

Original Article

Health complaints and well-being complaints among secondary school children

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Abstract:

Unfortunately a considerable amount of children and young people are in the so called “third state of health”, i.e. “between health and disease”. Ailment recognition, identification, prevention and “third state of health” eradication is an ideal form of preventive health care. The information on complaints of malaise that might give a hint of various diseases in secondary school age children is virtually absent. The aim of our study was to investigate the overall health complaints of secondary school age children. It was necessary to study out the range of most common schoolchildren complaints and to compare the complaints of schoolchildren belonging to different demographic groups. Interrogation covered 1017 secondary school age pupils including 510 schoolgirls and 507 schoolboys (aged 10-15 years) from secondary schools of Ukraine. It has been ascertained that only one out of every three pupils has no health complaints. The most common are complaints of emotional instability, considerable fatigue, discomfort in eyes and joints. These facts testify to high probability of developing neuropsychological diseases, musculoskeletal system disorders and visual impairments in children while schooling. A tendency to number of ailment complaints increase was observed in the 5th to 9th grade pupils.

Key words: schoolchildren, health, complaints, secondary school, physical education

Introduction

Young generation health status is the most expressive key indicator of the state and society prosperity, reflecting real state of affairs in the country and giving forecasts for the future. Manpower of the country, its security and political stability, economic welfare and moral and ethical level of the population are directly connected with the health status of children, adolescents and youth. A whole range of physical education modalities are conducive to the expansion of bodily functional reserves, to restoration of its self-regulatory and self-reproduction functions, thus compensating for the effects of not always “healthy” lifestyle of the contemporary schoolchildren. Physical exercise in this case is regarded as secondary prevention of “school” diseases. Primary preventive measures nevertheless are attributed to ailment recognition, identification and “third state of health” elimination. Use of appropriate means of recreation for the purpose of elimination of the complaints common in the school environment might facilitate the withdrawal of a big number of pupils out of pre-existing disease status. Study of typical manifestations and signs of ill health that might cause diseases in school age children is of great social importance.

Current publications analysis showed that a considerable amount of children and young people are in the so called “third state of health”, i.e. “between health and disease”. They manifest various functional disorders that have not yet been identified as diseases “of full value” but still indicate the strain of body adaptation resources (disadaptative disorders) and increased risk of clinically significant pathology. Though a disease still could not be diagnosed, the child could not be considered completely healthy.

Special scientific studies devoted to investigation of ill health complaints in children with minor health abnormalities are not found in recent publication. Studies have been conducted mostly on children of certain age groups [1], which complicates the research into the dynamics of changes over school years. Some scientific studies [2] set out results of examination of apparently sick children that limits significantly the range of conclusions. Any data pertaining to the complaints specificity of pupils distributed into different demographic and medical groups are practically missing. Lack of information about malaise complaints conducive to serious diseases complicates the selection of appropriate means of schoolchildren recreation and rehabilitation.

The aim of our study was to investigate health and physical wellbeing complaints common to secondary school age children.

Material & methods

Methods of analysis and synthesis of publications on the topic and empiric data as well as questionnaire survey have been used. Interrogation covered 1017 secondary school age pupils of urban and rural secondary

schools from four regions of Ukraine. The questionnaire survey included 510 schoolgirls and 507 schoolboys. Among those interviewed were 365 5-grade pupils, 342 7-grade children and 310 pupils from grade 9. Parents of the pupils under examination were also interviewed. Among those interviewed 13.58% were males and 86.42% were females. Methods of mathematical statistics were used for data processing. Proportions method was used to identify the reliability differences among indicators.

Results of the study and their discussion.

The data analysis showed that the majority of secondary school age pupils complain about health disorders or the way they feel and only about one third of the interviewed children of secondary school age (26,48%) do not make any complaints pertaining to their health status. One of the major reasons for health problems occurrence is pupils' negligent attitude to their health. In order to resist the development of the diseases caused by long term of schooling it is necessary to provide schoolchildren with rational nutrition (consumption of food rich in *B1*, *B6*, *B12*, *C* vitamins and *Ca*), to help them to develop a proper day regimen giving the pupils the opportunity to exercise and adequate rest (walking, swimming, transition douche). It is a common knowledge that an ounce of prevention is worth a pound of treatment. Thus elaboration of optimal physical education system for secondary schools aimed at disease prevention remains to be of paramount importance.

The number of schoolchildren who show the signs of possible neuropsychic instability (like emotional instability, irritability or mood swings, increased anxiety or unmotivated fears) is the largest and relatively stable phenomenon observed over the period of secondary school years. The percentage of the schoolchildren who demonstrate the above mentioned manifestations of mental instability remains unchanged over the years of study (26.7% – in 5th, 26.9% – in 7th and 27.2% – in 7th grade correspondingly). It is significant that the parents of secondary school age children more often than children themselves observe unmotivated mood swings, increased anxiety and irritability in their children (Fig.1). This phenomenon might be attributed to the difficulties of the so called "transition period" as well as to objective symptoms of neuropsychic disorders development in secondary school age children. It seems important to elucidate the immediate causes of such disorders carrying out additional investigations.

The obtained data have been confirmed by the investigations of other researchers. Thus, a comprehensive survey conducted by the scientists of the St. Petersburg Pediatric Medical Institute show that mental disorders (at the expense of neurotic disorders mainly), alongside with somatic diseases like spine and vision impairments, are currently occupying a leading position in the structure of pathological abnormalities observed in schoolchildren nowadays. Experts also observed a pronounced tendency of the disorders growth by the time pupils graduated the school. According to the Research Institute of Hygiene and Disease Prevention of children, adolescents and youth under the auspices of the State Committee for Sanitary and Epidemiological Surveillance of the Russian Federation [3] the neuropsychic disorders at present are diagnosed in 17% of schoolchildren. It is significant that the above mentioned disorders are developed in pupils during their transition to "secondary / high school" (5th grade) and display an upward tendency over schooling years due to the increase of workload. It is accompanied with the growth of the number of pupils whose mood structure is dominated by negative mental conditions like frustrations and stresses. This phenomenon is indicative of aggravating contradictions between education system and schoolchildren demands.

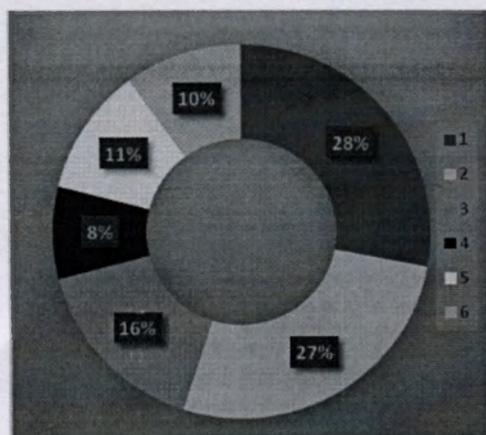


Fig. 1. Children complaints (inner circle) and parents' complaints (outer circle) with their children health status

- 1 – drowsiness during the daytime, considerable fatigue towards the end of the day
- 2 – groundless mood swings, anxiety, irritability
- 3 – complaints of joints and spine pains while standing or sitting
- 4 – low physical efficiency as compared to the peers (low exercise capacity)
- 5 – complaints of discomfort in eyes during or after classes and (or) visual acuity decrease (difficulties while reading or looking at the blackboard)
- 6 –

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Ukrainian "leadership" among the neighbouring countries as for prevalence of mental disorders among the population is an extremely menacing trend in itself. The sharp growth of mental disorders cases was observed in the 90^s of last century that probably was due to crucial social and political transformations in the country. After three years of reverse in the number of mental health complaints the country witnessed a stable growth trend in the number of mental disorders per million of population till 2008, with certain deceleration in recent years.

Daily mental work for 8 to 10 hours per day for 9 months a year during 11 years of schooling accompanied by regular mental stress (during tests performance or exams) in not always reasonably organized daily routine, lacking physical activity, - all these factors impose a negative effect upon mental and physical efficiency of a growing organism. It has been found that one out of every two pupils display the evident signs of fatigue like daytime drowsiness, significant fatigue by the end of the day, unmotivated mood swings, anxiety, irritability (Fig. II). Experts warn that stresses and permanent overstrain might cause host defenses exhaustion and the above mentioned symptoms might serve as prognostically unfavourble manifestations of vitamin deficiencies and asthenical state occurrence.

Analysis of the obtained data indicates that the number of children complaining of considerable fatigue during the day and sleepiness in the morning increases with age. Thus, 23.9% of 5th grade pupils note these symptoms, whereas the percentage of 7th grade pupils complaining of fatigue grows to 25.1%, and practically one out of every three 9th grade schoolchildren (29.3%) manifests the symptoms of chronic fatigue. Central nervous system, brain, immune and endocrine systems suffer considerably as a result of chronic fatigue syndrome caused by mental and physical overstrain. Furthermore, along with psychological disorders there appear physical ailments, like headaches, back and joints pains, as well as other unpleasant sensations. The list might be complemented by hypersensitivity to weather fluctuations, physical and mental discomfort, symptoms of vasoneuroses. Chronic fatigue, which is commonly inherent in 28-45 years old adults representing certain professions, like business people, journalists or managers, is also peculiar to almost 1% of 11-16 years old schoolchildren [4].

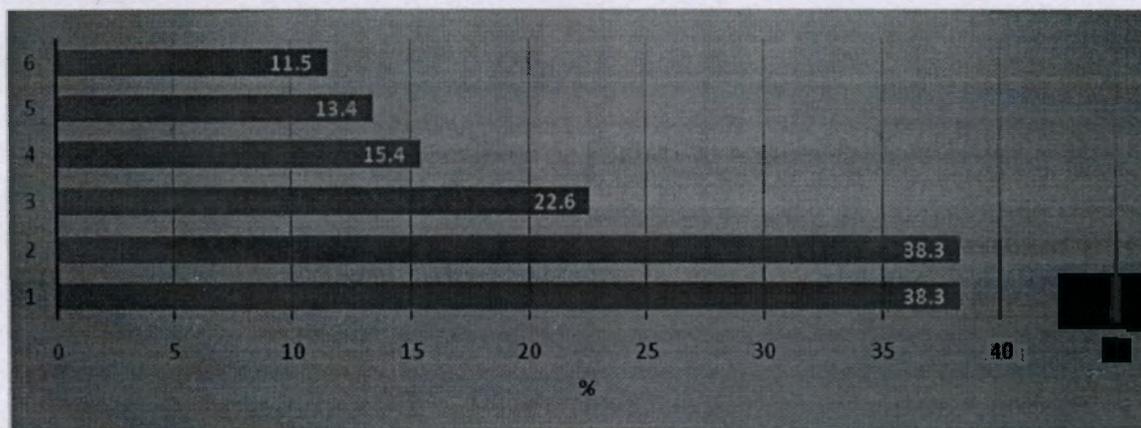


Fig.2. Symptoms of health afflictions in secondary school age children

- 1 – daytime drowsiness, significant fatigue by the end of the day
- 2 – unmotivated mood swings, anxiety, irritability
- 3 – spine and joints pain while standing or sitting for a long time
- 4 – discomfort in eyes during or after classes or vision acuity decrease
- 5 – ill health manifestations of late
- 6 – low physical efficiency as compared to the peers

The frequency of secondary school age children complaints of considerable fatigue during the daytime and drowsiness after waking up is significantly ahead ($p < 0,001$) of other health complaints. This phenomenon calls for immediate attention to both physical and mental health of children under present-day conditions. An alarming tendency to juvenile neuropsychic disorders growth jeopardizes the gene pool of the nation. To avoid the health troubles related to neuropsychic disorders it is imperative to follow the proper daily regimen with

balanced diet and optimal amount of exercise. Exercising three-times a week constitutes the minimum amount of physical activity [5].

Pathologies of locomotor apparatus are among the most common health disorders in secondary school age children. Postural problems (mainly scoliosis and kyphosis) are diagnosed in 70 to 90 percent of secondary school age children [6]. According to the received data one out of every six schoolchildren (22.6%) complains of spine and joints pain during long standing or sitting. Unfortunately, working during the school day and doing home assignments demands long sitting and at that each year the workload increases, being the major reason for musculoskeletal disorders growth over the years of schooling. Discomfort in the joints or the spine as a result of prolonged sitting or standing was observed in 12.2% of 5th grade pupils. The number of 7th grade pupils complaining of pains in different segments of musculoskeletal system increases to 16.2%, whereas for 9th grade schoolchildren this number reaches 19.8%. Various physical activity modalities could help to avoid the diseases developing due to prolonged sitting or standing. Exercises during short breaks at the lessons and during outdoor breaks are aimed at strengthening those muscle groups that have been stretched for a long time during writing, and on the contrary - at stretching the contracted muscles. Nevertheless the contemporary secondary school daily routine is often lacking preventive measures for postural disorders correction in schoolchildren. Attending sports groups or independent recreation after classes are also conducive to improving blood supply to the joints, thus preventing possible posture disorders. However, the number of pupils who exercise on a regular basis (besides attending physical education classes) is extremely low [7, 8].

The probability of developing locomotor apparatus diseases outstrips considerably ($p=0,01$) the risk of ophthalmic impairments in schoolchildren. Nevertheless a lot of secondary school age children complain of vision disorders or discomfort in eyes during school day. The data analysis indicates that one out of every six schoolchildren (15.4%) noted discomfort in the eyes during and after classes or reduced visual acuity. The number of schoolchildren complaints about functional state of their organ of vision grows over the school years. The frequency of vision impairment symptoms increases from 9.8% in 5th form to 10.2% in 7th form, and to 11.2% in 9th form. Currently 80 to 90% of information obtained by schoolchildren enters through their organ of vision. Therefore it is essential to teach pupils and develop in them a habit of performing regularly a set of simple exercises that unload visual analyzer, preventing optic strain, eye overfatigue and vision impairment.

One out of every fifteen pupils claims that his exercise capacity has decreased of late (13.4%) or that his physical efficiency is lower as compared to that of his peers (11.5%).

Subjective sensations of schoolchildren are confirmed by the results of objective observations carried by physicians and physical education instructors. Physical exercises help to avoid and withstand a lot of diseases, have practically no contraindications and serve as cost-effective means of health promotion. We have carried out the time study of a schoolchild daily physical activity in order to prove that every pupil has a reserve opportunity of at least 2 hours, which might be dedicated to exercising, though only few schoolchildren take advantage of this opportunity.

In total, the signs of neuropsychic disorders manifested in considerable fatigue (38.3%), unmotivated mood swings, anxiety and irritability (38.3%), spine and joints pains (22.6%), vision impairments or discomfort in eyes (15,4%) are among the most common ailments symptoms observed in secondary school age children. All the above mentioned symptoms occur due to daily regimen and proper diet violations as well as lack of pupils' physical activity. The situation could be significantly improved by eliminating the very cause of it, that is by amending the system of physical education at secondary school.

Statistically significant differences in schoolboys' and schoolgirls' answers concerning their health complaints were not observed. Nevertheless the boys make more complaints about discomfort in eyes as compared with the girls (12.5% against 8.5%), whereas the girls more often complained of spine and joints pain (14.4% against 16.5%) and of unmotivated mood swings, anxiety and irritability (28.9% against 22.96%). So presumably boys are more inclined to ophthalmic diseases development and girls are more susceptible to neuropsychic and postural disorders.

Conclusions

It has been found that two out of every three secondary school age children (73.52%) complain of poor health. Hence the problem of children's sanitation by means of physical education remains highly topical. Complaints of emotional instability (38.3%), considerable fatigue (38.3%), discomfort in the joints (22.6%) and eyes (15.4%) are the most common grievances among secondary school age children. This testifies to high probability of developing neuropsychic diseases, musculoskeletal system disorders and poor sight.

There might be observed an age-coinciding tendency to health complaints growth, like undue fatigability (from 23.9% in 5th grade to 29.3% in 9th grade), musculoskeletal pains (from 12.2% to 19.8%) and vision impairments (from 9.8% to 11.2%). Comparison of the complaints frequency of schoolchildren from different demographic groups showed that boys are more susceptible to ophthalmic diseases, whereas girls more often complain of postural problems and neuropsychic disorders ($p>0,05$).

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