

# ΤΟ ΒΗΜΑ ΤΟΥ ΑΣΚΛΗΠΙΟΥ

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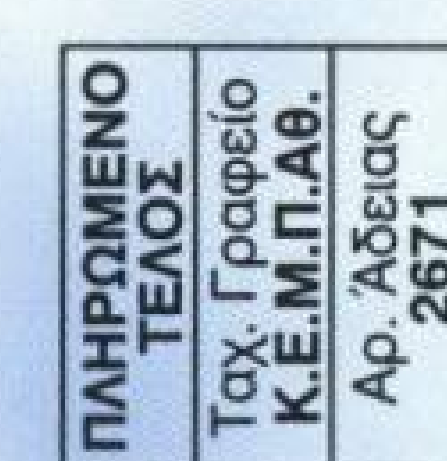
Polycystic ovaries

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Bracing and stress



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# Bracing and stress

## The perception of stress in adolescents

### wearing a Boston brace for scoliosis treatment

D.S. Sapountzi-Krepia,<sup>1</sup>

A.S. Dimitriadou,<sup>2</sup>

E.A. Kotrotsiou,<sup>3</sup>

G.P. Panteleakis,<sup>4</sup>

D.N. Maras,<sup>5</sup>

M.N. Sgantzos<sup>6</sup>

<sup>1</sup>BSc, MSc, PhD, RGN, RHV,  
Associate Professor, Technological  
Educational Institute of Thessaloniki

<sup>2</sup>BSc, RGN, PhD Candidate,  
Assistant Professor, Department  
of Nursing, Technological Educational  
Institute of Thessaloniki, Thessaloniki,  
Greece

<sup>3</sup>BSc, MSc, PhD, RGN,  
Associate Professor, Department  
of Nursing, Technological  
Educational Institute of Larisa,  
Larisa, Greece

<sup>4</sup>BSc, RHV, Health Visiting Department,  
Technological Educational Institute  
of Athens, Athens, Greece

<sup>5</sup>MD, VS, Consultant, NHS,  
Vascular Surgery Clinic, Red Cross  
Hospital, Athens, Greece

<sup>6</sup>MD, PhD, PMR, Lecturer, Medical School,  
University of Thessaly, Larisa, Greece

**Key words:** Scoliosis, Boston brace,  
perception, stress

**Λέξεις κλειδιά:** Σκολίωση, Boston bra-  
ce, αντίληψη, stress

**Aim** This study examines the impact of Boston brace treatment on the perception of stress, of scoliosis adolescents living in Athens, Greece. **Material-Methods** One hundred fifty braced scoliosis adolescents 12–18 years old, from the 5th Orthopaedic Clinic of the KAT Hospital in Athens and a control group of 150 healthy controls were interviewed for exploring the impact of bracing on the perception of stress. A self-administrated questionnaire was used. The first part of the questionnaire included questions on demographic, socio-economic characteristics, on scoliosis and brace treatment and the second part included the Piers-Harris scale. Data were analyzed with the SPSS/PC+software using descriptive statistics, Pearson correlation and the non-parametric Mann-Whitney U test. Statistical significance was set at  $P=0.05$  or less. **Results** The analysis of the results revealed that scoliosis subjects experienced more stress ( $P=0.0389$ ) in comparison to the subjects in the control group. **Conclusions** A 5% of the scoliosis subjects had some opportunities to discuss their problems with health professionals, while 90% of them stated that they wanted to have opportunities to do this.

**Περίληψη Θεραπεία με ορθοπεδικό κηδεμόνα και stress. Η αντίληψη του stress σε εφήβους που ακολουθούν θεραπεία σκολίωσης με ορθοπεδικό κηδεμόνα τύπου Boston.** Δ.Σ. Σαπουντζή-Κρέπια,<sup>1</sup> Α.Σ. Δημητριάδου,<sup>2</sup> Ε.Α. Κοτρώτσιου,<sup>3</sup> Π. Παντελέα-κης,<sup>4</sup> Δ.Ν. Μάρας,<sup>5</sup> Μ.Ν. Σγάντζος.<sup>6</sup> <sup>1</sup>Αναπληρώτρια Καθηγήτρια, ΤΕΙ Θεσσαλονίκης, <sup>2</sup>Υποψή-φια Διδάκτωρ, Επίκουρη Καθηγήτρια, Τμήμα Νοσηλευτικής ΤΕΙ Θεσσαλονίκης, <sup>3</sup>Αναπληρώτρια Καθηγήτρια, Τμήμα Νοσηλευτικής ΤΕΙ Λάρισας, <sup>4</sup>Τμήμα Επισκεπτριών Υγείας, ΤΕΙ Αθηνών, <sup>5</sup>Αγ-γειοχειρουργική Κλινική, Νοσοκομείο «Ερυθρός Σταυρός», <sup>6</sup>Λέκτορας, Ιατρική Σχολή, Πανεπιστή-μιο Λάρισας. Το Βήμα του Ασκληπιού 2004, 3(2):99–102. Σκοπός Η παρούσα μελέτη εξετάζει την επίδραση της θεραπείας με ορθοπεδικό κηδεμόνα τύπου Boston στην αντίληψη του stress, σε έφηβους με σκολίωση που ζουν στην Αθήνα και ακολου-θούν μια τέτοιου είδους θεραπεία. Υλικό-Μέθοδος Εκατόν πενήντα έφηβοι με σκολίωση ηλικίας 12–18 ετών, οι οποίοι παρακολουθούνταν από τα εξωτερικά ιατρεία της 5ης Ορθοπεδικής Κλινικής του Νοσοκομείου ΚΑΤ των Αθηνών και μια ομάδα ελέγχου 150 μαθητών ηλικίας 12–18 ετών συμμετείχαν σε μια έρευνα προ-κειμένου να εξεταστεί η επίδραση της θεραπείας με ορθοπεδικό κηδεμόνα τύπου Boston στην αντίληψη των εφήβων για το stress. Όργανο συλλογής στοιχείων απετέλεσε ένα ερωτηματολόγιο που το πρώτο του μέρος περιλάμβανε γενικές ερωτήσεις για δημογραφικά στοιχεία, τη νόσο και τη θεραπεία της και το δεύτε-ρο μέρος του την κλίμακα Piers-Harris. Τα στοιχεία αναλύθηκαν με SPSS/PC+ software και για την ανάλυσή τους χρησιμοποιήθηκε περιγραφική στατιστική, Pearson correlation και το Mann-Whitney U test. Επίπεδο στατιστικής σημαντικότη-τας τέθηκε το  $P=0,05$ . Αποτελέσματα Η ανάλυση των στοιχείων ανέδειξε ότι οι έφηβοι με σκολίωση που ακολουθούν θεραπεία με ορθοπεδικό κηδεμόνα τύπου Boston βιώνουν μεγαλύτερο stress ( $P=0,0389$ ) σε σύγκριση με τους έφηβους της ομάδας μαρτύρων. Συμπεράσματα Σε ποσοστό 5% οι έφηβοι με σκολίωση δήλωσαν ότι είχαν κάποιες ευκαιρίες να συζητήσουν τα προβλήματά τους με επαγγελματίες υγείας, ενώ το 90% του δείγματος εξέφρασε την επιθυμία να του δίνονται ευκαι-ρίες για συζήτηση προβλημάτων και ανησυχιών με επαγγελματίες υγείας.

## Introduction

Stress is recognized as a major health hazard of the contemporary century and numerous studies have related stress to onset of illness and treatment. Stress is the response of human organism to noxious stimuli, which are called stressors. Seley<sup>1</sup> defined stress as "...the state manifested by the specific syndrome which consists of all the non-specifically included changes within a biologic system" (p 311). Lazarus<sup>2</sup> gives a broader viewpoint at stress and he added to the stress related literature the component of perception and argued that an event or situation is interpreted and evaluated by a person as stressful in light of the person's past history and experience.

Scoliosis is a chronic illness starting mainly in late childhood and its treatment includes exercises, bracing and surgical treatment. Bracing is a long lasting therapy and braces are worn by scoliosis adolescents for long hours a day and therefore scoliosis patients enter adolescence with a chronic illness and as many of them as follow bracing treatment, find their body imprisoned in a plastic brace. However adolescence is recognized as a difficult psychological period on its own right and when it is compounded by the biopsychosocial effects of scoliosis and the treatment with a brace it can produce immense psychological stress.<sup>3</sup> As it is argued by many authors scoliosis tends to affect the patients psychology due to the chronic nature of the illness itself, the prolonged brace treatment needed and the resulting alterations on body image.<sup>4-6</sup>

Following diagnosis, there is a need for a certain amount of adjustment to the new situation that produces stress while uncertainty about the success of the therapy and changes in lifestyle further burdens the patient.<sup>7</sup> Furthermore, several studies found that brace treatment itself tends to produce stress<sup>8-11</sup> and therefore psychological support to braced children and adolescents is required and that such provision is also regarded by patients as useful.<sup>12,13</sup> Besides, an earlier paper on the same population has already stressed a lack in the provision of emotional support to scoliosis adolescents in Greece.<sup>14</sup>

The current paper presents the findings of a study carried out to examine the impact of Boston brace treatment on the perceptions of stress of scoliosis adolescents living in Athens, Greece.

## Material and method

The aims of the project were to investigate the impact of bracing to scoliosis adolescents and the present paper focuses on the differences on the perception of stress between scoliosis adolescents following Boston brace treatment and the ado-

lescents of the control group.

The formulated null hypothesis was the following.

H<sub>0</sub>: Girls/boys with scoliosis following Boston brace treatment and boys and girls from the control group do not have any differences regarding the perception of stress.

A self-administrative questionnaire was distributed to a scoliosis group of 150 braced adolescents (12–18 years old) from the 5th Clinic of the General Regional Hospital of Attica (KAT) and to a control group of 150 healthy adolescents (12–18 years old) who were high school students. The questionnaire used in the study retained the anonymity of the participants and it was consisted of two parts. The first part of the questionnaire contained questions on demographic characteristics and on the disease and the treatment followed, while the second part of the questionnaire contained the Piers-Harris<sup>15</sup> scale "how I feel about myself". The scale has been translated earlier into the greek language and has been already used by other greek researchers.<sup>16,17</sup>

Data were collected from a convenient sample of scoliosis patients who visited the afternoon Scoliosis clinic at KAT hospital for follow-up and controls were selected from secondary school pupils of the area of Athens at the same period. The data were analyzed with the SPSS/PC+software, and descriptive statistics, factor analysis and the non-parametric Mann-Whitney U test. Statistical significance was set at  $P=0.05$  or less.

## Results

One hundred thirty four girls (89%) and 16 boys with scoliosis (11%) and a control group of 99 healthy girls (66%) and 51 healthy boys (34%) who lived in Athens constituted the sample of the present study. Seventy percent of the scoliosis adolescents followed long term (13–36 months) Boston brace treatment, while the remaining 30% for one year or less. The degree of scoliosis curvature ranged from >10–50 degrees and the 56.8% of the subjects had a degree of curvature from >10–19 degrees. The mean age of the scoliosis group was 14.74, (min 12, maximum 18), while the mean age of the control group was 14.27, (min 12, maximum 19).

For testing any correlations between the perception of stress and sex, age, duration of the Boston brace treatment and degrees of curvature for the scoliosis group the Pearson test applied (tabl. 1). The results obtained did not reveal any statistically important finding.

For testing the perception of stress a special variable was created by the employment of a factor analysis that selected from the questionnaire the questions that were related to the perception of stress. These questions formed the variable for the perceptions of stress and they were used for further statistical analysis of the data.

Table 2 shows the comparison of means between the two groups for the perception of stress by the Mann-

**Table 1.** Pearson correlation as to sex, age, duration of the Boston brace treatment, and degrees of curvature and the perception of stress of the scoliosis group.

Perception of stress	Pearson r	Correlation P
Sex (male)	-0.09254	0.26005
Age	-0.07760	0.34525
Duration of Boston brace treatment	0.01758	0.83206
Degrees of curvature	-0.00033	0.99688

**Table 2.** Comparison of means between the scoliosis group and the control group regarding the perception of stress by the non parametric Mann-Witney U test.

Perception of stress	$\bar{x}$ scoliosis	$\bar{x}$ control	P
	80.38	70.12	0.0389

Whitney U test. We found that scoliosis subjects experienced more stress (P=0.0389) in comparison to the control group.

A further analysis revealed that almost all the subjects reported that they had not received any support in terms of helping them to adapt to wearing a Boston brace from any specialized health care professional and only five percent reported that they had opportunities to discuss their problems with the doctor during visits to the scoliosis clinic. Ninety percent of the subjects stated that it would be very beneficial for them to have possibilities to discuss their worries with health care professionals, during Boston brace treatment.

Discussion

It was assumed that the perception of stress is affected in adolescents with scoliosis following bracing and on this assumption the hypothesis of the present study was developed. We therefore proceeded with testing the perception of stress on braced scoliosis boys and girls after consulting the results obtained regarding the perception of body image, where we found that the scoliosis group had a poorer perception of body image in comparison to the control group.<sup>14</sup> Taking into account that alterations in body image produce stress, we wanted to test if scoliosis adolescents following bracing experienced more stress than adolescents of the general population.

We first examined the scoliosis population for any correlations between the perception of stress and sex,

age, duration of the Boston brace treatment as well as degrees of curvature (tabl. 1) but the results obtained did not reveal any statistically important finding. We proceeded then with checking the impact of bracing on the perception of stress by testing the null hypotheses that there were no differences among the subjects in the scoliosis and the control group. As can be seen from the results obtained, the null hypothesis H<sub>0</sub> of the present study proved to be false because girls and boys with scoliosis experienced more stress in comparison to the control group (tabl. 2).

Similar findings were reported from Saccomani et al<sup>11</sup> who found that during long-term scoliosis treatments symptoms of stress and depressive aspects were observed; while MacLean<sup>9</sup> found that the initial brace-wear period was associated with stress. Furthermore, it is also pointed out in the literature that although bracing is not associated with pain, it is a psychologically disturbing treatment producing stress.<sup>7</sup> Considering these findings it must be taken into account that scoliosis is a chronic illness starting mainly in late childhood and therefore scoliosis patients enter adolescence with a chronic illness and they find their body imprisoned in a plastic brace. However adolescence is recognized as a difficult psychological period on its own right and when it is compounded by the biopsychosocial effects of scoliosis and the treatment with a brace it can produce stress<sup>1</sup> and therefore scoliosis adolescents have to be provided with support during the long time of bracing.

Important are also the results confirming that most of the scoliosis delescents did not have opportunities to discuss their feelings with health professionals during bracing, while a wish for having opportunities to discuss care, treatment and outcomes was strongly urged by the majority of the subjects.

Conclusions

The findings of our study revealed that adolescents with scoliosis following Boston type bracing experienced stress and therefore nurses, as well as other health professionals, have to provide them with the necessary support. Supporting scoliosis adolescents is a good opportunity for greek nurses for expanding their traditional nursing role. Furthermore, in supporting scoliosis clients nurses can also collaborate with psychologists for referring to them clients and thus an empowerment of an interprofessional practice can be flourished.

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Αλληλογραφία: Δ.Σ Σαπουντζή-Κρέπια, ΤΕΙ Θεσσαλονίκης, Τμήμα Νοσηλευτικής, 541 01, Τ.Θ. 145 61, Θεσσαλονίκη  
e-mail: desapoun@yahoo.com