Research Paper

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Assessment of Problems Faced by School Children While Carrying School Bags

Home Science

KEYWORDS :

K Pant	M.Sc Student, College Home Science, PAU, Ludhiana
H Kaur	Associate Professor, College Home Science, PAU, Ludhiana
M Sidhu	Professor, College Home Science, PAU, Ludhiana

ABSTRACT

The present study was conducted on "Assessment of problems faced by school children while carrying school bags with objectives to assess various physical problems of respondents while carrying school bags and to analyses musculoskeletal problems faced by respondents by using subjective assessment scales i.e. Postural Discomfort Scale (Corlett and Bishop 1976) and Rating of Perceived Exertion Scale (Varghese et al1994).The study was conducted on a sample of 120 school children from middle class (i.e. from vi to viii) and their mothers. Respondents were randomly selected from five government and five private schools of Ludhiana city form the age group of 11-14 years. A pre structured interview schedule was used to achieve first objective and for second objective subjective assessment was used. Results revealed that respondents felt feeling of fatigue, difficulty in walking, stepping up and down from stairs, difficulty in picking up of things, imbalance of body while sudden turn, difficulty in getting up and down from transport media. From subjective assessment it was found that respondents faced problems in different body parts and high discomfort was found in neck, shoulder, upper and lower back and very less discomfort was found in ankle, feet and calf muscles.

INTRODUCTION

School bags are used by the school-age children to carry school books, supplies, other articles, and equipment. Students often carry between 4.5-18 kg on their backs to and from school and between classes (Keeta *et al* 2002). School bags can be threatening to the health of students when they are too heavy or worn improperly. The school children carry their school bags in a variety of positions that can adversely affect them physically by affecting their spinal column and other bone structures that are not fully developed. Wearing schoolbags alters the mobility of spine, leading to passive movement (involuntary movement from an outside force), which is a risk factor for back pain (Vacheron *et al* 1992). Literature revealed that the load weight ratio has a positive relationship with many factors like pain, location, kyphosis, and other variables (Akram and Faqeeh 2009).

It has been reported that students carrying more than 10-20% of the body weight are more susceptible to back pain. Children tend to bend forward to compensate for the heavy load, which throw off their central of gravity out of alignment. This significantly alters the posture and gait of children. Musculoskeletal problems associated with school bag use have become increasing concern with school children (Negrini and Carabalona 2002). There are few reports of other problems associated with school bag i.e. functional scoliosis, rucksack palsy and reduced lung functions (Sharan *et al* 2012). Musculoskeletal symptoms in school children are multi- factorial in origin; the carriage of heavy school bag is clearly a suspected factor (Whittfield *et al* 2001). Daily school bag carrying is a frequent cause of musculoskeletal discomforts (Negrini *et al* 1999). Musculoskeletal problems were reported by 77.1% of the students. Symptoms were most prevalent in the neck, shoulder, upper back and lower back (Whittfield *et al* 2005). To prevent these problems in future, a study was undertaken with the following objective.

- To assess different physical problems of respondents while carrying school bags.
- To analyse various musculoskeletal problems faced by respondents.

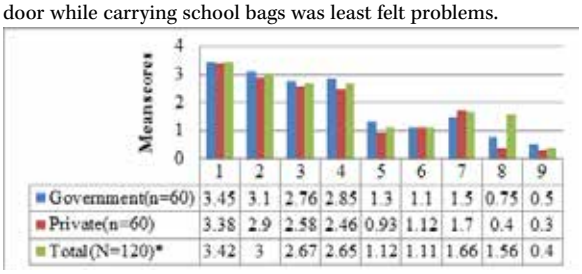
Materials and Methods

Present study was conducted in Ludhiana city. Two zones were randomly selected out of four zones; further five governments and five private schools were selected randomly from these two zones. A sample of 120 students and their mothers were taken from these selected schools from class (i.e vi to viii). The age group was 11- 14 years. To achieve first objective questionnaire was used while for second objective subjective assessment was used i.e. Postural Discomfort Scale (Corlett and Bishop 1976) and Rating of Perceived Exertion Scale (Varghese *et al*1994). Both of the scales were had a five point continuum varying from "Very Severe" to "Mild" levels with the mean scores of five to one respectively. Ranks were given on the basis of mean scores

Result and Discussion

Assessment of various physical problems of respondents while carrying school bags

The scale which is used to access various physical problems of respondents while carrying school bags was a five point continuum varying from "Very Severe" to "Mild" levels with the mean scores of five to one respectively. Ranks were given on the basis of mean scores. From Fig 1, it is clear that feeling of fatigue was very prevalent among selected respondents, followed by difficulty in walking, stepping up and down from stairs and difficulty in picking up of things from floor while carrying school bags and imbalance of body while sudden turn. Chansirinukor *et al* (2001) also found that carrying school bags affects posture and balance of students. While irritation, lack of concentration and opening door while carrying school bags was least felt problems.



	1	2	3	4	5	6	7	8	9
Government(n=60)	3.45	3.1	2.76	2.85	1.3	1.1	1.5	0.75	0.5
Private(n=60)	3.38	2.9	2.58	2.46	0.93	1.12	1.7	0.4	0.3
Total(N=120)*	3.42	3	2.67	2.65	1.12	1.11	1.66	1.56	0.4

Fig 1: To assess various physical problems of respondents while carrying school bags

Figure indicates rank on the basis of 5 point scale from very severe (5) to very mild (1)

(*Multiple response)

1. Feeling of fatigue
2. Difficulty in walking
3. Stepping up and down from stairs
4. Difficulty in picking up of things
5. Imbalance of body while sudden turn
6. Difficulty in getting up and down from transport media

7. Irritation
8. Lack of concentration
9. Opening door

Analysis of musculoskeletal problems faced by respondents
It was presented in Fig 2 that respondents felt more pain in neck, shoulder, upper back and lower back, while pain in ankle/feet and calf muscles was low by using Corlett and Bishop Scale 1976. The same result was also found by Sharan *et al* (2012), that pain in the upper back, neck and shoulder were most prevalent body regions followed by forearm and wrist pain and low back while carrying the school bag.

From Fig 3, It was observed that respondents felt light to moderate exertion in neck followed by shoulders and upper back. The probable reason to feel exertion may be due to changes in the centre of gravity. This causing undue bending or over stretching of muscles which ultimate results in exertion. Light exertion was felt by respondents in lower back and no or very less exertion was felt by respondents in ankle/ feet and calf muscles by using Perceived Exertion Scale Varghese *et al* (1994). Joshi (2006) also observed that incidences of mild to moderate pain was observed by users in neck, shoulder joints, upper back and lower back due to faulty postures adopted for long hours of work. Sharan *et al* (2012), in their study on back pack injuries in Indian school children, it was found that the main diagnostic criteria were pressure mark (redness or swelling) over neck and shoulder corresponding to the straps of the backpack, stooping posture while carrying the back pack, pain or stiffness in the neck, upper back and shoulders predominantly while carrying the schoolbag.

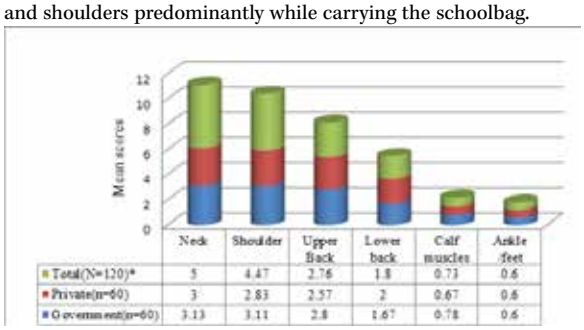


Fig 2: To analysis of musculoskeletal problems faced by respondents by (Corlett and Bishop Scale 1976)

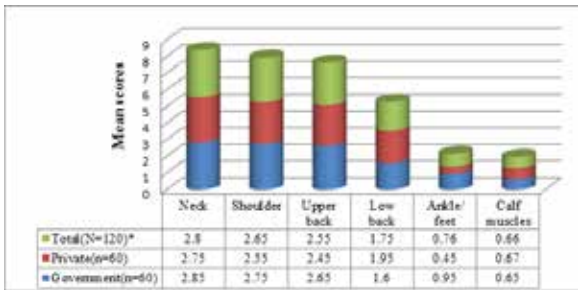


Fig 3:To analyses musculoskeletal problems faced by respondents by Rating of Perceived Exertion Scale Varghese *et al* (1994)

Conclusion: School children are adolescents who experience a period of accelerated growth and development of skeletal and soft tissue. As growth of the spinal structures extends over a longer period of time than the other skeletal tissues, incongruities in rate of tissue development can pose a threat to postural integrity. Moreover, external forces such as load carrying may also influence the growth, development and maintenance of alignment of the developing body. Consequently, posture in school children can be affected by both internal and external influences, which may make school children more susceptible to injury. This significantly alters the posture and gait of children. Musculoskeletal problems associated with school bags use have become increasing concern with school children (Negrini and Carabalona 2002).Therefore, the present study entitled "Assessment of problems faced by school children while carrying school bags" has done to reduce these problems in future. Results revealed that respondents felt feeling of fatigue, difficulty in walking, stepping up and down from stairs, difficulty in picking up of things, imbalance of body while sudden turn, difficulty in getting up and down from transport media. From subjective assessment it was found that respondents faced problems in different body parts and high discomfort was found in neck, shoulder, upper and lower back and very less discomfort was found in ankle, feet and calf muscles.

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