

Chronic Noninfectious Morbidity of Pupils from the City of Varna – Structure and Trends

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A retrospective study of the transitory chronic morbidity in 204 390 pupils from the city of Varna aged between 7 and 18 years for a five-year period (1995-1999) was carried out. The trends of the distribution and age dynamics of the most common chronic noninfectious diseases were established. The incidence rate of these diseases in the early school age group during the whole period was 183.4 ‰, in the middle age group it increased twice (361.7 ‰), and in the upper age group by 1.7-fold (316.7 ‰). These results were significantly higher ($p < 0.01$) as compared with the data for the whole country. The most common chronic noninfectious diseases in the pupils from the city of Varna were the following: spinal column deviations, disturbances of refraction, accommodation and vision, obesity, bronchial asthma, neuroses, and thyroid gland disturbances. The results from the present study could help defining the priority guidelines of general practitioners' preventive activities.

Key words: transitory morbidity, pupils, age dynamics, most common diseases, prevention.

Introduction

Research on chronic noninfectious pathology in children's and school age is of hygienic and medico-social significance because of the fact that recently, there is a progressively increasing incidence rate of the chronic diseases among the pupils from the initial towards the upper educational courses [1, 6, 12]. The chronic diseases impede changes in the normal life style of the child, they disturb pupil's psychio-social adaptation and hamper his integration in the school, family, and social environment which represents a serious social and health problem [3, 5, 8]. It is well-known that the diseases acquired at school age tend to chronify and determine individual's health status and work capacity at mature age. The most common chronic diseases in adulthood such as obesity, bronchial asthma, neurological and psychotic disorders, diabetes mellitus and eye diseases originate from childhood and adolescence [4, 8]. This circumstance defines the actuality of the problem of the chronic pathology among the pupils.

The purpose of the present investigation is to study the temporary chronic morbidity in the pupils from the city of Varna aged between 7 and 18 years during the period from 1995 till 1999 in order to establish the most common chronic noninfectious

tious diseases, the trends of their distribution and age dynamics with a view to define the priority guidelines of general practitioners' preventive activity.

Material and Methods

A retrospective study of the transitory chronic morbidity among the pupils from the city of Varna for a five-year period (1995-1999) based on the results from the annual prophylactic examinations was carried out. A total of 204 390 pupils aged between 7 and 18 years were covered. They were divided into three age groups: initial school age (7-10 years), middle school age (10-14 years), and upper school age (14-18 years).

Based on data from documentation records the frequency of cases per 1000 examined pupils was ranged and the structure of the chronic noninfectious morbidity at the initial, middle, and upper school age was determined. The health status was analyzed according to groups of diseases and to nosological units as well. The results obtained were compared with the data for the whole country.

Results and Discussion

The dynamics of the temporary chronic morbidity rate between 1995 and 1999 demonstrates a stable tendency towards an increase of the number of cases with chronic diseases with advancing age. The highest morbidity rate has been registered among the pupils at the middle school age followed by that of the pupils at the upper school age ($p < 0,01$). This indicator shows the lowest values in children at the initial school age ($p < 0,01$). As it can be seen on Table 1, the incidence rate of chronic diseases at the initial school age for the whole period is 183.4 per 1000 examined pupils as it rises twofold (up to 361.7 ‰) at the middle school age but by 1.7 times (up to 316.7 ‰) at the upper school age (Fig. 1). Our results indicate higher values than the data for the country.

There exist certain features when the nosological structure of the temporary chronic morbidity in single age groups is concerned (Fig. 2). Spinal column deviations come first in the 7-18-year old pupils with a frequency of 60.7 ‰. There is a statistically significantly higher affection by the spinal column deviations among the 10-17-year old pupils (91.5 ‰ at the middle and 90,3 ‰ at the upper school age) when compared with the data from an earlier investigation carried out in 1994 ($p < 0.01$, Fig. 3) [9]. There is a stable tendency towards an increasing incidence rate of the spinal column deviations with advancing age reaching its maximal levels at the middle school age in 1995 and 1996 (129.8 ‰ and 128.0 ‰, respectively). It is probably due to the diminished motor activity of the pupils, the reduction of the preventive

Table 1. Dynamics of temporary morbidity during the period from 1995 till 1999 registered diseases per 1000 examined pupils)

Year	Age			
	from 7 till 10 years	from 10 till 14 years	from 14 till 18 years	from 7 till 18 years
1995	135.4	302.6	183.4	54.3
1996	225.6	474.7	337.1	247.8
1997	166.7	695.7	419.7	337.9
1998	261.4	377.9	366.5	325.7
1999	124.3	325.5	185.3	264.8
Total	183,4	361,7	316,5	238,1

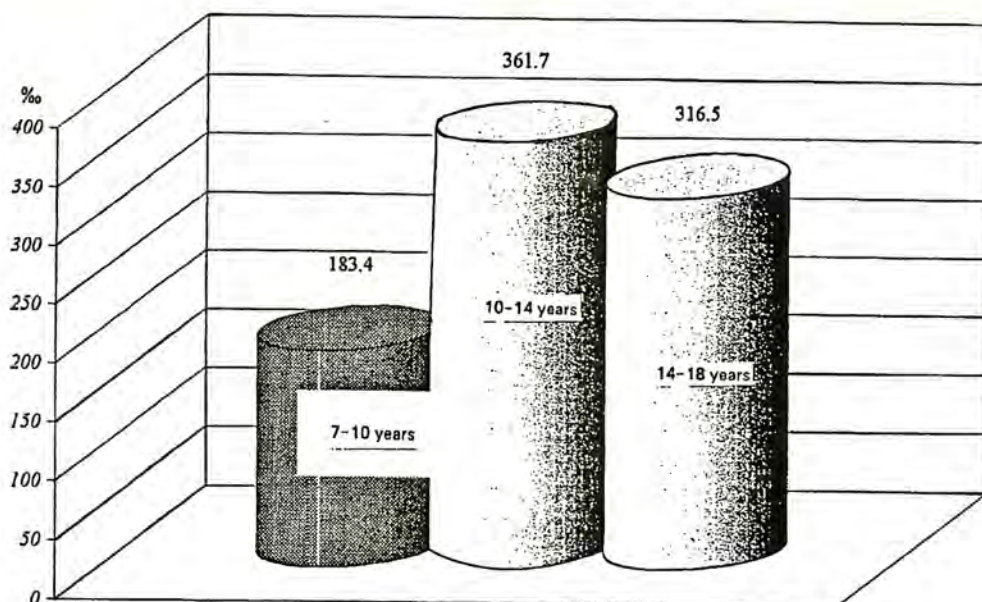


Fig. 1. Dynamics of temporary morbidity in 1995-1999 (registered cases per 1000 examined pupils)

measures to restrict the risk factors in the school environment as well as to the absent groups for remedial gymnastics at tile initial school age.

A special attention should be paid to the eye diseases such as disturbances of refraction, accomodation, and vision. They come second in the structure of the temporary chronic morbidity and reach their maximal levels at the upper school age. While in the first-grade pupils their incidence rate is of 21.4 ‰, after the age of 10 years the incidence rate of the ocular refraction anomalies increases progressively and becomes by 2.6 times higher at the upper school age (56.6 ‰) (Fig. 2). Myopia is the most common finding. Our results are in agreement with the data from other studies [9, 12]. The risk factors of the school and family environment such as strenuous visual work at close distance, visual overfatigue because of long-lasting looking TV and video, work with PC and insufficient illumination at the working place play an important role for the progressive increase of the ocular refraction anomalies.

Obesity is a serious health risk factor at school age. Its great medico-social significance is determined not only by the wide dissemination but also by the predatory role of obesity for the origination of socially significant diseases at adulthood [1, 2, 8].

Among these pupils, the incidence rate of obesity increases reliably from the initial school age (17.3 ‰) towards the middle school age (32.3 ‰) and then decreases at the upper school age down to 26.8 ‰ ($p < 0.01$ Fig. 2). Our data are higher than these for the country and the figures reported by other authors [2, 11, 12]. The incidence rate of obesity among the pupils rises at puberty and its peak is reached at adolescence. Treatment of children's obesity exerts a provisory effect only. In this aspect, the preventive activity of the general practitioners seems to be of great importance.

The city of Varna is a risk area of bronchial asthma distribution, particularly in children. The following-up of the temporary morbidity of bronchial asthma during this 5-year period demonstrates a continuous and progressive increase (Fig. 2). While

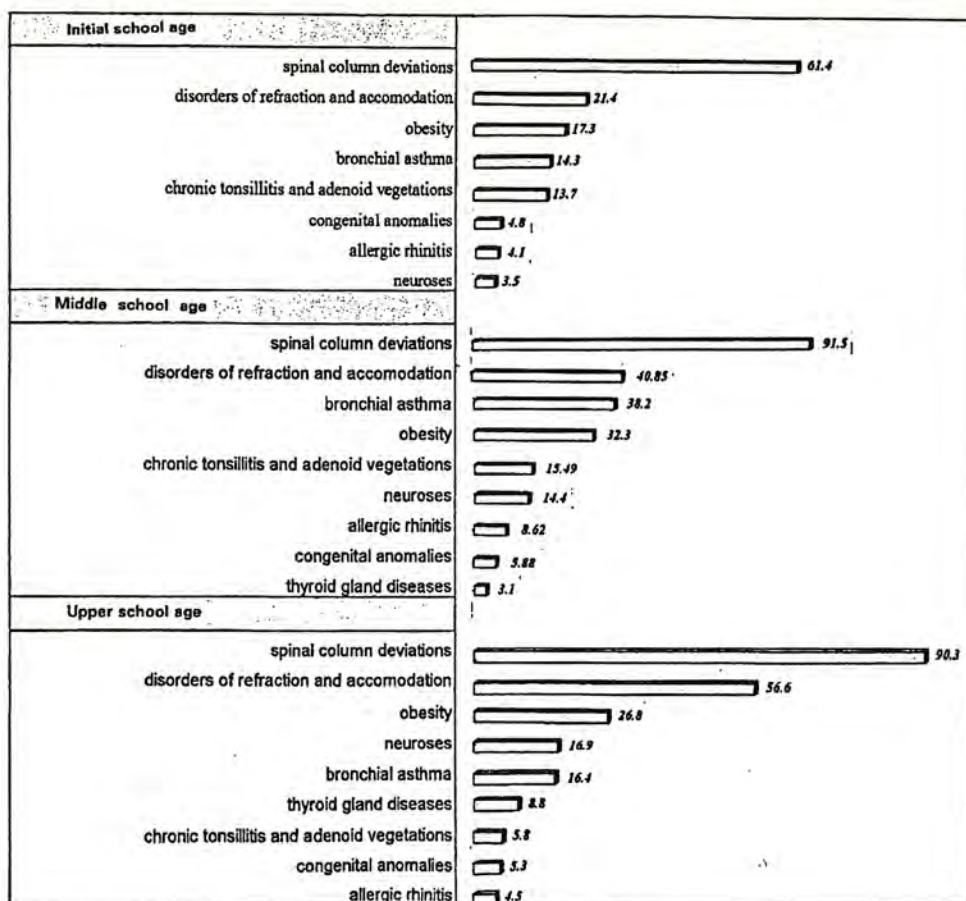


Fig. 2. Total temporary morbidity (according to groups of diseases) for 1995-1999

the incidence rate of bronchial asthma among the 7-10-year old pupils is of 14.3 %, at the middle school age it reaches up to 38.2 %, i. e., there is an augmentation by 2.7 times. However, it decreases down to 16.4 % at the upper school age ($p < 0,01$; Fig. 4). Our results show higher values than those reported for the country as a whole and obtained in an earlier investigation in 1994 in Varna [10] thus revealing a tendency towards an increasing bronchial asthma incidence among the pupils. It is an interesting fact that this disease occurs more and more often at the upper school age starting with 10.1 % in 1995 and reaching up to 28.4 % in 1999 (Fig. 5). This high morbidity in Varna can be related with the influence of the complex of specific meteorological factors such as higher air humidity and wind speed, frequent contrast changes of weather nature, particularly in autumn and winter periods, inducing typical autumn-winter season patterns of bronchial asthma attacks.

Neuroses represent one of the primary and actual health problems at school age. The mean neurotic morbidity among the examined pupils during this period is reliably higher at the middle and upper school age (14.4 % and 16.9 %, respectively) than that at the initial one (of 3.5 %) at $p < 0.01$ (Fig. 2). Similarly to other authors, we establish a stable trend towards an increasing incidence rate of neuroses in pupils in Varna after the age of 10 years.

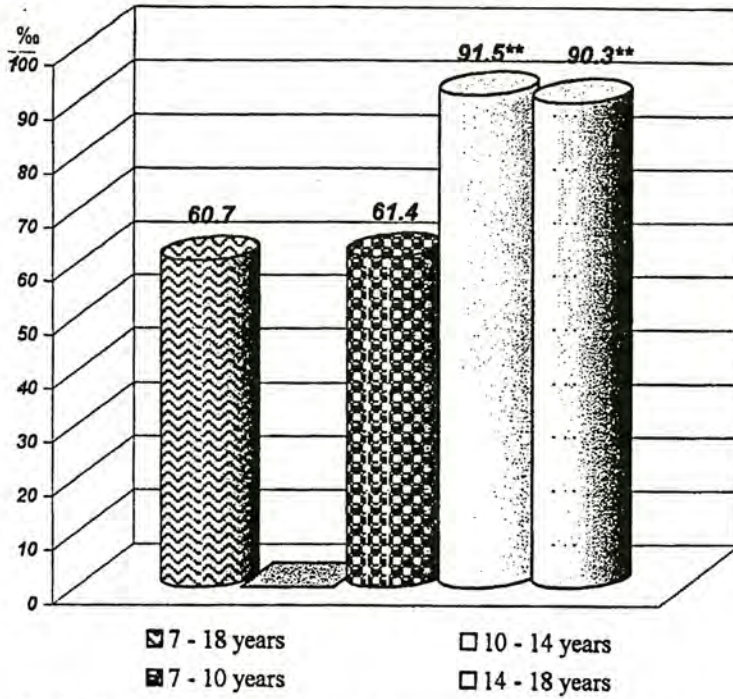


Fig. 3. Distribution of spinal column deviations in pupils in 1995-1999
** Statistical significance

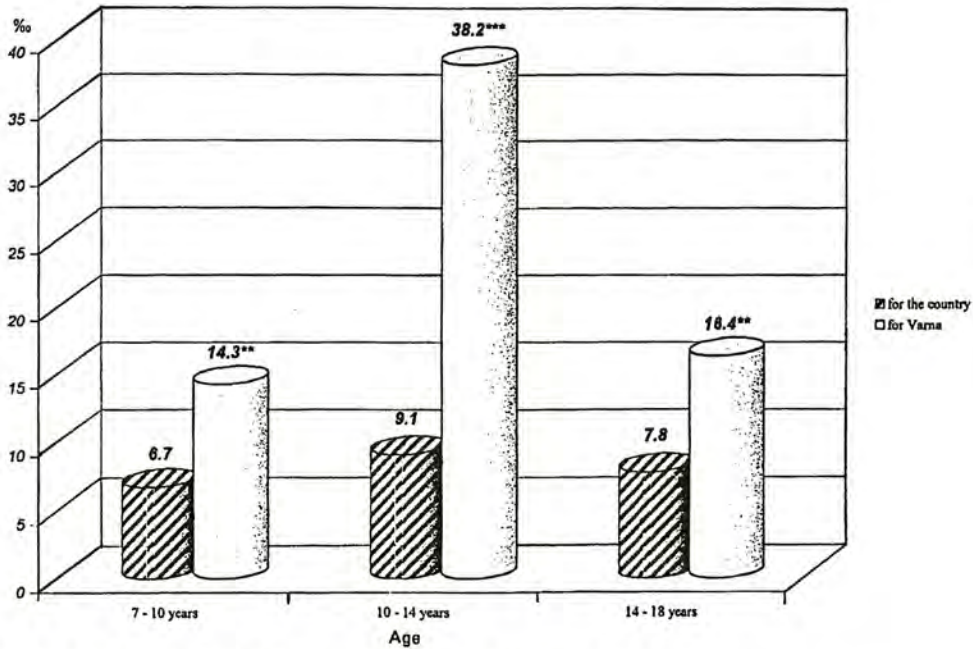


Fig. 4. Bronchial asthma distribution in pupils in 1995-1999
*, **, *** statistical significance

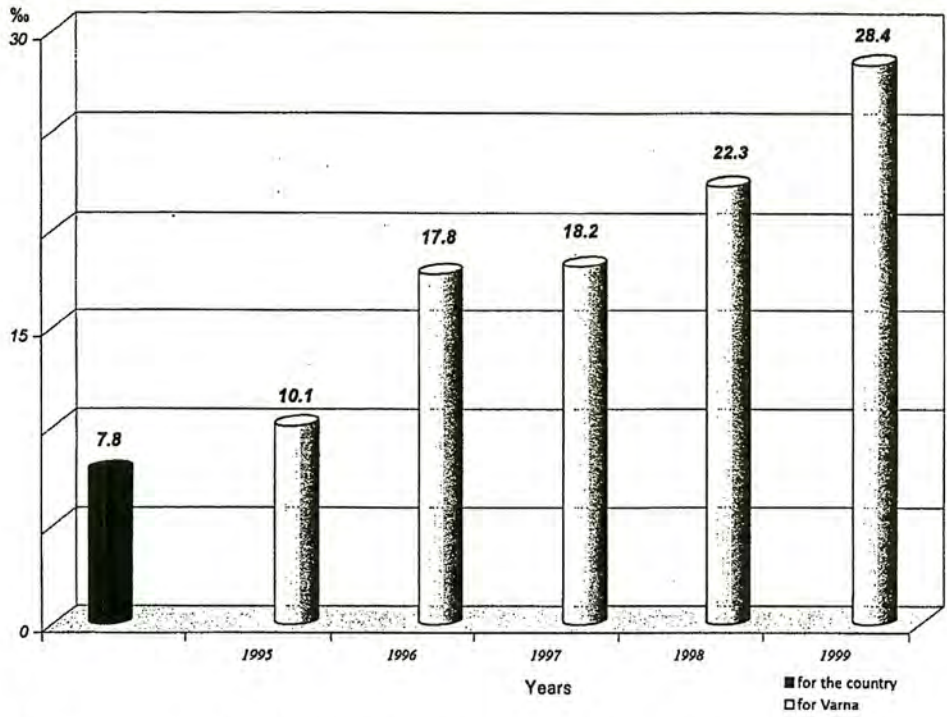


Fig. 5. Annual dynamics of temporary morbidity of bronchial asthma in pupils in Varna

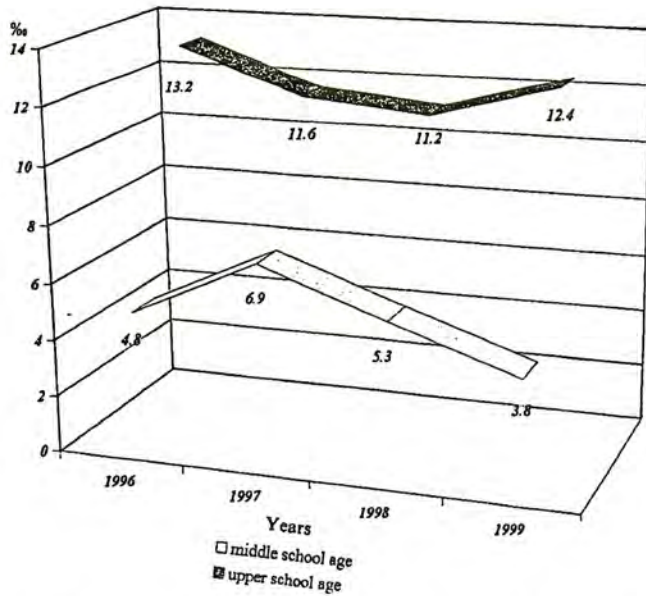


Fig. 6. Distribution of thyroid gland diseases in pupils in Varna

Both chronic tonsillitis and adenoid vegetations belong to the most common respiratory tract diseases. They occur more often at the initial and middle school age (13.7 ‰ and 15.5 ‰, respectively) and then their incidence decreases statistically significantly down to 5.8 ‰ at the upper school age ($p < 0.01$, Fig. 2).

The region of Varna is not goiter-endemic and the changes of the incidence of thyroid gland pathology among the pupils could be related with the alterations in the environmental radiation factors. Since 1996 there is an enhanced incidence rate of thyroid gland diseases in the pupils after 10 years of age. A permanent retention of this incidence rate is found out at the middle school age being more outlined at the upper school age (Fig. 6) when it is by 2.5 times higher. This tendency impedes a continuous medico-biological monitoring of the thyroid gland.

Conclusion

The main health problems of the pupils from Varna in 1995-1999 present with spinal column deviations, disturbances of refraction, accommodation and vision, obesity, bronchial asthma, neuroses, and thyroid gland diseases. The general practitioners have to direct their efforts towards the etiologic factors of the school and social environment influencing upon the health of the coming generation in order to reduce the health risk in children. It is necessary to improve the medical care of the chronically ill pupils as well as to carry out a dispensary monitoring along with application of complex therapeutic and rehabilitation procedures. The results from the present study could serve for defining the priority guidelines of general practitioners' preventive activities directed to health promotion of the pupils from the city of Varna.

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