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Frequency of Non-Specific Low Back Pain Among School Going Adolescents in Peshawar

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ABSTRACT

Nonspecific low back pain is a state which is characterized by discomfort and inflexibility in the lumbo-sacral area without any underlying pathology. NSLBP is taken as non-specific when any mechanical and structural impairment cause is excluded. Initial symptom starts when a person is in the phase of adolescence and further continuous. **Objective:** To evaluate the frequency of non-specific low back pain in school going adolescents. **Methods:** Cross sectional study design was used. Total 202 samples were taken through consecutive sampling technique. Study duration was six months. The study setting was different private schools of Hayatabad Peshawar. Students of age 10- to 19-year-old were included in the study. The results were analyzed by using SPSS version 23. Results were shown in the form of tables and graphs. **Results:** According to the results 108 (53.5%) students reported to have NSLBP. Total 202 subjects were added in study, in which 150 were males and 52 were females. Total 106 participants were between the ages of 10 to 15 years. The remaining 96 students were between the ages of 15 to 19 years. According to Wong-bakers faces pain rating scale 84 participants reported to have non-specific low back pain while 64 participants reported pain for 12 to 24 hours. Students from frontier student's academy reported to have repeated NSLBP. **Conclusion:** Nonspecific low back pain is a familiar condition that occurs in school going children and adolescents. Due to heavy back packs, poor posture and prolonged setting

INTRODUCTION

Non-specific low back pain is a state which is characterized by discomfort and inflexibility in the lumbo-sacral area without any underlying pathology [1]. It is also defined as, non-specific low back is any pain without proper etiology and any disease [2]. Area around buttocks and lower surface of ribcage is commonly called as lumbo sacral area [3]. Any structure innervated in the lumbar spine can give rise to the symptoms in low back and associated pain into lower limb or lower limbs [4]. The symptoms are produced by number of structures in the back, including joints, discs and connective tissues [3]. NSLBP is taken as non-specific when any mechanical and structural impairment cause is excluded [5]. Several

studies about NSLBP reveals that its initial symptom starts when a person is in the phase of adolescence and further continuous [2]. Regarding non-specific low back pain it is observed that it occurs in childhood [6]. Specific low back pain is very famous malfunction in adolescents and it effect every second person in the community [3]. Those adolescents who develop low back pain at the age of 14 have chances to develop low back pain at the age of 25 as well [7]. Incidence and prevalence of current researches about NSLBP comes to a conclusion that pain prevalence changes in between 7 and 62%. About 33% prevalence of NSLBP among adolescence were found in one study, furthermore this prevalence is undervalued because there



is not any proper diagnosis [2]. The prevalence 46.7% NSLBP is present in Pakistan [8]. According to period and point prevalence of NSLBP, point prevalence include up to 33% prevalence, period prevalence show 65% and for whole life prevalence it is 84% [3]. LBP that require medical examination and its prevalence is 8 to 16% while pain that interrupt school and recreational activities changes from 7 to 27% [6]. Reported prevalence of back pain include, 64.8% for Danish adolescents, Norwegian comprises of 57% prevalence, Spanish include 46.2% prevalence, German adolescents include 30.2% while Americans adolescents consist of 40.2% prevalence of LBP [9]. Wide range of studies about NSLBP among adolescents suggested that its etiology is not just one etiology we consider, but lots of risk factors combine together and give a reason to high risk of NSLBP [10]. However other causes of NSLBP include height, weight/body mass index, physical activity, sedentary lifestyle, mechanical stress (by carrying heavy bags), Psychological factors and the social environmental factor [11]. Both physical and structural causes play a fundamental role in the progression or expansion of NSLBP, while structural etiology include disk herniation which puts pressure on nerves of the spine and will leads to pain, in this pain type it is not considered as non-specific because this is not the direct etiology of pain in the back. It is amazing that at the age of 15 one in every third child will expose to low back pain [5]. A very good example of NSLBP is when a person is having bad posture and leads to pain in the back, and this pain can be minimize through different exercises and good posture instructions by therapists, but this pain will be still called as non-specific back pain, because there is no proper abnormality that we consider its etiology of pain [5]. NSLBP risk factors include, Age (one study shows that prevalence of back pain becomes high as age increases), Gender (NSLBP prevalence is considered as increase in females as compared to males), Family history and heredity (NSLBP is reported as hereditary and found among parents), Anthropometric parameters, Movement of spine and extensibility of joints and muscles, Strength of muscle, Normal spine position, Participation in sports and exercises, functioning in school, initial disk pathologies, habit of smoking, watching television without taking any rest, improper sitting position and other factors include birth anomalies, improper transport systems, and leg length discrepancy [12]. Different type of interventions is used for NSLBP, but there is no study which is proved to be the most valid treatment, and producing desired effects for NSLBP among adolescents. This thing is just because of multiple causes and risk factors of NSLBP that is not corrected by the identical intervention methods. The intervention for

NSLBP is defined by three methods, first and effective intervention method is exercise and physical therapy, second is conditioning of patient with proper diet maintenance, and third is psychosocial interventions. Another treatment plan which produce desired effect is manual therapy and self-mobilization. Emotional therapy can also play a key role in NSLBP [5]. Electrotherapy for NSLBP includes ultrasound, interferential, laser, and TENS. Pharmacological therapy includes opioids, NSAIDs, and anti-depressants [3]. Being less defined problem non-specific low back pain is considered as community health problem among adolescents [6]. Children and adolescents are less common to experience LBP and therefore often consider as a threat of grim organic disease [13]. According to studies as much as 10% to 40% of adolescent's daily activities are affected by LBP [14, 15]. Low back pain affects each area of an individual's life with bio-psychosocial consequences. Socio-psychological elements have been exposed to forecast conclusion in chronic LBP [16]. The influence of disability is not only by the core physical mutilation, but also by the patient's attitudes and beliefs, psychological distress and type of occupation [17]. Early detection of clinical, psychosocial and professional elements is crucial to evade the succession to chronic LBP. It is important and needful to view NSLBP as a multi-factorial pain syndrome. NSLBP is a reason for disability expressed as a combination of physical impairment and psychosocial factors. To determine the frequency of non-specific low back pain among school going adolescence in Peshawar.

METHODS

The Cross-sectional study design was used in this survey, which find out prevalence at one point in time in which we observe. Study setting includes different schools of Hayatabad Peshawar which include: ICMS (Institute of computer and management sciences), FCA (frontier children academy), FSA (frontier science academy), HMS (Hayatabad model school). The data were collected from these institute. The duration of the current study is six months that is from May 2017 to November 2017. Sample size consisted of 202 participants in which 150 were male students while 52 students are females. Consecutive sampling technique: It was used in this study. Consecutive sampling is a technique in which every subject meeting the criteria of inclusion is selected until the required sample size is achieved. In This Study the participant who fulfill the criteria having Age 10 to 19 years of both genders Students of Hayatabad Schools in Peshawar and those who were willing to participate in the study. Those students were excluded from the study those who have recent trauma i.e. accident, fracture and recent surgery i.e. appendectomy.

First ethical approval was taken from the schools of Hayatabad Peshawar. After permission data was collected from different schools situated in Hayatabad, Peshawar. Permission letter was collected by the head of the school to collect the data, the students were informed and briefed about their participation in the research and proper consent was taken by the participants Total 202 questionnaires were distributed among respected schools of Peshawar. Each and every questionnaire i-e 202 was fully filled and returned with full information. Data collection procedure takes one month. Data were keenly collected by all the students from schools. After this procedure of data collection data were analyzed by SPSS (version 23.0). "The Modified Hanover Low Back Pain Disability Questionnaire" The questionnaire was verbally translated to the local language for the ease of the participants. Hanover disability questionnaire assessed its impact on physical function. This is 9-item questionnaire scored 0-9 where higher score represent greater disability. The Statistical Package for Social Sciences (SPSS) version 23.0 was used for statistical data analysis. Results were expressed in frequency, mean and standard deviation. Results were shown by tables and graphs. Pie and bar graph were used in data analysis procedure. Cross tabulation was also used in this study.

RESULTS

Our study included a sum of 202 school going adolescents. The study was conducted in different schools of Hayatabad Peshawar to evaluate the prevalence of low back pain among school going adolescents. The results were as follow. Upon analysis the results showed a high prevalence of non-specific low back pain, 108 out of 202 reported to experience LBP. Total 94 out of 202 reported to have no NSLBP, as shown in table 1

Low back pain	N (%)
Yes	108 (53.5%)
No	94 (46.5%)
Total	202 (100%)

Table 1: Showing Prevalence of NSLBP

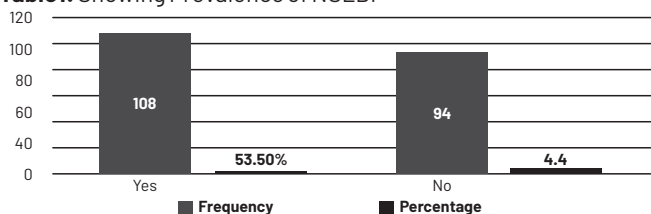


Figure 1: Graph Presenting NSLBP

Upon Wong-Baker faces rating scale majority of the participants (84) reported that they perceived their pain to be between the values of 4 to 6. Total 17 subjects reported that they perceived their pain to be between the scales of 0

to 2. Only 10 subjects perceived the pain to be severe and they reported to have pain between scales of 8 to 10. As shown in figure 2.

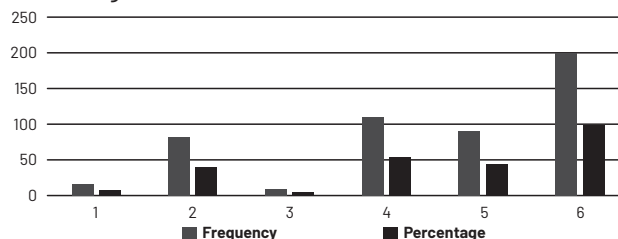


Figure 2: Graph Showing Pain Scale

Most of the participants (64 subjects) reported to have low back pain from last 12 to 24 hours. 17 subjects reported to have pain duration from 1 to 7 days. 11 subjects reported to have LBP duration greater than a week. as shown in table 2.

Duration	N (%)
Less than 12	4 (2%)
12-24 hours	64 (31.7%)
1-7 days	17 (8.4%)
Greater than week	11 (5.4%)
Total	111 (55%)
System	91 (45%)
Total	202 (100%)

Figure 2: Graph Showing Pain Scale

The students from ICMS School Hayatabad Peshawar showed higher percentage of low back pain, 73 pupils from this school were victim of NSLBP. Second most common school was FCA total 58 students from there reported NSLBP. HMS showed that 49 students were sufferers of NSLBP. The lowest prevalence rate was of FSAI-e 22, students reported to have NSLBP. As shown in table 3

Schools	N (%)
HMS	49 (24.3%)
FCA	58 (28.7%)
FSA	22 (10.9%)
ICMS	73 (36.1%)
Total	202 (100%)

Table 3: Showing Number of Participants with NSLBP from Different Schools

The results showed as the age escalates there is an increased chance to develop low back pain Participants between the ages of 10 to 15 years old showed that only 53 of 106 has LBP. On the other hand, participants of age ranging 15 to 19 years showed that 55 out of 96 had experienced low back pain. as shown in table 4

Age	Low Back Pain		Total
	Yes	No	
10 to 15	53%	53%	106
15 to 19	55%	41%	96
Total	108%	94%	202

Table 4: Cross tabulation showing association between age and low back pain

It was found that male participants who were recruited in this study were more frequently complained for low back pain 75 of 150 reported to have LBP. Whereas female participants were less likely to have LBP 33 out of 52 reported to have low back pain. This showed that NSLBP is highly common among male gender, as shown in table. as shown in table 5

Gender	Low Back Pain		Total
	Yes	No	
Male	75	75	150
Female	33	19	52
Total	108	94	202

Table 5: Cross tabulation showing association between gender and low backpain

DISCUSSION

The current study shows the prevalence rate of non-specific low back pain among school going adolescents is 53.5%, which is similar to Balagué et al. Who reports life time prevalence rate of NSLBP to be 58% for adolescents [18]. Similarly, Jones et al reported the prevalence to be 16% in children while 65.6% in 16-year-old adolescents [19]. A Nigerian study reported prevalence of low back pain to be 40.7 % [9]. In contrast to this another study shows a low prevalence rate of NSLBP i.e., 36% [20]. Whereas Fair bank et al. in his study reports LBP to be 26% prevalent in adolescents [21]. The current study shows that age ranging 10 to 15 years were most frequently experiencing low back pain, this coincides to the results of Akinpelu A.O et al. who reports that students of age ranging 12 years to 14 years are common prey of LBP [9]. Brownlee S et al also explain this fact in his study that LBP is common among student age ranging 13 to 14 years. ⁽³⁰⁾ Khanzada et al also reported that majority of the students between 10 to 12 years were the common victim of non-specific low back pain [8]. Balagué et al. reported that prevalence of NSLBP increases from the age of 12 and onwards [21]. Fairbank JC his study reports that NSLBP is common in adolescents of age between 12- to 19-year-old [22]. Yao et al. who reported that the incidence of NSLBP was prominent; 29.1% of Chinese pupils aged 10 to 18 years were going through from this state in the past 3 months. Balague F et al. reported an augment in the lifetime prevalence of Lumbar pain from 23% among children aged 6-13 years [23]. Current study shows the condition is common in 10- to 15-year-old. This synchronizes with all the other literature. The current study shows a higher prevalence rate (74.3%) of male gender in regard to experiencing nonspecific low back pain. Burton et al. reported a prevalence of back pain of 52.6% among boys and 34.3% among girls [24]. Newcomer and Sinaki also proved that prevalence of lumbar pain is more common among males (57%) as compared to females

(44%) [25]. Fairbank JC et al. revealed that 55.8% of male were experiencing LBP whereas only 44.2% girls reported LBP [22], Olsen et al as well found that male participants were most commonly affected by NSLBP in his study [11]. In the current study 41.6% reported their pain intensity to be between 4 to 6 score on the visual analogue scale there is no significant literature about the pain intensity on visual analogue scale in other studies.

CONCLUSIONS

The conclusion of the study is that NSLBP is a common condition among school going adolescents. The increasing age is a frequently observed cause in our study hence more attention should be paid to this specific age group.

Authors Contribution

Conceptualization: NUR

Methodology: QU

Formal analysis: NU

Writing-review and editing: MA, NUR, QU

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest

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