



UNIVERSITI TEKNOLOGI MARA

THE ASSOCIATION OF BACKPACK LOAD
AND MUSCULOSKELTAL DISORDERS (MSDs)
IN PRIMARY SCHOOL CHILDREN
AT BANDAR PUNCAK ALAM

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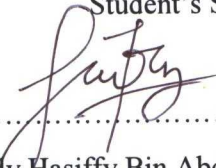
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Author's Declaration

Project entitled 'The Association of Backpack Load and Musculoskeletal Disorders (MSDs) In Primary School Children at Bandar Puncak Alam' is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of En. Abdul Mujid Bin Abdullah as project supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Bachelor (Hons.) of Environmental Health and Safety.

Student's Signature



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ABSTRACT

The backpack has become a popular method for school children to carry books and stationaries to and from school. However, some literature review reported it may contribute to Musculoskeletal Disorders (MSDs) in children. To date, there are still no consensus between researcher regarding the load limit and the placement of the backpack on the back. The objectives of the study is to measure the relative backpack weight (RBW) carried by students, to determine the prevalence of MSDs among them, and to assess the association of MSDs with standard, gender, body mass index (BMI) and RBW. Standard four and five from three schools in Bandar Puncak Alam are given consent letter for permission to participate. Only 74 students agree and have been arranged through phone calls for assessment. Demographic, anthropometric data is assessed by interview and measurement whereas the MSDs is assessed through guided interview using Standardized Nordic Questionnaires. It has been found out that average load carried by primary school students are $4.1\text{kg} \pm 0.9\text{kg}$ with RBW of $11.1\% \pm 3.0\%$ which is within the recommendation of RBW between 10% - 15% backpack load. Standard four bring heavier RBW than standard five ($p = 0.026$) but no significant load differences shown for RBW with gender. Prevalence of MSDs shows higher problems reported by students at neck and upper back of the body ($n=31$; 41.9%) and the lowest are the knee ($n=1$; 14%). There is no significant found between the overall MSDs to gender, but significantly different compared to upper back MSDs where male complaints higher than female students ($p = 0.048$). Significant difference shown in association between BMI and overall MSDs ($p = 0.038$), and it includes the upper ($p = 0.040$) and lower back ($p = 0.021$) where underweights complaint more than normal ones. Different RBW range carried also shows MSDs effect to shoulder ($p = 0.003$), elbow ($p = 0.004$), wrist ($p = 0.042$), upper back ($p = 0.024$) and lower back ($p = 0.021$) but no significant gain from RBW measured to overall MSDs. The study shows significance to different criteria and the backpack load is a potential threat to school children. Parents and school teachers apart from school children should collectively conscious about the school children backpack and consult the healthy backpack way to them.

Keywords: Primary school children, Backpack, Musculoskeletal Disorders (MSDs), Relative Backpack Weight (RBW), Body Mass Index (BMI)