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Prevalence and Associated Risk Factors of Spinal Pain Among School Going Young Children

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A B S T R A C T

Background: Back pain in school going young children is common and challenging for society. The factors contributed are trauma, lack of physical activity, imbalance diet, use of heavy back packs and sedentary life style, with Prolong use of desktops/laptops/mobiles cause extra stress on back muscles.

Objective: To investigate the prevalence and associated risk factors of back pain among school going young children.

Methodology: This cross-sectional survey was conducted in 15 schools of rural as well as urban Punjab and Islamabad, from 1st May to 31st December 2015.The school going young children of both gender and age ranged from 12 to 16 years were included and the students with any history of spinal fracture, congenital deformity and postural malformation were excluded.

A self-structured questionnaire was developed and pretested on 15 participants for validity and reliability. The questionnaire was circulated among 700 school children and 565 positively responded. The non-probability convenient sampling technique was used for data collection. The data was analyzed by SPSS and percentages were calculated to estimate the prevalence and associated factors of back pain among school going young children.

Results: The prevalence of back pain was 83%, causes 31% absentees from school, and 41% restrictions in physical activity. The commonly used remedies were rest (42 %), medication (19%), and 14% massage, while aggravated by carrying school bag (32%) and relieved by taking rest (42%). The highest association of back pain was found with female gender and weight of school bag, and no association with body weight and BMI. The back pain was highest in age group between 14 and 15 years and commonly involved site was thoracic spine.

Conclusions: It is concluded that there is highest prevalence of back pain in school going young children and mostly affects the thoracic spine and age group 14 to 15 years. It causes absentees from school and restrictions in physical activities. The weight of school bag and female gender were the highest associated risk factors.

Introduction

The ratio among school going young children with back pain is expanding and becoming a challenge for individuals, community and health care system.[1] The spine of human body has curvatures divided as cervical lordotic curvature, kyphosis, and lumber lordotic and sacral curvature. Any disturbance with these curvatures causes back pain.[2] Disturbance may be mechanical (bad posture) or pathological (trauma, disease) in nature.

Cervical spine is most critical area as it sends and receives messages from brain and controls all organs of body. Pain in cervical region can be due to any trauma, neurological pathology, tumor, muscular strain. Pain can be localized to neck or it can radiate to one side of arm or

both sides.[3] Pain around upper back felt in the region of thoracic spine which gives muscular strength and stability to it. It is less common than lower back pain but more painful. It is mostly occur in association with cervical or shoulder pain. Functions of lumber area are diverse as it helps in structural support, movement and protection of body organs. Pain in this region can be localized to lumbar area or it can radiate to buttocks or one side of leg or both legs. Pain around cervical and lumbosacral region are most common as most movement present here.[4]

Pain in soft tissues of back is widespread complaint in young population around global. Papgeogiou et al. in 1996 performed a study and found that LBP in childhood may be strong signal for future low back pain.[5] Nationwide survey was done in United States by Lawrence et al. and found that 15% adolescents complaint back pain. Back pain is most common complaint in the countries of Canada, Finland and United States. Back pain makes the patient financially dependent and has major impact on his quality of life. [6]

A study conducted in 1996 and concluded from survey that most adolescents had back pain at early life and it is mostly due to heavy backpacks. Use of heavy backpacks reduces body balance due to increased posture bending. It has greater impact on children's musculoskeletal conditions. Discrepancy between school furniture and children body mass is also major risk factor for back pain.[5] According to research it is seen that weight of a student's school bag should not exceed 10% of the his/her body mass and the weight should be equally scattered across both shoulders.[7]

Back pain has major effect on patient's quality of life. Low back pain in younger population has greater chance of disability in future. Factors like psychological problems, anxiety, distress, alcohol intake make the patient dependent to others. Back pain in children affects their activities lack of interest in school work, poor health, limits sports participation, less participation in physical and sports activities and as well as academic problems. Athletes' participating in sport activities has major complaint of chronic back pain which restricts their participation in sports and leads to disability in future. That's why the person who wants to remain active in sports should be focus on talent that requires balance training activities and physical strengthening of individual.[8]

The aim of this research study was to investigate the prevalence of back pain and associated risk factors among school going young children. The goals of the study were to promote awareness among parents, principals, teachers and students and to educate them about factors associated with back pain and how to overcome those factors like how the school bags and other factors contribute in back pain, causes absentees and restrict children from physical activity. Different studies were performed around globally but there is no research done here previously which cover the whole province of Punjab or Pakistan.

Methodology

This cross-sectional survey was conducted in 15 schools of rural as well as urban Punjab and Islamabad, from 1st May to 31st December 2015.The school going young children of both gender and age ranged from 12 to 16 years were included and the students with any history of spinal fracture, congenital deformity and postural malformation were excluded.

A self-structured questionnaire was developed and pretested on 15 participants for validity and reliability. A written permission was taken from school principals. After following the inclusion and exclusion criteria data was collected from students. Questionnaire contains all demographic details of participants like age, gender, body mass index and weight of bag as well. Questionnaire contains information regarding pain prevalence, characteristics, frequency and intensity of pain, area of back involved, leisure activities and participation in class activities, aggravating and relieving factors. After pilot study done on 15 participants data was collected from 565 students studying in different schools of Punjab and Islamabad. The questionnaire was circulated among 700 school children and 565 positively responded. The non-probability convenient sampling technique was used for data collection. The data was analyzed through SPSS and percentages were calculated to estimate the prevalence and associated factors of back pain among school going young children.

Results

The response rate during data collection was 81%. The accessible population was enthusiastic in giving the required data. The result analysis shows that there is high prevalence rate of back pain among school going children. Result shows that middle back is most commonly affected area for pain. A greater number of absentees from school affect student's studies and co-curricular activities. There is no association seen between pain and body mass index of student.

The graph shows that the prevalence of back pain among school going children was 83%.

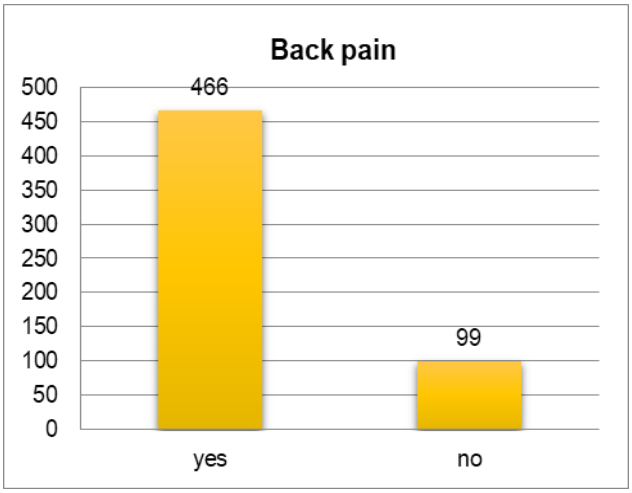

Fig.1 Prevalence of back pain

The graph shows that majority (36%) of patients had complaint of night pain. 29% population reported evening pain.

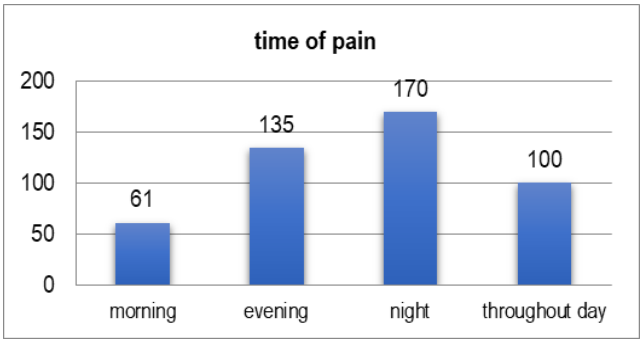

Fig. 2 time of pain

Table.1 Restriction of activity		
Restrict activity	Frequency	Percent
Yes	234	41.4
No	232	41.1

Table.2 Activity aggravates pain		
Aggravates	**Frequency**	**Percent**
Standing	101	17.9
Sitting	107	18.9
Walking	77	13.6
Carrying bag	179	31.7

Table.3 Activity relieves pain		
Relieves	**Frequency**	**Percent**
Standing	37	6.5
Sitting	122	21.6
Walking	66	11.7
Taking rest	239	42.3

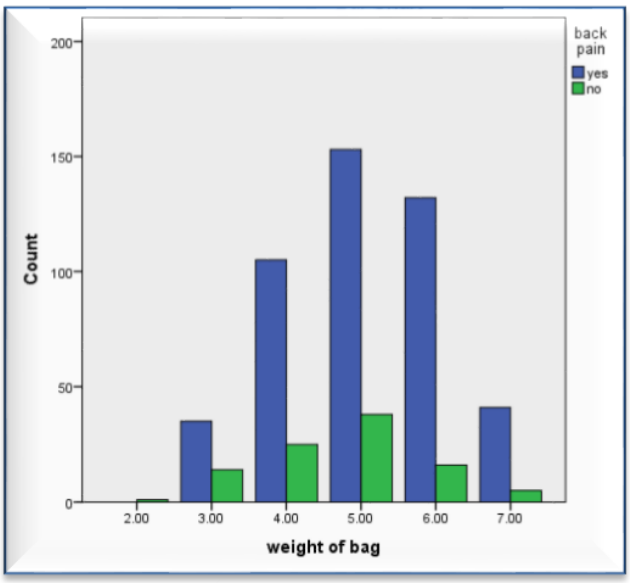

Fig. 7 Association b/w wt. of bag and pain

Discussion

This cross-sectional survey was conducted among secondary school students with age ranged between 12 to 16 years. The data was collected from 15 government secondary schools of both rural and urban areas in Punjab and Islamabad. The total sample size was 565 and a self-structured questionnaire was designed to collect the required information.

The results showed that the prevalence of back pain is highest (83%) in young population. The study highlighted that most common site for back pain in young population was thoracic spine with the prevalence of 83%, causes 31% absentees from school and 41% restrictions in physical activity. The commonly used remedies were

rest (42 %), medication (19%), and 14% massage, while aggravated by carrying school bag (32%) and relieved by taking rest (42%). The highest association of back pain was found with female gender and weight of school bag, and no association with body weight and BMI. The back pain was highest in age group between 14 and 15 years.

Sedentary life style with less physical activity and excessive load of heavy bags leads to back pain. Back pain is frequently present in secondary school students and its occurrence is considerably linked with age and high level physical activities but not associated with gender.[9] Current study highlighted that females are more prone to develop back pain. The prevalence of back pain among school going children was a major problem in teenagers. It had major influence on their school activities.[5] The study supported the present study that back pain affects patient's QOL.

Spinal problems have an effect on different regions of spine with multiple causes. Lumbo-sacral and cervical regions were most involved in pain as most movement presents here. Excess of Physical activity is the major cause of back pain.[10]

A considerable relationship was found between back pain, skeletal maturation and trauma history. [(11)] Similar results were found in the present study. Lack of physical activity, heavy load of bags and too much sitting has major effect on human health and causes disability in future.[12] Current study shows the similar results that back pain and physical activity has major impact on each other.

Most of the studies focused on the prevalence of back pain in elderly population, limited research is done on particular age group in young population to find out the prevalence of back pain and its association with other factors as gender, participation restrictions and co-curricular activities. Adolescent back pain is mostly due to use of heavy school bags. This is because improper use of backpacks increases postural sway and hence decreases body balance.[13] Current study supports it and shows the same results that back pain sufferers have common problem of using heavy bags.

Bad posture in children is subject of wide discussion around globe. Prolong sitting and use of heavy backpacks in schools leads to disorders of spine and condition is known as postural defect and backpack syndrome respectively. [14]

There is no association seen between body mass index and back pain of student in the present study. 58% of adolescents had complaint of spinal pain. Some have back pain while others have neck pain complaint.[15]

56% patients had back pain, 55% had complaint of limb pain, 53% had abdominal pain and 32% reported headache.[16] Current study shows that there is high (83%) prevalence of back pain and it is mostly due to heavy bag weight.

Different studies done and explained that low back pain and cervical pain was common in adolescents, one study showed that thoracic pain was greatest seen in adolescents. A study on adolescents illustrated that low back pain was most common in young population. A study conducted in adolescents and found that back pain with radiating to the lower extremities was most common.[14]

It is recommended to conduct further studies on the topic with large sample size, multicenter, Trans-cultural and involved participation from across the country to further investigate the prevalence and associated risk factors of back pain in young children in country.

Conclusion

On the basis of finding from research work it is concluded that there is highest prevalence of back pain in school going young children and mostly affects the thoracic spine and age group 14 to 15 years. It causes absentees from school and restrictions in physical activities. The weight of school bag and female gender were the highest associated risk factors.

References

1. Rohde G, Westergren T, Haraldstad K, Johannessen B, Høie M, Helseth S, et al. Teachers' experiences of adolescents' pain in everyday life: a qualitative study. BMJ open. 2015;5(9):e007989.
2. Claus AP, Hides JA, Moseley GL, Hodges PW. Different ways to balance the spine: subtle changes in sagittal spinal curves affect regional muscle activity. Spine. 2009;34(6):E208-E14.
3. Hurwitz EL, Aker PD, Adams AH, Meeker WC, Shekelle PG. Manipulation and mobilization of the cervical spine: a systematic review of the literature. Spine. 1996;21(15):1746-59.
4. Lew HL, Lee EH, Castaneda A, Klima R, Date E. Therapeutic use of botulinum toxin type A in treating neck and upper-back pain of myofascial origin: a pilot study. Archives of physical medicine and rehabilitation. 2008;89(1):75-80.

5. Trevelyan FC, Legg SJ. The prevalence and characteristics of back pain among school children in New Zealand. Ergonomics. 2010;53(12):1455-60.

6. Punnett L, Prüss-Ütün A, Nelson DI, Fingerhut MA, Leigh J, Tak S, et al. Estimating the global burden of low back pain attributable to combined occupational exposures. American journal of industrial medicine. 2005;48(6):459-69.

7. Macedo RB, Coelho MJ, Sousa NF, Valente-dos-Santos J, Machado-Rodrigues AM, Cumming SP, et al. Quality of life, school backpack weight, and nonspecific low back pain in children and adolescents. Jornal de Pediatria (Versão em Português). 2015;91(3):263-9.

8. Reis FJ, Dias MD, Newlands F, Meziat-Filho N, Macedo AR. Chronic low back pain and disability in Brazilian jiu-jitsu athletes. Physical Therapy in Sport. 2015.

9. Adegoke BO, Odole AC, Adeyinka AA. Adolescent low back pain among secondary school students in Ibadan, Nigeria. African Health Sciences. 2015;15(2):429-37.

10. Wójcik M, Siatkowski I. Assessment of spine pain presence in children and young persons studying in ballet schools. Journal of physical therapy science. 2015;27(4):1103.

11. Ramirez N, JOHNSTON CE, Browne RH. The Prevalence of Back Pain in Children Who Have Idiopathic Scoliosis. The Journal of Bone & Joint Surgery. 1997;79(3):364-8.

12. Nujhat M. Prevalence of low back pain among the people age over forty at a selected village in Nator: Department of Physiotherapy, Bangladesh Health Professions Institute, CRP; 2013.

13. Breen R, Pyper S, Rusk Y, Dockrell S. An investigation of children's posture and discomfort during computer use. Ergonomics. 2007;50(10):1582-92.

14. Walicka-Cupryś K, Skalska-Izdebska R, Rachwał M, Truszczyńska A. Influence of the Weight of a School Backpack on Spinal Curvature in the Sagittal Plane of Seven-Year-Old Children. BioMed research international. 2015;2015.

15. Whittfield J, Legg S, Hedderley D. Schoolbag weight and musculoskeletal symptoms in New Zealand secondary schools. Applied Ergonomics. 2005;36(2):193-8.

16. Roth-Isigkeit A, Thyen U, Stöven H, Schwarzenberger J, Schmucker P. Pain among children and adolescents: restrictions in daily living and triggering factors. Pediatrics. 2005;115(2):e152-e62.