

Predictive Factors for Developing Musculoskeletal Disorders Among Healthcare Students: A Systematic Review

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Background :

Musculoskeletal disorders (MSDs) in peripheral joints are one of the most common musculoskeletal ailments, with point prevalence as high as 24%¹. Although multiple studies have reported various factors that may predict the development of MSDs in healthcare students, no systematic reviews have been conducted to summarize the evidence regarding these predictive factors for peripheral MSDs, which hinders the potential of developing effective prevention strategies.

Objective :

To summarize the evidence regarding the predictive factors for developing peripheral MSDs in healthcare students.

Methods :

Six databases (Medline, CINAHL Database, Cochrane Library, PsycINFO, SPORTDiscus and Web of Science) were searched for eligible studies. Included articles had to be analytical studies that examined the predictive factor(s) for developing at least one peripheral MSD in healthcare students. Two independent reviewers selected the articles, extracted data, and evaluated the risk of bias of the included articles using the Quality In Prognosis Studies tool.

Results:

Four out of 1613 potential citations were included. 2, 3, 4, 5 The included literature covered a total of 782 participants, comprising dental, dental hygiene and chiropractic students. One-year prevalence of shoulder MSDs was the highest (ranging from 19% to 53%) while that of wrist MSDs was the second highest (from 16% to 44%). Six risk factors have been investigated, three of which were found significant .

Female chiropractic students had significantly higher risks of developing upper limb MSDs (OR: 1.5; $P < 0.05$). Chiropractic students who were taking practical classes were more likely to experience peripheral MSDs than those not taking any of these classes ($\chi^2 = 38.0$; $P < 0.01$). Further, chiropractic students with a prior hand/wrist injury were more likely to sustain reinjuries during practical sessions (OR: 1.8; $P < 0.05$). Risk of bias assessment found that all four studies failed to study the potential confounding factors.

Discussion:

The current review highlights that there is a paucity of analytical studies on identifying predictive factors for peripheral MSDs in healthcare students. The lack of interest in this area may be partly due to the high prevalence of other MSDs (e.g. neck or low back pain) in these students.

Future cohort or case-control studies are warranted to identify predictive factors for peripheral MSDs in these students so that more effective preventive measures can be provided.

The included studies only investigated dental, dental hygiene and chiropractic students. Future studies should investigate the predictive factors of peripheral MSDs in other healthcare students so as to allow the identification of discipline-specific predictive factors for peripheral MSDs patterns in healthcare education programs.

Although only four studies were included in the current review, a great variety of period prevalence were noted reported. The heterogeneity of period prevalence increases the difficulty of between-studies comparisons. Future research should use a standardized reporting of cumulative incidence so as to enable meta-analyses, or comparison between study programs/time frames.

Importantly, since all included studies did not consider other potential risk factors (e.g. psychosocial factors), the results should be interpreted with care. Future studies should consider these factors in order to identify all potential predictive/risk factors for peripheral MSDs in healthcare students.

Conclusion:

This is the first systematic review to summarize the evidence regarding the predictive factors for MSDs in peripheral joints among healthcare students.

Our results highlight that female students, chiropractic students attending practical classes or having a prior history of hand/wrist injury before studying the program are more susceptible to peripheral MSDs. Future studies should investigate the predictive factors for peripheral MSDs in healthcare students of different disciplines and examine if specific preventive strategies can modify the predictive/risk factors for peripheral joint MSDs in these students.