

Relationship of Nutritional Status to Postural Deformities Among Children of Urban And Rural Schools of U.P.



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Abstract

This study aims to find out the Relationship of Nutritional Status to Postural Deformities among Children of Urban and Rural Schools of Uttar Pradesh. The subjects for this study were from the state of Uttar Pradesh. A total of two thousand subjects were randomly selected from the different schools (1000- Private and 1000-Government) of Uttar Pradesh. Moreover, subjects were also selected from Rural and Urban part of Uttar Pradesh. Following variables was selected for this study namely Kyphosis, Lordosis, Scoliosis and Flat foot. 'Spondylometer' was used to measure deviation from normal spine posture (curve), which can be kyphosis, lordosis or scoliosis. Another instrument used to measure flat foot was the 'Pedograph'. To analyse the data Pearson Product Moment Correlation was applied. The level of significance was set at 0.05. Pearson product moment correlation results showed that nutritional status was insignificant relationship was found with rest of the variables i.e., kyphosis, lordosis, scoliosis, flatfoot. The present study also found that there was no significant relationship between nutritional status and postural deformity. It is true, that lack of vitamins or poor balanced diet leads to different postural deformity but in the present study the method which was used to find the nutritional status was based on height and weight. This might be one of the reasons for not getting significant relationship between nutritional status and postural deformity.

Key Words- Nutritional Kyphosis, Lordosis, Scoliosis, Flatfoot, Postural Deformities, Nutritional Status, Spondylometer

1 Introduction

Nutrition (also called nourishment or aliment) is the provision, to cells and organisms, of the materials necessary (in the form of food) to support life. Many common health problems can be prevented or alleviated with a healthy diet. The *diet* of an organism refers to what it eats. Dieticians are health professionals who specialize in human nutrition, meal planning, economics, preparation, and so on. They are trained to provide safe, evidence-based dietary advice and management to individuals (in

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I J I F R / V 1 / E 1 2 / 0 1 0

PAPER ID: IJIFR / V1 / E12 / 010

44

health and disease), as well as to institutions. Poor diet can have an injurious impact on health, causing deficiency diseases such as scurvy, beriberi, and kwashiorkor; health-threatening conditions like obesity and metabolic syndrome, and such common chronic systemic diseases as cardiovascular disease, diabetes, and osteoporosis. Erect posture enhances the feeling of well being. There is the ability to consciously stand well with the same joy which comes with any skill. To know that you know how to stand well, that you can and are standing well, gives a feeling of self confidence and poise. Poor posture results from certain muscles tightening up or shortening while others lengthen and become weak which often occurs as a result of one's daily activities. There are however, other factors which can impact on posture and they include, other biomechanical factors such as force and repetition, but more importantly it also includes psychosocial factors such as job stress/strain. Workers who have higher job stress are more likely to develop neck and shoulder symptoms.

2 Methodology

The subject for this study was from the state of Uttar Pradesh. A total of two thousand male subjects with age ranged from 9 to 13 years were selected from the different schools (Private and Government) of Kanpur city and Dehat of Uttar Pradesh. Moreover, subjects were also selected from Rural and Urban part of Uttar Pradesh. the following variables Kyphosis, Lordosis, Scoliosis and Flat foot An instrument 'Spondylometer' was used to measure deviation from normal spine posture (curve), which can be kyphosis, lordosis and scoliosis. Another instrument used to measure flat foot was the 'Pedograph'.

3 Procedure of Administration of Test

3.1 Lordosis

Equipment: Spondylometer

Procedure: The curve was taken as a criterion for thoracic region for Lordosis. After briefing every student for the use of Spondylometer, marked pegs was fixed in the holes made at distance of 7.5 cm. or 3 inches on the Spondylometer. The subject stood with only shorts and bare footed on the Spondylometer. On the marked base with feet apart, the back touching the pegs and hands down in relaxing position and keeping the neck straight. The investigator asked the subject to stand with their body in erect position as if standing against a wall. The curves in the lumber region were observed and the presence of the deformity was determined.

3.2 Kyphosis

Equipment: Spondylometer

Procedure: The curve was taken as criterion for thoracic region for kyphosis. After briefing each subject for the use of Spondylometer, marked pegs was fixed in the holes made at distance of 7.5 cm. or 3 inches on the Spondylometer. The subject was asked to stand with only shorts and bare foot on the Spondylometer, on the marked base with feet apart, the back touching the pegs and hand down in relaxing position and keeping the neck straight. The subject stood with their body in erect position as if standing against a wall. The curves in upper thoracic and lower thoracic measure was observed and the presence of the deformity was determined.

3.3 Scoliosis

Equipment: Spondylometer

Procedure: The curve was taken as criterion for cervical region for detection of scoliosis. Before starting the test all the detailed instruction was given to the subject about Spondylometer seventh cervical was marked with ink so that it should not touch the peg. The marked pegs were fixed in the holes which were made at distance of 7.5 cm. or 3 inches. The subject wore only shorts for the measurement of their spinal curve. The investigator asked the subject to stand bare footed by keeping their heels on the marked base with feet apart, hands down in relaxed position, neck straight and touching the peg sited on the Spondylometer. The subject was asked to take their head back and stand erect as if against a wall. The subject stood at least for 5 minutes in order to notice their habitual standing position. The curve in the middle of cervical region was observed and the presence of the deformity was determined.

3.4 Flat Foot

Equipment: Pedograph, Blank Papers/Graph Papers, Ink Bottle, Brush

Procedure: The foot print was taken as the criterion for the detection of flat foot. Before taking the foot print, the investigator was given detailed instructions regarding the use of Pedograph. Foot prints was taken on the Pedograph which was an ordinary stamp pad. Finger prints ink was spread evenly on the pad sheets with a brush. The subject was asked to stand bare footed on the Pedograph and made to press their feet for proper inking and thereafter to stand on the paper sheets placed before him on a hard card board and asked to press their feet carefully in order to how the proper foot impression or the paper. Through this method height of the longitudinal arc was observed and the presence of the deformity was determined.

3.5 Nutritional Status

Nutritional status was measured by using Pelidisi formula

$$\text{Pelidisi Formula} = \sqrt{\frac{10 \times \text{Weight in Grams}}{\text{Sitting Height in Cms}}}$$

4 Data Analysis

The findings and discussion of findings with regard to the present study have been presented in forms of tables. The relationship pertaining to Nutritional status with postural deformity (Kyphosis, Scoliosis, Lordosis and flat foot), were computed and data pertaining to that have been presented in tables.

Table 1: Subject Characteristics

	N	Mean	Std. Deviation
Nutritional status	2000	114.19	15.01
Kyphosis	2000	5.08	1.39
Lordosis	2000	4.51	1.68
Scoliosis	2000	4.24	1.57
Flatfoot	2000	40.35	4.13

Table 1 depicts total mean and standard deviation pertaining to all the variables of all the subjects. For nutritional status, mean and standard deviation of subjects was 114.19 ± 15.01 . In kyphosis, mean and standard deviation of subjects was 5.08 ± 1.39 . In lordosis, mean and standard deviation of subjects was 4.51 ± 1.68 . In scoliosis, mean and standard deviation of subjects was 4.24 ± 1.57 . In flatfoot, mean and standard deviation of subjects was 40.35 ± 4.13 .

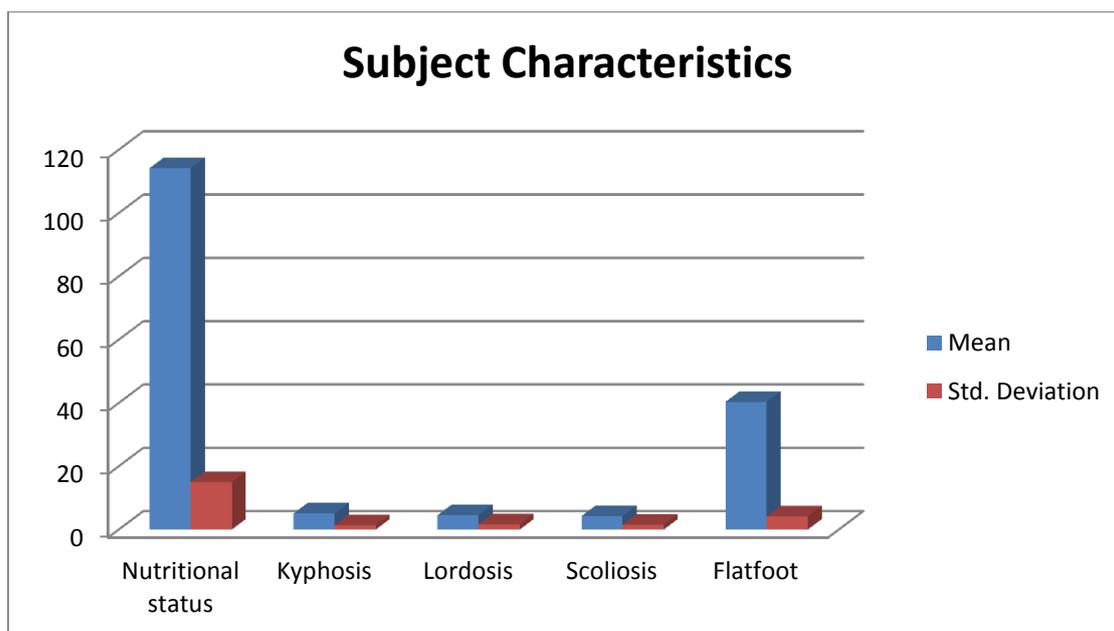


Figure 1: Subject Characteristics

Table 2: Subject Characteristics of Rural and Urban Boys

	Groups	N	Mean	Std. Deviation
Nutritional Status	Rural	1000	114.29	15.16
	Urban	1000	114.09	14.89
Kyphosis	Rural	1000	4.89	1.51
	Urban	1000	5.26	1.25
Lordosis	Rural	1000	4.66	1.77
	Urban	1000	4.38	1.59
Scoliosis	Rural	1000	4.29	1.72
	Urban	1000	4.19	1.42
Flatfoot	Rural	1000	41.89	3.54
	Urban	1000	38.83	4.12

Table 2 reveals mean and standard deviation of rural and urban boys in selected variables i.e. Nutritional status, kyphosis, lordosis, scoliosis, flatfoot, mean and standard deviation in kyphosis of rural boys was 4.89 ± 1.51 and urban boys was 5.26 ± 1.25 , mean and standard deviation in lordosis of rural boys was 4.66 ± 1.77 and urban boys was 4.38 ± 1.59 , mean and standard deviation in scoliosis of rural boys was 4.29 ± 1.72 and urban boys was 4.19 ± 1.42 , mean and standard deviation in flatfoot of rural boys was 41.89 ± 3.54 and urban boys was 38.83 ± 4.12 ,

Dr. Prabhash Chand Puri, Dr. Suhel Raza : Relationship of Nutritional Status to Postural Deformities Among Children of Urban And Rural Schools of U.P.

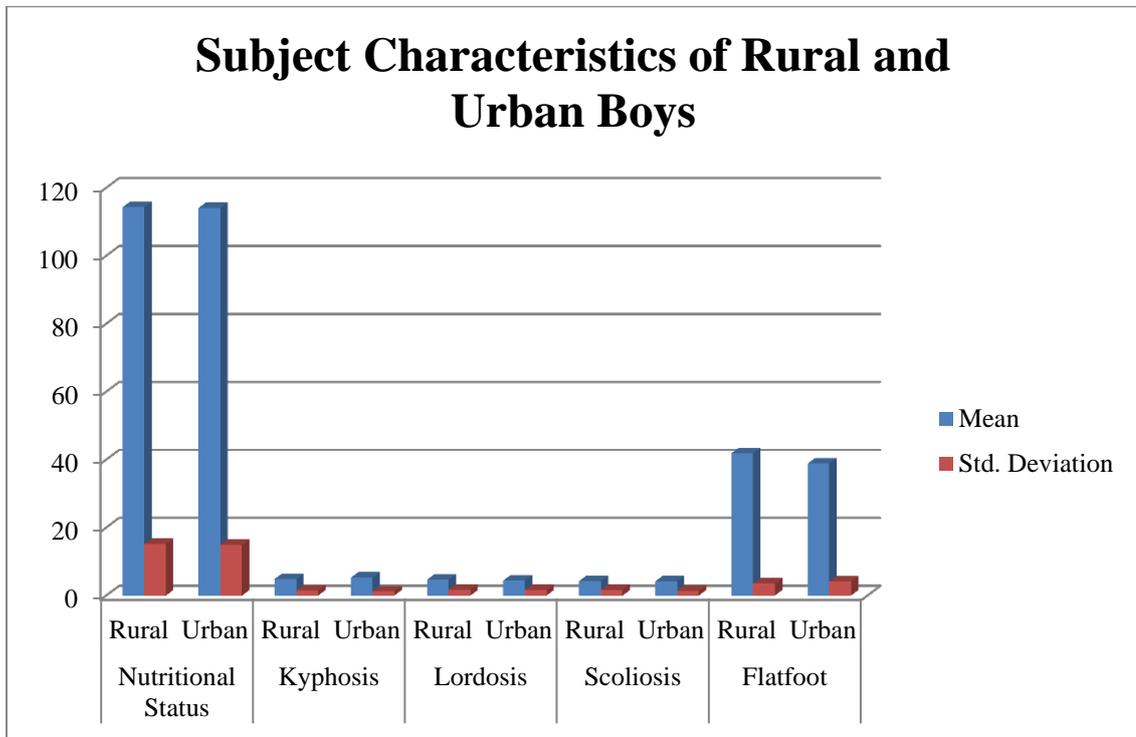


Figure 2 : Subject Characteristics of Rural and Urban Boys

Table 3: Relationship of Nutritional Status to Kyphosis, Lordosis, Scoliosis, Flatfoot,

	NS	KY	LO	SC	FF
NS	1				
KY	.017	1			
LO	-.009	.003	1		
SC	.019	.002	.047*	1	
FF	.001	-.075**	.030	.015	1

NS= Nutritional Status; KY= Kyphosis; LO= Lordosis; SC= Scoliosis; FF= Flatfoot; .

*Significant at .05 [level_{.05} (1998) = 0.195]

Table 3 reveals that nutritional status was insignificant relationship was found with rest of the variables i.e., kyphosis, lordosis, scoliosis, flatfoot

5 Discussion of Findings

The present study also found that there was no significant relationship between nutritional status and postural deformity. It is true, that lack of vitamins or poor balanced diet leads to different postural deformity but in the present study the method which was used to find the nutritional status was based on height and weight. This might be one of the reasons for not getting significant relationship between nutritional status and postural deformity.



6 Conclusion

Within the limitations of the present study, the following conclusions may be drawn that there was no relationship obtained between Nutritional status and postural deformity (Kyphosis, Scoliosis, Lordosis and flat foot).

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