

# Level of Awareness of body use in young people

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**Abstract-** Low back pain (LBP) is a common musculoskeletal disorder which is mainly associated with the ergonomically incorrect working conditions. Therefore the purpose of this study was to assess the awareness about back care disciplines among high school children in Kandy zone, Sri Lanka. A cross-sectional study was conducted in Kandy zone, Sri Lanka to study the awareness about back care disciplines among high school level Sinhala medium science students. 815 High school level Sinhala medium science students age between 17-18 years were requested to complete a 13 item questionnaire consisted of images related to correct and incorrect back disciplines in various daily activities. Out of 815, 776 students were completed and return the questionnaire with the response rate of 95.2%. Seventy percent of the students were unaware about the correct back discipline while washing cloths manually and more than half of the students (52%) were unaware about correct back pack carrying discipline. Furthermore 77% of the respondents were unaware about the correct sleeping method of side lying posture with head supported by a pillow. The gaps in awareness regarding back care disciplines in daily activities of standing, sleeping carrying back pack and carrying a weight are existed amongst the high school level students and more integrated teaching regarding this needs to be introduced.

**Index Terms-** Awareness, Back care disciplines, Science, Students

## I. INTRODUCTION

Low back pain (LBP) is a common patient complaint where pain experienced in the lumbosacral spinal and paraspinal regions, including the buttocks and upper thigh<sup>1</sup>. Recent studies have shown that the lifetime prevalence of low back pain is high as 84%, and the prevalence of chronic low back pain is about 23%, with 11-12% of the population being disabled<sup>2</sup>. Heyman, 2009 has reported that the musculoskeletal discomfort and back pain problems are evident adults and children<sup>3</sup>. It has reported that prevalence of low back pain is higher among girls than boys and increased with age in both sexes<sup>4</sup>. Back pain problems are mainly associated with the ergonomically incorrect working conditions requiring repetitive heavy lifting and equipment<sup>5</sup>. Most of such tasks are modifiable and a survey conducted by the North American Spine Society (NASS), has reported that 42.6% of NASS member physicians have treated children or teens suffering from back pain or spine trauma caused by overloaded or improperly used backpacks. Ttriguerio et al., 2012 has shown the multifactorial etiology of low back pain as combination of school absences, parental pain, sleeping difficulties, inappropriate school furniture and postural deviations at the sagittal and frontal planes<sup>6</sup>. However such symptoms in

childhood, particularly as they are so common, may have important consequences for chronic low back pain in adulthood which can led to an explosion in costs. The situation in Sri Lanka also same to the other countries and recent studies have found that the highest prevalence of musculoskeletal disorder is low back pain among working population in Sri Lanka<sup>7</sup>. Furthermore Jayaratne & Fernando has found that the prevalence of low back pain among schoolchildren is 24.4% which affected to their academic performance and school attendance<sup>8</sup>.

It is advisable to stand by stand tall with the chest lifted up and out, stomach muscles pulled in and bottom in and sitting with hips slightly higher than knees without crossing legs to reduce low back strain. The correct posture for reaching is stand on a stool to reach things that are above the shoulder level. We believe that clear picture towards a balanced-posture, body-function and movement patterns, as well as their ergonomic implications, can minimize and even prevent these problems. Such an ergonomics awareness educational program has to start at childhood and should be an integral part of the curriculum in the schools. Therefore in this research the core focus was to explore the back care discipline awareness among high school children in Kandy zone.

## II. METHOD

### Instrumentation

A survey was implemented in this study. The questionnaire was prepared by principal investigator and pre tested with 20 students who were not part of this study sample. The questionnaire was consisted of 13 images related to correct and incorrect back care disciplines in various daily activities including standing, washing, sitting, gardening, lifting a weight, carrying a weight and sleeping. Standing component consisted of two images related to working in front of a table at hip level in standing and standing erect. Back discipline related to washing consisted of one image. Sitting posture consisted of three images related to sitting in a high back rest chair, low back rest chair and while driving. One image was included related to keeping a weight in a cupboard at higher level. Three images were included in to the carrying a weight category. Such as carrying one object, two buckets and back pack. In the sleeping category two images were included related to the proper sleeping posture and correct mattress use.

### Participants and procedure

High Schools with Sinhala medium advanced level classes in Kandy educational zone were identified from the data base of the Director of Education (planning), Central province, Sri Lanka and the purpose of the study was clearly explained to them and the approval was obtained. From the total of eighteen schools in

Kandy zone, the sample of 815 Sinhala medium science students from nine schools were selected using envelop method. Students who were unwilling to participate in the research, absent on the day of data collection and Tamil and English medium students were excluded from the study.

The data collection was carried out during the period of May to June 2012. Upon permission from the respective principals of the nine high schools selected to participate the survey, the author (TD) clearly explained the questionnaire and distributed it to the class representative of each class. The survey required approximately 15 min, after which the author collected the questionnaire from the class representative. Anonymity of respondents was maintained during data entry, data analysis and write-up phases. Data were analyzed using primarily statistical analysis with Statistical Package for the Social Sciences Version 17 (IBM Cooperation, NY, USA).

### III. RESULTS

#### Socio-demographic features

The total of 776, out of 815 high school level Sinhala medium science students aged between 17-18 years with a mean age of 17.9 (+0.2) years were completed and return the questionnaire and the response rate was 95%. There were 320 males and 456 females among the respondents.

#### Awareness of body use

Globally, students showed unsatisfactory awareness about doing a work in standing in front of table which is at their hip level and the true answer rate was 20% (Question 1). Eighty percent of students were aware on proper erect standing posture which the head up, shoulder blades back, knee straight and tucked stomach in (Question 2). According to the responses, 70% of the students were unaware the correct back discipline while washing cloths manually and 30% aware the correct posture of keeping washing cloths container on a bench which is at their hip level to reduce the stress on their back and knee (Question 3). Ninety four percent of students were aware correct seating posture of sitting with back straight (hip and knee 90 degrees bent), shoulder back and buttock touching the back of the chair when they are seating in a high back rest chair (Question 4). Thirty five percent of the respondents marked sitting with cross leg in a low back rest chair as correct which is an incorrect posture (Question 5). For the driving, correct posture of proper back support with knees at the same or higher than the hip level was marked by 90% of the respondents and ten percent gave incorrect marking (Question 6). Eighty three percent of the respondents marked correct back discipline while gardening in kneeling posture (Question 7) and for the image of keeping a weight at a higher level, 88% of the respondents gave correct marking of use of bench or seat to get the height near to the object keeping level (Question 8). Nearly half of the students (48%) were unaware about proper back discipline of carrying one object by hold the object close to the body with arms bent (Question 9). Even though the great amount of students (94%) were aware on correct method of carrying two buckets (Question 10), more than half (52%) of the students do not aware the proper back pack carrying method of use of both shoulder straps (Question 11). Majority (77%) of the respondents marked the

lying on back sleeping posture without head and knee support by a pillow as correct which is incorrect and twenty three percent of the respondents were marked correct side lying posture with head supported by a pillow (Question 12). Ninety percent of the respondents were aware about correct mattress that should use for sleep (Question 13).

### IV. DISCUSSION

Back pain is a major musculoskeletal disorder<sup>9</sup> which is evident not merely throughout older people, but also among youngsters. It may lead to a significant socioeconomic health issue, as a result of higher healthcare and sick leave cost<sup>10</sup>. This problem can certainly limit with teaching toward the balanced-posture, body-function, ergonomic implications and activity patterns. This kind of ergonomics awareness instructional method has to commence at child years and should possibly be an integral part of their school curriculum<sup>3</sup>.

This study looked at the awareness of high school level Sinhala medium science students towards back disciplines in various daily activities. Majority of the respondents were unaware about correct back discipline when stand longer duration in front of a table at hip level (80%), manual washing (70%) and sleeping (77%). More than half of the respondents (52%) were unaware on correct back pack carrying discipline. Even though many respondents (88%) aware on correct method of keeping an object at a higher level, nearly half of the students (48%) were unaware about proper back discipline of carrying one object by hold the object close to the body with arms bent.

Carrying a school bag is a daily activity for most children and the recommended load limit to carry varies from 5%-20% of their body weight<sup>11</sup>. Carrying overload may develop different symptoms of musculoskeletal disorders in upper back among children<sup>12</sup>. Skoffer (1976) has identified that occurrence of low back pain among school children has a positive association of carrying school bag on one shoulder<sup>13</sup>. In our present study we have noticed that the level of awareness on correct back discipline of carrying back using two shoulders straps was low. This pattern of awareness was not similar with the study done by Puckree (2004) who reported that majority of the school students aware to carry the back packs over two shoulders<sup>14</sup>. This difference may be due to the current trend among school students, easiness of handling objects inside the back pack and crowd inside the public transport services in Sri Lanka set up. Under the sleeping method, the data was gathered about awareness on correct sleeping posture and mattress type. Seventy seven percent of the respondents marked lying on back without head supported on a pillow as the correct sleeping posture instead of proper side lying technique. This is not an optimal daily practice, which increase the unwanted muscle effort in neck and back lead to reduce the quality of life<sup>15</sup>.

In Sri Lanka most of the people involved in cloth washing by using manual techniques. But the awareness on correct manual method falls 30%. This is similar to the findings of research done by Oberoi (2007) which stated that during the manual method, most of women do not care about their posture<sup>16</sup>. The factor for the low level of accuracy in responses to this statement may be due to unfamiliarity on correct back disciplines and mental stress due to the heavy work load as a house wife.

The lack of awareness about back disciplines among high school level students is only tip of the iceberg. There exists a need to implement these facts by aggressive health education programs and group discussions. Instead of a glamorous approach, we want the mass media to create awareness and educate various aspects of back disciplines and body mechanics. We should encourage youngster in group discussions, interactive sessions and forums where all the doubts and aspects of back care discipline and its association with back injuries can be highlighted and clarified.

### V. CONCLUSION

This study was designed to assess high school students' awareness on back care disciplines in various daily activities. This was found that awareness on correct postures of sitting, sleeping and carrying object was low and, exist gaps about awareness related to back disciplines in daily activities among youngster needed to be include in the school curriculum with a more integrated teaching.

### VI. APPENDIX

#### Questionnaire

#### Level of Awareness of body use in young people

School:

Date of birth:

Male  Female

Please tick the correct posture with (√) mark and wrong posture with (X) in the relevant box.	
Q-01. Doing a work in front of a table at hip level in standing	
	<input type="checkbox"/>
	<input type="checkbox"/>
Q-02. Standing erect	
	<input type="checkbox"/>
	<input type="checkbox"/>
Q-03. Washing cloths manually	
	<input type="checkbox"/>
	<input type="checkbox"/>

Q-04. Sitting on a high back rest chair



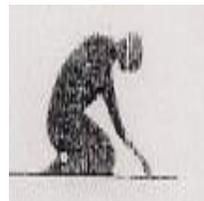
Q-05. Sitting on a low back rest chair



Q-06. Driving



Q-07. Gardening



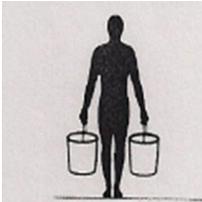
Q-08. Keeping a weight in a cupboard at higher level



Q-09. Carrying one object



Q-10. Carrying water bucket



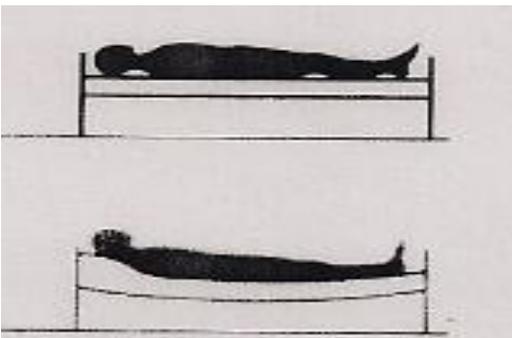
Q-11. Carrying a back pack



Q-12. Sleeping



Q-13. Correct mattress usage



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