

Self-efficacy and level of neuroticism in children treated with an orthopedic brace

Poczucie własnej skuteczności i poziom neurotyzmu u dzieci leczonych z użyciem gorsetu ortopedycznego

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Neuropsychiatria i Neuropsychologia 2015; 10, 2: 86–90

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Abstract

Introduction: Observing children wearing an orthopedic brace, it can be observed that they seem more depressed and less able to deal with life than their healthy peers.

Aim of the study was to determine the neurotic level and self-efficacy of children wearing a brace as compared with healthy children. In addition, the study aimed to determine subjective self-evaluation of brace wearing children in comparison with a healthy group and to gain information about their possibly subconscious need to impress others.

Material and methods: We examined 68 children (11–16 years) divided into two subgroups: children with scoliosis, wearing a brace (36 people), and healthy children (32 persons), using the Choynowski and Skrzypek “What are you like?” questionnaire and Juczyński’s KompOs Scale. Additionally, children made a description of themselves by using 3 out of 16 adjectives.

Results: Children with a brace scored higher on the lie scale, and in terms of persistence in achieving set targets their results were also higher. The examined children did not statistically differ in neurotic level, force of action, self-effectiveness feeling, or positive and negative self-evaluation.

Conclusions: It is recommended to provide children wearing an orthopedic brace with psychological care, especially in terms of making their self-esteem higher.

Key words: emotional functioning of children with an orthopedic brace, level of neuroticism, lower self-esteem, self-efficacy, strength and endurance.

Introduction

The cause of idiopathic scoliosis generally is unknown. The treatment of scoliosis is principally based on rehabilitation. However, if the curve reaches a certain angle (more than

Streszczenie

Wstęp: Obserwując dzieci noszące gorsety ortopedyczne, można odnieść wrażenie, że są one bardziej smutne i gorzej radzą sobie w życiu niż ich zdrowi rówieśnicy.

Cel pracy: Celem badania było określenie poziomu neurotyzmu oraz poczucia własnej skuteczności u dzieci noszących gorset w porównaniu z dziećmi zdrowymi. Dodatkowo badanie miało na celu poznanie subiektywnej samooceny dokonanej przez dzieci noszące gorsety w porównaniu z grupą zdrową oraz uzyskanie informacji o ewentualnej podświadomej chęci pokazania się w lepszym świetle.

Materiał i metody: W badaniu wzięło udział 68 dzieci (11–16 lat), które podzielono na 2 podgrupy. Pierwszą stanowiły dzieci ze skoliozą leczoną z użyciem gorsetu ortopedycznego (36 osób), drugą – dzieci zdrowe (32 osoby). Zastosowano test M. Choynowskiego i E. Skrzypek „Jaki jesteś?” oraz Skalę KompOs Z. Juczyńskiego. Dodatkowo dzieci dokonały samoopisu za pomocą 3 z wybranych 16 przymiotników.

Wyniki: Dzieci noszące gorset uzyskały wyższe wyniki w skali kłamstwa oraz w zakresie wytrwałości w realizacji wytyczonych celów. Badani w obu grupach nie różnili się istotnie statystycznie pod względem poziomu neurotyzmu, siły działania, poczucia własnej skuteczności, pozytywnej i negatywnej oceny siebie.

Wnioski: Wskazane jest objęcie opieką psychologiczną dzieci noszących gorset ortopedyczny, zwłaszcza w zakresie podwyższenia ich poczucia własnej wartości.

Słowa kluczowe: emocjonalne funkcjonowanie dzieci zaopatrzonych w gorset ortopedyczny, poziom neurotyzmu, niższe poczucie własnej wartości, poczucie własnej skuteczności, siły i wytrwałości.

20 degrees) the rehabilitation is supplemented by use of a brace (Lowe *et al.* 2000; Payne *et al.* 1997). The aim of scoliosis treatment using a brace is to stop the progression and presumptive correction of the curve.

This work was conceived due to a willingness to make emotional functioning knowledge deeper and the need to find out how to deal with difficult situations experienced by children wearing orthopedic braces. It is, in a way, a continuation of research by the above-mentioned group (Janowska *et al.* 2008). This time, however, it touches upon functioning in everyday situations and not, as previously, in a difficult situation of scoliosis operation.

Taking a close look at children and teenagers with orthopedic braces, one could observe certain similar qualities in them. Children and teenagers seemed more depressed than an average group of school children. They also tended to cope worse with the problems typical for people of a similar age. Therefore, it was decided to verify those qualities in order to help children cope with everyday life better (it should be mentioned that the group of examined children did not await any operation or procedure in the near future which could increase the level of stress).

A need to learn the way children with an orthopedic brace function arose; therefore, it was decided to examine their neurotic level, which also tends to be intensified by this medical condition. Neuroticism is a characteristic of personality based on strong emotional instability with neurotic character, stress vulnerability, being prone to fear tendencies; the opposite of neuroticism is emotional stability. Eysenck was the first to use this expression in his theory of human temper PEN (Hall and Lindzey 2002). Investigating the behaviour of brace wearing children in difficult situations, it was agreed to examine such children's feeling of self-effectiveness and its two elements: the belief of willpower, which is vital to initiate an action, and the belief connected with persistence, which is important when an action is being carried out (Juczyński 2001).

Aim of the study

The purpose of the study was to estimate the neurotic level as well as self-effectiveness feeling among children wearing a brace when compared to healthy children of a similar age. In addition, the study aimed to assess subjective self-evaluation of brace wearing children in comparison with a healthy group as well as attaining information about their possibly subconscious need to impress others.

Material and methods

Sixty-eight children – 31 boys, 37 girls (age 11-16, average age 13 years 6 months ± 1.85)

– were psychologically examined. The children had previously been divided into 2 subgroups:

1. Children with scoliosis with a brace – 36, average age 13.25 years old ± 1.80 ; 16 boys, average age 13.19 years old ± 1.94 and 20 girls average age years old 13.30 ± 1.81 – being looked after in our orthopedic ward; the period of brace treatment lasted on average 34 months (6-72 months). The mean Cobb angle (scoliotic spinal deformities angle) was 28 degrees (20-38).
2. Healthy children (control group) – 32 volunteers, average age 13.81 ± 1.89 years old; 15 boys average age years old 13.79 ± 1.89 , and 17 girls average age years old 13.65 ± 1.84 – chosen among middle school students and secondary school students who did not claim any health problems.

The evaluation of neurotic level was conducted using the Choynowski and Skrzypek “What are you like” questionnaire. Furthermore, the questionnaire also enabled us to evaluate the so called “lie scale”. A higher score on the scale (higher than 5) might have suggested that a given person wanted to show him or herself in a better way, behaved in a superior way, as a more disciplined person than he/she really was. An elevated score of neurotic level (higher than 21) showed high sensitivity of an examined student, being prone to timorous behavior, to excessive tempestuous acts as well as psychosomatic complaints.

Feeling of self-effectiveness and its 2 elements – certainty concerning power command which is necessary to initiate an examination and is connected with persistence that is vital to continue an action – was measured by means of Juczyński's KompOs Scale. A low score (1-4 sten) indicates inferior self-effectiveness feeling, while an elevated score (7-10 sten) suggests high personal competence. A score of 5-6 sten is regarded as average.

An evaluation of a self-description was made by choosing 3 out of 16 adjectives provided in the survey. The survey for children with a brace additionally contained the following questions:

1. How long have you been wearing a brace?
2. How do you cope with wearing a brace? – no problems, well, quite well, not well, badly (please pick the appropriate answer).
3. What is the greatest limitation for you while wearing a brace?
4. Has anything changed since you started wearing a brace?

The group of healthy children instead of answering the above mentioned questions were

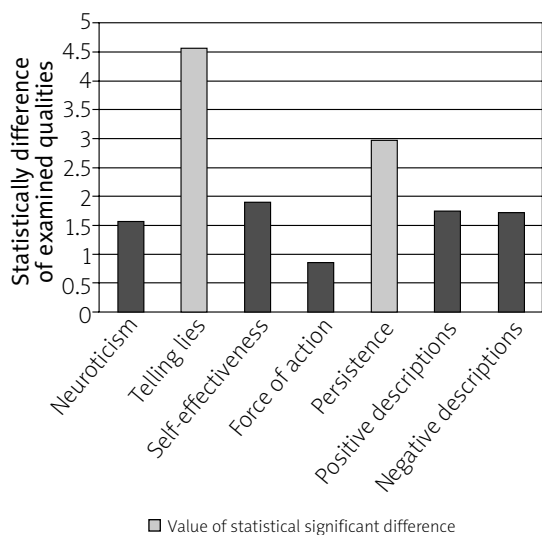


Fig. 1. Statistical difference of examined qualities

asked to tick if and since when an examined person had been suffering from an illness.

A statistical case study comparing the two groups was carried out by means of the Z test (Barańska 2000) due to the fact. A random sample is homogeneous in terms of age, with similar sizes (32 healthy and 36 wearing brace/ill children).

Results

In Figure 1, data figures have been submitted to compare groups of children wearing a brace with the healthy ones in terms of neurotic scale results, telling lies, generalized feeling of self-effectiveness, persistence as well as the amount of positive and negative self-evaluating descriptions.

The statistical analysis in question ($\alpha = 0.05$; there is no basis to reject the null hypothesis, when $IZI < 1.96$) IZI has proven that statistically significant differences between the results on the lie scale and in terms of persistence in fulfilling set tasks do exist. The above-mentioned qualities were much higher in the group of children wearing a brace.

The remaining results were not statistically significant. The children of the two groups did not significantly differ as far as neurotic level, forces of action, self-effectiveness feeling and positive and negative self-evaluation were concerned. The result of self-effectiveness feeling of the examined children (children wearing a brace showed greater persistence) was the closest to the level of significance. Both groups of children had a larger amount of positive self-evaluating descriptions. Such descriptions were more common within the group of children with a brace (as it

has been proved above, it was not a statistically significant difference). The majority of the examined children from the two groups enumerated the following positive qualities: finding it easy to make friends, bravery, willingness to take up new challenges, self-satisfaction, and good school results.

The results of negative self-evaluating descriptions formulated in a similar way. There were fewer negative opinions among children with a brace when compared to the healthy ones (statistically insignificant difference). The most frequently enumerated qualities of the two groups were: the need to change the looks, the lack of self-attractiveness, and shyness. The majority of children with a brace have skillfully dealt with it and without any problems. The not well and badly option was ticked by 3%. The greatest limitations on wearing a brace were self-discomfort and feeling confused among others (47%) as well as negative feeling when performing certain exercises (e.g. bend exercise – 25%).

Discussion

Coming to terms with wearing a brace is usually difficult and often a lengthy process (Lange *et al.* 2009). Restrictions to physical capabilities and even functional disturbances of individual organ systems are possible consequences of scoliosis. Following diagnosis, there is a need for a certain amount of adjustment to the new situation. Regular repetition of specific exercises, visits to the family doctor and to specialists, adaptation to a brace and rehabilitation measures all have a lasting impact on the life situation of an adolescent. The initial shock that frequently follows a diagnosis of scoliosis may result in emotional uncertainty; feelings of fear, depression, helplessness or hopelessness need to be overcome. These symptoms are usually most severe at the beginning of the treatment. However, even if a patient comes to terms with it, they may repeatedly re-appear during the long process. Very often other difficult life situations make the depressed mood associated with the need to treat by means of a corset and difficulties in reconciling with this fact return (Skrzypek 1968; Ugwonali *et al.* 2004).

Choynowski's and Skrzypek's test of Open Anxiety: "What are you like?" has not supported the hypothesis that children wearing a brace have a neurotic personality type (Hall and Lindzey 2002; Juczyński 2001; Skrzypek 1968; Tomaszewski and Janowska 2012). It has,

however, shown other relations: the groups of the examined children have tried to show themselves better than they are in reality. The group has focused on taking care of good opinions about them so that others could see them in the best possible way. It is highly likely that the reason was low self-evaluation of the examined. People with positive self-esteem evaluate themselves the way they are along with their advantages and disadvantages – they do not have to worry about others' favorable thinking about them. It is worth highlighting that similar results were found when examining children suffering from bedwetting (Barańska 2000; Danielsson *et al.* 2001; Janowska *et al.* 2007; Kahanowitz *et al.* 1984; Korovessis *et al.* 2007). Only 1/3 showed a higher level of neuroticism while 73% of the children from the group had elevated results on the lie scale.

Thus, it is important not to evaluate personality of the examined people without a connection with the lie scale which indicates that there is likelihood that not all children have admitted their weaknesses. It is extremely significant to note that children with a brace show excellent persistence in action. This quality may be of great help when performing all actions in children's life but during brace treatment as well. It is, therefore, a very good predictor during scoliosis treatment and rehabilitation. The psychological study utilizing the KompOs Scale has proven that, on the one hand, such children find it more difficult to start something, to get involved in a chosen activity but, on the other hand, they are more persistent when they have achieved the objective.

Taking a good look at self-evaluation of children with a brace, one must not forget about children's subjectivity. This examination did not involve the lie scale, which could have been helpful in verifying self-evaluation. It cannot be ruled out that the presented self-evaluation was higher than it was in reality. Certain doubts may be caused by statements manifesting that wearing a brace by the majority of the examined children resulted in no problems. It seems to be inconsistent with information conveyed in individual contacts. A great deal of girls complained that due to wearing a brace, they could not wear tight and trendy clothes when compared to their healthy friends (it is worth mentioning that the majority of girls with scoliosis were slim, and their figure was good). They said that owing to wearing a brace, they felt worse and less feminine. Almost everybody complained about difficulties connected with

going to school – because of heavy schoolbags, students had to be driven to school, which caused great discomfort for them. Many of the people admitted to feeling worse due to not being able to go back home with their friends either on foot or by bus. Psychological support should always be provided to adolescent idiopathic scoliosis (AIS) patients, through group therapy as well as individual counseling, in order to promote disease and treatment acceptance and minimize emotional discomfort (Skrzypek 1968; Ugwonali *et al.* 2004). Additional studies seem to be advisable, with regard to promoting the improvement of diagnosis of psychological problems in children with scoliosis.

Conclusions

1. All children wearing a brace can be defined as those having greater persistence, which is a very good predictor during scoliosis treatment.
2. Due to mediocre results in terms of self-effectiveness, especially force of action, special emphasis should be put upon reliable informing, intensive motivation and making scoliotic children and their parents convinced why it is important to wear a brace.
3. The majority of children wearing a brace showed low self-esteem manifested by the need to draw attention, the need to be liked and noticed. Simultaneously, such children possess strong defense mechanisms which during problem suppression do not make children reveal their fears and anxiety in a favorable way.

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