



The prevalence of malformations crooked neck, head forward of the female students in Tehran District 5 elementary school year 93-94

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ABSTRACT: **Background:** Postural abnormalities, especially in children and adolescents are on the rise. **Purpose:** From this study, the prevalence of skeletal malformations primary female students in Tehran District 5 elementary school year 93-94. **Materials and Methods:** The population of the study students girls 7 to 13 years 5 area in Tehran that the Formed, for example 700 female students as subjects in this study were available. The direct observation method was used to evaluate abnormalities and with use of And New York test, grid, plumb line to check malformations crooked neck, head forward. To analyze the data, descriptive and inferential statistical methods were used. Descriptive statistics for the index of central tendency (mean) and dispersion (standard deviation) and the chi-square test for comparison of the level of significance ($p < 0.05$) used. **Results:** The results showed that 10.6 percent complication crooked neck and 13% head forward. **Conclusion:** According to the results of this study, further anomalies intensity will increase with age, so it would be necessary to take preventive measures as soon as possible and to achieve the desired structure, in addition to preventive measures, the structural abnormalities different levels of education required.

Keywords: Postural abnormalities, Skeletal malformation, Crooked neck

INTRODUCTION

Body structure and function has the potential to gain and maintain a proper body posture. However, inappropriate habits, lifestyle and activities exert stress on these mechanisms, which disrupt body structure and function. Nowadays, children and adolescents are significantly less physically active than before. Currently, most children and adolescents spend their leisure time to do less physically active tasks such as watching television or playing video games. Thereby, they do not possess desirable physical fitness. Children and adolescents would be less physically active as they grow up, especially in puberty stage (Azhang, 1390). Therefore, it is essential to keep track of their physical state and provide appropriate activities and movements to solve these deviations in critical stages of growth (Arshadi and Alizadeh 2006).

Various studies have shown that more than 70% of adolescents and adults suffer from lower limb weakness, more than 35% of adolescents and adults suffer from organic and backbone weaknesses, 15% of adolescents and adults suffer from weak coordination and a smaller percentage suffer from a variety of upper limb weakness in developed countries. It should be

noted that these signs of weakness are also observed in rural and small urban societies (Kashef, 2005). For example, the head should be balanced in normal standing position from the rear view, so that line of gravity passes from the center line of occipital bone and cervical spine (Daneshmandi *et al.*, 2006). Torticollis (wry neck disorder) is a rare condition in which the neck muscles contract due to a singular factor or a combination of various factors, causing the head to twist to one side where the ruler does not match the center of the occipital bone. Sternocleidomastoid muscle stretching and strengthening will help treat this disorder. Cervical spine has a slightly forward curvature where the head would be ahead of the center of gravity, which imposes lots of pressure on temporomandibular joints and cervical joints and rear neck muscles. In this case, an increase is observed in head weight gain, which is twice the normal size. This condition increases the cervical lordosis, reduces the space between the vertebral holes, traps nerves and imposes pressure on nerve roots (Taheri and Emami 2007). Causes of this disorder are improper sitting habits, especially when studying, standing, walking and exercising, poor vision in nearsighted individuals and using high pillows during sleep.

Numerous studies in Iran and abroad investigated abnormalities of the spine, upper and lower extremities in different segments of society. However, malformations of the head such as torticollis and forward flexion of the head was not studied in Iran. Hence, it is essential to perform a study in this area.

MATERIALS AND METHODS

The statistical population consisted of 7 to 13 years old female students in primary schools in Tehran. In this study, 83 primary female schools in the fifth education district with 26750 female students were considered as the statistical population. Ten schools were randomly selected and 700 female students who were between 7 to 13 years old were selected using a convenient sampling method. The selected students participated in the study to measure the research variables.

Anthropometric characteristics (height and weight) were measured prior to training program. Then, direct observation method was used to evaluate abnormalities. Malformations of the head such as torticollis and forward flexion of the head were examined using the New York Test, checkerboard, plumb line and flexible ruler. The participants were asked to easily stand with no movement behind the checkerboard without any clothes and shoes, so that their heights could be measured by an examiner standing two meter away on the other side of the checkerboard. Incidence of malformations were measured.

To examine torticollis, the individual stood behind the checkerboard. The examiner selected one perpendicular line to the checkerboard as vertical lines that divide the body into right and left halves. Deviation of the center of the head from this line determines lateral deviation of the head. To measure forward head malformation (drooped head syndrome), the individual stood

perpendicular to the checkerboard, so that one vertical line would align with an imaginary line of gravity on lateral view. If this line passed one shoulder, rear neck and auricle, the individual might probably suffer from forward neck deviation (drooped head syndrome).

Descriptive statistics of central tendencies (mean) and dispersion (standard deviation) were calculated. Chi-square test was used for mean comparison at ($p < 0.05$) significance level.

RESULTS

Demographic data relevant to the participants is summarized in Table 1. The data shows that the individuals in the two groups were similar in terms of average age, mean height and frequency.

Table 1: Physical Information on primary Students.

S.NO.	Number	Age mean
First	88	7
Second	95	8
Third	118	9
Fourth	106	10
Fifth	160	11.5
Sixth	133	13

Table 2 shows torticollis malformation at various grades in primary school students. The results showed that primary school students suffered from torticollis. The incidence of this malformation was higher in the sixth grade of primary school students than other grades. Table 3 shows the results related to forward head deviation (drooped head syndrome). The results showed incidence of forward head deviation (drooped head syndrome) in different grades of primary school students in the fifth education district in Tehran.

Table 2: Results of chi-square test to compare the incidence of torticollis among the first to sixth grade primary school students.

Grade	Total frequency	Disorder frequency	Disorder percentage
First	88	5	5.7
Second	95	5	5.3
Third	118	8	6.8
Fourth	106	7	6.6
Fifth	160	22	13.8
Sixth	133	25	20.3

Table 3: Results of chi-square test for comparison of forward head deviation (drooped head syndrome) among the first to sixth grade primary school students.

Grade	Total frequency	Disorder frequency	Disorder percentage
First	88	9	10.2
Second	95	11	11.6
Third	118	11	9.3
Fourth	106	12	11.3
Fifth	160	22	13.8
Sixth	133	26	19.5

Maximum prevalence of forward head deviation (drooped head syndrome) was observed in the sixth grade, which was higher than other grades. In addition the fifth grade showed maximum incidence of forward head deviation after the sixth grade.

DISCUSSION

Postural abnormalities refer to undesirable malformations that disrupt skeletal structure and normal posture stature. These disorders would adversely affect physiological functions such as kyphosis effect on the respiratory, etc. if not detected and treated as soon as possible (Ahmadi, 2007). The results of the present study showed that 10.6% of the participants were diagnosed with torticollis. It should be noted that 5.3% of the first grade students, 5.3% of the second grade students, 6.8% of the third grade students, 6.6% of the fourth grade students, 13.8% of the fifth grade students and 20.3% of the sixth grade students suffered from torticollis in primary school. Maximum prevalence of torticollis was observed among the sixth grade primary school students. Ahmadi studied upper limb abnormalities among students in Shahid Chamran University in Ahwaz in 2002. The relevant results showed that 93% of non-athletic students had at least one abnormality but 21% physical abnormalities were observed in athletic students. In addition, the prevalence of torticollis was observed in 14% of the students with lean body type and 16% of the students with body type. Shojaei studied spinal deformity among male secondary school students (11-15 years old) in Sari. Relevant results showed that 89.21% of the participants had a normal physical posture while 11.78% of the individuals had abnormal physical posture (Saneh, 2008). The results relevant to stature of the participants also showed that 13.53% of the participants suffered from torticollis. However, the results of the present study were not consistent with those results obtained in latter study. In the present study, the abnormalities were categorized in one class. Growth stages and age groups also affect prevalence of abnormalities in the students. This deformation (torticollis) is associated with rotated and tilted head in the individuals. This disorder is caused due to a short sternocleidomastoid muscle.

This disorder is not inherited and is acquired due to such abnormalities as inflammation, neurological disorders, burns as well as wrong posture and habits. One limitation of the study lied in inadequate information of the latter mentioned abnormalities in the participants. It should be noted that negligence or inattention to ergonomic factors required in school environment or private classrooms can affect the health of students. If this case continues, female student will be prone to many skeletal, muscular and stature abnormalities ((Heidarimoghadam *et al.*, 2013).

The results of this study showed that 10.2% of the first grade students, 11.6% of the second grade students, 9.3% of the third grade students, 11.3% of the fourth grade students, 13.8% of the fifth grade students and 19.5% of the sixth grade students suffered from forward head deviation (drooped head syndrome) in primary school. Maximum prevalence of this disorder was observed in the sixth grade. Incidence of this deformation was higher in the fifth grade than other grades after the sixth grade. Findings of one study, regarding spinal deformity among male secondary school students (11-15 years old) in Sari showed that 89.21% of the participants had a normal physical posture while 11.78 of the individuals had an abnormal physical posture. In fact, 16.12% of the participants suffered from dropped head syndrome (Saneh, 2008), which is due to improper sitting habits, especially when studying, standing, walking and exercising as well as poor vision in nearsighted individuals and using high pillows during sleep (Daneshmandi *et al.*, 2006). Those who tend to study and sit for a long time should not constantly remain motionless because they would be prone to serious injuries such as osteoarthritis, wear and tear arthritis and cervical complications. There is less treatment for these deformations (Heidarimoghadam *et al.*, 2013). The findings have shown that spine has a special connection with some psychological states. Spinal abnormalities occur due to such factors as depression, isolation and mental illness (Dekel *et al.*, 1996).

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