



COMPARATIVE STUDY

Differences and similarities in postural alterations caused by sadness and depression



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KEYWORDS

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Summary The present study investigated the existence of a relationship between depression and body posture in 40 women, aged between 20 and 30 years, who had normal body mass indices (or were underweight) and absence of neurological, psychiatric, or musculo-skeletal disorders. The aim of the present study was to investigate the existence of a relationship between sadness, depression and the posture represented by the angle of Tales, head inclination, shoulder inclination, and forward head and shoulder protrusion. The degree of depression was rated on analogue scales representing current and usual depression and current and usual sadness and by the Beck Depression Inventory. The results indicated that a relationship exists between: Beck depression and the angle of Tales ($p = 0.01$), current depression and inclination of the head ($p = 0.05$) and inclination of the shoulders ($p = 0.006$), and usual depression and protrusion of the shoulder ($p = 0.02$). Inclination of the shoulders is associated with current sadness ($p = 0.03$; $r = 0.443$) and usual sadness ($p = 0.04$; $r = 0.401$). Usual sadness is also associated with protrusion of the shoulder ($p = 0.05$; $r = 0.492$). No associations were found with protrusion of the head and the emotional variables assessed. The conclusion was that depression and sadness might possibly change posture. Consequently, postural assessment and treatment may assist in diagnosing and treating depression.

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Introduction

Depression is a common adult psychiatric disorder. According to the American Psychiatric Association (2000), the essential feature of a major depressive episode is a depressed mood or a loss of interest or pleasure in nearly all activities. The individual must also experience additional symptoms, such as changes in appetite, weight, sleep, and psychomotor activity; decreased energy; feelings of worthlessness or guilt; difficulty in thinking, concentrating, or making decisions; or suicide attempts. The mood in a major depressive episode is often described by the person as depressed, sad, hopeless, or discouraged (American Psychiatric Association, 2000).

The study of human posture is relatively new compared to other areas of medical science and refers to the alignment and maintenance of body segments in certain positions (Rosário et al., 2004). Some postural deviations may adversely affect muscular efficiency, predispose individuals to pain and pathologic musculoskeletal conditions, and provoke unaesthetic alterations (Rosário et al., 2004; Liebenson, 2008; James et al., 2009; Wallden, 2009). The specific focus on posture is very important because it is related to quality of life, a fact that has stimulated interest in different areas.

Emotional changes can, with proper stimulation, affect any human being and cause muscle changes coherent with the emotional state (Ekman et al., 1983). In this context, posture can be an important tool in the diagnosis and treatment of affective problems (Canales et al., 2010; Rosário et al., 2013). A previous study, found associations between sadness and posture (Rosário et al., 2013). However, the literature includes very few studies that have investigated this correlation. The aim of the present study was to investigate the existence of a relationship between sadness, depression, and the posture represented by the angle of Tales, head inclination, shoulder inclination, and forward head and shoulder protrusion.

Methods

Forty women, aged between 20 and 30 years, who had a normal body mass index of between 16 and 24.9 kg/m² were assessed (World Health Organization – WHO, 1998). Subjects were not assessed during their menstrual period. The exclusion criteria were any psychiatric, neurologic, or musculoskeletal disorders. Subjects with musculoskeletal problems related to postural disorders, such as scoliosis, were not excluded. However, a postural problem caused by trauma, for example, a history of leg fracture that may have caused a leg discrepancy and, consequently, scoliosis, was excluded. An expert physician screened all subjects to ensure compliance with the inclusion criteria. The present study received approval from the Human Research Ethics Committee of the UNIFESP under protocol number 1391/05, and the participants signed an informed consent form.

The volunteers were subjected to the same assessment protocol, which included demographic data (age, weight in kilograms, and height in meters). A digital camera (Canon PowerShot A400) was used for documentation of the standing right lateral and frontal views of the subjects. The

temperature in the assessment room was kept at a constant 25 °C to avoid possible alterations in posture. The image was transferred to an Intel Core 2 Duo computer, and the angle of protrusion of the shoulder was examined by Corel Draw (Fig. 1), as described by Munhoz et al. (2005). The first step was to draw a line parallel to the ground. For the lateral view, another line was drawn perpendicular to the first line, which had the same function as a plumb line. This line was positioned at the very back of the heel of the subject in the photo.

The following angles were involved in the lateral view – see Fig. 1:

- Protrusion of the head (A): Another line was drawn from the heel point to the intertragic notch. The angle between this and the plumb line, with the heel as the fulcrum, revealed the protrusion angle of the head.
- Protrusion of the shoulder (B): Another line was drawn from the heel point to the most anterior part of the shoulder. The angle between this and the plumb line, with the heel as the fulcrum, revealed the protrusion angle of the shoulder.

The following angles were involved in the frontal view – see Fig. 1:

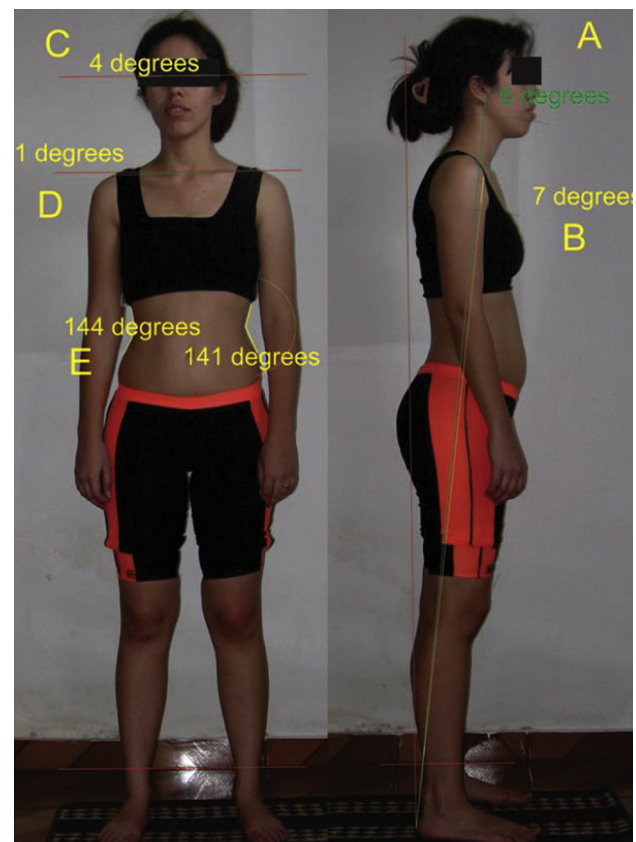


Figure 1 Lateral and frontal photographs with tracings of the angles of protrusion of the head (A), protrusion of the shoulder (B), inclination of the head (C) inclination of the shoulders (D) and angle of Tales (E).

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