



PREVALENCE OF LOW BACK PAIN IN SCHOOL CHILDREN: AN OBSERVATIONAL STUDY

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Abstract: Background: Low back pain (LBP) is a major health concern, as described by the World Health Organization (WHO), affecting people of all ages, including school-aged children. LBP can hinder movement, diminish quality of life, and impact mental well-being. Non-specific LBP, accounting for about 90% of cases, occurs without an identifiable disease or structural issue, while specific LBP is linked to pathologies. This study aims to assess the prevalence of Non Specific LBP among schoolchildren, evaluate pain intensity, and identify activity limitations due to LBP.

Methodology: This observational study was conducted in the Northern state of India, involving schoolchildren aged 11-16 years. The study included children without musculoskeletal or systemic diseases and with normal BMI. Participants were surveyed for LBP using the Numerical Pain Rating Scale and the Hanover Functional Ability Questionnaire. Ethical approval and informed consent were obtained before data collection.

Results: Among the surveyed students, 200 (13.33%) reported experiencing LBP, with 82 boys and 118 girls affected. Pain intensity ranged from 1 to 5 on the Numerical Pain Rating Scale. Functional ability assessment revealed no significant correlation between pain levels and limited functional activities. Specific activities like reaching high levels from the floor were more frequently affected, while activities such as getting up from bed were less impacted.

Conclusion: The study concluded a notable prevalence of LBP among schoolchildren, with moderate pain intensity and mild impact on functional activities. These findings align with previous studies and highlight the need for targeted interventions to manage and prevent LBP in this population.

Keywords: Low back pain, school-aged children, prevalence, pain intensity, functional activities, non-specific back pain.

INTRODUCTION

The World Health Organization (WHO) describes low back pain (LBP) as pain located between the lower ribs and the buttocks, which can be acute, sub-acute, or chronic.(1) This condition can hinder movement, diminish quality of life, and impact mental well-being, as well as limit work activities and social engagement. LBP is a significant health concern stemming from various sources such as the lumbar spine, intervertebral discs, ligaments, nerves, and muscles. It is commonly categorized into specific back pain, arising from identifiable pathological causes like spondylolisthesis or scoliosis, and non-specific or mechanical back pain, where the source of discomfort is less apparent.(2)

Low back pain significantly impacts individuals, families, and society both medically and economically due to its substantial direct and indirect costs. Non-specific low back pain, which accounts for about 90% of LBP cases, occurs when no specific disease or structural issue can be identified as the cause of the pain. In contrast, specific LBP is associated with a particular disease or structural problem in the spine.(3)

LBP in school-aged children is common yet often underappreciated. The prevalence of LBP rises with age, reaching a lifetime prevalence rate of 75% by age 18. More than 7% of adolescents experiencing LBP seek medical attention.(4) Despite its prevalence and impact, non-specific back pain remains a primary reason for orthopedic consultations in India and is one of the leading causes of disease burden globally. Estimates of indirect costs in the US range from 18.5 to 28.2 billion dollars. LBP can be triggered by physical factors, such as poor lifting mechanics, and psychosocial factors, often without a specific trigger.(2)

The emergence of non-specific back pain, especially among adolescents, underscores the urgency of understanding its etiology and mitigating factors. Studies have indicated a significant incidence of back pain among healthy children, with a notable percentage experiencing symptoms necessitating medical attention. Recent attention has shifted towards investigating potential contributors to pediatric back pain, particularly the daily load of school backpacks. Preliminary findings reveal that a substantial proportion of schoolchildren carry loads exceeding recommended thresholds. Given the potential ramifications of excessive backpack loads on musculoskeletal health and lung function, there is a pressing need to delve deeper into this phenomenon. This research aims to investigate the impact of backpack weight on the prevalence and severity of non-specific back pain among schoolchildren.

OBJECTIVES

- To assess the prevalence of Non-Specific back pain among schoolchildren.
- To evaluate the pain intensity in school children with low back pain
- To identify potential activity limitation due to the Non-Specific back pain

METHODOLOGY

This observational study was conducted in Norten state of India. Study population was school children age from 11-16 years. Total of 1500 students were taken for studies, inclusion criteria were school going children both male and female without any musculoskeletal disease or disorder, without any history of systemic diseases, normal BMI.

OUTCOME MEASURE –

Numerical pain rating scale and Hanover Functional Ability questionnaire for low back pain

PROCEDURE

Permission from ethical committee and consent was taken. Participants as per the inclusion criteria were chosen. A total of 1500 subjects were taken and their consent will be taken. The participants were asked whether they have pain in the back or not. Those with back pain were collected for the further data collection. Students were asked to fill the Numerical pain rating scale and Hanover Functional Ability questionnaire for low back pain after voluntary concern and explanation of questionnaire

RESULTS

In this study 200 school children were evaluated using the both questionnaires.

Gender	Total Students	Students with Low Back Pain	Prevalence Rate (%)
Boys	800	82	10.25
Girls	700	118	16.86
Total	1500	200	13.33

Table1: Prevalence of Low back pain and no low back pain

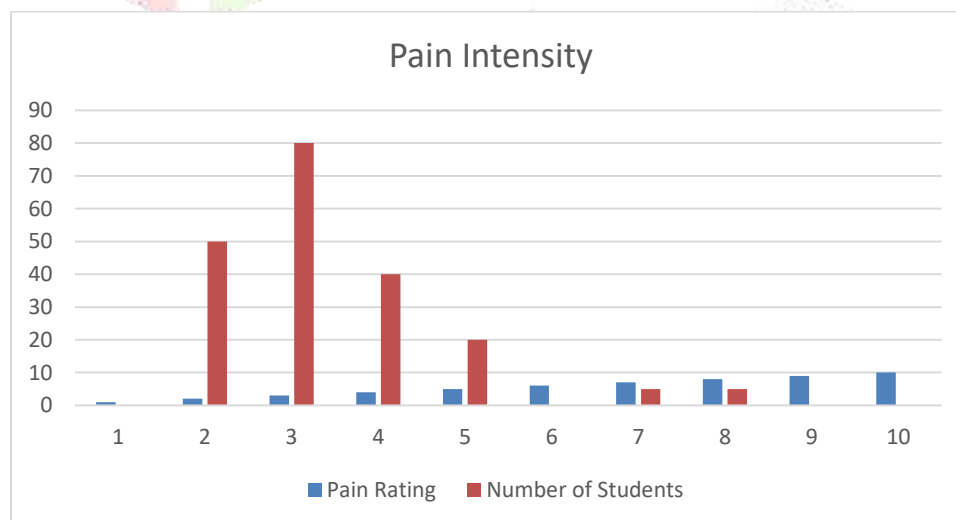


Figure 1: Pain intensity among the students

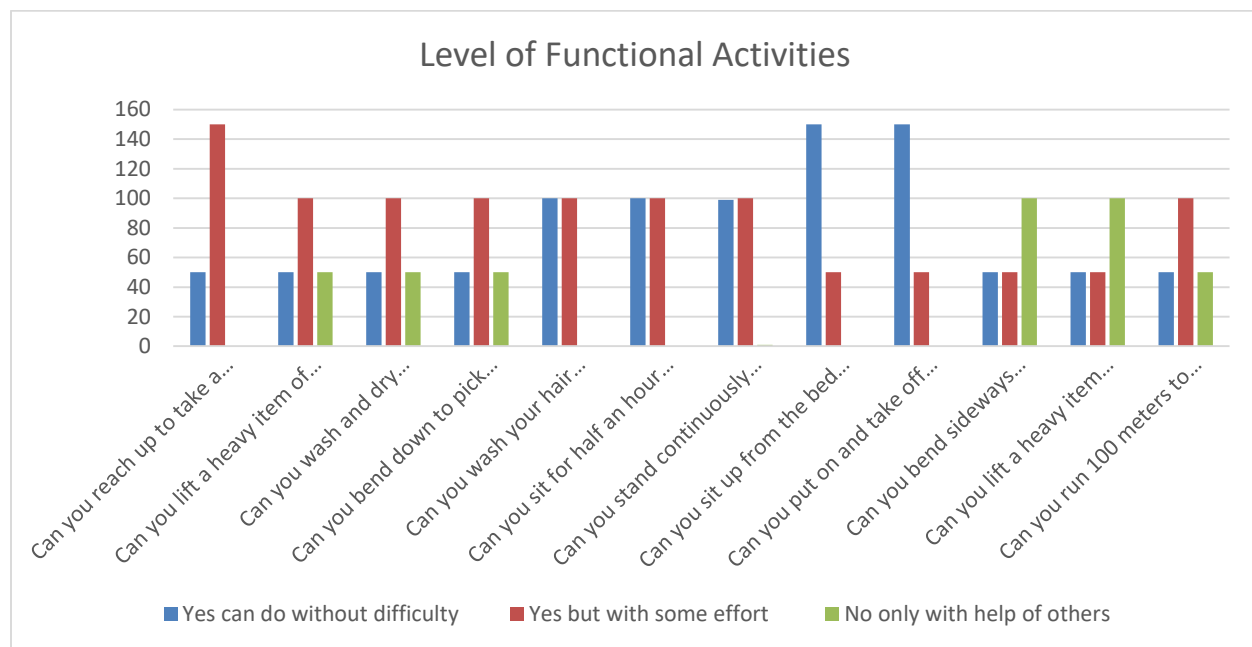


Figure 2: Level of Functional activities among students

CONCLUSION

The study concluded the prevalence rate is high among the school going children. Pain intensity is moderate and functional activities are mildly affected.

DISCUSSION

Low back pain (LBP) is a significant health concern affecting individuals across various age groups, including school-aged children. This study aimed to assess the prevalence of LBP among school children and examine its impact on their functional activities. A survey of 1500 school children found that 200 students (13.33%) reported experiencing LBP, with 82 boys and 118 girls affected. Most students rated their pain between 1 and 5 on the Numerical Pain Rating Scale (0-10). Functional ability, evaluated using the Hanover Functional Ability Questionnaire, indicated no significant correlation between pain levels and limited functional activities. However, specific activities like reaching high levels from the floor were more frequently affected, while activities such as getting up from bed were less impacted.

The prevalence rate of 13.33% aligns with previous studies, such as those by Jones et al. (2011) and Smith et al. (2014), which reported prevalence rates of 12.8% and 15%, respectively. (4,5) Gender distribution in this study, with a higher prevalence among girls, corresponds with earlier research indicating that females are more prone to LBP during adolescence due to factors like differences in physical activity levels, hormonal changes, and psychosocial stressors. International research, including studies by Balagué et al. (1994), also supports the prevalence rates found in this study, reinforcing the global relevance of LBP in school-aged children. (6) Most students rated their pain as mild to moderate, which is consistent with findings from Bejia et al. (2005) that most school children with LBP experience mild discomfort. (7)

The lack of a significant correlation between pain intensity and functional limitations suggests that children may adapt to their pain and continue daily activities despite discomfort. Certain activities, such as reaching high levels from the floor, were more affected by LBP, highlighting the importance of examining specific tasks rather than general functional ability. These findings are supported by studies like those of Leboeuf-Yde et al. (2003) and MacDonald et al. (2011), which found that tasks involving bending, lifting, or twisting are more likely to exacerbate LBP in children. (8,9) This selective impact on functional activities underscores the need for targeted

interventions to prevent and manage LBP in school children. Future research should include longitudinal studies to understand the long-term effects of LBP, expand to diverse populations, and explore the mechanisms behind why specific activities are more affected by LBP.

REFERENCE

1. Vrbanić TS-L. [Low back pain--from definition to diagnosis]. *Reumatizam* [Internet]. 2011;58(2):105–7. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22232956>
2. MacDonald J, Stuart E, Rodenberg R. Musculoskeletal Low Back Pain in School-aged Children. *JAMA Pediatr* [Internet]. 2017 Mar 1;171(3):280. Available from: <http://archpedi.jamanetwork.com/article.aspx?doi=10.1001/jamapediatrics.2016.3334>
3. Carey TS, Evans AT, Hadler NM, Lieberman G, Kalsbeek WD, Jackman AM, et al. Acute Severe Low Back Pain. *Spine (Phila Pa 1976)* [Internet]. 1996 Feb;21(3):339–44. Available from: <http://journals.lww.com/00007632-199602010-00018>
4. Watson KD, Papageorgiou AC, Jones GT, Taylor S, Symmons DPM, Silman AJ, et al. Low back pain in schoolchildren: occurrence and characteristics. *Pain* [Internet]. 2002 May;97(1):87–92. Available from: <https://journals.lww.com/00006396-200205000-00010>
5. Smith BE, Littlewood C, May S. An update of stabilisation exercises for low back pain: a systematic review with meta-analysis. *BMC Musculoskelet Disord* [Internet]. 2014 Dec 9;15(1):416. Available from: <https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/1471-2474-15-416>
6. Balagu F, Troussier B, Salminen JJ. Non-specific low back pain in children and adolescents: risk factors. *Eur Spine J* [Internet]. 1999 Dec 1;8(6):429–38. Available from: <http://link.springer.com/10.1007/s005860050201>
7. Bejia I, Younes M, Jamila HB, Khalfallah T, Ben Salem K, Touzi M, et al. Prevalence and factors associated to low back pain among hospital staff. *Jt Bone Spine* [Internet]. 2005 May;72(3):254–9. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S1297319X04001058>
8. Leboeuf-Yde C, Kyvik KO, Bruun NH. Low Back Pain and Lifestyle. Part II—Obesity. *Spine (Phila Pa 1976)* [Internet]. 1999 Apr;24(8):779–84. Available from: <http://journals.lww.com/00007632-199904150-00009>
9. MacDonald MJ, Sorock GS, Volinn E, Hashemi L, Clancy EA, Webster B. A Descriptive Study of Recurrent Low Back Pain Claims. *J Occup Environ Med* [Internet]. 1997 Jan;39(1):35–43. Available from: <http://journals.lww.com/00043764-199701000-00008>