Psychiatr. Pol. 2021; 55(1): 113–125
PL ISSN 0033-2674 (PRINT), ISSN 2391-5854 (ONLINE)
www.psychiatriapolska.pl
DOI: https://doi.org/10.12740/PP/111218

Depression and smoking – widespread health problems among 14-year-old adolescents in Poland. The results of the SOPKARD-Junior survey

Anna Pakalska-Korcala[1], Klaudia Suligowska[2,3], Tomasz Wolańczyk[4], Tomasz Zdrojewski[2]

[1] Mental Health Clinic for Children and Adolescents, Gdansk Medical Centre
[2] Department of Preventive Medicine and Education, Medical University of Gdansk
[3] Department of Dental Techniques and Masticatory System Dysfunctions, Medical University of Gdansk
[4] Department of Child Psychiatry, Medical University of Warsaw

Summary

Aim. Assessment of prevalence and co-prevalence of depression and substance abuse among Sopot youth.

Material and method. In the years 2006–2007, 316 subjects participated in a psychological examination as part of the SOPKARD-Junior programme. The assessment was made using the *Beck Depression Inventory*, the *Krakow Depression Inventory* and a proprietary questionnaire evaluating the frequency of psychoactive substance use. Adolescents with depressive symptoms in the questionnaire study underwent a psychiatric examination. The SOPKARD-Junior programme is a multidisciplinary epidemiologic study that comprehensively assesses the health of the population of 14-year-old junior secondary school students in Sopot.

Results. Symptoms of depression were detected in 29.4% of subjects: 37.4% of girls (G) and 20.9% of boys (B) ($p < 0.05$). In the psychiatric examination, an episode of depression was diagnosed in 4.1% of students (G: 5.5%; B: 2.6%). The rates of substance use (occasional or regular) were: cigarettes – 20.2 % of students (G: 24% and B: 16.4%; $p < 0.05$), alcohol – 45.9% (G: 50.9% and B: 40.5%; $p < 0.05$), and illicit drugs – 6.3% (G: 6.2% and B: 6.6%; n.s.). Teenagers with depressive symptoms smoke cigarettes and drink alcohol significantly more often than those without depressive symptoms (smoking rates: 30.1% vs. 16.1%; $p < 0.05$; alcohol drinking rates: 61.3% vs. 39.5%; $p < 0.05$).

Conclusions. (1) Significant prevalence of depressive symptoms was detected among the adolescents in the study. (2) Girls smoke cigarettes and drink alcohol significantly more frequently than boys. (3) The occurrence of depressive symptoms in adolescents almost doubles the risk of tobacco and alcohol use.

Keywords: depressive disorder, smoking, adolescent

Introduction

The prevalence of emotional and behavioural disorders increases from decade to decade. Mental disorders of the developmental age rarely have spontaneous remissions and are often associated with serious psychosocial consequences, such as premature parenthood, non-lasting marriages, addictions and suicides [1]. Moreover, the majority of mental disorders in adulthood have their roots in childhood and adolescence. Therefore, preventing these disorders during childhood may protect against their occurrence in adult life.

In clinical practice, we observe a constantly growing number of young people presenting for treatment due to such mental disorders as depressive disorders and addictions. The availability of help and the number of child psychiatrists varies considerably across European countries, ranging from one child psychiatrist per 5,300 people below 20 years of age to one per 51,800 people below 20 years of age. In Poland, this ratio is one of the lowest in Europe. In addition, the category of "mental health of children and adolescents" is a proportionally small part of the mental health budget [2]. Among the children and adolescents suffering from depression, as many as 7% may commit suicide in early adulthood (NIMH) [3]. WHO statistics show that suicide ranks third among the causes of death of people between the ages of 15 and 24 and ranks fourth place in individuals between 10 and 14. Addiction to tobacco and alcohol is one of the most common health problems in the world. The first contact with addictive substances, experimentation and their harmful use take place most often during adolescence [4].

Many prospective studies have been carried out in various countries to assess the frequency of mental disorders among adolescents, and the results of these studies provide the basis for the development of prevention programmes in this age group [5]. In Poland, there are not many of these research and intervention programmes. Learning about the prevalence of mental health disorders in the population of Polish youth and the development of modern prevention programmes would have an enormous clinical significance.

SOPKARD-Junior is an epidemiological research and intervention programme, the first in Poland, which in a comprehensive manner assesses the health condition of adolescents. As part of the programme, anthropometric measurements, as well as cardiological, metabolic, endocrinological, nephrological, and psychological and psychiatric tests were conducted. Preliminary reports on the results of SOPKARD-Junior indicate that only one-third of the adolescents in the programme was healthy and free of cardiovascular risk factors [6]. The results of the studies on the prevalence of depression and substance dependencies among this group of teenagers indicate that the percentage of healthy adolescents is even lower.

The objective of the psychological and psychiatric interviews and tests carried out under SOPKARD-Junior was the assessment of the prevalence and co-prevalence of depression and the use of psychoactive substances among 14-year-old Sopot youth.

Materials

The SOPKARD-Junior study has been carried out each year since 2006. The project is being carried out at schools in cooperation with the principals of these schools and with pedagogical staff and school nurses. Each year, all 14-year-old students of junior high schools in Sopot (in 2006 and 2007 it was students in the 2nd grades of junior high school) are invited to participate in the study. Participation is voluntary; the explanation of the rules of participation is provided by doctors during parents' meetings in the schools.

In the years 2006 and 2007, 316 adolescents were tested in the psychological and psychiatric module (60.2% of all qualifying students). The remainder refused to give their consent to the tests. Attendance was 59.2% in 2006, and 72.2% in 2007. The project was approved by the Independent Bioethics Committee for Scientific Research affiliated to the Medical University of Gdansk (Resolution No. NKEBN/510/2006).

Methods

1st phase of the study – questionnaire research

1. For the assessment of the prevalence of depressive symptoms, the following two scales were used: *Beck Depression Inventory* (BDI 2006) and *Krakow Depression Inventory* IO "B1" (KID 2007).
   The *Beck Depression Inventory* is a tool used commonly all over the world for the measurement of the intensity of depressive symptoms in subjects aged 13 and over. The BDI was constructed in 1981, and it consists of 21 questions evaluating the severity of depression symptoms. It is a self-report questionnaire. The participant is asked to mark one answer that best describes his or her emotions and behaviours during the last two weeks. Each question concerns a symptom of depression, for example: low mood, feelings of guilt, anhedonia and suicidal thoughts. Each question also has a 4-point scale (from 0 to 3) that reflects the intensity of a given symptom of depression – from its lack to a high intensity of the symptom. The total score is the sum of points from the 21 questions (maximum number of points – 63, minimum – 0). The alpha Cronbach reliability coefficient is 0.87 for BDI [7]. It has been shown that this scale is a good indicator of the effects of treatment, and it also has good psychometric properties [8].

   The *Krakow Depression Inventory* is a tool created and standardised on the Polish population by a team from the Department of Child and Adolescent Psychiatry at the Jagiellonian University Medical College in Krakow, under the direction of Professor Jacek Bomba. The KID IO 'B1' version takes into account the specificity of the psychopathological picture of depression in early and middle adolescence, and is adapted for the assessment of the intensity of depressive symptoms in the 13 – to 15-year-old age group. It consists of 104 items; the participant answers "yes" if the statement is true or "no" if it is not. In the inventory, 89 statements correspond to psychopathological symptoms, written in a language that is easy to

understand in this age group. The rest of the statements belong to the "lie scale." The norms of IO "B1" were created according to the sten scale for total score and for individual subscales. An overall score corresponding to 7-10 sten allows for a narrowing of the diagnosis to depression. A raw score >=26 (converted for the entire IO "B1" questionnaire) is the same as 7 sten. The alpha Cronbach reliability coefficient for the KID IO "B1" total scale is 0.94 [9].

2. The questionnaire used for the assessment of the prevalence of tobacco smoking, alcohol abuse and drug abuse was a proprietary questionnaire which assessed the frequency of consumption of psychoactive substances (2006, 2007).

   The following criteria were used:

   – occasional tobacco smoking: less than once a week;
   – regular tobacco smoking: once a week or more frequently;
   – occasional alcohol consumption: few times a year or less;
   – regular alcohol consumption (abuse): once a month or more frequently;
   – occasional taking drugs: contact with drugs (once or few times in life);
   – regular taking drugs (abuse): repeated contact with drugs, taking when there is an opportunity.

2nd phase of the study – psychiatric examination

Adolescents who displayed depressive symptoms in the questionnaire phase of the research were invited to take part in a medical evaluation. The cut-off point that indicated depressive symptoms was at least 10 points on the Beck Depression Inventory (2006) and at least 26 points (>=7 sten) on the Krakow Depression Inventory (2007). A diagnosis of a depressive episode was made in accordance with the DSM-IV criteria (APA 1994) [10].

Statistical methods

The differences in the prevalence of specific disorders were analysed with Pearson's Chi-squared test. Continuous variables were analysed using multidimensional variance analysis (ANOVA).

Results

Depressive symptoms were detected in 29.4% of the subjects: 37.4% of girls (G) and 20.9% of boys (B) ($p < 0.05$) (Fig. 1). In the psychiatric examination the most common diagnoses were: episode of depression – in 4.1% of adolescents in the study (G: 5.5% and B: 2.6%) and adjustment disorders – in 5.4% of teenagers (G: 8% and B: 2.6%).

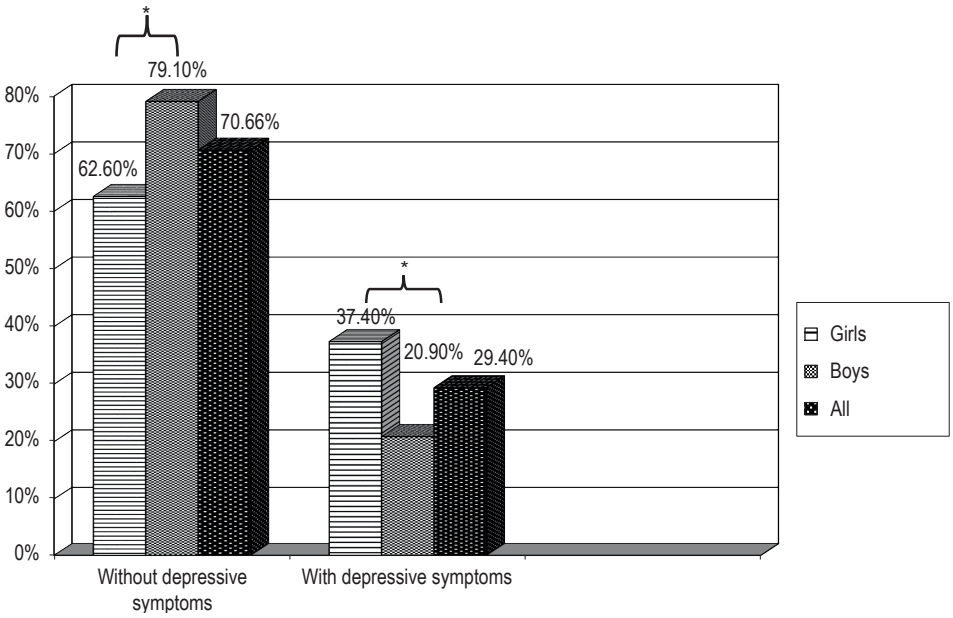

Fig. 1. **Frequency of depressive symptoms**

* $p < 0.05$

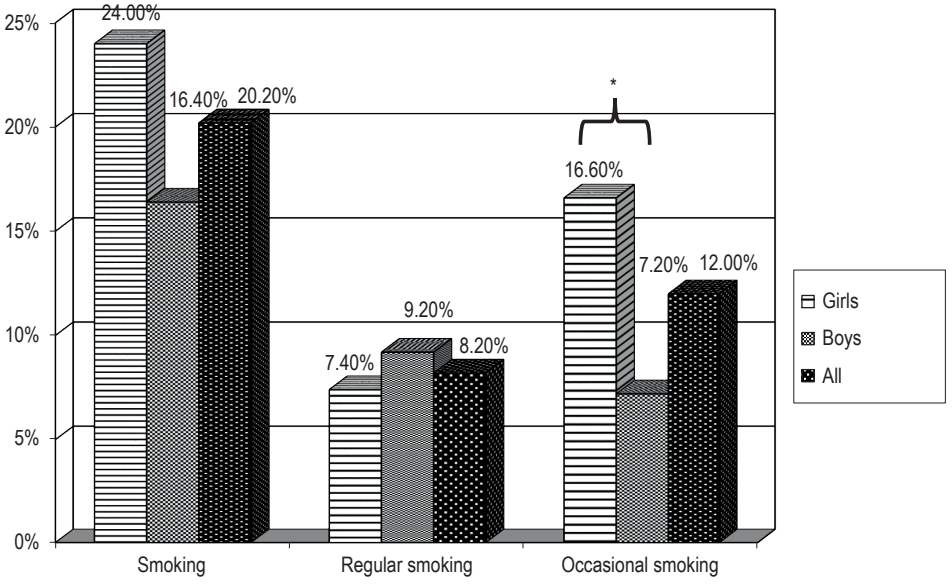

Fig. 2. **Frequency of cigarette smoking**

* $p < 0.05$

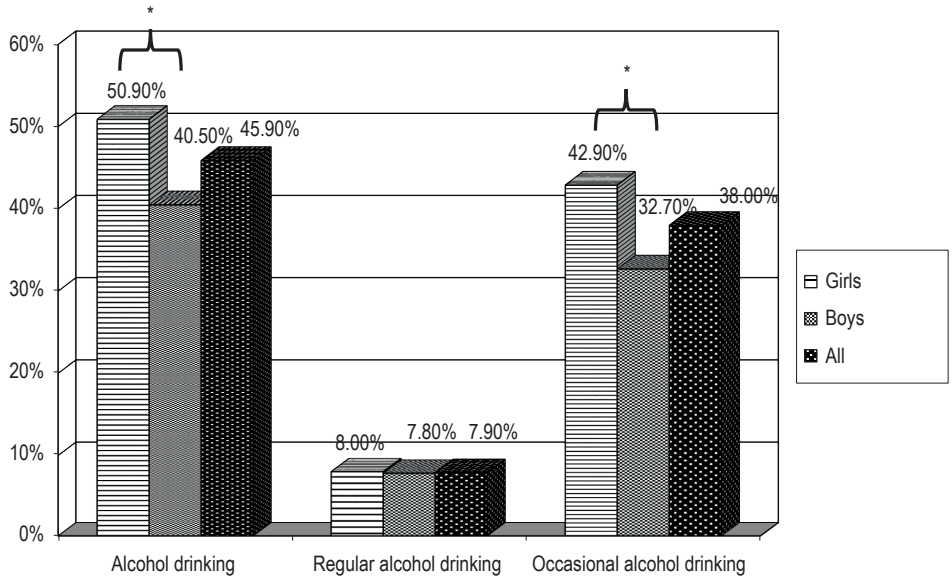

Fig. 3. **Frequency of alcohol consumption**

* $p < 0.05$

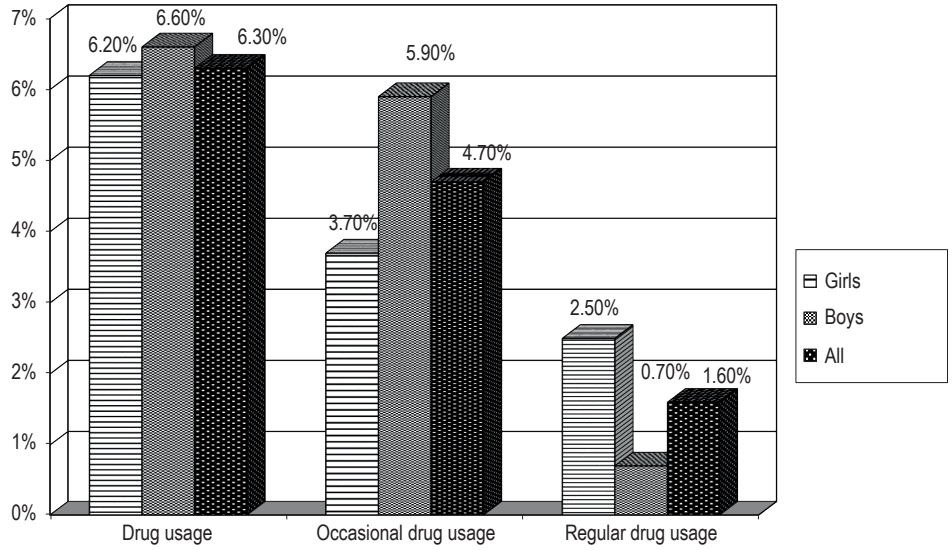

Fig. 4. **Frequency of taking drugs**

The declared rates of substance usage (both occasional and regular usage) were as follows: cigarettes – 20.2% of all adolescents (G: 24% and B: 16.4%, $p < 0.05$), alcohol – 45.9% (G: 50.9% and B: 40.5%, $p < 0.05$), drugs – 6.3% (G: 6.2% and B: 6.6%, ns.). Regular tobacco smoking was detected in 8.2% of all adolescents in the study (G: 7.4 % and B: 9.2 %, ns.), alcohol abuse in 7.9% (G: 8% and B: 7.8%, ns.), drug abuse in 1.6% (G: 2.5% and B: 0.7%, ns.). The frequency of substance usage, split between regular and occasional usage, is shown in Fig. 2-4.

Adolescents who show depressive symptoms significantly more frequently than those without these symptoms smoke cigarettes (30.1% vs. 16.1%, $p < 0.05$) and drink alcohol (61.3% vs. 39.5%, $p < 0.05$) (Fig. 5).

Taking into account the split between regular and occasional psychoactive substance use, the findings are as follows: regular tobacco smoking – 11.8% vs. 6.7%, $p < 0.05$; occasional tobacco smoking – 18.3% vs. 9.4%, $p < 0.05$; regular alcohol consumption – 11.8% vs. 6.3%, $p = 0.05$; occasional alcohol consumption – 49.5% vs. 33.2%, $p < 0.05$.

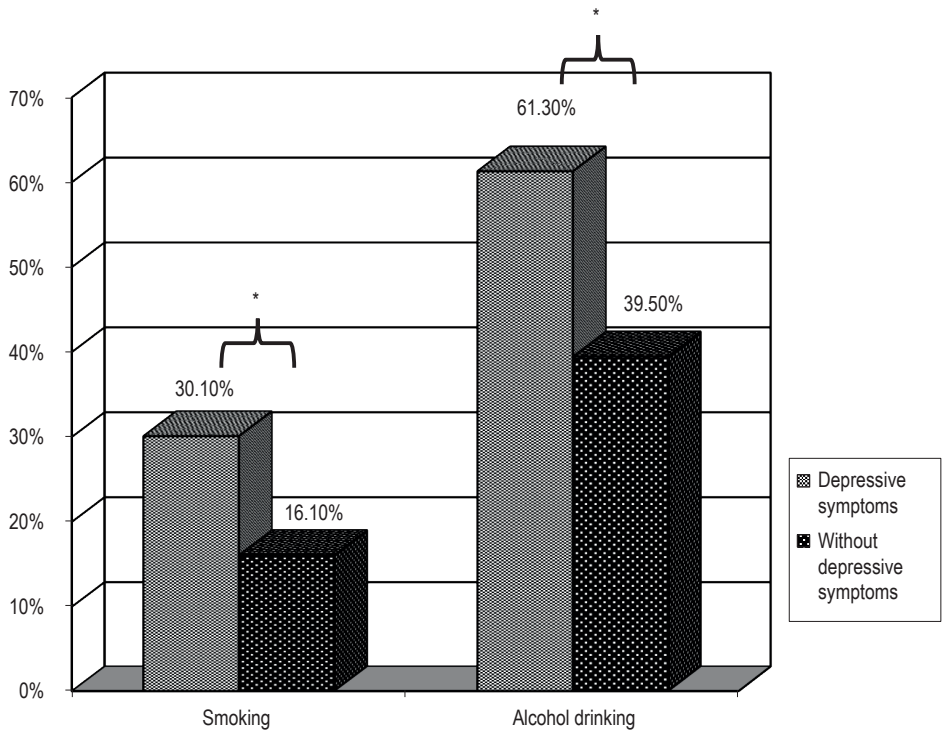

Fig. 5. **Frequency of cigarette smoking and alcohol drinking in the groups with and without depressive symptoms**

* $p < 0.05$

Depressive girls, significantly more often than non-depressive ones, reach occasionally for cigarettes (24.6% vs. 11.8%, $p < 0.05$) and alcohol (57.4% vs. 34.3%, $p < 0.05$). No significant differences were detected in the case of regular smoking and drinking (cigarettes – 9.8% vs. 5.9%, ns.; alcohol – 9.8% vs. 6.9%, ns.). Depressive boys, significantly more often than boys without depressive symptoms, regularly smoke cigarettes (15.6% vs. 7.4%, $p < 0.05$) and drink alcohol (15.6% vs. 5.8%, $p < 0.05$). No significant differences were detected with regard to occasional smoking and drinking (cigarettes – 6.3% vs. 7.4%, ns.; alcohol – 34.4% vs. 32.2%, ns.). Depressive individuals reached for drugs more often than non-depressive adolescents, yet – because of the small size of the group of illicit drug users – no statistically significant differences were detected.

Discussion

The results of the research on the prevalence of mental disorders, carried out to date, show certain differences depending on the criteria and diagnostic methods used [11]. The frequency of depression among adolescents in reports from the UK and the USA is determined to be between 0.4-8.3%, with a female-to-male ratio of 2:1 [5, 12, 13]. Depressive mood may persist chronically and it may represent a risk factor for the development of an affective disorder in the future. In Poland, the first studies into the prevalence of depression among children and teenagers were conducted in Krakow in the 1980s. The results of the epidemiological studies of the representative sample of an untreated population of children and adolescents by using KID IO indicated the following depression prevalence rates: 31.6 % in 13-year-olds and 27.4 % in 17-year-olds. In replicated Krakow studies from 2001, depressive symptoms were detected in 24.6 % of 13-year-olds and 27.9% of 17-year-olds [14, 15]. In the studies of a population of 17-year-old adolescents from Gdansk and Koszalin in 2001, 54% had depressive symptoms [16]. Another large epidemiological study on an untreated population of 13-year-olds was Witkowska-Ulatowska's study, in which results demonstrated that 19.3% of the teenagers had symptoms of depression [17].

The above-mentioned data are convergent with the results of questionnaire research carried out under the SOPKARD-Junior programme. The verification of questionnaire research in the form of a psychiatric examination by a doctor proved to be extremely valuable. SOPKARD-Junior is an epidemiological study in which the prevalence of depressive disorders in a group of adolescents was assessed on the basis of psychiatric examination. In 4% of the participants, a clinical episode of depression was diagnosed. Therefore, the rates of prevalence of clinical depression in the urban population of Polish 14-year-olds are comparable to the frequency of depression among adolescents in Western Europe and the USA. Similarly, the fact that clinical depression cases are twice as frequent among girls than boys in Sopot corresponds with previous reports on the same issue [5, 12, 13].

The results of SOPKARD-Junior show that one in three subjects has significant difficulties in dealing with stressful situations. These difficulties manifest themselves in depressive symptoms, which occur as a reaction to stress exceeding the adaptation

capabilities of a young person. Those individuals, for whom the quantity and severity of these symptoms were insufficient to diagnose clinical depression, in accordance with the DSM-IV criteria, were diagnosed with a depressive course of adolescence. The group of people with this diagnosis represents a risk group for the development of potential disorders in the future. Observation of these patients will allow to answer the following question: How many among them will suffer from clinical depression in the future, and does it make sense to take up preventive actions focused on this group of adolescents?

Another serious problem in early adolescence is experimentation with, and harmful usage of, psychoactive substances such as tobacco, alcohol and drugs. It is known that such use may lead to dependence at a later age. Of all the psychoactive substances, the largest risk of future dependence was recorded for nicotine (36%) [18]. The data which link an early start of substance usage with dependence are inconclusive; nonetheless, many researchers point to the fact that the risk of dependence increases if there is an early contact with the harmful substance [19-21]. The data concerning the prevalence of alcohol and nicotine dependence varies with the age and nationality of the subjects. With age, there is a significant increase of psychoactive substance abuse. Hungarian studies show that the frequency of cigarette smoking and alcohol drinking among 12-year-olds was 19% and 24%, respectively [22]. In Brazilian studies, carried out among 14 – to 19-year olds, 57% confirmed drinking alcohol (29.3% drink alcohol 1-3 times a month, 13% every week), 23% smoke cigarettes and 5% take drugs [23]. Among Brazilian youths aged 10-19 years, the frequency of cigarette smoking was 12.1% (10.3%-14%), with no significant differences between the sexes [24]. In a group of 15 – to 16-years-old Slovaks, 24.8% of boys and 14.3% of girls admitted that they regularly smoke [25].

The results of the SOPKARD-Junior study, concerning the prevalence of tobacco smoking and alcohol drinking among 14-year-olds, do not differ substantially from other European findings on the subject. Attention is drawn to the considerable prevalence of cigarette smoking (20% of this group), and the higher rates of cigarette smoking and alcohol drinking among girls than among boys. A significant predominance of girls over boys also concerns occasional usage of psychoactive substances. No significant differences between the sexes were detected with regard to regular cigarette smoking and the abuse of alcohol and psychoactive substances. The majority of research studies indicate that in most European countries, boys outnumber girls when it comes to the abuse of psychoactive substances [26]. However, one should note the steady increase in the number of young women who abuse, and are dependent on, alcohol and tobacco. The significant predominance of Sopot girls – over boys – with regard to smoking cigarettes and drinking alcohol, represents important information from the viewpoint of planning future interventions and preventive actions.

Drug dependencies concern mainly those aged 18 – 30, although the group of students in junior and senior secondary schools abusing these substances is increasing from year to year. Similar as in the case of alcohol and nicotine, the data on the prevalence of these disorders depend on the age and nationality of the subjects. The use of psychoactive substances increases with age – from early to late adolescence. In one

of the epidemiological studies in the US, the prevalence of psychoactive substance abuse among a group of 12 – to 18-year-olds was estimated. One in four adolescents in the older age group met the criteria of harmful use of at least one substance, and one in five met the criteria of dependence. One in three smoked cigarettes every day and 8.6% met the criteria of nicotine dependence. Alcohol abuse was found in 10% of the subjects, and the criteria of dependence were met by 3.5% of respondents. Marijuana dependence was found in 4.3% of the subjects. Boys more often met the criteria of alcohol and marijuana dependence, while girls more often met the criteria of nicotine dependence [27]. In one of the Polish epidemiological studies, it was found that teenagers who use psychoactive substances (primarily cannabis derivatives) represented about 20% of all 14-year-old students of schools [28]. In the SOPKARD-Junior study only 6% admitted they reached for drugs, and even fewer teenagers admitted regular drug usage (1.6%), which may be evidence of a low prevalence of drug usage in the population or it may indicate fear of revealing this information to researchers.

Depressions and dependencies among adolescents are often concurrent. It has been shown that the level of depressiveness and the use of psychoactive substances in early adolescence were in later years significantly linked to alcohol, tobacco and marijuana abuse among girls, and to marijuana abuse among boys [29]. The results of a US longitudinal epidemiological study on a population of 10,800 individuals (from adolescence to early adulthood) indicate that the link between depressive symptoms and substance abuse is bidirectional. A higher level of depressiveness during adolescence is related to more frequent abuse of psychoactive substances in early adulthood. More frequent substance abuse is related to an increased intensity of depressive symptoms several years later. This relationship is stronger in girls than in boys [30]. In recent years, the influence of depressive symptoms in adolescents on smoking cigarettes in this age group has been described increasingly more often [31].

The studies conducted on the Polish population confirm the concurrence of these two disorders and an increased risk of dependence in the group of depressive teenagers [28]. The results of the SOPKARD-Junior study indicate that the incidence of tobacco smoking and alcohol drinking among depressive adolescents is twice as high as among adolescents without depressive symptoms. Depressive girls have a higher tendency to reach for drugs occasionally, while depressive boys are more likely to use these substances regularly. Therefore, it may be assumed that early detection and treatment of depressive disorders among adolescents may contribute to a reduction in the prevalence rates of substance dependencies among young adults.

The results of the SOPKARD-Junior study indicate a substantial prevalence of depressive disorders, cigarette smoking and alcohol drinking among 14-year-old adolescents, mainly among girls. There is a disturbing worldwide trend of an increase in these problems among girls, specifically with regard to tobacco smoking. This may be a result of a change in social attitudes, i.e. of increased acceptance of tobacco smoking among girls, and a strong impact of tobacco advertising, increasingly often targeting the female population [32]. This fact is especially disturbing in the context of alcohol abuse and cigarette smoking by young women during pregnancy, and of all the potential medical and social consequences of such risky behaviour.

All of the data discussed here indicate that there is a strong need for epidemiological surveys, such as SOPKARD-Junior, and the results of these studies should provide a basis for the development and implementation of large-scale, modern, prevention programmes.

Conclusions

1. Significant rates of prevalence of depressive symptoms were detected among the adolescents in the study: in the course of adolescence, one in three girls and one in five boys display depressive symptoms. The medical examination confirmed the diagnosis of an episode of depression in 4% of teenagers – among girls twice as frequently as among boys.
2. One in five teenagers in the study smokes cigarettes. Girls smoke cigarettes and drink alcohol significantly more frequently than boys.
3. The presence of depressive symptoms in adolescents almost doubles the risk of tobacco and alcohol abuse.
4. A large number of detected irregularities and potential serious health and social consequences point to the urgent need to implement epidemiological programmes and the need to develop modern preventive programmes aimed at children and adolescents.

References

1. Gotlib IH, Lewinsohn PM, Seeley JR. *Consequences of depression during adolescence: Marital status and marital functioning in early adulthood.* J. Abnorm. Psychol. 1998; 107(4): 686–690.
2. ESCAP. *Dobrostan psychiczny dzieci w Europie. Plany i perspektywy.* XIII Congress, Florence, Italy, 25–29 August 2007.
3. National Institute of Mental Health (NIMH). *Depression in Children and Adolescents: A Fact Sheet of Physicians.* http://www.nimh.gov/publicat/depchildrensfact.cfm (retrieved: 1.01.2021).
4. Steinhausen HC, Metzke CW. *Frequency and correlates of substance use among preadolescents and adolescents in a Swiss epidemiological study.* J. Child Psychol. Psychiatry 1998; 39(3): 387–397.
5. Rutter M, Tizard J, Yule W, Graham P, Whitmore K. *Research report: Isle of Wight Studies, 1964–1974.* Psychol. Med. 1976; 6(2): 313–332.
6. Czarniak P, Szczesniak P, Krawczyk M, Pakalska-Korcala A, Sliwinska A, Król E et al. *Are healthy teenagers really healthy? Results of the screening project Sopkard 15.* Eur. J. Cardiovasc. Prev. Rehabil. 2009; 16: 28.
7. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. *An inventory for measuring depression.* Arch. Gen. Psychiatry 1961; 4: 561–571.
8. Lewinsohn PM, Rohde P, Seeley JR. *Major depressive disorder in older adolescents: Prevalence, risk factors, and clinical implications.* Clin. Psychol. Rev. 1998; 18(7): 765–794.
9. Bomba J, Modrzejewska R, Beauvale A. *Struktura czynnikowa objawów w Krakowskim Inwentarzu Depresyjnym KID IO „B1" w grupie 15-latków.* Psychiatr. Pol. 2011; 45(2): 245–259.

10. Bell CC. *DSM-IV: Diagnostic and Statistical Manual of Mental Disorders.* JAMA 1994; 272(10): 828–829.
11. Roberts RE, Attkisson CC, Rosenblatt A. *Prevalence of psychopathology among children and adolescents.* Am. J. Psychiatry 1998; 155(6): 715–725.
12. Harrington R. *Adolescent depression: Same or different?* Arch. Gen. Psychiatry 2001; 58(1): 21–22. Doi: 10.1001/archpsyc.58.1.21.
13. Fleming JE, Offord DR, Boyle MH. *Prevalence of childhood and adolescent depression in the community: Ontario child health study.* Br. J. Psychiatry 1989; 155: 647–665.
14. Modrzejewska R, Bomba J. *Porównanie rozpowszechnienia depresji w populacji 13-letniej młodzieży krakowskich szkół średnich w latach 1984 i 2001.* Psychiatr. Pol. 2006; 40(3): 469–479.
15. Modrzejewska R, Bomba J. *Porównanie rozpowszechnienia depresji w populacji 17-letniej młodzieży krakowskich szkół średnich w latach 1984 i 2001.* Psychiatr. Pol. 2004; 38(1): 13–27.
16. Jaklewicz H, Barańska Z, Deli D, Plich M, Wodniak A. *Zaburzenia depresyjne u młodzieży w okresie transformacji społecznej.* Psychiatria i Psychologia Kliniczna Dzieci i Młodzieży 2001; 1: 26–37.
17. Witkowska-Ulatowska H. *Zaburzenia afektywne u dzieci i młodzieży. Przegląd badań.* In: Biblioteka Psychiatrii Polskiej. *Zaburzenia psychiczne dzieci i młodzieży.* Kraków: Komitet Redakcyjno-Wydawniczy Polskiego Towarzystwa Psychiatrycznego; 2000. P. 137–144.
18. Riordan M. *Campaign for Tobacco-Free Kids Fact Sheet: Smoking and Kids.* http://www.tobaccofreekids.org/research/factsheets/pdf/0001.pdf (retrieved: 1.01.2021).
19. DeWit DJ, Adlaf EM, Offord DR, Ogborne AC. *Age at first alcohol use: A risk factor for the development of alcohol disorders.* Am. J. Psychiatry 2000; 157(5): 745–750.
20. Breslau N, Fenn N, Peterson EL. *Early smoking initiation and nicotine dependence in a cohort of young adults.* Drug Alcohol Depend. 1993; 33(2): 129–137.
21. Chen C, O'Brien MS, Anthony JC. *Who becomes cannabis dependent soon after onset of use? Epidemiological evidence from the United States: 2000–2001.* Drug Alcohol Depend. 2005; 79(1): 11–22.
22. Kiss E, Pikó B, Vetró A. *Frequency of smoking, drinking, and substance use and their relationship to psychiatric comorbidity in depressed child and adolescent population.* Psychiatr. Hung. 2006; 21(5): 371–378.
23. Costa MCO, Alves MVDQM, Santos de CADST, Carvalho de RC, Souza de KEP, Sousa de HL. *Experimentation and regular use of alcoholic beverages, cigarettes and other psychoactive substances (PAS) during adolescence*. Cien. Saude Colet. 2007; 12(5): 1143–1154.
24. Malcon MC, Menezes AM, Chatkin M. *Prevalence and risk factors for smoking among adolescents*. Rev. Saude Publ. 2003; 37(1): 1–7.
25. Baska T, Ballová M, Mad'ar R, Straka S. *Epidemiology of smoking habit in adolescents. Suggestions for prevention*. Cent. Eur. J. Public Health 1999; 7(1): 31–34.
26. Reek van J, Adriaanse H, Knibbe R. *Alcohol consumption and correlates among children in the European community*. Int. J. Addict. 1994; 29(1): 15–21.
27. Young SE, Corley RP, Stallings MC, Rhee SH, Crowley TJ, Hewitt JK. *Substance use, abuse and dependence in adolescence: Prevalence, symptom profiles and correlates.* Drug Alcohol Depend. 2002; 68(3): 309–322.
28. Modrzejewska R, Bomba J. *Point prevalence of psychoactive substance use and depression in childhood and adolescence.* Przegl. Lek. 2004; 61(11): 1217–1223.

29. Fleming CB, Mason WA, Mazza JJ, Abbott RD, Catalano RF. *Latent growth modeling of the relationship between depressive symptoms and substance use during adolescence.* Psychol. Addict. Behav. 2008; 22(2): 186–197.
30. Needham BL. *Gender differences in trajectories of depressive symptomatology and substance use during the transition from adolescence to young adulthood.* Soc. Sci. Med. 2007; 65(6): 1166–1179.
31. Hockenberry JM, Timmons EJ, Vander Weg M. *Smoking, parent smoking, depressed mood and suicidal ideation in teens.* Nicotine Tob. Res. 2010; 12(3): 235–242.
32. Steinhausen HC, Winkler C, Meier M. *Eating disorders in adolescence in a Swiss epidemiological study.* Int. J. Eat. Disord. 1997; 22(2): 147–151.

Address: Anna Pakalska-Korcala
Gdansk Medical Centre
Mental Health Clinic for Children and Adolescents
80-542 Gdańsk, Oliwska Street 62
e-mail: annapakalska@wp.pl