

Diagnosis as a competency in the Chiropractic practitioner: A community case.

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Abstract

Keywords

Chiropractic,
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Background: A competence of the chiropractic professional is diagnosis, uses the Posture Screen Mobile (PSM) application, which allows to evaluate the static posture of a person. The objective was to make a presumptive diagnosis to school-age patients to identify levels of affectation in spine. Prospective-observational
Method: 110 school-age, in the period March to June 2019 with inclusion criteria. The statistical software package used was SPSSv26. **Results:** 92.7% of children have cervical and 7.3% lumbar problems, identifying 63% with greater affectation, due to the presented head tilt. 52.72% presented shoulder displacement to the right and 43.6% to the left, due to the natural compensation of the body.

Introduction

Current policies regarding National Educational Reform⁽¹⁾ consider a restructuring of the Educational System to achieve quality at all levels, and thus be able to compete internationally based on knowledge and civic values. On the other hand, social welfare can be generated by addressing problems such as health. ⁽¹⁾

At the international level, the pandemic has led to work and school activities being carried out virtually through the Home Office; however, most homes do not have the necessary equipment for this activity. ⁽²⁾

This can cause an increase in postural problems in children, young people and adults, due to poor ergonomics in the furniture that is used at home, in addition, in children is increased by the excess hours in the use of computers, tablets, video games (desktop or laptop), cell phones, etc. ⁽³⁾.

One of the health professionals is the chiropractor who is responsible for the care and treatment of the neuromusculoskeletal system.

In this context, the chiropractic professional must be able to diagnose the state of health of the neuromusculoskeletal system based on physical, orthopedic, neurological and radiological analysis on biomechanical and physiological principles.

Therefore, the diagnosis represents one of the competences that the chiropractic professional must have to be able to identify postural problems in patients, such as: low back pain, cervical pain, sciatica, scoliosis, among others. In the case of children, a timely diagnosis is very important to avoid future spinal problems.

In Mexico there are three universities that offer this degree, one of them is located in the south-southeast of the country, whose current students attend various communities in order to generate a presumptive diagnosis that subsequently allows the relevant chiropractic intervention.

For this, the student has one of the digital tools specialized in the Chiropractic area, the Posture Screen Mobile (PSM), which allows to evaluate the static posture of a person, using the frontal and lateral plane of the patient, where measurements are taken at various points of the body.

In a study conducted by Szucs & Brown (2018), the degree of reliability of the posture detection mobile application was measured, considering the user's experience in its handling, obtaining a range of $r > 0.75 < 1$ as the degree of reliability, having as reference value the number 1.00; the lowest range corresponding to the non-expert user to the one who has the experience in its use with the highest value.

This means that this application is easy to use compared to other methods such as the Bionix or TrakStar that measure posture through photographs and the goniometer, which is a device that helps to measure the patient's inclination angles, in addition, Boland & et al. (2016), demonstrated in a study that when evaluating the static posture in bipedestation with the mobile application to 10 patients, there is a minimum degree of uncertainty, 0.01% in the result, considering the patient's normal and light clothing.

Among the parameters measured by this application are the position of the head, shoulders and hips, identifying the angles of inclination for subsequent interpretation by the chiropractic professional and thus give a presumptive diagnosis.

A study conducted by Espinoza Castillo (2018) in young people aged 8 to 13 years performing Postural Test in 198 students, showed a total of 41% of the total population with scoliosis problems, being 24% of structural etiology and 76% functional, where 67% of the cases of musculoskeletal origin and 33% cranial; showing as the main risk factor the excessive weight of the backpack and the design of school furniture.

Recent studies mention that changes in forward head tilt can lead to changes and damage in the cervical area as it increases the load on the musculature, joints and ligaments of the same area and cause more problems in the long term. Symptoms such as neck pain, headache, temporomandibular joint dysfunction and neuromusculoskeletal system disorders have been reported to be related to forward head posture" (6). These changes can not only affect cervical biomechanics but also affect the upper thoracic area, since the cervical (C7) and dorsal (T1) transition segments share movement patterns between the two areas and changes in the musculature or biomechanics in the joints of one of the two areas will affect the other, forcing the recruitment of muscles to compensate the movement and stabilize the area that is under more load or muscle tension.

Material and Method

Prospective, observational method carried out since March 2019 to June 2019 in a community in the state of Veracruz, on boys and girls aged 10 to 12 years, excluding those who present degenerative or limiting genetic condition, present surgeries that prevent them from walking and bipedestation; Posture Screen MobileR software was used to obtain a static postural evaluation (EPE) through a frontal and lateral visualization of the body, the first image to obtain the head, shoulder and hip tilt, and the second to measure the displacements of the aforementioned segments. Statistical analysis was performed with SPSS v24 software.

Results and Discussion

The posturometry study included 110 boys and girls, with the average age, height and weight as shown in Table 1.

Table 1. Characteristics of boys and girls

N 110	Age	Size	Weight
Mean	10.4182	1.4370	39.7745
Median	10.0000	1.4300	37.8500
Variance	.557	.006	119.210

The presumptive diagnosis showed that 92.7% have problems in the cervical area and the rest in the lumbar area, 63% with greater affectation due to the degree of inclination of the head, 12.7% with less affectation and 23.63%(26) with minimal affectation. As for the superior

displacement of the shoulders, 58 boys and girls presented it to the right and 48 to the left, this due to a natural compensation of the body to maintain balance, a condition that is also identified by the hip displacement. See Table 2.

Table 2. Posturometry by zone in spine, head inclination and shoulder and hip displacement.

Posturometry in spinal column area

	Frequency	Percentage	Valid percentage	Cumulative Percentage
Cervical	102	92.7	92.7	92.7
Lumbar	8	7.3	7.3	100.0
Total	110	100.0	100.0	
Head tilt				
1/4 within range	26	23.6	23.6	23.6
1/2 out of range	14	12.7	12.7	36.4
Greater than 1/2 insufficient	70	63.6	63.6	100.0
Total	110	100.0	100.0	

Shoulder displacement

	Frequency	Percentage	Valid percentage	Cumulative Percentage
Upper right	58	52.7	52.7	52.7
Normal	4	3.6	3.6	56.4
Upper left	48	43.6	43.6	100.0
Total	110	100.0	100.0	
Head tilt				
Upper right	26	23.6	23.6	23.6
Upper left	84	76.4	76.4	100.0
Total	110	100.0	100.0	

Conclusions

100% of the children presented a spinal problem from highest to lowest degree, with the cervical spine being the most affected with 102 children. If it is considered that there are studies that correlate the change of hip displacement with the posture of the head in workers who spend six or more hours in front of the computer (7), today, boys and girls being in the same conditions, generate stress between their joints and muscles to lead to damage in the neuromusculoskeletal system in the medium and long term. The presumptive research conducted by students also strengthened their skills under ethical principles.

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