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## Alcohol abuse by children and adolescents as a cause of hospitalisation at the paediatric department\*\*

## Nadużywanie alkoholu przez dzieci i młodzież jako przyczyna hospitalizacji w oddziale pediatricznym

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### Summary

**Introduction.** In recent years a growing number of cases of alcohol abuse by children and adolescents is observed. There are also more cases of intoxications which require hospitalization. However, exact data on the scale of the problem is not available.

**Aim of the study.** 1. To assess the extent of the phenomenon of alcohol abuse by children. 2. To identify the disorders responsible for the clinical course of alcohol intoxication in children. 3. To identify the factors which factors which contribute to the consumption of alcohol in children.

**Material and methods.** The study was carried out on 87 children (47 girls and 40 boys), hospitalized due to alcohol abuse at the Clinical Pediatrics Ward of the Bielański Hospital in Warsaw in the period between 1999 and 2008. The children's age ranged between 5 and 18 (average 15). The majority, 62 (71%) were 13 to 16 years old. At their admission, their consciousness disorders, metabolic parameters and the concentration of ethanol were assessed. Also, data was collected on the socio-economic status of the family, earlier alcohol consumption, its type, the way it was obtained, the place of consumption and the participation of other persons. Psychological tests assessed the intelligence and balance of the intellectual development, personality, as well as the child's place and role in the family.

**Results.** In 17 (20%) children a state of a severe poisoning was diagnosed, which not always correlated with the concentration of alcohol in blood (from 1.3 to 3.52 pro mille). The majority of them did not require intensive treatment and stayed up to 4 days under observation at the hospital. In 54 (62%) children it was the first incident of alcohol abuse. The children most often consumer the alcohol with their peers, outside their home. None of them reported any difficulty in obtaining alcoholic beverages. The alcohol-abusing children came mostly from two-parent families (55%), with two or more children (53%). In 17 families occurred cases of alcoholism in parents or grandparents. In 15 (32%) children the IQ was high. In 13 (28%) emotional immaturity was observed, and in 9 (19%), an unbalanced intellectual development. No correlation was found between the children's alcohol consumption and the socioeconomic status of their families or their parents' education.

**Conclusions.** Factors which contribute to alcohol abuse in children are: age (junior high/early secondary school: 13-15), growing up in families with disturbed relations among their members, easy access to alcohol, and a low level of knowledge about the consequences of abusing it. An unbalanced intellectual development and emotional immaturity is also diagnosed among alcohol abusing children.

Key words: ethanol, adolescents, children, alcohol abuse

### Streszczenie

**Wprowadzenie.** W ostatnim okresie obserwowana jest wzrastająca liczba przypadków używania alkoholu przez dzieci. Zwiększa się ilość zatruc, powodujących konieczność hospitalizacji. Jednak dokładna skala problemu nie jest znana.

**Cel pracy.** 1. Ocena nasilenia zjawiska nadużywania alkoholu przez dzieci. 2. Identyfikacja zaburzeń odpowiedzialnych za przebieg kliniczny zatrucia alkoholem u dzieci. 3. Zdefiniowanie czynników sprzyjających spożywaniu alkoholu przez dzieci.

**Materiał i metody.** Do badania włączono 87 dzieci (47 dziewcząt i 40 chłopców), hospitalizowanych w latach 1999-2008 w Klinicznym Oddziale Pediatricznym Szpitala Bielańskiego w Warszawie z powodu nadużycia alkoholu. Dzieci były w wieku

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od 5 do 18 lat (średnio 15 lat). Większość, bo 62 (71%) z nich była między 13. a 16. rokiem życia. Przy przyjęciu oceniano zaburzenia świadomości, parametry metaboliczne i stężenie etanolu. Zbierano dane na temat statusu społeczno-ekonomicznego rodziny, wcześniejszego używania alkoholu, rodzaju i sposobu jego zdobycia, miejsca spożywania oraz udziału innych osób. Badaniem psychologicznym oceniano inteligencję i harmonijność rozwoju intelektualnego, osobowość oraz miejsce i rolę dziecka w rodzinie.

**Wyniki.** U 17 (20%) rozpoznano stan ciężkiego zatrucia, który nie zawsze korelował ze stężeniem alkoholu we krwi (od 1,3 do 3,52 promili). Większość dzieci nie wymagała intensywnego leczenia i pozostawała do czterech dni na obserwacji w szpitalu. U 54 (62%) dzieci był to pierwszy incydent nadużycia. Dzieci piły najczęściej z rówieśnikami, poza domem. Żadne z dzieci nie zgłaszało trudności w zdobyciu napojów alkoholowych. Dzieci nadużywające alkoholu pochodziły w większości z rodzin pełnych (55%), z dwójką lub większą ilością dzieci (53%). W 17 rodzinach występowały przypadki alkoholizmu u rodziców lub dziadków. U 15 (32%) przebadanych dzieci iloraz inteligencji był wysoki. U 13 (28%) stwierdzano niedojrzałość emocjonalną, a u 9 (19%) nieharmonijny rozwój intelektualny. Nie stwierdzono zależności pomiędzy nadużyciem alkoholu przez dziecko, a statusem społeczno-ekonomicznym rodziny i wykształceniem rodziców.

**Wnioski.** Nadużywaniu alkoholu przez dzieci sprzyjają: wiek (okres gimnazjalny), wychowanie w rodzinach, w których są nieprawidłowe relacje między ich członkami, łatwy dostęp do alkoholu i niski poziom wiedzy o konsekwencjach jego nadużycia. U dzieci nadużywających alkohol stwierdza się nieharmonijny rozwój intelektualny i niedojrzałość emocjonalną.

Słowa kluczowe: alkohol, nastolatki, młodzież, nadużywanie alkoholu

## INTRODUCTION

Since the 1990s, a growing number of cases of abusing various psychoactive substances by children and adolescents has been observed in Poland. Statistical data indicate that the substance whose abuse is becoming more frequent is ethanol (1). It was observed that since 1999 the consumption of ethanol among children is not decreasing, and opinions appeared that frequent alcohol consumption by children has become a statistical "norm", especially in the period of adolescence (2).

The discussed phenomenon is accompanied by cases of severe intoxication, partly due to the fact that children who become drunk or are getting drunk by their peers or adults are mostly not aware of the threat that alcohol abuse is to their health (3). Each year, hospitals admit alcohol-intoxicated children, but their exact number is difficult to estimate. It has become an important issue: not only a medical, but also a social one.

## AIM OF THE STUDY

1. To assess the scope of the phenomenon of abusing alcohol by children.
2. To identify the distortions responsible for the clinical course of ethanol intoxication.
3. To identify the factors which contribute to alcohol consumption by children.

## MATERIAL

The study included 87 children (47 girls and 40 boys), hospitalised due to a severe ethanol poisoning at the Clinical Paediatrics Department in the period between 1999 and 2008. The children's average age was 14.8 (12.15-16.5 years old). Two youngest children were aged 5 and 7.8 accordingly. The dominant group comprised children at the age between 14 and 16 (55; 63% of the hospitalized children). In the 10-year observation period the average age of

children admitted due to a severe ethanol intoxication was constant and ranged between 14.2 and 15.4. In 1999 and 2000 it was the reason for hospitalising one child a year. In the following years, however, an increase of such hospitalisations was observed, with a peak in 2007, when 19 children were admitted due to alcohol abuse (tab. 1, fig. 1).

The children were mostly brought to hospital as an emergency, by an ambulance. Only in few cases it was parents who brought their child to hospital. When admitted, all children required hygienic care such as washing or change of clothes.

## METHODS

In all children the following parameters were assessed at admittance and in the subsequent days of hospitalization:

- the condition in question, with special attention to the nervous, circulatory and respiratory system, the appearance of their skin, and the functioning of the musculoskeletal system (with regard to an injury),
- the intensity of the consciousness disorders according to the Glasgow scale,
- the concentration of alcohol in blood,
- type and range of the metabolic disorders due to caused by alcohol abuse, such as hypoglycaemia, abnormal acid-base balance and fluid-electrolyte balance.

Based on the data from their history, the structure and socio-economic status of the family was assessed, the quality of the health behaviours in the child's environment, and earlier episodes of alcohol or other substance abuse were described. The enquiry also concerned the type of alcohol that had been drunk, the time and place of its consumption, as well as the available data on other persons who participated in the event, and the way the alcohol was obtained. The patient was also asked about his or her attitude to alcohol consumption and abuse.

Table 1. Description of the respondent group.

Year	Number of cases	Average age (in years)	Min	Max	Sex			
					Girls		Boys	
1999	1	14.9	14.9	14.9	1	100%	0	0%
2000	1	14.3	14.3	14.3	1	100%	0	0%
2001	2	14.2	13.8	14.7	2	100%	0	0%
2002	9	14.6	7.8	18.0	3	33%	6	67%
2003	10	14.7	12.1	16.0	4	40%	6	60%
2004	9	14.9	11.8	17.5	8	89%	1	11%
2005	15	15.2	14.3	17.3	7	47%	8	53%
2006	12	15.3	13.9	17.6	7	58%	5	42%
2007	19	14.7	5.0	17.7	9	47%	10	53%
2008	9	15.4	13.6	17.2	5	56%	4	44%
<b>Total</b>	<b>87</b>	<b>14.8</b>	<b>12.15</b>	<b>16.5</b>	<b>47</b>	<b>54%</b>	<b>40</b>	<b>46%</b>

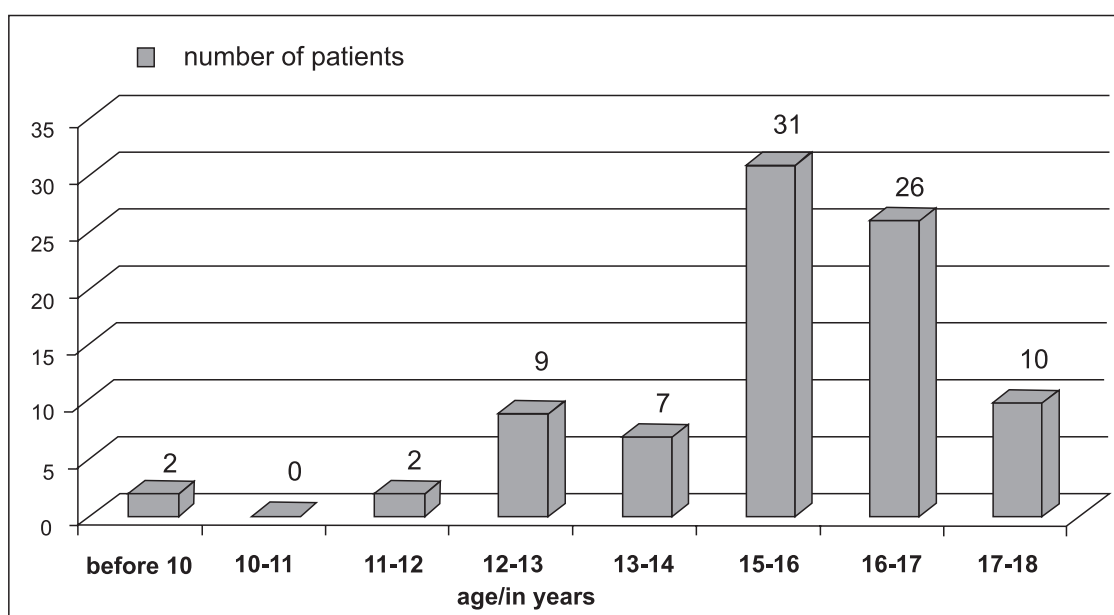


Fig. 1. Age of children hospitalised due to an alcohol intoxication.

A significant part of the observation was a psychological examination, whose aim was to provide information about the relations within the family, at school and among peers, which is often not available to the doctor. The psychological examination used the following assessment tests:

- intelligence and balance of the intellectual development (Wechsler intelligence scale for children, modified version, WISC-R or Raven test – for older children),
- personality (Rotter test of unfinished sentences – RISB),
- place of children within the family (tree test, family test).

A questionnaire, especially designed for the study, was filled in by the doctor leading the treatment of the given patient.

## RESULTS

The average ethanol concentration in blond serum was 1.62 pro mille and ranged from 0.89 to 2.3 pro mille (tab. 2). The maximal ethanol concentration in blond serum was 3.52 pro mille for girls and 3.81 pro mille for boys. The children mostly got drunk on strong alcoholic beverages (66; 76% cases) (tab. 3).

In all children who were admitted due to alcohol abuse, their vital functions were monitored. In 66 (76%) disorders requiring intensive treatment were not observed. Electrolyte imbalance and disorders of carbohydrate metabolism were diagnosed, which required intravenous hydration and monitoring of their vital functions. In 55 (63%) children the overall condition was assessed as medium, and in 15 (17%) as good. In 17 (20%) cases a state of severe intoxication was diagnosed, with dominating consciousness disorders

– which not always correlated with the alcohol concentration in blood, which in this group of patients was from 1.3 to 3.52 pro mille. The patients' overall condition was improving relatively fast and already on the second day was assessed as good. In patients under observation no significant health problems were observed. Most children (80%) were discharged from the hospital on the 4<sup>th</sup> day of hospitalisation. One out of ten patients was discharged at their parents' demand.

Table 2. Alcohol concentration in blood serum in the respondents.

Year	Number of patients	Average	Min	Max
		in pro mille		
1999	1	1.60	1.60	1.60
2000	1	2.30	2.30	2.30
2001	2	n.a.	n.a.	n.a.
2002	9	0.89	0.64	1.22
2003	10	1.59	0.70	2.70
2004	9	1.64	0.42	2.44
2005	15	2.20	1.28	3.81
2006	12	2.02	1.06	3.34
2007	19	1.93	1.19	3.52
2008	9	2.04	1.25	3.00
<b>Total</b>	<b>87</b>	<b>1.62</b>	<b>0.64</b>	<b>3.81</b>

Table 3. Type of consumed alcohol.

Type of alcohol	Number of cases	%
High-per cent	66	76
Low per cent	13	15
Data not available	8	9
<b>Total</b>	<b>87</b>	<b>100</b>

The children had usually consumed alcohol in the company of their peers (78%), rarely by adults. Nearly all incidents took place outside their homes (89%).

For 54 (62%) hospitalised children under observation, the alcohol abuse episode was first in their lives, however, simultaneously 49 (56%) of them mentioned that they had already had contact with alcohol prior to that incident (fig. 2). Two youngest children (aged 5 and 7.8) were participants of their parents' drinking bout parties. The alcohol was usually brought by acquaintances – adults or peers, and none of the children reported any difficulty in obtaining alcohol.

A correlation between the parents' socio-economic position or education and the fact of alcohol abuse by their child was not observed. The incidents mostly concerned families consisting of 3-4 persons (60%) (tab. 4). For 19 children (22%), big age differences were noted among the children in the family (over 5 years). 48 (55%) children came from two-parent families (tab. 5). In 20 families (26%) cases of parents' alcoholism among children or grandparents were observed. However, in 21 cases (27%) it was not possible to obtain information about excessive drinking in the family (fig. 3).

Table 4. Number of persons living together at the household.

Number of persons living together	N – 87	%
2	3	3
3	21	24
4	31	36
5	7	8
<b>Above 5</b>	<b>8</b>	<b>9</b>
<b>No data</b>	<b>17</b>	<b>20</b>

Table 5. Family structure.

Family	N	%
Two-parent	48	55
One-parent	30	35
No data	9	10
	<b>87</b>	<b>100</b>

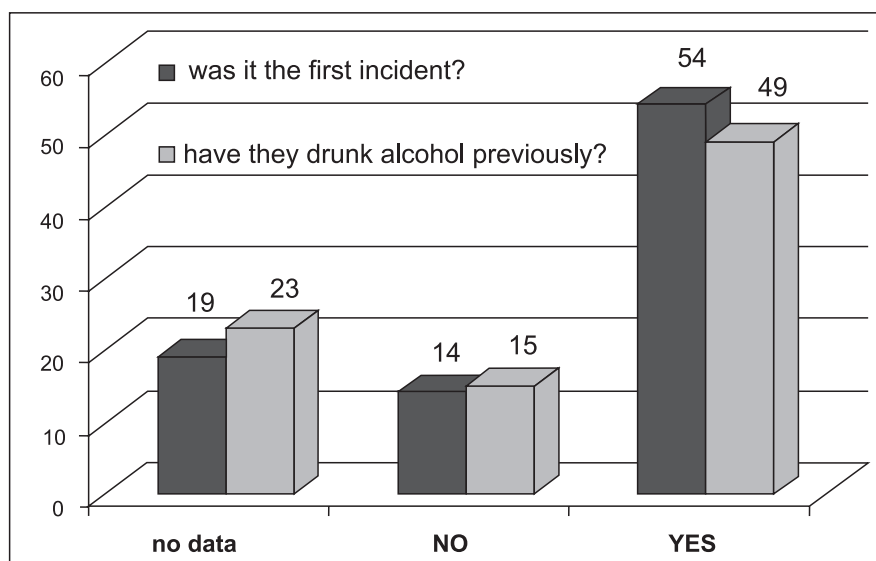


Fig. 2. The first incident of getting drunk and previous contact with alcohol.

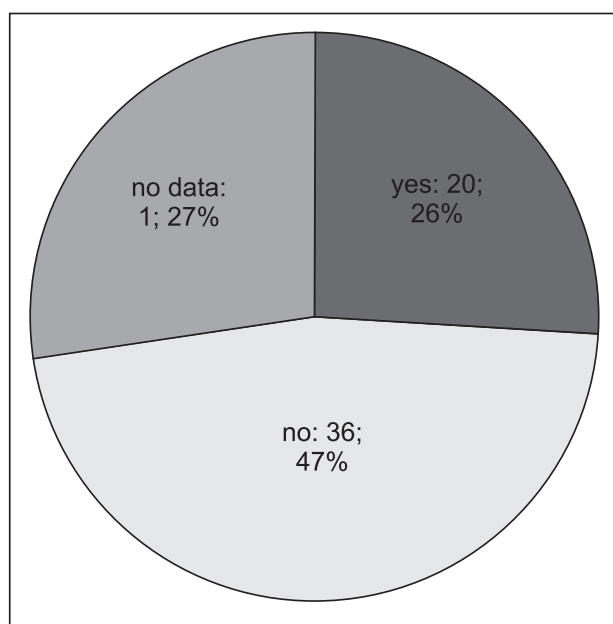


Fig. 3. Alcoholism in the family.

A psychological analysis was carried out only on 59 (65%) children, while the remaining ones either refused to participate in the test or did not appear at the appointment for a psychological consultation. Moreover, only 47 (54%) children cooperated properly at the examination, and the conclusions were drawn based on the results of this group.

The most frequent outcome was a loss of contact among family members, resulting in the child's weakened sense of security (13%). The average IQ, assessed with the Wechsler test, was 109.7. In 15 (25%) children high intelligence was observed, in 13 (28%) emotional immaturity, while in 9 (19%), an unbalanced development. The most significant results of psychological examinations are presented in table 6.

Table 6. Selected results of psychological examinations.

Criteria	Number of respondents N – 47	%
Weakened sense of security	6	13
Emotional immaturity	13	28
Unbalanced development	9	19
High intelligence	15	32

## DISCUSSION

Based on the data from the Warsaw Metropolitan Police (shown in table 7), concerning the number of underage persons abusing alcohol who were detained at the sobering chamber in the years 1999-2004 (since 2005, the police data has not been collected systematically), one may state that alcohol abuse among underage persons is a serious social problem. Already children under 16 also become "clients" of the sobering chamber. In the group of children detained by the police strongly dominate girls.

Table 7. Children detained at the sobering chamber (data from the Warsaw Metropolitan Police).

Years	1999	2000	2001	2002	2003	2004	2005	
<b>Total</b>	<b>377</b>	<b>457</b>	<b>376</b>	<b>326</b>	<b>389</b>	<b>420</b>	<b>237</b>	
Girls	346	432	344	296	342	380	210	
Boys	31	25	32	30	44	40	27	
Age	no data	no data	12	1	0	1	1	0
			13	3	4	3	2	5
			14	13	12	13	16	8
			15	53	31	33	38	51
			16	120	99	81	102	122
			17	267	230	195	227	234
							no data	

A growing number of cases of alcohol abuse was mentioned in the studies by Mazur and Woynarowska, who assessed this problem in the group of 15-year-olds in the period of 1990-2002 (4) as well as in the studies from 2002 (5) which indicate that alcohol consumption is the most common risky behaviour among children aged 11-15 (more frequent than participating in fights, violence against other students or smoking tobacco).

During the observation we have also noted the lack of problems with obtaining alcohol by children and adolescents. Already in 1994 Wojcieszek (6) mentioned the too low prices of alcohol, the commonly broken law of banning the sale of alcohol to the underage, promoting alcohol at feasts, festivals and other mass events, as well as the wide access to alcohol on the market. It seems that not much has changed, despite the publication of the "Polish Declaration on Youth and Alcohol" ("Polska Deklaracja w Sprawie Młodzieży i Alkoholu") in 2000 (7), which mentions the increase in alcohol consumption by youth and the impact of events where alcohol is promoted. Apart from health consequences of drinking alcohol, one should also not overlook the fact that a drunk patient causes many problems to the medical staff, not only of a hygienic nature (dirty, smelling body and clothes), but first of all aggression, not only of the patient, but also his or her parents. Aggressive behaviour may be intensified by the medical staff's bad attitude to the patient who is drunk. Thus, certain rules of treating patients who are under the influence of alcohol have been accepted at the ward, such as:

- avoid punishing or disapproving of the patient by the medical staff, on the first as well as the subsequent days of stay,
- provide (as far as it is possible) intimacy and privacy,
- inform the patient concretely about the threats caused by consuming alcohol and the possible ways to avoid situations which may contribute to alcohol abuse.

During the hospitalisation, deep conversations were being carried out with the parents. Their attitudes dif-



ferred, often dramatically: from attempts to excuse the child, accepting the doctor's opinion, even to aggression towards the staff (in two cases the parents had to be led out of the ward by the security).

The parents were offered the possibility of psychological assistance for the patient and their family. However, it must be noted that it turned out difficult, and often even unfeasible to undertake and coordinate such help outside the hospital.

**Our results indicate the leading role of the family in the occurrence of the problem of alcohol abuse among children and are consistent with data by other authors.** In their paper, Jelonkiewicz and Kosińska-Dec (3) characterise the types of family functioning (satisfied-dissatisfied) and stress that „[...] children who do not drink much come from families with a greater pride in belonging to the family, greater emotional bonds of the parents, and children have more power in family affairs [...]” [own translation]. Also to Lowe (8), the family is the most crucial etiological factor which explains the excessive consumption of alcohol at adolescence. Drinking more is associated with a lack of affection and revealing emotions to the child by the parents or with extremely strong parental control. For Chassin and Delucia (2), children mostly abuse alcohol in families where their parents do not provide them sufficient social support and their emotional bonds are not strong.

The increase in the frequency of abusing alcohol among adolescents (the average age was slightly under

15) finds a confirmation in research carried out in Warsaw gymnasium schools (lower secondary) by K. Bobrowski (9) on a group of 1000 children aged 14-16 and clearly indicates an increase in problem behaviours among this age group. Also, research carried out in 1995, 1999, and 2003, within the European School Survey Project on Alcohol and Drugs (ESPAD) stress the fact of consuming alcohol by children under 18 years old (10).

## CONCLUSIONS

Factors which contribute to abusing alcohol by children:

- age between 14 and 16 (the period of lower secondary school),
- being raised in risk families, with distorted relations among the family members which lead to losing contact; mutual lack of interest. An unfavourable factor is also a significant age difference between the siblings,
- easy access to alcohol,
- low level of knowledge on the consequences of abusing alcohol.

It is necessary to treat the children who have consumed alcohol in an appropriate way, and carry out intensive prophylactic activities among the age group which is especially prone to the problem of alcohol abuse (among lower secondary school students). It is, however, crucial that the activities include the child's whole family.

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