

Ergonomic Risks, Prevalences, and Interventions for Musculoskeletal Disorders Among School Teachers: A Scoping Review

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Structured Abstract

Background: Musculoskeletal disorders (MSDs) are a common health issue for schoolteachers. They mainly arise from prolonged static postures, repetitive movements, and poor ergonomics in classrooms. These factors significantly affect teachers' physical health, job performance, and overall well-being, yet there remains a lack of information on risk factors, MSD frequency, and existing ergonomic interventions.

Methods: This scoping review followed PRISMA-ScR guidelines and examined studies from 2010 to 2025 to examine ergonomics risk factors, MSD prevalence, and existing ergonomic interventions, all focusing on school teachers. Reviewed articles were retrieved from databases such as Scopus, Google Scholar, Springer, and ScienceDirect.

Results: This scoping review includes 80 studies highlighting common ergonomic risk factors for MSDs among teachers. It covers 38 studies on risk and MSDs, 26 on prevalences, and 16 on ergonomic interventions. Ergonomic risks reported in several studies include physical risk factors, which are the most frequently mentioned, such as prolonged static postures, awkward positions (e.g., bending and twisting), repetitive motions, and long periods of standing. Personal factors, such as stress, age, gender, body mass index (BMI), and smoking, are also connected to higher rates of MSDs, organizational whereby involve Organizational risk factors include long working hours, heavy student loads, lack of ergonomic training, and insufficient breaks, and mechanical like poorly designed tools or furniture, force teachers into awkward positions or require more effort during tasks. High prevalence rates are reported, with some studies indicating over 80% of teachers experiencing MSDs, notably in the lower back (62.55% - 73.5%) and shoulders (31.6%). And lastly, existing ergonomic interventions reported in several studies include Participatory Ergonomics (PE), in which teachers are directly involved in identifying and addressing ergonomic problems, as well as active ergonomic training and educational sessions that focus on correcting posture, adjusting workstations, and increasing general ergonomic awareness.

Conclusion: This review highlights key ergonomic risks and interventions for MSDs among teachers. While current strategies show positive results, more long-term studies are needed. The findings can help shape effective ergonomic programs to support teacher well-being.

Keywords: Musculoskeletal disorders, schoolteachers, ergonomic risk factors, prevalence, prevention, scoping review.

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