

# Level of dental anxiety in Lublin secondary school students aged 17-18

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**Abstract:** Dental anxiety directly affects the status of oral health which, in turn, influences the quality of life. The purpose of this study was to evaluate the dental anxiety level in adolescents in the second form of secondary schools. A survey was performed using the Dental Anxiety Scale (DAS). The questionnaire also included questions concerning unpleasant symptoms before a visit to the dentist and the choice of dental treatment. The obtained study results permit the following conclusions to be drawn: level of dental anxiety is determined by the occurrence of unpleasant symptoms before a visit to the dentist, and the choice of method of treatment is determined by the level of dental anxiety.

**Key words:** dental anxiety, dental anxiety scale

## INTRODUCTION

Fear is considered to be an emotional state, subjectively perceived as a very distressing phenomenon. It is the most commonly occurring psychopathological symptom, presenting itself in various forms such as anxiety, discomfort, and panic. It is usually experienced as a series of symptoms of various origins: psychological (insecurity, distraction among others), behavioural (manipulative anxiety and restlessness among others), vegetative and somatic (increased muscle tone, dizziness, palpitation, among others) as well as metabolic disorders. It is also accompanied by increased activity of the vegetative system. Fear occurs in situations perceived and treated as dangerous or disagreeable. However, it should be stressed that such situations do not have to be actually taking place; it is enough for them either to be only expected or anticipated [1, 2].

Recently, it has been believed that every patient should have their dental anxiety level examined before implementing any diagnostic-therapeutic-prophylactic procedures. This is a consequence of the fact that dental anxiety, in turn, influences the quality of a patient's life [3, 4, 5].

Thus, it seemed purposeful to evaluate the level of dental anxiety in adolescents from the second form of secondary schools.

## MATERIAL AND METHODS

The study involved 222 second-year senior secondary school students (128 girls and 94 boys) from Lublin. The mean age in the study group was 17 years and 9 months ( $\pm$  4 months) with extremes of 16 years and 6 months and 18 years and 4 months. The survey was performed in several groups of students, divided into their regular school classes. Each student filled

in the questionnaires individually. The Corah Dental Anxiety Scale (DAS) was used in the study [6, 7] which consists of four questions concerning the patient's mood (Table 1). The

**Table 1** Questions included in the Dental Anxiety Scale

No.	Question	Answer
1.	How did you feel at home knowing that you are about to visit the dentist?	1 – waiting patiently for the necessary event 2 – not anxious about what was going to happen 3 – anxious about the forthcoming visit 4 – afraid that the visit may be unpleasant and painful 5 – afraid of what the dentist was going to do
2.	You are in a dental surgery waiting room. How do you feel? You are sitting in a dental chair.	1 – relaxed 2 – slightly uneasy 3 – tense 4 – fearful 5 – so anxious that I am on the verge of a psychological breakdown, sweating and feeling sick
3.	How are you feeling when you see the dentist holding a drill ready to begin the dental treatment procedure?	1 – relaxed 2 – slightly uneasy 3 – tense 4 – fearful 5 – so anxious that I am on the verge of a psychological breakdown, sweating and feeling sick
4.	You are about to have dental calculus removed. You are waiting for the dentist to prepare the instruments that he/she is going to use. How are you feeling then?	1 – relaxed 2 – slightly uneasy 3 – tense 4 – fearful 5 – so anxious that I am on the verge of a psychological breakdown, sweating and feeling sick

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questionnaire also included questions concerning unpleasant symptoms before a visit to the dentist and the choice of dental treatment (e.g. traditional treatment, application of local anaesthesia, application of general anaesthesia, treatment utilizing neuroleptoanalgesia).

The total number of points constituted the score for the level of dental anxiety. A score of 4-7 points is characteristic for patients with low level of dental anxiety; medium level of dental anxiety is described by the score of 8-11 points, while patients who scored 12-20 points were included in the group of patients with a high level of dental anxiety. The following methods were used in the statistical analysis of the survey results: for the quantitative features – mean measures (M) and result distribution measures, standard deviation (SD), were calculated. In some cases, the measurable variables were characterized using mean value at the same time providing results range. Comparison of results was based on the hypotheses verification method – the Kruskal-Wallis test. Calculations were made using the Statistica 7.1 programme. Statistical significance was established at  $p < 0.05$  [8].

**RESULTS**

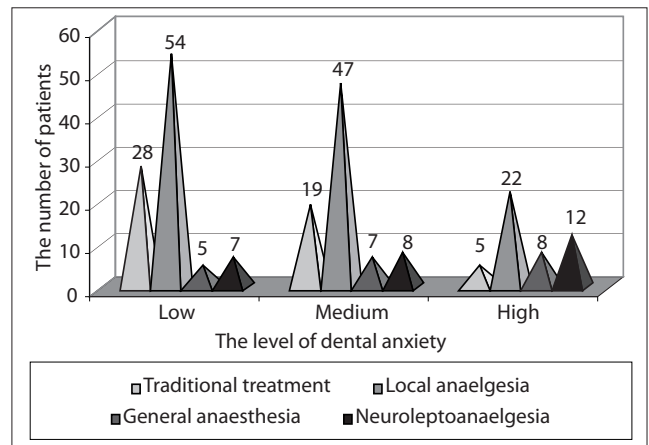
It was found that 42.34% of the subjects had a low level of dental anxiety, according to the DAS, 37.39% had a medium level of dental anxiety, and 20.27% had a high level of dental anxiety. The mean value of points scored on the DAS by the subjects was  $8.67 \pm 3.18$  ( $9.02 \pm 3.25$  in girls, and  $8.20 \pm 3.05$  in boys). Analyzing the level of dental anxiety in relation to gender within the study group we did not find a statistically significant correlation ( $\chi^2 = 0.480$ ,  $p = 0.488$ ). The results are presented in Table 2.

On the basis of the statistical analysis, it was established that there is a statistically significant correlation between the level of dental anxiety and the occurrence of unpleasant symptoms before a visit to the dentist. It was established that unpleasant phenomena occurred in 97 subjects, in 123 there were no unusual symptoms, and 2 failed to provide an answer ( $H = 71.03$ ,  $p < 0.001$ ).

Lack of unpleasant symptoms before a visit to the dentist occurred most often in the group of patients with a low level of dental anxiety. It was observed that the most common symptom in all subgroups of subjects was uneasiness. In the subgroup of adolescents with a high level of dental anxiety, the occurrence of several unpleasant phenomena before a visit to the dentist was equally frequent.

In the studied population, 22.52% of subjects chose traditional treatment, 56.76% opted for local anesthesia, 8.56% wanted to undergo dental treatment under general anaesthesia, and 12.16% preferred neuroleptoanalgesia. The

correlation between the choice of treatment method and level of dental anxiety in the study group was statistically significant ( $H = 21.92$ ,  $p < 0.001$ ). The results are presented in Figure 1.



**Figure 1** Level of dental anxiety and choice of treatment method.

In all subgroups of study subjects, the most frequently chosen dental treatment method was the one with local analgesia. In the subgroups of subjects with low and medium levels of dental anxiety, the second choice of treatment method was traditional treatment, while in the subgroup of adolescents with a high level of dental anxiety, it was the application of neuroleptoanalgesia. The third choice among people with low and medium levels of dental anxiety was the application of neuroleptoanalgesia, and in the subgroup of subjects with a high level of dental anxiety, it was treatment under general analgesia. The least popular method among students with low and medium levels of dental anxiety was general analgesia, while the subgroup with a high level of dental anxiety selected traditional treatment as the least accepted method.

**DISCUSSION**

On the basis of a review of 200 articles and 19 studies, Smith and Heaton concluded that, despite the fact that within the last 50 years the frequency of occurrence of dental anxiety increased in the United States, it seems that the overall incidence figure for dental anxiety has been quite stable [9]. In a cross-sectional study, Brukiene et al. observed that the mean value of points scored on the DAS by a studied population of 885 adolescents equalled  $10.07 \pm 3.20$  [10]. Erten et al. found that the mean value of points scored on the DAS by a studied population of 1,437 patients was  $8.76 \pm 3.80$ , with the following gender differences –  $9.52 \pm 4.08$  in women and  $7.96 \pm 3.30$  in men [4]. In our own studies, the DAS in the study group was similar to that obtained by Erten et al. ( $8.67 \pm 3.18$ ). Among girls it was lower –  $9.02 \pm 3.25$ , while among boys it was higher and reached  $8.20 \pm 3.05$ . Ekanayake and Dharmawardena used the DAS in a study of 503 people, who were first time patients of the Peradeniya Dental Hospital. They found that in 32% of subjects the number of points on the DAS equaled or was higher than 12; however, it did not exceed 15, while in 12% of patients it equaled or was higher than 15 [11]. In our own studies, it was observed that a high level of dental anxiety (12 or more points on the DAS) was characteristic

**Table 2** Number of points on the Dental Anxiety Scale in relation to gender

Gender	Number of points on the Dental Anxiety Scale		
	Low level of dental anxiety	Medium level of dental anxiety	High level of dental anxiety
Girls	$5.91 \pm 0.88$	$9.09 \pm 1.15$	$13.78 \pm 1.94$
Boys	$5.82 \pm 0.98$	$9.09 \pm 1.05$	$13.73 \pm 1.66$
Total	$5.87 \pm 0.93$	$9.09 \pm 1.11$	$13.75 \pm 1.83$
Statistical significance	$\chi^2 = 0.480$ , $p = 0.488$		

for 20.27% of subjects, which means that the proportion of patients with high level of dental anxiety was lower than the one presented by Ekanayake and Dharmawardena [11]. In a study by Sikorska and Mielnik-Błaszczak [12], performed 7 years ago in a group of 167 students from the third form of secondary schools, a statistically significant correlation was found between the occurrence of unpleasant symptoms before a visit to the dentist and the level of dental anxiety. The most frequently occurring symptom was uneasiness, followed by palpitation [12].

In the current study, we have also found a statistically significant correlation between the occurrence of unpleasant symptoms before a visit to the dentist and the level of dental anxiety. Again, the most frequent symptom was uneasiness. In the study by Sikorska and Mielnik-Błaszczak it was found that in a population of third form secondary school students there was a statistically significant correlation between the choice of dental treatment method and the level of dental anxiety [12]. In the current study, we have also found a correlation between the treatment method choice and the level of dental anxiety.

## CONCLUSIONS

The results obtained from the study allow the following conclusions to be drawn:

1. The level of dental anxiety determines the frequency of occurrence of unpleasant symptoms before a visit to the dentist.
2. The choice of treatment method depends on the level of dental anxiety of the patient.

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