Original research

Drug dependence analysis in young adults living in Moscow and across Russia for the years 2010—2020

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Abstract. Relevance. A statistical study of drug addiction among young people for 2010—2020 is needed in order to develop recommendations for the treatment of drug addiction. The aim of the research was to analyze trends of substances dependence disorder among adolescents. Materials and Methods. The present research is based on the national statistics data collected and presented in Federal Statistical Monitoring Form № 11 ‘Data on substances dependence disorder cases’; Federal Statistical Monitoring Form № 37 ‘Data on drug and toxic substances (inhalant) addicted adults’, which include estimates about adolescents aged 15—17 who seek addiction treatment initiation at public medical health facilities across Russia and in Moscow. The monitoring period is from 2010 to 2020. All substances dependence disorder morbidity rates were analyzed according to ICD-10 and presented as a breakdown of: drug addiction (dependence) syndrome and health detrimental abuse, first admissions; diagnostic groups, and medical conditions — mental disorders and deviant behaviors caused by drug and non-narcotic psychoactive substances abuse. The data were collected, compiled and Microsoft Office Excel 2016-processed to underlie a database. Results and Discussion. Alcohol and psychoactive substances abuse disorders showed the downward trend, both across Russia and Moscow. Drug abuse disorders showed the decline across Russia, while Moscow saw the same rates growing. Conclusion. The set of the government-backed programs adopted across Russia and in Moscow to fight the spread of adolescent substances dependence disorders delivered a positive result. Key words: analytics, adolescents, drugs, psychoactive substances, mental disorders and deviant behaviors, health detrimental abuse, addiction


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**Introduction**

Psychoactive substances using without doctor’s prescribe is a real hazard for the health. It increases the risk of different mental disorders. The most danger this case for teens [1—6]. Analytics developing and research supporting are the goals of Russian counter-drug policy until 2030 [7]. The high level of spreading mental and behavioral disorders in the world as in Russia that caused by substance abuse (narcological diseases) shows importance of epidemiological researches and prevention measures of substance abuse [8]. There were counter-alcohol [9] and counter-drug policy [10] in Russia in 2010—2020 years that realized for decreasing aftermath of psychoactive substances abusing.

**Materials and methods**

The present research is based on the national statistics data collected and presented in Federal Statistical Monitoring Form № 11 ‘Data on substances dependence disorder cases’; Federal Statistical Monitoring Form № 37 ‘Data on drug and toxic substances (inhalant) addicted adults’, which include estimates about adolescents aged 15—17 who seek addiction treatment initiation at public medical health facilities across Russia and in Moscow. The monitoring period is from 2010 to 2020. All substances dependence disorder morbidity rates were analyzed according to ICD-10 and presented as a breakdown of: drug addiction (dependence) syndrome and health detrimental abuse, first admissions; diagnostic groups, and medical conditions — mental disorders and deviant behaviors caused by drug and non-narcotic psychoactive substances abuse. The data were collected, compiled and Microsoft Office Excel 2016-processed to underlie a database.

**Results and discussion**

This study is deals with the analysis of the drug situation among adolescents in Russia and Moscow for 2010—2020. It should be noted that due to the peculiarity of the development of narcological disease, the indicator of primary referral (for the first time in their lives who applied for drug treatment) is the most informative among the adolescent population. At the same time, the majority of adolescents, who seek treatment for drug abuse are diagnosed with «harmful use (use with harmful consequences) of psychoactive substances», since in most cases the diagnosis of «substance dependence syndrome» has not yet been formed. At the same time, the early onset of substance
use significantly increases the risk of substance dependence syndrome and other mental disorders at a more mature age [2].

**General (primary) incidence of substance abuse disorders among adolescents**

The indicator of the general incidence of drug addiction disorders includes data on the primary treatment of adolescents with mental and behavioral disorders caused by «harmful use (harmful consequences)» and «addiction syndrome» from: alcohol, narcotic drugs, non-narcotic drugs (other toxic substances).

An analysis of the state statistics data on the primary appeal for drug treatment (general incidence) among adolescents aged 15—17 years for 2010—2020, both in Russia as a whole and in Moscow, determined a pronounced downward trend. It is indicated that in 2010 the primary incidence among adolescents in Russia was 916.7 per 100 thousand adolescents, in Moscow — 1293.6 per 100 thousand adolescents (Fig. 1), which is higher than the average for Russia by 30 %. In the period from 2010 to 2016, the primary incidence rate among adolescents decreased both across the country as a whole and in Moscow, and in Russia the decrease in the indicator was more systematic compared to Moscow. By 2016, the primary incidence in Russia and Moscow was approximately at the same level, after which this figure in Moscow until 2018 was lower than the average for Russia. By 2020, the rate of primary contact with drug addiction disorders among adolescents in Russia and Moscow was approximately the same, 187.6 and 196.9 per 100,000 adolescents, respectively. At the same time, if in Russia this indicator showed a systematic decrease, then in Moscow, compared to 2018, the primary appeal among adolescents increased by 54 % (from 127.5 to 196.9 per 100,000 adolescents, respectively).

An analysis of initial referrals showed that in 2010, both on average in Russia and in Moscow, adolescents mostly treated with drug disorders caused by «harmful use» (with harmful consequences), in Fig. 2 indicates that only 2.8 % of adolescents in Russia applied for the first time for drug treatment with a «substance dependence syndrome», in Moscow the same indicator in 2010 was 0.5 % of the total number of adolescents who applied. The studied indicators have not undergone pronounced changes by 2020. In Russia, the proportion of initial visits among adolescents with «harmful use» (with harmful consequences) was 97.6 %, with addiction syndrome 2.4 %, respectively. In Moscow, during the study period, there was a slight increase in the proportion of initial visits among adolescents with «substance dependence syndrome», up to 4 % the share of initial visits with «harmful use» was respectively 96 %.

![Fig. 1. Primary incidence (total) among young adults aged 15—17 battling drug dependence disorder across Russia and in Moscow for the years 2010—2020 (per 100k adolescent population)](image-url)
**Mental and behavioral disorders caused by alcohol abuse**

As in previous years, the largest number of appeals to state institutions providing drug treatment to adolescents was related to alcohol consumption. On fig. 3 indicates that in Russia in 2010 the share of primary drug treatment requests related to alcohol abuse (addiction syndrome and harmful alcohol use) amounted to 86% of the total number of primary drug treatment requests (total) among adolescents in Russia in this year, this is higher than the same indicator for 2020, the share of which was respectively equal to 73 %.

In Moscow, the proportion of mental and behavioral disorders caused by alcohol in the total number of drug addiction disorders among adolescents in 2010 was 92%; the same figure in 2020 was 50% (Fig. 3). The share of initial visits with «alcohol dependence syndrome» among adolescents in 2010 was less than 1%. The same indicator in 2020 was 0, which is indicated in Table 1.
Table 1

<table>
<thead>
<tr>
<th>Years</th>
<th>Primary Incidence</th>
<th>Incidence Rates in percent, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Russia</td>
<td>Moscow</td>
</tr>
<tr>
<td>Cases of first admission to treatment of young adults struggling with drug abuse disorder</td>
<td>916.7</td>
<td>1293.6</td>
</tr>
<tr>
<td>Alcohol dependence syndrome (Stearns' alcoholic amentia included)</td>
<td>10.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Health detrimental (harmful effect included) alcohol abuse</td>
<td>783.2</td>
<td>1200.6</td>
</tr>
<tr>
<td>Drug dependence syndrome (drug addiction)</td>
<td>7.27</td>
<td>4.2</td>
</tr>
<tr>
<td>Health detrimental drug abuse</td>
<td>65.2</td>
<td>66.5</td>
</tr>
<tr>
<td>Non-narcotic psychoactive substances (inhalant abuse) dependence syndrome</td>
<td>6.8</td>
<td>0</td>
</tr>
<tr>
<td>Non-narcotic psychoactive substances abuse (harmful effect included)</td>
<td>43.5</td>
<td>20.4</td>
</tr>
</tbody>
</table>

Mental and behavioral disorders caused by drug use

Analysis of primary appeals among adolescents with mental and behavioral disorders caused by drug use in Russia and Moscow for 2010—2020 has shown the following features. On fig. 6 indicates that in Russia in 2010 the proportion of cases among adolescents with disorders caused by the use of narcotic drugs out of the total number of cases with narcological disorders (total) in state narcological institutions was 7.9 %. At the same time, it is indicated that the proportion of visits among adolescents with drug dependence syndrome of the total indicator of disorders caused by drug use was about 10 %. In Moscow, respectively, in 2010 the proportion of drug use disorder visits was 5.4 %, while the share of drug use disorder visits was about 6 % of the total drug use disorder visits among adolescents.

Fig. 6. Cases of first admission to treatment of young adults aged 15–17 struggling with drug abuse disorder, as compared to all other drug dependence disorders (total) across Russia and in Moscow for the years 2010–2020 in percent
In 2020, there was a change in the structure of calls among adolescents with drug use disorders. In Russia, the share of such disorders in the total number of visits was 20.2 %, while the proportion of visits with addiction syndrome was 7 %, which is lower than the same indicator for 2010. In Moscow in 2020 there was a more significant change in the structure of primary visits among adolescents with disorders, caused by drug abuse, so the share of appeals from the total indicator was 43.9 %, which is several times more than the same indicator in 2010, while the proportion of initial appeals with addiction syndrome in 2020 was 9 %, which is higher than the same indicator in 2010.

**Initial contact among adolescents with harmful use (harmful consequences) of drugs**

The primary appeal of adolescents with harmful drug use in Russia and Moscow had the following features. On fig. 7 indicates that in 2010 the rate in Russia and Moscow was approximately the same, 65.2 and 66.5 adolescents per 100,000 adolescents, respectively. In 2014, both in Russia and in Moscow, there was an increase in primary appeals, in Moscow this trend was more pronounced. From 2015 to 2018 both on average in Russia and in Moscow, there was a downward trend in the indicator, however, since 2018, a second increase in initial referrals was registered in Moscow, which exceeded the initial referral rate in Russia.

![Fig. 7. First admission rates for adolescents aged 15—17 battling health detrimental (harmful effect included) drug abuse across Russia and in Moscow for the years 2010—2020 (per 100k adolescent population)](image)

In table it’s indicated that the analysis of the primary referral rate among adolescents with harmful drug use for 2010—2020 in Russia showed a decrease by 46 % (respectively, from 65.5 in 2010 to 35.3 in 2020 adolescents per 100 thousand adolescents). In Moscow, an increase in the studied indicator by 18 % was observed (respectively, from 66.5 in 2010 to 78.7 in 2020 adolescents per 100 thousand adolescents).

**Primary visits among adolescents with drug dependence syndrome**

Dynamics of the primary referral rate with drug dependence syndrome for the period 2010—2020 in Russia and Moscow was very unstable in its development. It is indicated in table that the studied indicator in Russia showed a decrease by 63 % (from 7.2 in 2010 to 2.7 in 2020 adolescents per 100 thousand adolescents).
adolescents), while in Moscow during the study period there was an increase in this indicator by 83% (from 4.2 in 2010 to 7.8 in 2020 adolescents per 100 thousand adolescents).

On fig. 8 indicates that in 2010 the primary referrals with drug dependence syndrome among adolescents on average in Russia was higher than in Moscow, then in 2013 this indicator in Moscow exceeded the data for Russia. Further from 2014 to 2017 the rate of initial referral with drug dependence syndrome in Moscow was lower than in Russia, however, since 2018, the rate in Moscow has been growing and has become higher than the average for Russia. In Russia, since 2016, there has been a trend towards a decrease in primary referral among adolescents with drug dependence syndrome.

Mental and behavioral disorders caused by use of non-narcotic psychoactive substances

Figure 9 shows that in 2010, the proportion of initial visits among adolescents with disorders caused by the use of non-narcotic substances, out of the total amount of initial visits with narcological disorders (total) in Russia, was 5.5%. It is indicated that the proportion of visits with the syndrome of dependence on non-narcotic PAS (substance abuse) of the total number of visits caused by the use of non-narcotic PAS was 13.5%. On fig. 9 indicates that in Moscow in 2010 the share of initial applications was 1.5%, while in table 1 indicated that among adolescents there was not a single treatment with a syndrome of dependence on non-narcotic PAS (substance abuse). In 2020, in Russia, the share of applications was 6.3% and the share of applications with addiction syndrome was 7.5%, in Moscow, respectively, the total share of applications with disorders caused by the use of non-narcotic substances was 5.7%, while, as in 2010 there has not been a single case of primary treatment with the syndrome of dependence on non-narcotic psychoactive substances (substance abuse).

Fig. 8. Primary incidence among young adults aged 15—17 suffering from drug dependence syndrome across Russia and in Moscow for the years 2010—2020 (per 100k adolescent population)
Initial contact among adolescents with harmful use (harmful effects) of non-narcotic psychoactive substances

In table 1 it is indicated that the rate of primary contact with harmful use (with harmful consequences) of non-narcotic psychoactive substances among adolescents in Russia showed a decrease by 74% (respectively, from 43.5 in 2010 to 11.1 in 2020, adolescents per 100,000 adolescents). On fig. 10 indicates that in Moscow the downward trend was less pronounced and amounted to 44% (respectively, from 20.4 in 2010 to 11.4 in 2020 adolescents per 100 thousand adolescents), while if at the beginning of the study period in Moscow, the indicator was below the average for Russia, then by 2020 it approached the all-Russian. It is also worth noting that in Russia, the peak growth in primary referrals with the harmful use of non-narcotic psychoactive substances occurred in 2014 and amounted to 53.8 adolescents per 100,000. As for adolescents in Moscow, there was some increase in the indicator in 2012—2013 and also in 2020.

Fig. 9. Cases of first admission to treatment of young adults aged 15—17 struggling with non-narcotic psychoactive substances abuse disorder, as compared to all other drug dependence disorders across Russia and in Moscow for the years 2010—2020 in percent

Fig. 10. First admission rates for adolescents aged 15—17 battling health detrimental (harmful effect included) non-narcotic psychoactive substances abuse across Russia and in Moscow for the years 2010—2020 (per 100k adolescent population)
Primary visits among adolescents
with non-narcotic substance dependence
syndrome (substance abuse)

The table shows that in Russia, the rate of initial visits among adolescents with dependence syndrome on non-narcotic psychoactive substances for 2010—2020 showed a steady downward trend of 87% (respectively from 6.81 in 2010 to 0.9 in 2020 adolescents per 100 thousand adolescents). On fig. 11 indicates that in Moscow the studied indicator in both 2010 and 2020 was equal to 0, only in 2012—2013 there was a slight increase in turnover.

Government measures aimed at reducing the prevalence of narcological disorders among the population have had positive results, which was reflected in a decrease in the rate of initial treatment with narcological disorders (total) among adolescents in both Russia and Moscow.

According to the results of the Anti-Alcohol Concept 2010—2020 in Russia and Moscow, there was a steady downward trend in this type of drug addiction among adolescents.

Despite the global upward trend in the number of drug use disorders [11, 12], on average in Russia, there has been a decrease in the initial referral among adolescents with disorders caused by the use of narcotic and non-narcotic substances, but the situation remains difficult.

Moscow, as a large metropolis and capital, has its own peculiarities in the development of the drug situation. So, despite the situation with disorders caused by the use of non-narcotic drugs (other toxic substances) similar to the all-Russian situation, there was an increase in primary indicators among adolescents with disorders caused by drug use. The trend towards an increase in the proportion of adolescents with mental and behavioral disorders caused by drug use may be due to a change in both the drug market situation (the emergence of new types of drugs), this trend coincides with the global and active state policy in the field of prevention of addictive behavior from psychoactive substances, including measures for the early detection of illegal use of narcotic drugs and psychotropic substances among students in accordance with the Order of the Ministry of Health 581-n [13], which could contribute to the identification of illegal use of psychoactive substances among adolescents.

The results of the study showed the importance and necessity of continuing the epidemiological study of the narcological situation among adolescents, as well as assessing the effectiveness of preventive measures aimed at reducing the prevalence of mental and behavioral disorders caused by substance use among adolescents.

Fig. 11. Primary incidence among young adults aged 15—17 suffering from non-narcotic psychoactive substances dependence syndrome (inhalant abuse) across Russia and in Moscow for the years 2010—20s (per 100k adolescent population)
Conclusions

In Russia and Moscow, there was a steady downward trend in the overall rate of initial contact among adolescents with substance abuse disorders (total). In Moscow and Russia, both in 2010 and 2020, the largest proportion of appeals among adolescents was diagnosed with «harmful use (with harmful consequences)», only in Moscow during the study period there was a slight increase in the proportion of appeals of adolescents with addiction syndrome.

The largest numbers of visits were caused by alcohol consumption, with the majority of cases diagnosed as harmful use (with harmful consequences) of alcohol on average in Russia and Moscow in 2010. However, in 2020, both on averages in Russia and in Moscow, there were a decrease in the proportion of requests for mental and behavioral disorders caused by alcohol use, in Moscow this trend was more pronounced.

For the period 2010—2020 in Russia and Moscow, the proportion of adolescents with mental and behavioral disorders caused by drug use increased; in Moscow, this trend was more pronounced.

The trend of treatment with drug dependence syndrome among adolescents has its own characteristics. So in Russia, the studied indicator for the period 2010—2020 showed a decline, while from 2012 to 2015 in the country there was an increase in initial applications, followed by a decline. In Moscow, the trend of applications has a more complex structure: in 2012, 2015, 2018, there was an increase in initial applications, and for the period 2010—2020 indicator showed an increase.

The indicator of primary contact with the harmful use of drugs (with harmful consequences) among adolescents in 2010 in Russia and Moscow was almost at the same level, however, by 2020 in Russia, the indicator under study showed a decrease, and in Moscow the increase became higher than in average for the country.

Both in Russia and in Moscow for 2010—2020 there was a slight increase in the proportion of adolescents with mental and behavioral disorders caused by the use of non-narcotic psychoactive substances, in Moscow this trend was more pronounced. At the same time, during the study period in Russia, there was a steady trend towards a decrease in applications for the syndrome of dependence on non-narcotic psychoactive substances (substance abuse), in Moscow in 2010 and 2020 no new cases were reported among adolescents with substance abuse. At the same time, in Russia and Moscow, there was a decrease in cases of harmful use (with harmful consequences) of non-narcotic PAS, and if in 2010 this indicator in Russia was higher than in Moscow, then by 2020 it was practically on the same level with Moscow.

References


Анализ наркологической ситуации среди подростков Москвы и России за 2010—2020 годы

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алкоголя. При этом доля первичных обращений с наркологическими расстройствами, вызванными употреблением алкоголя, остается преобладающей. Как в России, так и в Москве среди подростков наблюдалась тенденция снижения расстройств, вызванных употреблением ненаркотических психоактивных веществ. Вместе с тем тенденция расстройств, вызванных употреблением наркотических средств в России, имела тенденцию на снижение, когда как в Москве показатели продемонстрировали прирост. 

Выводы. Совокупность государственных мер, направленных на борьбу с распространением наркологических расстройств среди подростков в России и Москве, имеет положительные результаты. При этом ситуация с распространенностью психических и поведенческих расстройств, вызванных употреблением наркотических средств среди подростков, остается трудной, в Москве такое положение выражено сильней. Данная тенденция совпадает с общемировой.

Ключевые слова: анализтика, подростки, наркотики, психоактивные вещества, психические и поведенческие расстройства, зависимость

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