

## Effectiveness of ergonomic chair against musculoskeletal disorders in female batik workers of sragen district

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### Abstrak

The majority of female batik workers uses non-ergonomic chairs (dingklik) that pose risks of musculoskeletal disorders.

This study aimed to design an ergonomic chair and evaluate its effectiveness in reducing musculoskeletal disorders

among the workers. This is a quasi-experimental study (using one group pre and post-test design) on 50 female batik

workers selected by quota sampling. Musculoskeletal disorders were measured among the samples before and after the

use of the designed ergonomic chair which they were asked to use for two months. T-test, ANCOVA, Wilcoxon test,

McNemar test and Chi Square test were used for the analysis. The study found statistical significant differences of risk

factor against musculoskeletal disorders among the workers before and after their use of the designed ergonomic chair

( $p < 0.05$ ); and of musculoskeletal disorders before and after using the ergonomic chair ( $p = 0,035$ ). Body Mass Index

(BMI) was identified as a confounding factor, and statistical significant difference of musculoskeletal disorders were

also found among the workers with  $<25$  and  $>25$  BMI even before and after using the ergonomic chair ( $p=0.033$  and

$p=0.015$  respectively). By ANCOVA statistical test, after controlling BMI, another statistical difference of musculoskeletal disorders was also identified before and after using the ergonomic chair ( $p=0.033$ ). It is

concluded that

the designed ergonomic chair is effective to reduce the risk of musculoskeletal disorders.