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Aesthetics of dentition and orthodontic treatment in professional military service candidates

Estetyka uzębienia oraz leczenie ortodontyczne wśród kandydatów do zawodowej służby wojskowej

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ABSTRACT

Introduction. Men applying for military service must meet certain requirements concerning, among other things, their condition of health, including oral health, hence they are subjected to a standard dental examination, which has become a stimulus to consider its individual results.

Material and methods. The material of the study includes 150 candidates for professional military service, aged 19 to 25. Men before the dental-orthodontic examination completed a questionnaire containing 27 questions. The study focused on the relationship between the size of the place of residence and the attention paid to the appearance of the teeth and the introduction of orthodontic treatment, as well as the existence of the need for this treatment. The obtained results were subjected to statistical analysis using the chi square independence test.

Results. 98 subjects were not alerted by third parties by the appearance of their teeth, among residents of cities up to 100,000, more respondents themselves drew attention to the appearance of their teeth. A dental examination showed that 43 respondents had a single malocclusion, 34 had coexisting two defects, three were diagnosed in 2 candidates. 20 subjects were free from any malocclusion. Most candidates for professional military service, i.e. 112 out of 150 respondents, were not treated orthodontically.

Conclusions. The attention paid to the appearance of the teeth of candidates for military service depended on the size of their place of residence. On the other hand, there was no relationship between orthodontic treatment and the size of the place of residence. The vast majority of candidates were not treated orthodontically, despite the existence of such a need. The advisability of conducting further research on orthodontic treatment as well as paying attention and satisfaction from the appearance of teeth in candidates for professional military service was observed.

Keywords: candidates for military service, satisfaction with the appearance of teeth, orthodontic treatment.

STRESZCZENIE

Wstęp. Mężczyźni ubiegający się o przynależność do wojska muszą spełnić określone wymogi dotyczące między innymi stanu zdrowia, w tym stanu zdrowia jamy ustnej, stąd są oni poddawani standardowemu badaniu dentyścicznemu. Staje się to bodźcem do rozważań nad jego poszczególnymi wynikami.

Materiał i metody. Badaniom poddano kandydatów do zawodowej służby wojskowej, w wieku od 19 do 25 lat, w liczbie 150 w badaniu ankietowym. Mężczyźni wypełniali ankietę zawierającą 27 pytań, a następnie poddawano ich badaniom dentyściczno-ortodontycznym. Analizie poddano wszystkie parametry uzyskane w badaniu ankietowym, jednakże w pracy skupiono się na zależności pomiędzy wielkością miejsca zamieszkania a zwróceniem uwagi na wygląd zębów oraz podjęciem leczenia ortodontycznego. Sprawdzone także, czy występuje potrzeba tego leczenia. Otrzymane wyniki poddano analizie statystycznej przy wykorzystaniu testu chi kwadrat niezależności.

Wyniki. 98 badanych nigdy nie zwrócono uwagi na wygląd zębów. Wśród mieszkańców miast do 100 tysięcy więcej badanych samodzielnie zwróciło uwagę na wygląd swoich zębów niż zrobili to pozostali. Badanie dentyściczne wykazało, iż u 43 badanych występowała pojedyncza wada zgryzu, u 34 współwystępowały dwie wady, trzy zdiagnozowano u 2 kandydatów. 20 badanych było wolnych od jakiegokolwiek wady zgryzu. Większość kandydatów do zawodowej służby wojskowej, tj. 112 ze 150 badanych, nie była leczona ortodontycznie.

Wnioski. Zwrócenie uwagi na wygląd zębów kandydatów do służby wojskowej zależne było od wielkości miejsca ich zamieszkania. Z kolei wykazano brak zależności pomiędzy leczeniem ortodontycznym a wielkością miejsca zamieszkania. Zdecydowana większość kandydatów nie była leczona ortodontycznie, pomimo istnienia takiej potrzeby. Zauważono celowość przeprowadzenia dalszych badań nad leczeniem ortodontycznym, a także zwróceniem uwagi i zadowoleniem z wyglądu uzębienia u kandydatów do zawodowej służby wojskowej.

Słowa kluczowe: kandydaci do służby wojskowej, zadowolenie z wyglądu zębów, leczenie ortodontyczne.

Introduction

Epidemiological studies with oral health assessment are carried out all over the world, and are often broken down into specific age groups, from pre-school to old-age, and with gender-differentiation [1, 2, 3]. The division also takes into account place of residence, work performed and many other variables [4]. Young men wanting to perform professional military service constitute a significant research group [5, 6]. Most of them are of similar age, however, they come from different environments and regions of a given country, which allows a meaningful analysis of oral health to be made. Men applying for joining the army must meet certain requirements, which include: appropriate health, age not exceeding 35 years, very good physical fitness. Health requirements for young Poles are defined in the Regulation of the Minister of National Defense on adjudicating the ability to perform professional military service of 08.01.2010 with an amendment of 2018, in which dental requirements have not changed [7]. This regulation defines, inter alia, malocclusion that excludes the possibility of performing military service, including true progency, protrusions of the jaw or mandible, laterogeny, prognathism, micrognathism, open bite or associated defects of the jaws and mandible to which include true prognathism with micrognathism and others causing no contact of antagonistic teeth forming the chewing surface. In the case of these defects of the chewing organ, speech disorders are also taken into account. Candidates for professional military service are referred to a dental review for the assessment of oral health. The analysis of the condition of teeth and general oral health in young men wanting to undertake military service allows to compare data and to distinguish the correlation between the condition of oral health, place and environmental conditions of life, which have an indispensable effect on the formation of pro-health awareness.

In Poland, epidemiological studies were carried out on young men over many years, in different regions of the country and in different professional environments, e.g. conscripts, students of various universities, etc. The state of oral hygiene, the occurrence of caries and the condition and needs of periodontal treatment were examined, among others occurrence of malocclusion [8, 9]. The aim of the study is to analyze the relationship between the place of residence and paying attention to the appearance of teeth and orthodontic treatment of candidates for professional military service. The relationship between place of birth and residence

was also analyzed and the need for orthodontic treatment was checked.

Material and methods

The material included males, 150 candidates for professional military service, aged 19–25. A group of young men was chosen due to the required good health of volunteers applying for professional military service. The majority of the studied material came from 136 individuals from the Wielkopolska Province, the rest of the recruits came from other regions of Poland (**Figure 1**). Men applying for obligatory dental examinations first filled in a questionnaire containing 27 questions. Respondents answered questions about the place of birth, residence, oral hygiene habits, subjective assessment of the appearance of their teeth, the history of orthodontic treatment if such treatment was carried out, and possible willingness to take orthodontic treatment. After completing the questionnaire, a dental-orthodontic examination was conducted for candidates for professional military service. The obtained results were subjected to statistical analysis using the chi square independence test.



Figure 1. Map of Poland with a separate location of the Wielkopolska Province, where most of the candidates for professional military service came from. Source: Wikipedia
Rycina 1. Mapa Polski z wyodrębnioną lokalizacją województwa wielkopolskiego, z którego pochodziła większość badanych kandydatów do zawodowej służby wojskowej. Źródło: Wikipedia

Results

All parameters obtained in the survey were analyzed, however, the work was focused and limited

due to their socio-economic significance. It has been shown that the material analyzed in the area of analysis of place of birth and current place of residence is different. Out of 150 candidates for professional military service, 19 individuals reported the village as their place of birth, while 58 candidates chose the village as their current place of residence. 90 candidates were born in the city below 100,000 inhabitants, however, only for 53 of all respondents it became the current place of residence. 41 respondents were born in a city with over 100,000 inhabitants, 39 candidates stated that it is still their current place of residence. The relationship between place of birth and place of residence is statistically significant (**Table 1**).

Table 1. Relationship between the place of birth and the place of residence of candidates for professional military service

Tabela 1. Zależność pomiędzy miejscem urodzenia a miejscem zamieszkania kandydatów do zawodowej służby wojskowej

		Place of birth			Total
		Village	City below 100,000	City above 100,000	
Place of residence	Village	16	33	9	58
	City below 100,000	1	48	4	53
	City above 100,000	2	9	28	39
Total		19	90	41	p < 0,001

In order to analyze factors such as: paying attention to the appearance of teeth or orthodontic treatment, at the beginning we are presenting the needs, i.e. the frequency of dental-occlusal defects diagnosed in candidates for professional military service during the dental-orthodontic examination. Malocclusion in relation to the orbital surface was found in 52 out of 99 candidates who underwent a dental-orthodontic examination, which constituted 52.5%. Distal occlusion was found in 41 subjects (41.4%), and anterior occlusion in 11 (11.1%) respondents. In turn, defects in relation to the horizontal plane were diagnosed in 38 subjects, which is 38.4%, a deep bite was found in 19 of them, the others showed features of an open bite. In relation to the median plane, defects were diagnosed in 27 subjects, i.e. 27.3%. In this group, the most frequent one-sided crossbite, right-sided bite occurred in 8 subjects and left-sided in 8 subjects, i.e. 8.1% each. In total, 43 respondents had a single malocclusion, 34 had two defects, while three were diagnosed in 2 candidates (**Table 2**). On the other hand, 20 subjects were free from any malocclusion.

The analysis was based on the relationship between the place of residence of Polish candidates

for professional military service and the attention of third parties and their own attention paid to the appearance of the teeth. Most of them, both from the village and from the city below 100,000 and over 100,000, were not commented on the appearance of the teeth (**Table 3**). However, among the residents of the city up to 100,000, more respondents themselves drew attention to the appearance of their teeth than did the other subjects. The relationship between the place of residence and the attention to the appearance of the teeth is statistically significant.

The relationship between place of residence and orthodontic treatment was also analyzed. Most of the respondents living in the village, the

Table 2. Prevalence of malocclusion in candidates for professional military service

Tabela 2. Częstość występowania wad zgryzu u kandydatów do zawodowej służby wojskowej

Number of defects	Prevalence — n number	%
0	20	20,2
1	43	43,4
2	34	34,3
3	2	2
Total	99	100

Table 3. Analysis of the relationship between place of residence and attention to the appearance of teeth

Tabela 3. Analiza związku pomiędzy miejscem zamieszkania a zwróceniem uwagi na wygląd zębów

Attention to the teeth	Place of residence			Test χ^2
	Village	City below 100,000	City over 100,000	
I was not paid	34	37	27	p < 0,05
Yes, I was paid	9	1	7	
I paid myself	15	15	5	
Total	58	53	39	

city of up to 100,000 and over 100,000 were not treated orthodontically, the highest percentage of respondents covered by orthodontic treatment concerned residents of cities above 100,000 (**Table 4**). The relationship between the place of residence and the orthodontic treatment turned out to be statistically insignificant.

indicates the need to analyze the psychological profile of recruits, however, it can be presumed that the tendency to move to the village is correlated with the need for peace and the desire to reduce the stress of everyday life. The literature provides no identical studies analyzing such a dependence, which all the more indicates the need to develop

Table 4. Analysis of the relationship between place of residence and orthodontic treatment
Tabela 4. Analiza związku pomiędzy miejscem zamieszkania a leczeniem ortodontycznym

	Place of residence			Test χ^2
	Village	City below 100,000	City over 100,000	
No orthodontic treatment	44	40	28	p = 0,890
Orthodontic treatment carried out	14	13	11	
Total	58	53	39	

Discussion

It should be emphasized that the assumption that only young men, i.e. candidates for professional military service, qualify for research is a limiting factor and includes, among others, a rigorous assessment of health condition, including an assessment of oral health. It is a factor eliminating people with poor oral condition when they were employed in the armed forces. In addition, as many authors point out, selecting young men between 18 and 21 years of age limits the extrapolation of results to other populations, therefore the findings cannot be applied to the general public [10], which makes it difficult to compare them broadly and analyze them with data available in the literature, i.e. the results of research on similar factors, such as, for example, paying attention to the appearance of the teeth or orthodontic treatment and the place of residence. The fact of the required good health in recruits has been strongly emphasized for many years in foreign language literature [10–13].

The relationship between the place of birth and the place of residence of recruits shows the tendency of young men born in the city below 100,000, to leave this place, as out of 90 declared candidates born in the city below 100,000, 33 declared the village as their current place of residence. In the own study, the most commonly mentioned place of residence for candidates for professional military service was the village. Frączak et al. [9] obtained a similar result, from among 720 conscripts included in the study, 269 of them reported the village as their place of residence, which was the largest group in relation to the others (a small town as a place of residence was reported 191 conscripts, a large city by 260 conscripts). The mentioned dependence in-

this profile of research on candidates for professional military service.

Some authors point out to the relationship, which shows that the coexistence of malocclusion reduces the self-esteem of recruits. The literature includes suggestions that in the case of self-examination, candidates for professional military service should have orthodontic treatment not only to improve face aesthetics, but also complacency with their own appearance, as orthodontic treatment has some influence on well-being and mental condition and the quality of life in adulthood [14]. Claudino et al., [10] in a study conducted on the number of 138 soldiers of the Brazilian army showed a relationship between the occurrence of malocclusion and self-esteem disorder and reception of one's own external appearance, obtaining a 88% higher incidence of poorer reception of the self- appearance in soldiers with severe malocclusion as compared to those with minor defects. It should also be emphasized that among the recruits there is a need for orthodontic treatment resulting from the presence of a number of dental-occlusal defects. Searcy et al., [11] in research on 576 recruits obtained results that only 23.1% of respondents had a correct bite or slight malocclusion. Also Frączak et al., [9] in a study conducted on a total of 720 conscripts, obtained results that only 33.3% of them had a normal bite, while others were diagnosed with a light (33.9% of subjects) to severe (32.8% of subjects) malocclusion requiring orthodontic treatment. In the study conducted by us, the correct bite concerned 20.2% of candidates for professional military service, while the others were diagnosed with one to three co-occurring malocclusions, which indicates the need for orthodontic

treatment in the majority of candidates for professional military service. However, the question arises as to what percentage of them actually attach importance to the appearance of their teeth, or this attention has been paid by third parties. In this aspect, the response of candidates for professional military service is important in the matter of paying attention to the appearance of the teeth and orthodontic treatment, obtained from the research we carried out. In the first issue, paying attention to the appearance of dentition, in the own study including 150 candidates, only 35 men themselves paid attention and cared about the appearance of teeth, which is 23.3% of all respondents, of which the largest percentage were urban residents up to 100,000. In the case of 17 of the respondents (11.3%) this attention was paid by third parties, the largest percentage of this group were residents of cities over 100,000. However, in the second issue, also not many of the respondents had orthodontic treatment carried out, as out of 150 candidates who answered the question in the survey only 38 were treated orthodontically, they were predominated the residents of cities over 100,000. Klages et al., [15] in their research conducted on a group of 470 recruits, obtained results that 241 recruits from all subjects were never treated orthodontically, which constituted 51.3%. In the own study, the percentage was 74.7%. The attempt and willingness to compare the results obtained in the study with the results of other authors has been a difficult, because the research of recruits or candidates for professional military service in the orthodontic aspect is rarely carried out. This is more often conducted in the aspect of the general health of the oral cavity. This indicates the need to undertake research among candidates for professional military service in the orthodontic aspect. In foreign literature, the most common occurrence of dental-occlusal recruitment refers to the aesthetics of the face [10,15,16], there is a lack of aesthetics narrowing down to the dentition in the cited research, or the needs of recruits in the field of orthodontic treatment. This is an issue one should pay attention to when conducting research on a group of young conscripts, as well as candidates for professional military service.

Conclusions

1. The vast majority of candidates for professional military service, despite the high requirements for oral health recruitment, do not pay attention to the appearance of teeth, nor have they been commented on by third parties.

2. The vast majority of candidates for professional military service have from one to even three co-existing dental-occlusal defects, which is the need for orthodontic treatment in this group, however the vast majority of candidates for professional military service was not treated orthodontically.

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