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Study of the relationship between Kyphosis, anxiety, depression and aggression of high school boy students

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Abstract

What has been considered in this research is the study of the relationship between Kyphosis, and anxiety, depression and aggression of high school boy students. Therefore, with the use of anxiety questionnaire, Beck Depression Inventory (BDI) and Eysenck Aggression Inventory (EAI).and Kyphosis abnormalities have been specified in 126 students out of 327. Then questionnaires were distributed among the students being tested. After that, the rate of its validity and correlation was tested in P<0/001 level based on Pearson correlation co-efficient by statistical analysis of the acquired data. The Results have that there is a significant and positive relation between Kyphosis abnormality and psychological aspects such as, anxiety, depression, and aggression. Results of the study represented that there is a high reciprocal effect between body and mentality.

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Keywords: kyphosis, Depression, Anxiety, Aggression;

1. Introduction

Continuous mental stress can cause changes in the function of the body organs and if the situation continued so, it leads to structural changes in the body (Tanner, 1988). Some researchers show that anxiety and depression are associated with physical status (Bamgratmir, 2004; Norris, 2001). Mental illnesses and depression may somehow affect the body status (Soltani, 1993). On the other hand, there is a relationship between some psychological features including depression or physical status problems (Tase & Baily, 1992). For example, it couldn’t explain all the problems which related to the physical structure according to peripheral or physical reasons (bone, muscle), while abnormal situations could be a sign of individuals’ personality or emotions. Anomaly of forward head and shoulders down in some adults, often has no physical origin, but it is a sign of shyness or the lack of self-confidence, that is why corrective exercises prescribed for physical complications, couldn’t help these people very much, unless accompanied with psychological interventions (Salmans, 1995).

One of the spinal deformities is kyphosis. Increase in the dorsal arch area is called kyphosis. Motor deficiency can be considered as a main factor in the body muscles undermining. Following the mistake patterns of the body gestures, would have a negative effect on the performance of individuals’ organs. For example, excessive working of hands in front of the body and not strengthening the relevant muscles are the main factors in dorsal hump abnormalities. This complication in the body gradually causes the hands to incline to forward and leads to the
abnormal curvature in the back of human. Several related research is accomplished regarding to kyphosis deformity and its psychological aspects, among which it could be pointed to Tokunaga (2001). In his research, Tokunaga investigates about kyphosis among osteoporosis patients in Japan. His research results show patients whom their kyphosis are greater than 45 degrees, in addition to lower back pain, also are suffering from anxiety during doing everyday activities. In a study being done on the deformity of kyphosis and scoliosis patients with tetraplegia, Boninger (2001) applied McGill questionnaire to determine the relationship between kyphosis, scoliosis deformity, pain levels, depression and life satisfaction. His research shows that there is a significant correlation between kyphosis and scoliosis deformity with depression and anxiety.

2. Method

2.1. Participants
After surface surveying of students from Iran, Abadan city by checker and kyphosis initial determination, 126 subjects selected as samples.

2.1.1. Measurements
1. X ray, in this research we use X ray for finding exact kyphosis angle.
2. Cattle's anxiety questionnaire was used to assess total anxiety, hidden anxiety, and manifest anxiety in Subjects. The questionnaire which consists of 40 triple choice questions has been a tested repeatedly and has always had a reliability of above 70% (Ganji, H. 2001). In this study, Cronbach's alpha for the questionnaire measured 0.86.
3. Beck Depression Inventory was used for measuring depression. A questionnaire which consists of 21 triple choice questions has been tested repeatedly and has always had a reliability of over 89% (Beck, 1988; Javanbakhti, et al., 2009). In this study, Cronbach's alpha for the questionnaire measured 0.88. 
4. Eysenck Aggression Inventory was used to assess aggression. This questionnaire was produced by Eysenck at 1964. In this study, Cronbach's alpha for the questionnaire measured 0.73. In this research is correlation type so to analyze the data, were used Pearson correlation.

2.1.1.1. Procedure
In this study, the researcher seeks to find a link between some aspects of psychology such as depression, aggression and anxiety with deformity of high school male students. These samples are suffering from angle kyphosis between 40-45 degrees. So after survey angle of kyphosis by X ray used 3 questionnaires (Cattle's anxiety questionnaire, Beck Depression Inventory, and Eysenck Aggression Inventory).

3. Results

Research findings showed that there are positive and significant relation between kyphosis angle and anxiety(r = 0.68). (See table 1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation ratio</th>
<th>coefficient of determination</th>
<th>Sig level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total anxiety</td>
<td>0.68</td>
<td>0.38</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>Kyphosis angle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Relation between kyphosis angle and Components anxiety (hidden anxiety and Manifest anxiety) exist in table 2.
There are positive and significant relation between kyphosis angle and depression ($r = 0.73$). (See table 3.)

### Table 3. Correlation ratio and coefficient of determination in kyphosis with depression

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation ratio</th>
<th>Coefficient of determination</th>
<th>Sig level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>0.73</td>
<td>0.40</td>
<td>P&lt;0.001</td>
</tr>
</tbody>
</table>

Research findings about aggression and angle of kyphosis demonstrated that there are positive and significant relation exist ($r = 0.53$). (See table 4.)

### Table 4. Correlation ratio and coefficient of determination in kyphosis with aggression

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation ratio</th>
<th>Coefficient of determination</th>
<th>Sig level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression</td>
<td>0.53</td>
<td>0.38</td>
<td>P&lt;0.001</td>
</tr>
</tbody>
</table>

4. Discussion & Conclusion

Today, it is known that there is a relationship between depression and dysfunction of certain kinds of neurotransmitters. Through studying the behaviour of depressed patients and considering the psychic similarities between them, Psychologists could show the relationship between organ changes and depression. The statistical findings in the current research indicate that there is a significant, positive correlation between anxiety and kyphosis ($r=0.68$). These findings are consonant with Baumgratmer (2004), Gold (1996), Lonstein (1998). Research findings, but are inconstant with Yasrobi (1999) research findings. As the anxiety in a common sense is considered as a physical, behavioural and mental response to the mental stress, so the thoughts which originated in inverting the body sensations, are resulted from misunderstanding of these sensations. The origin of these thoughts is that people imagine that they have a serious problem with their body. These disastrous thoughts play an important role in increasing anxiety and in result incline the body signs.

The findings of the current research also show that the correlation coefficient between depression level and kyphosis deformity ($r=0.73$) is significant & also consonant with Moosburger (2000), Baumgratmer (2004), Tase (1992), and Rezazadeh, (1998) results, but is inconstant with Yasrobi (1999) findings. A depressed person will consider he weak and incapable, due to thought disorders and self-humiliation, will negatively affect different body postures. Anxieties and moods will affect individuals’ muscular movements and also their body posture. The prominent signs in those who are suffering from moderate depression are forward shoulder, diminished physical activity, sleepy and seclusion. As researches indicate, the lack of complete reflection resulted in spinal defects, often occur during rapid growth (maturity) and when there are some kinds of mental weakness and feeling uncertainty.

So, these characteristics could increase the dorsal arch area. As Yasrebi’s research is carried out between the students of physical education, the situation is somehow different from the current research. In such a case, the
reason for this inconsonance could be related to the subject’s age range, social status and their mobility level; as mental traits in different age range are varied. And the numbers of individuals who are suffering from certain physical deformity in some ages are more than the others. The present research also indicate a positive, significant relationship between aggression and kyphosis ($r=0.53$). These findings are consonant with research findings of Moosburger (2000), Baumgratner (2004), Tase (1992), Lonstein (1998), Norris (2001). Psychologists believe that the physiological problems could be one of the key determinants for aggression. In addition, aggressiveness and violence are considered as traits of anxious individuals. Even the physiological signs are very similar to aggression. Therefore, with these similarities between physiological signs of aggression and anxiety, can we conclude that there is a correlation between aggression phenomenon and kyphosis deformity? According to the studies being done in the present research, these results are obtained; there is a significant correlation between kyphosis deformity and some mental aspects, and due to the positive effects of physical activity and exercises on mental health, and also the interaction between the mental and physical aspect of our body and their mutual influences on each other, and finally with use of the previous research findings, it could be mentioned that the sport exercise and physical activities specially corrective training might be considered to be as a suitable scientific style to prevent and treating physical weakness and some upper limbs deformity.

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