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The assessment of the 12-year-olds' dental care in rural areas

Dental caries is one of the most common chronic diseases of oral cavity in children from rural areas and, thus, one of the major dental problems. Despite many explicit tendencies towards reducing the prevalence and intensity of this disease within past few years, dental caries is still a very common condition (2, 3, 4, 6, 7, 8, 9, 13).

The state of health of dental cavity in 12-year-olds is, according to WHO, the primary objective.

The main objective of this study was to assess the state of oral health in 12-year-olds from rural areas of the Lublin province.

MATERIALS AND METHODS

Seventy 12-year-olds, 33 girls and 37 boys, randomized from rural primary schools of the Lublin province were examined in this study. A clinical trial was conducted in 2000. The region the examined children came from has negligible fluoride in the community water supply. The assessment of the state of oral health was carried out according to WHO guidelines. The clinical examination was carried out using mirror and dental explorer, in artificial light. The frequency of permanent teeth caries, mean DMFS and DMFT and their components as well as treatment indexes of the examined group were measured; sex divisions were taken into account. Data were then statistically analyzed using the median test. We allowed for 5% deduction error and accompanying levels of relevance ($p < 0.05$), pointing to statistically significant differences in the examined groups. Statistical analysis was conducted with STATISTICA 5 computer program.

RESULTS AND DISCUSSION

The frequency of dental caries in the population amounted to 94.28%. Only 4 children (that is 5.71%) did not suffer from dental caries. The frequency of dental caries in boys amounted to 97.30% and in girls to 90.91%.

The intensity of dental caries in the area is reflected by the mean DMFT and DMFS numbers. The mean DMFT of the 12-year-olds population was 5.10 and DMFS 8.66. Mean DMFT in girls amounted to 4.73 and in boys 5.43. The mean value of DMFS for girls and boys was roughly the same, and amounted to 8.36 and 8.92, respectively (Table 1). The analysis of particular components of the mean DMFT and DMFS

Table 1. Means, standard deviations for DMFT and DMFS in 12-year-olds from rural areas with division according to sex

Sex	Number of children	DMFT	DMFS
Girls	33	4.73 ±3.04	8.36±5.75
Boys	37	5.43±2.98	8.92± 5.13
Total	70	5.10±3.01	8.66±5.40

numbers showed that the mean number of teeth with active caries, DT, in children from Lublin province was 4.23 and the number of surfaces affected by caries, DS, was 6.57. There was, however, a considerably smaller mean number of teeth and surfaces with fillings, FT - 0.71 and FS - 1.28; the national mean FT - 1.6 (9). The value of the mean MT amounted to 0.16 and MS - 0.78 (Table 2). There were no statistically significant differences in DMFS and DMFT and their components between the sex groups.

Table 2. Means, standard deviations for DT, MT, FT, DS, MS, FS in 12-year-olds from rural areas with division according to sex

Sex	DT	MT	FT	DS	MS	FS
Girls	3.78±3.55	0.15±0.44	0.79±1.27	6.15±6.12	0.76±2.21	1.42±2.02
Boys	4.62±2.55	0.16±0.55	0.65±1.42	6.94±4.34	0.81±2.77	0.1.16±2.13
Total	4.23±3.01	0.16±0.50	0.71±1.34	6.57±4.63	0.78±2.48	1.28±1.94

In the examined group of 12-year-old children 13.12% of teeth in girls and 16.88% in boys were affected by active dental caries. The percentage of filled teeth in girls totalled 2.89% and 2.40% in boys, and filled teeth with secondary dental caries 0.78% and 0.20%, respectively. Only 2.33% of girls and 1.20% of boys had fissure sealing. 0.56% of teeth in girls and 0.60% in boys were extracted due to dental caries (Table 3).

Epidemiological studies conducted in the past few years indicate that Poland belongs to a group of countries with a high dental caries index, and the state of dentition

Table 3. State of dentition in 12-year-olds from rural areas of the Lublin province in 2000

Tooth	Girls (%)	Boys (%)	Total(%)
Healthy	65.45	63.26	64.30
With active caries	13.12	16.88	15.10
Filled with dental caries	0.78	0.20	0.47
Filled without dental caries	2.89	2.40	2.63
Extracted due to dental caries	0.56	0.60	0.58
Extracted for other reasons	0	0	0
Sealed	2.33	1.20	1.74
Non-erupted	14.87	15.46	15.18

in Polish children is not satisfactory (2, 9, 13, 14). The results of the following study point to the differences in the intensity of dental caries, expressed by the mean DMF number and its particular components, according to the region (province) and place of residence, that is a big city, a small town or a village. The study explicitly indicates that the number of extracted teeth due to untreated dental caries in 12-year-olds is on the significant increase, especially in the rural areas.

Epidemiological studies conducted in Poland in 1987, 1995 and 2000 showed that the mean DMFT number in 12-year-olds from Polish rural areas amounted to 4.70, 4.80 and 4.0, respectively (10). Dental literature indicates that in some Polish provinces the mean DMFT in children from rural areas was higher than the one in the Lublin province. In the examined 12-year-olds from the Warsaw province the mean DMF number amounted to 7.8, while in the former Piotrków province it amounted to 5.5 (7, 15). The authors attribute this higher incidence of dental caries in children from rural areas to poor availability of dental services as well as to individual attitudes. A bit lower mean DMFT – 4.3, was noted in the Nowy Sącz province (5). 12-year-olds from rural areas of the former Chełm province had the mean DMFT number of 3.48 (2).

The efficacy of treatment in those children was low. The treatment index for the whole examined population was low and amounted to 0.14. No statistically significant differences in the treatment index were noticed between sex groups. (Table 4). The lack of premeditated dental care at schools and considerably low level of health education is reflected by a considerably higher number of teeth affected by active dental caries and extractions due to dental caries as well as a smaller number of filled teeth (1, 5, 9, 12).

Table 4. Treatment Index of 12-year-olds from rural areas of the Lublin province, with division according to sex

Sex	Treatment Index
Girls	0.17±0.18
Boys	0.12±0.17
Total	0.14±0.26

CONCLUSIONS

1. A high frequency of dental caries amounting to 97.14% was found in the examined group.

2. Major factors contributing to high mean values of DMFS and DMFT are the mean number of teeth and surfaces affected by active dental caries: 4.23 and 6.57, respectively.

3. A very low treatment index reflects some inadequate dental care in comparison to the treatment needs of children from rural areas.

4. Only 18.57% of children from the examined group reached the 3rd WHO global oral health objective for 12-year-olds set for 2000 (DMFT ≤ 3).

5. Collected data point to the necessity of intensification of dental care in 12-year-olds from rural areas which will include dental caries treatment, prophylactic and health education.

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SUMMARY

The following paper presents an analysis of the state of health of the oral cavity in 12-year-olds from the Lublin province. The frequency of dental caries in the examined population as well as its intensity was measured with the mean DMF number, including its particular components. The results of the study revealed a high frequency of dental caries and mean DMF as well as a low treatment index. The results emphasize the need for some intensification of basic dental care among children from rural areas which will concentrate on prophylactics, education and health as well as treatment.

Ocena opieki stomatologicznej nad dziećmi 12-letnimi ze środowiska wiejskiego

W pracy oceniono stan uzębienia stałego u 12-letnich dzieci wiejskich w makroregionie lubelskim. U badanych dzieci określono frekwencję próchnicy i jej intensywność za pomocą średniej liczby PUW z uwzględnieniem poszczególnych składowych. Wyniki badań wykazały wysoką frekwencję próchnicy i średnią liczbę PUW oraz niski wskaźnik leczenia zębów. Uzyskane wyniki wskazują na konieczność zintensyfikowania podstawowej opieki stomatologicznej u dzieci wiejskich, która objęłaby szeroko pojętą profilaktykę, oświatę zdrowotną i leczenie.