

INPLASY PROTOCOL

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None declared.

Application and estimation of the level of the ergonomic risk level by Rapid Upper limb Assessment tool among various health care professionals. A Systematic Review

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Review question / Objective: The objectives of this review are to evaluate the application of the Rapid Upper Limb Assessment (RULA) tool in the health care sector and to assess the level of ergonomic risk among various health care professionals

Condition being studied: Healthcare practitioners, particularly individuals who engage in direct patient interactions, represent the occupation-based population with the highest rate of WMSDs, due to occupational loads and awkward positions during their work-related duties. Continuous movements in ergonomically adverse postures can lead to the development of MSDs, negatively affecting efficiency. Proper assessment tools might prevent the development of musculoskeletal symptoms associated with ergonomic risks and WMSDs. One important evaluation tool that has been developed is the Rapid Upper limb Assessment (RULA) tool. So, in the present review, we will be focused on the assessment of ergonomic risk factors and WMSDs among health care practitioners.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 31 January 2021 and was last updated on 31 January 2021 (registration number INPLASY202110120).

INTRODUCTION

Review question / Objective: The objectives of this review are to evaluate the application of the Rapid Upper Limb Assessment (RULA) tool in the health care sector and to assess the level of ergonomic

risk among various health care professionals

Rationale: Till now many of the reviews related to RULA has been done in different sectors, but not in the health care sector. So this review is intended to analyze the usage of RULA in evaluating the work-

related musculoskeletal disorders (WMSDs) and the level of ergonomic risk among health care professionals.

Condition being studied: Healthcare practitioners, particularly individuals who engage in direct patient interactions, represent the occupation-based population with the highest rate of WMSDs, due to occupational loads and awkward positions during their work-related duties. Continuous movements in ergonomically adverse postures can lead to the development of MSDs, negatively affecting efficiency. Proper assessment tools might prevent the development of musculoskeletal symptoms associated with ergonomic risks and WMSDs. One important evaluation tool that has been developed is the Rapid Upper limb Assessment (RULA) tool. So, in the present review, we will be focused on the assessment of ergonomic risk factors and WMSDs among health care practitioners.

METHODS

Search strategy: Electronic databases such as EMBASE, MEDLINE, CINHALL, LILACS, SCIELO, DOAJ, Saudi Digital Library, PROSPERO, NHS EED, Pub Med, Google Scholar, SCOPUS, and Web of Science will be used for conducting the search. The following search terms were used: ergonomics; health care providers; musculoskeletal disease, workplace; risk factors, and RULA to obtain the relevant articles.

Participant or population: Health care practitioners with WMSDs/ergonomic risk at workplace.

Intervention: Studies with application of RULA among health care practitioners will be included.

Comparator: Studies with application of RULA tool compared with other assessment tools, such as Rapid Entire body assessment (REBA), Loading on the upper body assessment (LUBA), New ergonomic posture assessment (NERPA), Quick exposure check (QEC), Cornell

Musculoskeletal discomfort Questionnaire (CMDQ), Strain Index (S.I), Job Strain Index (JSI), Body map assessment, Virtual reality simulator, EMG, photographic evaluation etc.

Study designs to be included: Cross-sectional studies, Observational studies, Quasi-experimental studies, and Randomized control trials.

Eligibility criteria: Cross-sectional studies, Observational studies, Quasi-experimental studies, and Randomized control trials from the year 2000 to 2020, which have been published in the English language with full text, will be included in the study.

Information sources: Electronic databases such as EMBASE, MEDLINE, CINHALL, LILACS, SCIELO, DOAJ, Saudi Digital Library, PROSPERO, NHS EED, Pub Med, Google Scholar, SCOPUS, and Web of Science will be used for conducting the search. The following search terms were used: ergonomics; health care providers; musculoskeletal disease, workplace; risk factors, and RULA to obtain the relevant articles. Contact with the authors will also be done to obtain relevant information. Along with this, if necessary, even the grey literature from other sources will be included.

Main outcome(s): Ergonomic risk level and work postures which aggravate the level of RISK in relation to the RULA score.

Additional outcome(s): Not applicable.

Data management: Two reviewers will be responsible for data extraction and the differences will be reconsidered together with a third reviewer until an agreement was reached.

Quality assessment / Risk of bias analysis: The assessment of the risk of bias of the incorporated studies will be approved out with the Cochrane risk of the bias assessment tool. The risks of bias are evaluated in relationship to the particular design, conduct, and outcomes. Two reviewers will resolve all differences

through discussion, and a third reviewer may be involved if no consensus is reached.

Strategy of data synthesis: Endnote 9.0 was utilized for literature management. The data will be projected in the form of tables and flow-diagrams. If required, data analysis will be done by using Excel and SPSS software version 22.0.

Subgroup analysis: There will be no subgroup analysis as of now. However, if we find more literature pertaining to anyone health care specialty, then those specialties can be considered for sub-group analysis.

Sensitivity analysis: The included studies will be analyzed for their sensitivity based on the type of the study. If they are observational studies we will use the National Institute of Health Quality Assessment tool for observational cohort and cross-sectional studies. If they are randomized control trials and experimental studies, we will use the PEDro scale. If they are case studies or case series, they will be assessed by Quality analysis of case reports using CARE Guidelines.

Language: English.

Country(ies) involved: India, and Saudi Arabia.

Other relevant information: None.

Keywords: Ergonomics; Assessment; Health care providers; Risk factors; Rapid Upper limb Assessment tool.

Dissemination plans: Once we complete the systematic review we will be publishing it in a peer-reviewed international journal.

Contributions of each author:

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