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*Evaluation of the masticatory system condition with respect
to the need for prosthetic treatment in the population
of 35–44-year-olds from the Lublin Region*

Epidemiological studies of the masticatory system supply current data pertaining to the present state of teeth, parodontium, temporomandibular joints and oral mucosa in the studied population. They also allow for the evaluation of the quality and advancement of hitherto preventive-therapeutic work, and, in consequence, developing the most economical pattern of dental care (2, 5).

The prosthodontic restoration of the missing or damaged teeth in the age group of 35–44 is essential for the adequate functioning of the whole stomatognathic system connected with mastication, speech, the operation of temporomandibular joints, and aesthetics (3, 11, 13).

The aim of the present study is an evaluation of dentition state and the need for prosthetic treatment in the population of 35–44-year-olds living in Lublin.

MATERIAL AND METHODS

The study group comprised 59 subjects (29 men and 30 women) at the age of 35 to 44 living in Lublin.

The clinical study performed with the basic diagnostic set assessed the following: the frequency of dental caries, the number of decayed teeth, the number of missing teeth, and the number of filled teeth by means of the DMF index and its constituents (D, M, F).

An evaluation was carried out of the progress of hitherto performed conservative treatment by means of the treatment index (F/ F+D). Moreover, an assessment of the existing prosthetic restorations was conducted.

The prosthetic therapeutic needs were determined with regard to both the maxillary and mandibular dentition. The obtained data were analysed according to sex distribution. The following methods of statistical inference were used in statistical analysis: verification of statistical hypotheses based on parameter and non-parameter chi-square test, median test, and U Mann-Whitney test. The significance of differences in the obtained results was defined by $p < 0.05$. The development of the obtained results was performed on the IBM PC computer using the "STATISTICA" program (1, 6, 10).

RESULTS

The results of the study are presented in Tables 1, 2 and 3.

Table 1. Detailed analysis of the DMF index, the treatment index and the frequency of caries

| Index Sex | DMF | | D | | M | | F | | Treatment index | | Frequency of caries | |
|---------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|---------------------|----------|--------|-----------------|--|---------------------|--|
| | Women | M = 20.8 SD = 6.5 | M = 4.7 SD = 3.9 | M = 5.9 SD = 6.4 | M = 10.5 SD = 4.9 | M = 0.7 SD = 0.2 | 100 % | SD = 0 | | | | |
| Men | M = 18.4 SD = 5.5 | M = 4.5 SD = 4.4 | M = 4.9 SD = 4.9 | M = 9.0 SD = 3.9 | M = 0.7 SD = 0.2 | 100 % | SD = 0 | | | | | |
| Average | M = 19.6 SD = 6.1 | M = 4.6 SD = 4.1 | M = 5.4 SD = 5.7 | M = 9.8 SD = 4.5 | M = 0.7 SD = 0.2 | 100 % | SD = 0 | | | | | |
| U Mann-Whitney Test | Z = 1.4586 P = 0.1455 | Z = 0.5032 P = 0.6168 | Z = 0.2217 P = 0.8259 | Z = 1.3471 P = 0.1796 | Z = -1.0862 P = 0.2783 | | | | | | | |

M – median value, SD – standard deviation

An analysis of data presented in Table 1 led to the following observations. The frequency of dental caries in the studied population was 100%. The DMF index was higher in women and equalled 22.6, the same as its constituents, i.e. D = 4.7, M = 5.86, F = 10.43. The DMF index was lower in men (DMF = 18.9) and its constituents equalled D = 4.52, M = 4.89 and F = 5.37. The treatment index was higher for men (0.71) than for women (0.68). A statistical analysis showed that the observed differences between men and women with respect to dentition state and advancement of treatment were insignificant.

Table 2. Detailed statistical analysis of the DMF index and the treatment rate according to the average median value

| Index | Sex | | Average |
|---|-------------------------------------|-------------|-------------|
| | Women | Men | |
| Number of subjects with D > 4 | 14 46.7% | 11 37.9% | 25 42.4% |
| Value of median test function | Chi ² = 0.461; p = 0.497 | | |
| Number of subjects with M > 4 | 13 43.3% | 12 41.4% | 25 42.4% |
| Value of median test function | Chi ² = 0.023; p = 0.879 | | |
| Number of subjects with F > 9 | 17 56.7% | 11 41.4% | 28 47.5% |
| Value of median test function | Chi ² = 2.075; p = 0.150 | | |
| Number of subjects with DMF > 20 | 16 53.3% | 9 31.0% | 25 42.3% |
| Value of median test function | Chi ² = 3.002; p = 0.083 | | |
| Number of subjects with treatment index > 0.736 | 11 36.7% | 17 58.6% | 28 47.5% |
| Value of median test function | Chi ² = 2.850; p = 0.091 | | |

An analysis of the numbers contained in Table 2 shows that 46.7% of women and 37.9% of men had more than four cavities (the average median value for the studied population), 43.3% of women and 41.1% of men had more than 4 teeth extracted (the average median value for the studied population), 56.7% of women and 41.4% of men had more than nine teeth filled (as above). As a result of the performed statistical analysis it was observed that none of the obtained differences was statistically significant. An analysis of the DMF index showed that for 53.3% of women and 31.0% of men it was more than 20 (the average median value for the studied population) and this difference was close to significance in the statistical analysis (Chi-square = 3.002; p = 0.083).

The total percentage of individuals with the treatment index of more than 0.736 (the average median value for the population under study) was 47.5%, with women accounting for 36.7% and men 58.6% of the subjects; however, this difference was found insignificant.

Table 3. Prosthetic needs according to sex

| Sex | | Women | | Men | | Total | |
|--|----------|-------------------------|-------------------|-------------------------|----------------------|-------------------------|-----------------------|
| | | | | | | | |
| Complete dentition | | 8 subjects (26.67%) | | 6 subjects (20.69%) | | 14 subjects (23.73%) | |
| No need of prosthetic treatment (full dentition, gap closed, teeth 8 lost) | | 10 subjects (33.33%) | | 12 subjects (41.38%) | | 22 subjects (37.29%) | |
| Non-protected gaps and damage | maxilla | 10 subjects | 15 subjects | 8 subjects | 12 s.subjects | 18 subjects | 27 subjects |
| | mandible | 14 subjects | | 11 subjects | | 25 subjects | |
| Protected gaps and damage | maxilla | 9 subjects 30% | 9 subjects 30% | 5 subjects 17.24% | 5 subjects 17.24% | 14 subjects 23.72% | 14 subjects 23.72% |
| | mandible | 2 subjects 6.6% | | 1 subject 3.44% | | 3 subjects 5.08% | |
| Number of subjects with gaps and damage | | 22 subjects (73.33%) | | 23 subjects (79.31%) | | 45 subjects (76.27%) | |
| Need for prosthetic treatment | | 20 subjects (66.67%) | | 17 subjects (58.62%) | | 37 subjects (62.71%) | |

The data presented in Table 3 show that 20 (66.67%) women and 17 (58.62%) men needed prosthetic protection of teeth. Complete dentition was observed in eight (26.67%) women and six (20.69%) men. In total, 10 (33.33%) women and 12 (41.38%) men did not require prosthetic treatment, as in two women and six men teeth 8 had been extracted, or existing gaps were closed naturally due to the movement of the adjacent teeth. Prosthetic restorations were needed in 15 women and 12 men (with nine women and seven men requiring protection both in the maxilla and in the mandible). It was also observed that both men and women had their maxillary gaps completed more often than mandibular gaps.

DISCUSSION

The results obtained for the studied population reveal 100% frequency of dental caries, and this finding is identical with that obtained in the Katowice province by *Postek - Stefańska et al.* (8).

The average DMF index was 19.6 and it was insignificantly higher for women (20.8) than for men (18.4). Nationwide epidemiological studies conducted in the years 1987 and 1995 reported DMF indices of 17.8 and 17.15. For women it was 20.0 (in 1987) and 17.23 (in 1995), and for men 17.2 and 15.85 (5).

In the studied population of 35–44-year-old Lubliners 4.6 decayed teeth were found on average (D). This value is higher than those obtained in 1987 (3.3) and 1995 (3.76) (5).

The number of missing teeth (M) equalled 5.4 teeth per person and it was lower in men (4.9) than in women (5.9). A similar result was obtained by *Gałeczka - Wanatowicz et al.* (5.01), whereas the result for big-city-dwellers of the Katowice province was much higher ($E = 8.75$; women = 8.37, men = 9.13 missing teeth per person) (4). *Pellowska - Piontek et al.* studying the population of villagers in the vicinity of Gdańsk obtained the average result of $E = 10.29$ (7).

In the present study the number of filled non-decayed teeth per person was $F = 9.8$ (men 9.0, women 10.5). In nationwide epidemiological studies this result was lower and equalled 6.6 in 1987 and 7.83 in 1995 (in a similar group of city-dwellers). A lower value of the F component, i.e. $F = 6.68$, was also observed in the Katowice province (5).

The value of the treatment index reached 0.7 and was similar to the results obtained in nationwide studies (0.67 in 1987 and 0.68 in 1995) (5).

The percentage of individuals with missing teeth was 76.27% and it was insignificantly lower than that obtained in the national study of 1995 (88.5%). This percentage for 40-50-year-old diabetics was 94.8%, whereas it was 90.7% in the control group (9).

Complete dentition was noted in 26.67% of women and 20.69% of men (total: 23.75%). These values are significantly higher than the national data concerning big-city-dwellers: 5.67% of women and 5.0% of men (total: 5.33%) (5). A need for prosthetic treatment was observed in 62.71% of subjects. Such treatment was completed successfully within the maxilla in 23.72% of subjects, which is identical with the finding for the inhabitants of Łódź (23.8%) (12). Lower values were obtained for the prosthetic protection of the mandible: 5.08% in Lublin and 8.8% in Łódź. In both cities more prosthetic restorations were found in women than in men (12).

CONCLUSIONS

1. The frequency of dental caries reached 100% in the studied population.
2. The degree of provision for prosthetic needs among 35-44-year-olds is very low.
3. Women attach a little more importance to prosthetic restorations of their missing or damaged teeth.
4. Patients more often decide to obtain prosthetic treatment within the maxilla than within the mandible.

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SUMMARY

An epidemiological study was carried out on the population of 59 subjects aged 35–44 (30 women, 29 men) living in Lublin. An evaluation of dentition status and degree of provision for prosthetic needs was done. We observed a remarkable frequency of dental caries, a large percentage of subjects with missing or damaged teeth (76.27%), and inadequate advancement of prosthetic treatment in 62.71% of subjects. Greater care for prosthetic treatment was observed among women than among men. Gaps within the maxilla were more often protected than those within the mandible.

Ocena stanu uzębienia z uwzględnieniem potrzeb leczniczych w zakresie zabezpieczenia protetycznego osób w wieku lat 35–44 z rejonu Lublina

Przeprowadzono badanie epidemiologiczne 59 osób w wieku lat 35–44 (30 kobiet, 29 mężczyzn) zamieszkujących rejon Lublina. Dokonano oceny stanu uzębienia oraz stopień realizacji potrzeb leczniczych w zakresie zabezpieczenia protetycznego. Stwierdzono znaczną intensywność próchnicy, duży odsetek osób z brakami zębowymi (76,27%) oraz niski stopień zaawansowania leczenia protetycznego, dotyczącego 62,71% badanych. Zaobserwowano większą dbałość o leczenie protetyczne wśród kobiet w porównaniu z mężczyznami. Znacznie częściej zabezpieczeniu protetycznemu podlegały braki w obrębie uzębienia szczęki niż żuchwy.