported musculoskeletal disorder in at least one anatomical site, being the neck the one mostly affected. Female gender and seniority in teaching practice showed an association with the disorder ( $p < 0.05$ ). **Conclusion:** Working conditions triggered by teleworking during the pandemic are associated with the presence of musculoskeletal disorders in professors.

**Keywords:** Educational personnel; COVID-19; working conditions; occupational health; muscular diseases. (Source: DeCS, Bireme).

### Resumen

**Introducción:** El ejercicio de la docencia en modalidad virtual puede desencadenar síntomas relacionados con dolor muscular debido a las malas posturas frente al computador. **Objetivo:** Determinar la presencia de trastornos musculoesqueléticos en docentes universitarios que realizan teletrabajo durante la pandemia por COVID-19. **Materiales y métodos:** Estudio analítico de corte transversal en docentes de programas de salud de una universidad del nororiente colombiano. Se usó el cuestionario Nórdico *Kuorinka*, validado y adaptado al español [alfa de Cronbach 0,8-0,9], a partir de muestreo no probabilístico se incluyeron 68 docentes mediante instrumento aplicado en formato virtual. La variable dependiente fue la presencia del trastorno musculoesquelético y variables independientes las sociodemográficas y relacionadas con teletrabajo. Se usó el Test de Fisher en variables cualitativas. La comparación de medias se hizo con prueba t de *Student*. Se interpretó como asociación estadística valores de  $p < 0,05$ . **Resultados:** El 67,6% manifestó trastorno musculoesquelético en al menos un sitio anatómico; el cuello fue el área más afectada. El sexo femenino y la antigüedad en el ejercicio de la docencia mostraron asociación con el trastorno ( $p < 0,05$ ). **Conclusión:** Las condiciones laborales generadas por el teletrabajo durante la pandemia se asocian con la presencia de trastornos musculoesqueléticos en docentes.

**Palabras clave:** Personal docente; COVID-19; condiciones de trabajo; salud laboral; enfermedades musculares. (Fuente: DeCS, Bireme).

#### \*Corresponding Author

Yeny Zulay Castellanos Domínguez  
e-mail: [yeny.castellanos@ustabuca.edu.co](mailto:yeny.castellanos@ustabuca.edu.co)

with neck disorder, we reported a 100% of professors with pain in this anatomical site. This difference could be due to the fact that the measurements of this work have been carried out more for than a year and a half in the continuous exercise of teleworking.

Kayabinar *et al.*<sup>(19)</sup> published the results of a study with 40 primary and secondary school teachers in Turkey carried out during May and July 2020, using the Cornell and Profitmap-Neck Questionnaires, among others. Clinical assessment before and after online teaching due to the COVID-19 pandemic showed a significant increase in head, neck, and back discomfort<sup>(12)</sup>, which agrees with the findings of this study. However, our bivariate analysis found no association between the presence of musculoskeletal disorder and the daily hours of teleworking using mobile devices.

Similarly, a study of public school teachers from Brazil found the appearance of back pain in 57.8% of the participants as a consequence of the change in routine activities due to the COVID-19 pandemic<sup>(20)</sup>. The regression analysis presented by the authors shows the association between back pain and female gender as well as with the teaching seniority (16 years or more), which is similar to what was observed in this work.

As highlighted by Cruz and Herrera<sup>(21)</sup>, the practice of teleworking is a factor that accelerates the appearance of musculoskeletal disorders due to the lack of a proper environment to carry out work related activities at home because of the absence of either physical space or infrastructure as well as the lack of knowledge regarding ergonomic standards required to work at home. This situation has been evidenced in university professors who have been teleworking since the beginning of the COVID-19 pandemic.

A strength of this study is that it reflects the situation of musculoskeletal disorders in university professors of a medium size city in Colombia through the use of a questionnaire that is validated in the context of the COVID-19 pandemic. However, since this a cross-sectional study, it lacks causal evidence, as the temporality criterion cannot be justified. Likewise, some participants stated that the questionnaire focuses on disorders of the torso and upper extremities, while not recognizing lower limbs disorders. Also, the sample size and sampling strategy limit the extrapolation of these findings to other

population groups as well as to professors from other disciplines. Finally, as self-report bias could be present, it is recommended to make more objective clinical assessments to have a more precise measurement of the events.

## Conclusion

A high prevalence of musculoskeletal disorders is evidenced in professors from health disciplines working at a private university located in the northeastern region of Colombia, in which the neck is reported as the anatomical site most frequently compromised. Being a woman and having teaching seniority (6-10 years and >16 years) showed an association with the presence of the disorder.

## Conflict of interests

The authors declare that they have no conflict of interests.

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