

History of epidemiological myopia research in Poland after World War II

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So far, no article concerning the history of epidemiological studies on myopia in Poland after World War II has been published. Therefore, the aim of the work is to present the history of epidemiological studies on myopia in Poland after World War II. In order to obtain answers to the research questions, studies of source and archival materials were conducted. It turned out that the leading centers in Poland conducting research on myopia were the Pomeranian Medical University in Szczecin and the Medical University of Silesia in Katowice.

Keywords: history, epidemiology, myopia, Poland.

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So far, no article concerning the history of epidemiological studies on myopia in Poland after World War II has been published. Therefore, the aim of the work is to present the history of epidemiological studies on myopia in Poland after World War II.

In order to obtain answers to the research questions posed, studies of source and archival materials were conducted.

To achieve the goal of the work, the following research questions were posed:

- What was the history of epidemiological studies on myopia in Polish medical schools after the Second World War?
- What was the impact of the achievements of Polish doctors on the development of epidemiological studies on myopia after World War II?
- What was the contribution of the leading centers in Poland in epidemiological studies on myopia after World War II?

An inquiry was made in the archive of the:

- Main Medical Library in Warsaw.
- Medical Library of Collegium Medicum in Bydgoszcz.
- Library of the Medical University of Gdańsk.
- Library of the Medical University of Silesia in Katowice.
- Library of the Medical University of Lublin.
- Library of the Poznań University of Medical Sciences.

- Library of the Pomeranian Medical University in Szczecin.
- Library of the Medical University of Warsaw.
- Library of the Wrocław Medical University.
- Library of the Institute of Physical Chemistry of the Polish Academy of Sciences in Warsaw.
- Library of the Institute of Genetics and Animal Breeding of the Polish Academy of Sciences in Jastrzębiec.
- Library of the Mother and Child Institute in Warsaw.
- Library of the Ophthalmology Chair and Clinic of the Pomeranian Medical University in Szczecin.
- Pomeranian Library in Szczecin.
- Pedagogical Library in Szczecin.
- Department of the History of Medicine and Medical Ethics of the Pomeranian Medical University.

A complete bibliography of the scientific achievements of Polish researchers in the field of myopic epidemiology after World War II was collected, subjecting this achievement to a detailed analysis and comparing it with the current state of knowledge. The work uses the chronological and material method. Authorized surveys were also carried out.

It was found that epidemiological studies on myopia in Poland after the Second World War were conducted at the following medical schools:

Ophthalmology Clinic of the Medical University of Białystok. From 1956 to 1960, W. Szwaykowski and

A. Wilk [1] examined ophthalmologically 6941 children from second grade primary schools (including 3571 boys and 3370 girls). All pupils were examined for visual acuity and retinoscopy after 1 % homatropin solution. It has been observed that myopia is the rarest cause of visual defects and occurs in 18.9 % of boys and 12.7 % of girls, the most common refractive error is emmetropia and low hyperopia; the most common refractive error is astigmatism, which is more common in girls. In 1979, R. Rudobielski and I. Rudobielska [2] analyzed 1667 personal files of people considered to be invalids of the first or second visual group. The results obtained have shown that myopia is the most common cause of visual disability. It was also observed that there is a tendency of an increase in the number of degenerative changes of age-related diseases in the causes of blindness.

Ophthalmology Clinic of the Silesian Medical University in Katowice. Extensive research on the epidemiology of myopia was conducted by B. Koraszewska-Matuszewska [3] and B. Koraszewska-Matuszewska and W. Illg [4]. After examining 12,500 children aged 7 to 14 years, B. Koraszewska-Matuszewska [3] observed that high myopia (above-7 D) occurs in 0.42 % of the studied population. However, after examining 18039 students aged between 6 and 16, B. Koraszewska-Matuszewska and W. Illg stated that myopia is present in 12.4 % of children. J. Paluchiewiczowa [5] showed that myopia is the most common cause of blindness in the Katowice voivodeship.

Ophthalmology Clinic of the Medical University of Łódź. E. Miratyńska-Rusinowa [6] stated that myopia is observed in 7.3 % of men and 20.9 % of women in the Outpatient Clinic of Eye Diseases. In 2002, E. Zygmajstrzębska and M. Grałek [7] observed that 24 % of children from Skierniewice and neighboring villages had myopia. The authors also showed that the incidence of myopia increases with age. Extensive research on the prevalence of refractive errors in Łódź was conducted by M. Nowak [8, 9]. After analyzing the results of 105,017 recruits who were examined, M. Nowak, et al. [8], stated that myopia is observed in 66.7 % of men aged 18–24 and in 94.8 % of men aged between 25 and 34 years. In the following years, M. Nowak and J. Śmigielski [9] showed that degenerative myopia is one of the most important causes of blindness and amblyopia in elderly people living in Łódź.

Ophthalmology Clinic of the Military Medical Academy in Łódź. On the basis of the analysis of the material from 1955, 1956, 1959 and 1960, P. Segał and C. Półtorak [10] stated that the selection caused by the reduction in visual acuity in recruits with refractive errors is a constant value. It was also observed that refractive errors occur slightly more frequently in people living in large cities and in certain regions of Poland. In 1965, P. Segał, et al. [11] determined the incidence of refractive errors in soldiers. The authors stated that myopia is present among 30.9 % of soldiers, hyperopia in 49.3 % of soldiers, and astigmatism in 18.1 % of soldiers.

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D. Pieczyrak, et al. [12] examined 3768 primary school students from various localities. The authors found that 25.6 % of the examined children had myopia. J. Knapik and B. Miśkowiak [13] observed that 52 % of students of the Poznań University of Medical Sciences have short-sightedness.

Ophthalmology Clinic of the Pomeranian Medical University in Szczecin. Epidemiological research on myopia was initiated in 1972 by T. Mikulski [14]. He analyzed the prevalence and progression of refractive errors in 752 people treated by him at the Outpatient Clinic in Kamień Pomorski. T. Mikulski stated that uncorrected myopia can turn into myopic anisometropia. Epidemiological research in Szczecin was continued by T. Baranowska-George, et al. [15]. The authors examined children from 6 to 16 years old and showed that there was a sharp increase in the incidence of myopia. In addition, they drew attention to the need to use cycloplegia when choosing glasses due to the coexisting spasm of accommodation. K. Mozolewska-Piotrowska, et al. [16] observed a significant (almost 2-fold) increase in the prevalence of myopia among students of the Faculty of Medicine and Dentistry of the Pomeranian Medical University in Szczecin. The widest research on myopia since 1995 was conducted by D. Czepita [17–20]. His PhD students (Chmielewska, Filipiak, Majdanik, Mojsa, Pechmann and Ustianowska) have studied nearly 6,000 people. Based on the performed tests, it was found that myopia is present in 3.3 % of 7 and 8 year old children and in 13.3 % of school-aged children. There is a positive correlation between myopia and age, more often myopia occurs in girls (7.4 %) than in boys (5.1 %), more often it occurs among children living in the city than in the countryside [17].

Ophthalmology Clinic of the Medical University in Warsaw. W. Starkiewicz [21], while working in the Eye Clinic in Warsaw (from 1947 to 1948), examined 13726 children from elementary schools in Warsaw. The author said that the reduction in visual acuity in 19.2 % of students is due to myopia, 31 % hyperopia, and 32 % of students have astigmatism. In 2004, J. Szaflik et al. [22] after examining 10021 children aged 6 to 16 stated that myopia is observed in 16.94 % of children.

Ophthalmology Clinic of the Wrocław Medical University. H. Czerek-Jaguczańska et al. [23] after examining 2365 students aged 8, 12, 16 and 20 years, observed that myopia is among 7.3 % of boys and in 12.4 % of girls. E. Ogielska et al. [24], continuing the studies of H. Czerek-Jaguczańska et al. [23], examined 6,284 students and stated that myopia is present in 20.1 % of men and 21.7 % of women. L. Baran and B. Buła [25] observed that among athletes myopia is present in 35.4 % of men and 45.5 % of women. However, P. Hańczyk and colleagues [26] showed that myopia is the main cause of blindness among the blind in Lower Silesia.

Children's Memorial Health Institute in Warsaw. M. Seroczyńska [27] initially under the supervision of M. Prost, and later under the management of M. Grałek, prepared and defended her doctoral dissertation on the

causes of blindness and significant deterioration of vision in Polish children. In the doctoral dissertation, the author showed that in Poland, 11.8 % of children are blind due to myopia, and 2.3 % of children have high myopia.

Other centers. A. Orlikowska [28] from the Voivodeship Outpatient Clinic of School Hygiene in Gdańsk as part of a preventive action in 1967 and in 1968, examined 397 pupils in the second classes of primary schools (189 boys and 208 girls). The author stated that myopia is the rarest cause of eye defects. This disadvantage occurs in 9.5 % of boys and 7.3 % of girls. A. Orlikowska also observed that boys usually have hyperopia, and girls — astigmatism. K. Antonowicz et al. [29] from the Ophthalmology Department of the Voivodeship Integrated Hospital in Olsztyn after examining 100 people aged 3 to 18 years stated that refractive errors are the most common cause of loss and impaired vision in the Olsztyn region. M. Dalz and A. Krzyżaniak [30] from the Eye Clinic of NZOZ VISUS in Poznań showed that eye screening tests performed at school have little diagnostic effectiveness.

CONCLUSIONS

The analysis of materials shows that:

- In Polish medical schools, after the Second World War, there was a significant development of various areas of ophthalmology. Particularly intense development occurred in the field of myopia. In the conducted studies, attention was paid to epidemiology, clinical trials, surgical and conservative treatment as well as the published reviews on myopia.
- Research studies of Polish doctors have been published all over the world in many prestigious journals. Their works were most known regarding the occurrence and treatment of myopia, both surgical and conservative. The results obtained allowed the development of new methods of myopia management.
- The leading center in myopia research after World War II in Poland is the Pomeranian Medical Academy / Pomeranian Medical University and the Medical University of Silesia. Researchers working in these centers dealt with epidemiology, pathogenesis, and the possibilities of surgical and conservative treatment of myopia. They also pointed to the possibilities of using the results of experimental studies in the treatment of progressive myopia. A large role in studies on myopia was also played by other centers such as: the Ophthalmology Clinic of the Medical University of Warsaw, the Ophthalmology Clinic of the Wrocław Medical University, the Polish Mother's Memorial Hospital-Research Institute in Łódź, the Ophthalmology Clinic of the Medical University of Łódź, Children's Memorial Health Institute in Warsaw, the Institute of Human Genetics of the Polish Academy of Sciences.
- Based on the scientific achievements of researchers of the Polish medical community after World War

II, it can be assumed that in the future scientific research will focus on the pathogenesis and treatment of myopia. The doctors place great hope on genetic treatment to stop the progression of myopia.

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История эпидемиологических исследований миопии в Польше после Второй мировой войны

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До настоящего времени не было публикаций, касающихся эпидемиологических исследований миопии в Польше, проведенных после Второй мировой войны. В связи с этим цель данной статьи — представить историю изучения распространенности миопии в Польше в послевоенные десятилетия. Для решения поставленной задачи были проанализированы источники литературы и архивные материалы. Установлено, что ведущими центрами, проводившими такие исследования, были Медицинский университет Померании в Щецине и Медицинский университет Силезии в Катовице. В статье приводятся данные о распространенности миопии и росте ее частоты в послевоенные годы в разных регионах Польши.

Ключевые слова: история, эпидемиология, миопия, Польша.

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