DETERMINING THE AWARENESS OF CHILDREN ABOUT THEIR POSTURAL DEFICIENCIES. A PILOT STUDY

Eva Ilie, Ligia Rusu, Dorina Ortanescu
University of Craiova
Corresponding author: eva_moldoveanu@yahoo.com

Abstract
Background: Due to the fact that children are rarely questioned or made aware of the importance of posture throughout growth it sounds logical to create a questionnaire to determine their awareness of their own posture and allow to form a baseline for a more suitable treatment.
Methods: A total of 20 patients diagnosed with postural deficiency with age 6-12 years and their parents were included in the study. Each child and parent answered 5 question sets about postural awareness.
Results: The study showed that the awareness of the posture deficiency is generally poor among children. Parents were found very much aware in terms of the presence of the deficiency.
Conclusions: Determining the awareness of the children with postural deficiencies seems beneficial to build a personalized physical therapy program.
Keywords: *postural deficiency, postural awareness, children.*

Introduction

From the etymological point of view, the word "postural" represents the position of the body, the attitude or carriage of the body as a whole or the position of the limbs (the arms and legs), while the word "deficiency" means a lack or shortage.
In a more scientific manner, human physical posture is a motor habit shaped on a specified morphological and functional background. It is a manifestation of the physical and psychological status of an individual [1]. But throughout life, this physical posture changes, especially during the period of dynamic development, in other words 'growth' [2, 3].
Age, gender, school backpack weight, anthropometric parameters [4], position at the computer [5], time spent in the sitting position [6] might affect the posture. Rapid changes of the environment, sedentary style of life, limitation of physical activity and inadequate nutrition were also reported associated with poor posture [7,8,9].
As the long-term consequences [10], postural deficiencies might start to impair the health clinically and influence the quality of life among children, the future adults [8].
Increasing the percentage of children with postural problems requires focus on prevention and analysis of existing postural problems [11]. Postural problems in school-age children are one of the most common health problems in this population. Some postural problems might be counted as typical of human growth and development, others are harmful and might affect the quality of life negatively [12].
One of the main factors that could influence the development of a postural deficiency would be the early detection. In most cases, and from our experiences, more than 70% of the cases discover their postural deficiencies in later stages. Therefore, it is important to determine the awareness of the children about their postures. Thus, the aim of the present study was to highlight the awareness of the patients upon their own body posture or postural deficiencies with the help of a structured questionnaire.

Material and Method

The study included 20 primary school students aged 6 to 12 years (12 girls and 8 boys) who were all diagnosed with postural deficiency. Prior to the study written consents were obtained from the participating children's parents and also from the children themselves. The study took place at a private physical therapy and rehabilitation center. Inclusion criteria was set as; an age between 6 and 12 with appropriate somatic and functional onset of age, with urban affiliation and the possibility of participating in the study. Patients with neurological deficits, neuropsychiatric pathology, orthopedic and traumatic conditions were excluded from the study.
Literature was searched, and no structured questionnaires were found related to our aim of the study which was assessing the awareness state of the children about their postural deficiencies. Therefore, the study group has designed a structured questionnaire that included 5 questions for the children and 5 questions for their parents. The questions had three possible answers as 'yes', 'no' and 'maybe'. The questionnaire was named as 'The postural awareness questionnaire for children and parents'. The questionnaires were

fulfilled by both patients and parents in a single session under a supervision of the physical therapist.

Following topics were addressed in the children's questionnaire: awareness of the body posture in general and at school during classes, quantity and quality of physical activity in school and in the free time, importance of physical therapy exercises for posture. General health of their children, parent's awareness of body posture of their children and importance of physical activities, the importance of physical therapy exercises for posture at home were asked in parent's form.

Completion of the questionnaire lasted approximately 15 minutes on average and all information and data were analyzed by calculating the percentage both in the group of children and parents.

Results

A total of 20 children with postural deficiencies completed the questionnaire. The distribution of the answers was presented in Table 1. According to our results only 10% of the children were aware about their postural problem. However, 70% of the children reported that they are aware of their adopted positions while writing. The results from the third question revealed the fact that the majority of kids 70% are satisfied with their physical activity. Half of the children reported a fatigue factor in the main activities. 55% of the children admitted the fact that they do not continue the exercises at home, while 35% of children do their exercises from time to time.

Table 1. The distribution of children's answers

Question	**Yes (%)**	**No (%)**	**Maybe (%)**
Did you observe any changes in your posture?	2 (10)	16 (80)	2 (10)
Do you think you have a correct posture while writing?	2 (10)	14 (70)	4 (10)
Do you think you play, run, or have enough physical daily activity?	14 (70)	6 (30)	0 (0)
Do you get tired fast while playing or running or making your exercises?	4 (20)	10 (50)	6 (30)
Do you continue doing your exercises at home?	2 (10)	11 (55)	7 (35)

20 parents fulfilled the questionnaire and their answers' distribution were presented at Table 2. All parents reported that their children have no problem related to general health. 80% of the parents have an awareness related to the postural deficiencies of their children. Half of the parents were not satisfied with the daily physical activity level of their children. Most of the parents (85%) reported that they are correcting their children's bad posture. More than half of the parents (60%) indicated that they are encouraging their children for performing home exercises.

Table 2. The distribution of parent's answers

Question	**Yes (%)**	**No (%)**	**Maybe (%)**
Do you think your child's general health is a good one?	20 (100)	0 (0)	0 (0)
Have you noticed the child's bad posture by yourself?	16 (80)	4 (20)	0 (0)
Do you think that your child has enough physical activity per day?	10 (50)	10 (50)	0 (0)
Do you correct your child's bad posture?	17 (85)	3 (15)	0 (0)
Do you encourage your child to do their exercises at home?	12 (60)	8 (40)	0 (0)

Discussion

To the best of our knowledge, the present study is the first analysis of the postural awareness level of the children with postural deficiencies and their parents. Our results indicated that most of the children are not aware about their situation, while parents were more aware of their children's postural problems. 80% of the children did not realize their body changes and this might influence their growth and daily activities, and might lead to an increase in the incidence of more severe postural deficiencies in a near future. However, the parents were found more aware of their children's postural deficiencies and more than half of them reported that they are correcting their children's bad posture and encouraging them about performing home exercises. The results of the present study might provide a baseline for an idea of implementing a postural education program for children and parents which focusing on postural awareness.

This study has several limitations. The validation study of the questionnaire was not performed at the time of the study and the lack of an objective assessment method related to awareness level prevents us making firm conclusions. Also, the lack of follow-up period might be counted as an another limitation.
Based upon our results, a Delphi consensus consisting more experts might be beneficial to build a more appropriate and complete questionnaire. Also, the validation of that questionnaire should be provided in future studies.

Conclusion

It can be concluded the children in general are not aware of the importance of the accurate posture, most likely they don't have the ability to understand the importance of the long-term effects of posture on the human body. Parents seems to have more awareness in this manner, but appropriate education programs are still needed.
These results can be consider promising for the future studies and encouraging to research more in this area and determine the best way to provide correct information and proper treatment for postural deficiencies according to the needs of our patients.

References

[1] Latalski M, Bylina J, Fatyga M, Repko M, Filipovic M, Jarosz MJ, Borowicz KB, Matuszewski Ł, Trzpis T (2013), Risk factors of postural defects in children at school age. *Ann Agric Environ Med*.;20(3):583-7
[2] van Balen LC, Dijkstra LJ, Hadders-Algra M., (2012), Development of postural adjustments during reaching in typically developing infants from 4 to 18 months. *Exp Brain Res*.; 220(2): 109–19
[3] Windle RW, (1954), Posture and growth. *Acta Physiother Rheumatol Belg*. 1954 May-Jun; 9(3): 79–83
[4] Azuan M, Zailina H, Shamsul BM, Asyiqin MA, Azhar MN, Aizat IS. (2010), Neck, upper back and lower back pain and associated risk factors among primary school children. *J Appl Sci*;10:431-5.
[5] Jacobs K, Baker NA., (2002), The association between children's computer use and musculoskeletal discomfort. *Work*; 18:221-6
[6] Murphy S, Buckle P, Stubbs D., (2004), Classroom posture and selfreported back and neck pain in schoolchildren .*Appl Ergon*;35:113-20
[7] Seefeldt V, Malina RM, Clark MA., (2002), Factors affecting levels of physical activity in adults. *Sports Med*.; 32(3): 143–68
[8] Coelho JJ, Graciosa MD, de Medeiros DL, Pacheco SC, da Costa LM, Ries LG (2014): Influence of flexibility and gender on the posture of school children.*Rev Paul Pediatr*.;32(3):223-8
[9] Cosma G., Ilinca I., Rusu L., Nanu C., Burileanu A., (2015), Physical exercise and its role in a correct postural alignment, *Discobolul-Physical Education, Sport and Kinetotherapy Journal*, vol.XI, no.1 (39):58-64
[10] Jeffries LJ, Milanese SF, Grimmer-Somers KA., (2007), Epidemiology of adolescent spinal pain: a systematic review of the research literature. *Spine* ;32:2630-7
[11] Pawlicka-Lisowska A., M. Gątkiewicz, S. Motylewski, U. G´orecka, and E. Poziomska-Piątkowska, (2011), Body posture and anthropometric indices, *Kwartalnik Ortopedyczny*, vol. 81, no. 1, pp. 50–56
[12] P. J. Penha, S. M. A. Jo˜ao, R. A. Casarotto, C. J. Amino, andD. C. Penteado, (2005), Postural assessment of girls between 7 and 10 years of