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Research article

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A Study on the Prevalence of Multiple Postural Deformities among the School Children

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ABSTRACT

METHODOLOGY

Samples were twelve hundred school children studying in different regions (Greater, Inner and Outer) of Himachal Pradesh. The age of the children were ranging from 11-15 years. The selected paired deformities were Kyphosis-knock knee, kyphosis-bow legs, kyphosis-flatfoot, Knock knee- flat foot and bow leg-flat foot. The data was analysed by employing descriptive statistical tool.

RESULTS AND FINDINGS

Results of the study revealed that fifty five (55.08) percent of school children in Himachal Pradesh were having paired postural deformities. It was also found that the Greater Himalayan (54.64%) region was the most affected region followed by Inner (48.25%) and Outer Himalayan (20.83%) region. On further analysis, it was found that the combination of kyphosis and knock knee i.e. kypho-knock knee was most prevalent in Inner (13.75%) Himalayan region than the other two regions of Himachal Pradesh. Regarding this pair of deformity, male children showed the maximum number (8.38%) of percentage in comparison to females. Data was further analysed to see the pairing of kyphosis and flatfoot, the results revealed that outer (15.21) Himalayan region was most affected and the majority of the prevalent cases were in males (12.59) than the female children. The next analysis showed that kypho-bow legs pair of multiple deformity were more prevalent in Outer Himalayan regions (14.71) and males (16) were found to be on higher side of numbers than their counterparts. Results of the study also showed that the cases knock knee-flat foot among male and female children in different regions of Himachal Pradesh is more or less same or with a marginal difference, thereby we can say that this pairing of deformity has equally affected the children irrespective of their gender and regions they belong. The last pairing was of bow leg-flat foot for which the results showed that the number incidences were quite higher in outer Himalayan (22.94%) region than the other. Male children (19.26) were found more deformed for this combination of deformity in comparison to females.

CONCLUSION

On the basis of analysis of data and results found, it can be concluded that the multiple postural deformities were highly prevalent among school children of Himalayan region. Bow leg-flatfoot was found to be the most affecting paired deformity among the children of Himachal Pradesh.

KEYWORDS: Multiple/ Paired Postural Deformities, Kyphosis, Knock Knee, Bow Legs, Flat Foot and Genders.

INTRODUCTION

“Your posture shows your health”.

How true it is, an individual with crooked posture can hardly be considered as healthy. The well-being of an individual having poor posture will always be at question. The word postural deformities can be understood as a deviation from the right and required posture of an individual while doing an activity. It has been observed that people keep on practicing poor postural habits that ultimately leads them to many health hazards and thereby postural deformities. One bad postural habit does not only leads to health hazards rather they also become the cause and reason for many other associated health hazards and postural deformities. And thus we may say that an individual having one postural deformity may develop other deformities and in fact multiple postural deformities. The multiple deformities in an individual makes him totally crippled, this state does not affect his physical strength but also his physiological and psychological processes along with his social image and financial stature too. The problem of multiple deformities may occur to any age cadre but the children are more vulnerable towards this, because of their growth and developmental stage. Whatever they acquire, they practice, and the way they carry and keep their body posture they develop their body accordingly. The most commonly observed multiple deformities accompanying each other are spinal deformity (like kyphosis, Lordosis, flat back) foot deformities (knock knee, bow legs and flat foot). It has been observed in several studies that weak and crooked thoracic part (C7-T12) of the spine can accompany bow legs, knock knee and flat foot with itself. Similarly goes with the foot deformities. Fallen arches (flat foot) may be the result of in toeing caused by the bow legs. Or the knock knee may bring flat foot to an individual. For the present study one spinal deformity and three foot deformities had been studied and analysed.

PURPOSE OF THE STUDY

The purpose of the study was to find out the prevalence of multiple/paired deformities among the children of different regions of Himachal Pradesh. The secondary objective was to find out impact of multiple postural deformities on different genders.

METHODOLOGY

SAMPLE

Purposive random sampling method was done to draw the sample of the study. To get the sample for the study Himachal Pradesh state in northern India was selected. The districts/cities of Himachal Pradesh was divided into three different altitude regions namely Greater Himalayas (4500 mts and above), Inner Himalayas (1500 mts to 4500 mts) and Outer Himalayas (350mts to 1500 mts). A total of twelve hundred school children (11-15 years) were selected as the sample for the study. The distribution of the samples of study was as follows: Total sample = 1200 (male =675, females = 525), *Total sample in Greater Himalayas = 399 (Male = 207, Female = 192)*, *Total sample in Inner Himalayas = 400 (Male = 210, Female = 190)*, *Total sample in Outer Himalayas = 401 (Male = 258, Female = 143)*.

VARIABLES

Kyphosis, Knock knee, Bow legs and flat foot. Pairing of deformities was “kyphosis-knock knee”, “kyphosis-bowlegs”, “kyphosis-flatfoot”, “knock knee-flatfoot” and “bow legs-flatfoot”

CRITERION MEASURES

The kyphosis was measured by flexicurve ruler. Anyone having more than 45 degree thoracic curve (C₇-T₁₂) was kept into the category of kyphotic. Knock knee was measured by measuring inter-malleolar distance. If the distance was found to be more than 10 cm then the individual will be considered as knock kneed. Bow leg was measured by measuring the inter-condylar distance. If found more than 10 cms, the children were kept into the category of deformed category. Flat foot was measured by paedograph. If the arch of the foot was less than 40 degree, he was kept into the category of flatfooted.

STATISTICAL ANALYSIS

The data was analysed by descriptive statistics.

RESULTS

The analysis of the data revealed that fifty five percent school children were having more than one deformity. They were having either of the selected

paired deformity. Details of the analysis are as follows:

Table 1: Showing percentage of school children having pair of deformities in Himachal Pradesh

	Greater Himalayas	Inner Himalayas	Outer Himalayas	Total
Kypho-Knock Knee	1	13.75	5.2	6.6
Kypho-Bow Legged	14.29	14.5	14.71	14.5
Kypho-Flat Foot	14.29	7	14.4	11.92
Knock Knee –Flat Foot	4.26	5	4.99	4.75
Bow Legged-Flatfoot	20.80	8.02	22.94	17.25
Total	54.64	48.25	20.83	55.08

N = 1200 (male =675, females = 525)

Table 1 presents the percentage of school children having pair of postural deformities postural deformities. It was found that 55.08% school children were having two postural deformities. The table also revealed that pair of postural deformities was more

prevalent in Greater Himalayan region. It can be observed in the table that Kypho-bow leg, Kypho-flat foot and bow legged- flat foot were the most prevalent combination of deformities in Himachal Pradesh.

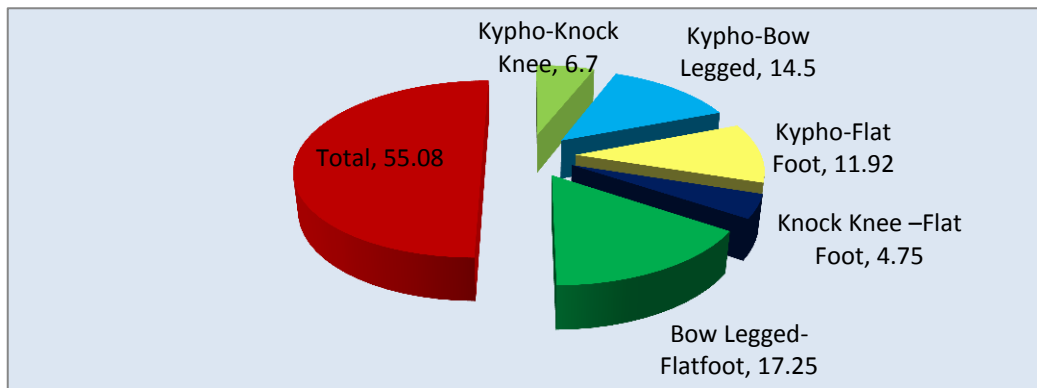


Figure 1: Percentage of school children showing different combinations of postural deformities in Himachal Pradesh.

The data was further analysed to see the impact of selected paired deformities on different genders and

in different regions of Himachal Pradesh. Here come the results.

Table 2: Percentage of kypho-knock knee in male and female school children of different region of Himachal Pradesh

	Greater Himalayas	Inner Himalayas	Outer Himalayas	Total
Male	0.25	5.75	2.99	5.33
Female	0.75	8	2.24	8.38
Total	1	13.75	5.23	6.67

Table 2 shows the percentage of school children having Kypho-knock knee. It was found that 6.67% school children were having the combination of kyphosis and knock knee postural deformities. The table also revealed that Kypho-knock knee was more

prevalent in Inner Himalayan region. It can be noted that this combination of postural deformity was found maximum in female children than that of male children in Himachal Pradesh.

Table 3: Percentage of Kypho-flatfoot among male and female school children of different regions of Himachal Pradesh

	Greater Himalayas	Inner Himalayas	Outer Himalayas	Total
Male	6.52	4	10.72	12.59
Female	4.26	2.25	4.49	8.38
Total	10.78	6.25	15.21	10.75

Table 3 verifies that 10.75% school children were having Kypho- flatfoot combination of postural deformities. The table also revealed that Kypho-flatfoot was more prevalent in Outer Himalayan

region. It can be noted that this combination of postural deformity was found maximum in male children than that of female children in Himachal Pradesh.

Table 4: Percentage of Kypho-Bow Legged in male and female school children of different regions of Himachal Pradesh

	Greater Himalayas	Inner Himalayas	Outer Himalayas	Total
Male	7.02	10	9.97	16
Female	7.27	3.25	4.74	11.62
Total	4.28	13.25	14.71	14.08

Table 4 shows the percentage of school children having Kypho- bow legged. It was found that 14.08 percent school children were having combination of Kypho- bow leg postural deformities. The table also revealed that Kypho- bow legged deformity was most

prevalent among male school children in comparison to female school children of Himachal Pradesh. Outer Himalayan region was found the most affected region from this combination of deformity.

Table 5: Percentage of knock kneed - flatfoot in male and female school children of different regions of Himachal Pradesh

	Greater Himalayas	Inner Himalayas	Outer Himalayas	Total
Male	1.50	2.75	3.74	4.74
Female	2.76	2.25	1.25	4.76
Total	4.26	5	4.99	4.75

Through table 5, it can be clearly observed that the kypho-knock knee pair of multiple deformity has

equally affected the children irrespective of their genders and regions.

Table 6: Percentage of Bow Legged – flatfoot in male and female school children of different regions of Himachal Pradesh

	Greater Himalayas	Inner Himalayas	Outer Himalayas	Total
Male	10.53	5.5	16.46	19.26
Female	10.27	2.5	6.48	14.67
Total	20.80	8	22.94	17.25

The above shows the percentage of school children having Bow Legged – flatfoot. It was found that 17.25 percent school children were having the

combination of Bow Legged – flatfoot postural deformities. The table also revealed that Bow Legged – flatfoot was more prevalent in Outer Himalayan

region. Male children were found deformed of this combination of deformity in comparison to female children of Himachal Pradesh.

DISCUSSION OF FINDINGS AND CONCLUSIONS

In the light of set objectives, the data was analysed and assessed. The results revealed that more than fifty five percent of the school children in different region of Himachal Pradesh are suffering from more than one deformity. The causes behind above findings may be attributed to the fact that the children were into the age of growing and developmental stage. Wherein many number of physical and physiological changes was taking place. Since a body grows in a naturally synchronized way if any ill practices will be followed like poor postural habit causing any kind of structural or functional change or deviation in one part of the body then the rest of the body adjusts accordingly. And that's how one deformity leads to another deformity. For e.g. the results revealed that the most commonly found paired deformity is "bowleg-flat foot". Now to understand the causes for this finding we need to understand that

an individual with bow legs widen up the gait around knee joint and to balance that walking stature, the individual himself or his foot structure tends to rotate inside at the ankle joint along with his feet. This causes the in-toeing walking finally leading the individual to flat foot deformity. The results revealed that the male and female have got different affinity towards the different pair of selected deformities in different regions of Himachal Pradesh. The reasons for multiple deformities among the children cannot be just given to a poor postural habit or a deformity. Rather, there are many other causes like genetics/heredity, weakness in muscles, bone diseases, poorly arranged joints, faulty growth and developmental processes, accidental or surgical treatment etc. The findings of the study could not be supported by any of the previous similar research findings because of the lack of research studies done in this area. The data on postural studies are very scattered. Therefore there is a severe need of constituting many similar kind of other research studies by considering different age groups, regions and deformities.

REFERENCES

- [1]. Sharrad. WJW. "problems of childhood", British Medical Journal, 1976, Pg. 826-827 retrieved on 18 september 2015 from <http://www.bmj.com/content/bmj/1/6013/826.full.pdf>
- [2]. Lonstein E. John, "Congenital spinal deformities: scoliosis, kyphosis and Lordosis, orthopaedic clinics of north America, vol. 30 (3), 1999, pg. 387-405, retrieved on September 18, 2015 from <http://www.sciencedirect.com/science/article/pii/S0030589805700948>
- [3]. Club feet flat feet, bow legs, and knock knees, chp 11, pg 113-118 retrieved on September 15, 2015 from http://hesperian.org/wp-content/uploads/pdf/en_dvc_2009/en_dvc_2009_11.pdf
- [4]. Penha PJ, et.al. "Qualitative postural analysis among boys and girls of seven to ten years of age", Brazilian Journal of Physical therapy", retrieved on September 15, 2015 from http://www.scielo.br/scielo.php?pid=S1413-35552008000500008&script=sci_arttext&tIng=pt
- [5]. Ningthoujam R, "Postural Deformities in Lower Extremities among School Children", International Journal of Physical Education, Health & Sports Sciences, Vol. 03 (1), 2014, retrieved on September 15, 2015 from http://www.academia.edu/7431095/POSTURAL_DEFORMITIES_AMONG_SCHOOL_CHILDREN

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