

***Regional Comparison of Drug Use and Its Consequences
in the Czech Republic in 2002:***

Situation Analysis in Wider Demographic and Socioeconomic Context

Pavla Lejckova

Viktor Mravcik, MD

Josef Radimecky, MSc.

Czech National Focal Point for Drugs and Drug Addiction

Secretariat of the Government Council for Coordination of Drug Policy

Office of the Government of the Czech Republic

For bibliographic citation:

Lejčková, P., Mravčík, V., Radimecký, J. (2004) Srovnání užívání drog a jeho dopadů v krajích České republiky v roce 2002: Situační analýza v širším demografickém a socioekonomickém kontextu. Praha: Úřad vlády ČR. ISBN 80-86734-14-5

Lejckova, P., Mravcik, V., Radimecky, J. (2004) Regional Comparison of Drug Use and Its Consequences in the Czech Republic in 2002: Situation Analysis in Wider Demographic and Socioeconomic Context. Prague: Office of the Government of the CR. ISBN 80-86734-14-5
Notes: Available in Czech only.

1 Abstract

The study describes regional disparities in the extent of drug use and its consequences within the Czech Republic in wider demographic, socioeconomic and institutional context. It aims to explain the relationship between the presence of unfavorable environmental conditions (environmental risk factors), and the extent of risk behavior forms such as criminality or addictive substance use.

Available socio-demographic and economic indicators were combined with the data on the extent of criminality, distribution of services for drug users and their funding, and the extent of drug use and its consequences. Based on the data from 14 regions, correlation, factor and cluster analyses were made to observe the relationship of individual indicators and to assess the similarities within the regions.

Analysis proved that regions with higher extent of environmental risk factors show also higher extent of personal risk behavior, i.e. higher prevalence of drug use and its consequences concentrate in regions where the extent of social problems is higher.

2 Introduction

The state of the monitoring of the drug situation in the Czech Republic is at the relatively good level compared to the other EU states (Mravcik et al. 2003; EMCDDA, 2003b; EMCDDA, 2003a). We have an overview of the extent and patterns of drug use and its consequences, of the behavior and the attitudes of the drug users, based on the EMCDDA system of five standardized key indicators. On the other hand, for a deeper understanding of the current situation and for answering the question “how” and “why”, we need a more detailed analysis of the impacts of the linked demographic, socioeconomic and cultural (i.e. environmental) factors. Therefore, the aim of this study was (beside the descriptive analysis by the regions) to explore the mutual relationship between the presence of the so called environmental risk factors and the extent of risk behavior forms such as addictive substance use or criminality.

International research shows that drug use though it is a choice of individual behavior is strongly limited by the quality of the surrounding environment (Douglas and Wildavsky, 1982; Douglas, 1992). Palm and Zabransky (2001) argue that the phenomenon of drug use has its “social diagnosis”; according to Marmot (1997) the alcohol and drug use is connected with inequality in social conditions in socially deprived regions. Relationship was proven to exist between low socioeconomic status, unhealthy lifestyle and psychosocial characteristics of the inhabitants (Lynch et al. 1997). According to Forsyth and Barnard (1999), urban regions show a different extent and pattern of drug used compared to rural regions. Risk environment has a significant impact on the prevalence and increase of the injecting drug use and connected spread of drug related infectious diseases (HBV, HCV and HIV/AIDS) (Rhodes et al. 1999; UN AIDS, 2003).

The hypothesis on existing relationship between the extent of drug use and the character of the environment was tested on the example of the Czech Republic. Situation analysis describes regional disparities in different selected demographic, social and economic indicators. Correlation analysis shows the interrelationship between individual indicators while factor analysis reduces its original number to two principal components reflecting the relationship. Finally, cluster analysis assesses the similarities between the 14 regions of the Czech Republic and based on the similarities, 5 types of regions were identified. All the data used for analysis refer to the year 2002 unless mentioned otherwise.

3 Situation analysis

Regional disparities were assessed on the basis of following 19 indicators:

- **Socio-demographic** indicators include crude abortion and crude divorce rate (number of abortions and divorces per 1 thousand inhabitants respectively), level of

education and religiosity (percentage of inhabitants with university education and inhabitants with religious confession);

- **Health status** indicators: life expectancy for women and infant mortality;
- **Socioeconomic** indicators: unemployment rate and average monthly salary;
- **Criminality** indicators: criminality rate (number of criminal offences per 10 thousand inhabitants) and drug related criminal offences (per 100 thousand inhabitants);
- **Institutional context** indicators: number of needles and syringes distributed in syringe exchange programs (per 1 000 inhabitants), demands for drug related treatment (per 100 thousand inhabitants), and level of public grant finances for drug related services (per 100 thousand inhabitants);
- Indicators of **drug use and its consequences**: cannabis and non-cannabis drug lifetime prevalence among secondary school students (percentage), prevalence estimate of problem drug users (per 1 thousand inhabitants), demands for treatments in connection with heroin and pervitine (per 100 thousand inhabitants), and incidence of psychiatric diagnoses F11-F19 in the population (per 10 thousand inhabitants).

The attention is focused on the regional distribution of the negative development of the environment indicators. Regional differences shown through selected demographic, socioeconomic and institutional indicators as well as indicators of drug use are displayed in cartograms.

3.1 Socio-demographic situation

In 2002, the Czech Republic had 10 200 774 inhabitants, 92 786 children were born and 108 243 people died, i.e. the total number of the population was decreasing. The level of natality was relatively low – crude birth rate reached 9.10 ‰ and the total fertility rate was as low as 1.17 (CSU, 2003b).

Crude abortion rate and crude divorce rates were chosen to describe the differences in the socio-demographic situation within the Czech Republic. Crude abortion rate reached 4.3 ‰ in 2002, and crude divorce rate was 3.11 ‰ (CSU, 2003b). Based on these indicators, regional disparities appeared within the republic (Table 1).

Table 1: Selected demographic indicators in 2002 (CSU, 2003b)

Region	Crude abortion rate (in ‰)	Crude divorce rate (in ‰)
Capital Prague	4.25	3.33
Central Bohemia	4.16	3.13
Southern Bohemia	4.38	3.19
Pilsen	4.74	3.08
Karlovy Vary	5.85	3.79
Usti nad Labem	5.80	3.82
Liberec	5.19	3.43
Hradec Kralove	4.29	3.28
Pardubice	3.71	2.74
Vysocina	3.61	2.29
Southern Moravia	3.68	2.77
Olomouc	3.87	2.93
Zlin	3.58	2.42
Northern Moravia	4.12	3.29
Czech Republic	4.29	3.11

Compared to the national average, three regions show higher rates of these indicators: Karlovy Vary, Usti nad Labem and Liberec (regions of North-western Bohemia). On the other hand, low level of both of the selected socio-demographic indicators was in Zlin, Pardubice, Vysocina and Southern Moravia regions (Figure 1 and 2).

Fig. 1: Crude abortion rate (‰) (CSU, 2003b)



Fig. 2: Crude divorce rate (‰) (CSU, 2003b)



Level of education and religiosity of the population were used to assess the regional disparities as well. Based on the census data from 2001 (CSU, 2003c), 9 % of the inhabitants had university education. The highest number of high educated people was in Capital Prague and Southern Moravia (where Brno, the second biggest city in the Czech Republic, is located); the lowest number was in Usti nad Labem and Karlovy Vary (Table 2). About 32 % of inhabitants declared a religious confession in census in 2001 – mostly in Zlin, Vysocina and Southern Moravia while less than 20 % in Usti nad Labem and Karlovy Vary (Figure 3 and 4).

Table 2: Level of education and religiosity in 2001 (CSU, 2003c)

Region	University education (in % of inhabitants)	Religiosity (in % of inhabitants)
Capital Prague	18.80	24.51
Central Bohemia	7.01	23.38
Southern Bohemia	7.76	34.67
Pilsen	7.77	24.25
Karlovy Vary	5.55	20.53
Usti nad Labem	5.36	15.83
Liberec	7.03	18.41
Hradec Kralove	7.49	26.64
Pardubice	7.02	32.01
Vysocina	6.71	46.35
Southern Moravia	10.32	43.66
Olomouc	8.12	36.98
Zlin	7.67	55.21
Northern Moravia	7.75	40.20
Czech Republic	8.89	32.14

Fig. 3: University education (%) (CSU, 2003c)



Fig. 4: Religiosity (%) (CSU, 2003c)



Both the level of education and religiosity are the lowest in North-western Bohemia (Usti nad Labem, Karlovy Vary and Liberec). At the same time, Southern and Northern Moravia mark out higher education and higher proportion of inhabitants reporting religious confession. It could be seen that the regional distribution of negative demographic phenomena (abortion and divorce rates) corresponds to the distribution of unfavorable social characteristics such as low level of education and religiosity.

Generally, the negative demographic and social characteristics tend to concentrate in more urban areas while the rural regions show traditionally more favorable demographic and social development. At the same time, it was already proven that the risk demographic phenomena primarily concentrate in regions with long-term social stability, i.e. in regions with homogenous ethnic compositions, low level of migration, higher education and stronger religious confession (HAMPL et al. 1996).

3.2 Health status

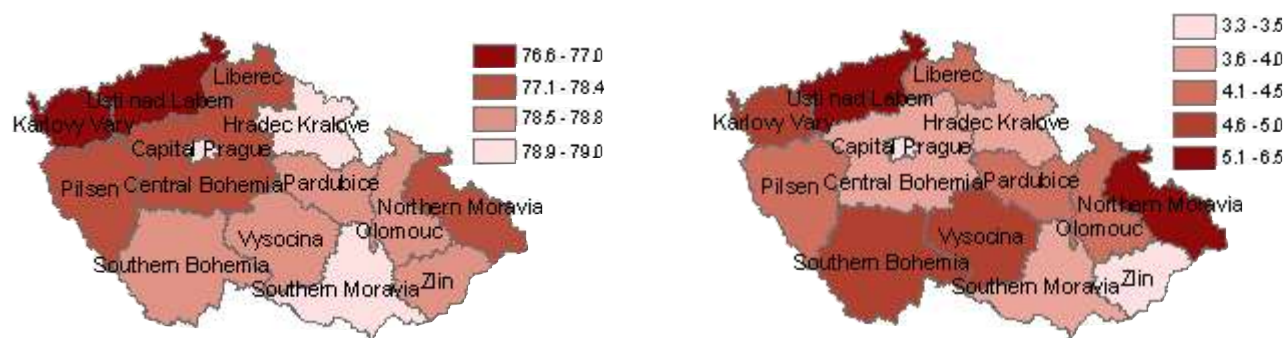
Since no single indicator of health exists, several indicators of morbidity and mortality have to be used for the assessment of health status. For the analysis, the life expectancy for women and infant mortality were chosen. Life expectancy in 2001 reached 71.7 years for men and 78.4 years for women (UZIS, 2003b; CSU, 2002) (Table 3). For the infant mortality, the average for years 1998 – 2002 was used to avoid the annual imbalances.

The highest life expectancy for women was reported in Capital Prague, Hradec Kralove and Southern Moravia but no significant differences were found compared to other regions. Lower life expectancy could only be seen in Usti nad Labem and Karlovy Vary. More significant differences are seen in the infant mortality. Long-term high infant mortality was observed in Usti nad Labem and Northern Moravia, under the national average was the infant mortality in Capital Prague, Zlin and Southern Moravia (Figure 5 and 6). Again, the regional distribution of life expectancy shows very similar pattern to the one of risk demographic and social indicators.

Table 3: Life expectancy and infant mortality (UZIS, 2003b; CSU, 2002)

Region	Life expectancy - men	Life expectancy - women	Infant mortality (in ‰)
Capital Prague	73.6	79.0	3.4
Central Bohemia	71.7	78.0	4.0
Southern Bohemia	72.4	78.5	4.6
Pilsen	72.2	78.1	4.2
Karlovy Vary	70.7	77.0	4.6
Usti nad Labem	70.2	76.6	6.3
Liberec	71.3	77.9	4.5
Hradec Kralove	72.6	79.0	3.9
Pardubice	72.7	78.6	4.3
Vysocina	72.7	78.7	4.9
Southern Moravia	72.3	79.0	3.6
Olomouc	71.5	78.6	4.4
Zlin	71.4	78.8	3.5
Northern Moravia	70.4	77.9	5.4
Czech Republic	71.7	78.4	4.4

Fig. 5: Life expectancy for women (years) (CSU, 2002) Fig. 6: Infant mortality (‰) (UZIS, 2003b)



3.3 Socioeconomic characteristics

Since 1989 great changes have occurred in the field of socioeconomic development in the regions of the Czech Republic. Significant changes in sector structure of the economy have happened; the unemployment has appeared as a new phenomenon and differentiation in income has developed. The socioeconomic situation of the Czech regions was assessed on the basis of the unemployment rate and average monthly salary.

The level of unemployment in the Czech Republic reached 7.3 % in 2002 (CSU, 2003d). Significant differences between the regions can be observed – the highest unemployment rate was reported in Northern Moravia, Usti nad Labem and Olomouc, almost zero unemployment rates were in Capital Prague (3.7 %). Regional differences in unemployment rate are shown in Table 4 and Figure 7.

Table 4: Unemployment rate and average monthly salary (CSU, 2003d)

Region	Registered unemployment rate (in %)	Average monthly salary (in CZK)
Capital Prague	3.7	24 833
Central Bohemia	7.2	18 075
Southern Bohemia	6.7	16 764
Pilsen	7.1	17 707
Karlovy Vary	10.1	16 791
Usti nad Labem	17.1	16 874
Liberec	8.7	16 895
Hradec Kralove	7.3	16 575
Pardubice	8.7	15 885
Vysocina	8.3	15 571
Southern Moravia	11.2	16 486
Olomouc	12.2	16 470
Zlin	10.2	16 431
Northern Moravia	15.9	16 772
Czech Republic	7.3	19 081

The average monthly salary in 2002 was 19 081 CZK (approximately 596 EUR) (CSU, 2003d); Capital Prague was the region with exceptionally high salary, followed by Central Bohemia and Pilsen while other regions shared almost identical income (Table 4 and Figure 8). The lowest salary level was reported in Vysocina and Pardubice which could be characterized as more rural regions with less developed service sector and industry compared to other regions.

Fig. 7: Unemployment rate (%) (CSU, 2003d)



Fig. 8: Average income (CZK) (CSU, 2003d)



The regional distribution of unemployment rate in the Czech Republic corresponds to certain extent to the regional pattern of distribution of unfavorable demographic, social and health status indicators. The highest level of unemployment concentrates in the regions of North-western Bohemia and Northern Moravia, thus in the regions which have undergone the most severe economy changes since the beginning of the 1990's.

3.4 Criminality

Criminality is one of the indicators that could be used to assess the quality of the social environment. For the analysis, general criminality (i.e. total number of criminal offences per 10 thousand inhabitants) and drug related criminality (i.e. number of drug related criminal offences per 100 thousand inhabitants) were used.

Drug related criminal offences in the Czech Republic include:

- Section 187 of the Criminal Code – unauthorized production and possession of narcotic and psychotropic substances and poisons,
- Section 187a of the Criminal Code – possession of narcotic and psychotropic substances for personal use,
- Section 188 of the Criminal Code – production and possession of device for unauthorized production of narcotic and psychotropic substances,
- Section 188a of the Criminal Code – promotion of drug abuse.

Secondary drug criminality (i.e. criminal offences of the drug users) is reported neither on national nor on regional level in the Czech Republic.

In 2002, about 372 341 criminal offences were reported which corresponds to 365 offences per 10 thousand inhabitants (CSU, 2003a). Extremely high number of offences was reported in Capital Prague followed by Usti nad Labem and Liberec. On the other hand, lower rate of criminality was registered in Vysocina and Zlin. For regional disparities see Table 5 and Figure 9.

Table 5: Criminal offences, drug related criminal offences (CSU, 2003a; Policejni prezidium CR, 2003)

Region	Criminal offences (per 10 thousand inhabitants)	Drug related criminal offences (per 100 thousand inhabitants)
Capital Prague	887.75	152.05
Central Bohemia	374.41	34.64
Southern Bohemia	260.96	23.37
Pilsen	292.63	28.21
Karlovy Vary	367.20	38.19
Usti nad Labem	384.31	36.49
Liberec	384.21	36.97
Hradec Kralove	243.21	19.50
Pardubice	222.65	12.23
Vysocina	173.20	18.73
Southern Moravia	316.15	35.27
Olomouc	259.41	18.51
Zlin	210.75	27.47
Northern Moravia	298.43	28.55
Czech Republic	365.01	42.45

Fig. 9: Criminal offences (per 100 th.) (CSU, 2003a)

Fig. 10: Drug related criminal offences (per 100 th.) (Policejni prezidium CR, 2003)



Total number of drug related criminal offences reached 4 330 which corresponds to almost 43 offences per 100 thousand inhabitants. The highest number of them was reported in Capital Prague, and compared to the rest of the republic in Karlovy Vary, Liberec, Usti nad Labem and Southern Moravia as well. Low level of drug related criminality was registered in Pardubice, Olomouc and Vysocina (Figure 10).

The pattern of regional distribution is very similar for both the criminality in general and the drug related criminality. Moreover, low level of criminality was reported in regions with low incidence of other environment risk factors while higher criminality rate concentrates in the very same regions as the unfavorable demographic and socioeconomic phenomena – Usti nad Labem, Karlovy Vary and Liberec. The position of Capital Prague is very specific with extremely high criminality rate, high concentration of other demographic and social factors but good health status and economic performance above average at the same time.

3.5 Institutional context of services for drug users

In this part, the distribution of facilities and services for drug users were assessed. At the same time, the regional distribution of public financial grants for services was taken in account. The efficiency of individual modalities of services offered is hard to evaluate since no data are available except for needle and syringe exchange programs. Utilization of the services for drug users is assessed through the first-treatment demand indicator.

In 2002, the Czech Republic disposed of 95 low-threshold centers, 24 therapeutic communities and other residential facilities, 19 in-patient (psychiatric) treatment centers, 9 methadone substitution centers, and 19 detoxification units. Except for these facilities, a network of out-patient centers and hospital psychiatric departments provided services for drug users.

A complete spectrum of services for drug users is provided in Prague, Northern Moravia, Southern Moravia and Usti nad Labem. On the other hand, two regions, Hradec Kralove and Pardubice, dispose of one type of program only – a low-threshold center.

Total number of 88 outreach programs provided needle and syringe exchange in 2002. All together, 1 469 224 needles and syringes were distributed within syringe exchange programs (SEPs) which corresponds to 144 needles per 1 thousand population. Regional distribution of needles distributed is shown in Table 6 and Figure 11.

The most of the needle exchange programs were located in Usti nad Labem, Northern Moravia and Capital Prague; the highest number of distributed needles per population was in Capital Prague and Usti nad Labem followed by Southern Moravia.

The first treatment demands were used to assess the utilization of the services. The highest relative number of FTD was reported in Usti nad Labem, Southern Moravia and Capital Prague where the highest number of facilities for drug users operates and where the number of exchanged needles and syringes was reported as well. For regional differences see Figure 12.

Table 6: Institutional context of services for drug users (NMS, 2003b; Polanecky et al. 2003; Mravcik et al. 2003)

Region	Needles and syringes distributed (per 1 thousand inhabitants)	First treatment demands (per 100 thousand inhabitants)	Public grants for drug services (per 100 thousand inhabitants)
Capital Prague	741	49.36	2 696 842
Central Bohemia	11	39.17	327 253
Southern Bohemia	24	38.25	573 164
Pilsen	42	39.14	963 287
Karlovy Vary	55	32.26	832 562
Usti nad Labem	312	90.43	1 007 271
Liberec	29	39.54	280 054
Hradec Kralove	41	26.97	225 625
Pardubice	47	24.66	266 549
Vysocina	22	48.46	663 180
Southern Moravia	120	60.30	925 221
Olomouc	34	49.26	852 211
Zlin	34	47.01	429 011
Northern Moravia	33	35.59	632 342
Czech Republic	144	46.26	864 376

Fig. 11: Needle and syringe exchange (per 1 th.) (NMS, 2003b)



Fig. 12: First treatment demands (per 100 th.) (Polanecky et al. 2003)



The Czech 2001 – 2004 National Drug Strategy defined grant financing of the services for drug users at the national and regional level. At the national level, National Drug Commission was charged for grant allocation. In 2002, 152 drug programs were financed with 88 173 thousand CZK (approximately 2 755 406 EUR) which is 864 376 CZK (27 012 EUR) per 100 thousand inhabitants (Table 6 and Figure 13).

Fig. 13: Public grants for drug services (in thousands CZK) (Mravcik et al. 2003)



The highest proportion of grants was allocated to Capital Prague, followed by Usti nad Labem, Pilsen and Southern Moravia. The level of financial means allocated corresponds to a great extent to the number of projects and programs providing services for drug users.

3.6 Drug use and its consequences

Since 1990's the drug situation in the Czech Republic has started to approach to the situation in other European countries - the extent of drug use has increased and in greater extent the health consequences as well as other consequences have spread within the regions. Recently, experimental and recreational cannabis use has increased among the youth, and regular cannabis use has increased. Recreational dance drugs use has become more popular, especially ecstasy use. Prevalence of use of heroin and pervitine (methamphetamine) has declined; it has turned out that young people distinguish between drugs with unequal health risks. At the same time, problem drug use has stabilized (Mravcik et al. 2003).

Drug use in general and school population

According to general population surveys, about 16 – 20 % of the population older than 15 years has at least once used an illicit drug which corresponds to 1.4 – 1.7 million people. In the last 12 months, about 8 – 10 % of the adults (approximately 900 thousand people) used an illicit drug. In majority of cases, cannabis is the most popular illicit drug used followed by ecstasy (4 %). Heroin and pervitin (methamphetamine) prevalence, as well as other drugs

prevalence (cocaine or LSD) was about 2 % (Mravcik et al. 2003; PCP, 2003). No regional data were available for analysis from the general population surveys.

School surveys (e.g. ESPAD) show that about 35 % of 16-years old students have ever tried an illicit drug; in most cases it was cannabis. About 17 % of students used drugs repeatedly and 16 % used drugs in the last 30 days. Regional comparison is possible only between 8 former administrative units since the data refer to the ESPAD survey realized in 1999 (Table 7). Comparison of new 14 administrative regions will be available based on 2003 ESPAD survey.

Table 7: Lifetime prevalence of illicit drug use (PCP, 1999)

Region	Any illicit drug (in %)	Cannabis (in %)	Any illicit drug except for cannabis (in %)	Stimulants (in %)	Inhalants (in %)
Capital Prague	47	46	14	9	8
Central Bohemia	30	29	6	3	6
Southern Bohemia	28	27	8	4	9
Western Bohemia	36	36	11	8	4
Northern Bohemia	39	39	14	7	5
Eastern Bohemia	24	24	6	5	10
Southern Moravia	37	36	8	5	8
Northern Moravia	34	34	7	4	7
Czech Republic	35	35	9	5	7

Above average lifetime prevalence of any illicit drug was reported in 1999 in Capital Prague, Northern Bohemia and Southern Moravia. The regional distribution corresponds to a great extent to the distribution of environment risk factors discussed above. Here it has proven that the prevalence of drug use as an example of risk behavior is more spread in cities and urbanized regions. Similarly, drug use prevalence is lower in more rural regions of Eastern, Southern and Central Bohemia. Regional distribution of cannabis and non-cannabis drugs is displayed in Figures 14 and 15.

Fig. 14: Cannabis prevalence (%) (PCP, 1999)



Fig. 15: Non-cannabis prevalence (%) (PCP, 1999)



Compared to 1995 ESPAD, there was a significant increase in drug use prevalence among young people and the availability of drugs increased as well in all of the regions.

Problem drug use

EMCDDA defines problem drug use as injecting and/or long-term and regular use of opioids and/or cocaine and/or amphetamines, i.e. such drug use that brings a great risk of addiction or health as well as social harm. Number of problem drug users in the Czech Republic traditionally reaches 35 – 37 thousand people, mostly heroin (13 - 15 thousand) and pervitin (methamphetamine) (22 thousand) users. Number of injecting drug users is estimated to 30 thousand. First regional problem drug use estimate was done for the year 2002 (Mravcik et al. 2003); regional distribution is presented in Table 8 and Figure 16.

The highest number of problem drug users was estimated in Capital Prague, Usti nad Labem, Southern Moravia and Central Bohemia. Relative number of problem drug users (per 1 thousand inhabitants) was the highest in Capital Prague and Usti nad Labem followed by Karlovy Vary. The lowest numbers were estimated in Pardubice and Liberec.

Table 8: Problem drug use estimate (Mravcik et al. 2003)

Region	Estimated number of problem drug users	Problem drug users per 1 thousand people aged 15-64
Capital Prague	10 950	13.3
Central Bohemia	3 350	4.2
Southern Bohemia	1 550	3.6
Pilsen	1 850	4.8
Karlovy Vary	1 150	5.3
Usti nad Labem	4 200	7.2
Liberec	550	1.8
Hradec Kralove	1 050	2.8
Pardubice	600	1.7
Vysocina	700	1.9
Southern Moravia	3 350	4.3
Olomouc	1 450	3.2
Zlin	1 550	3.7
Northern Moravia	2 800	3.1
Czech Republic	35 100	4.9

Fig. 16: Prevalence of problem drug users (per 1 th.) (Mravcik et al. 2003)



Treatment demands

The number of people demanding treatment increases every year. In 2002, not only number of people demanding treatment for the first time (FTD) was monitored but also repeated demands (all treatment demands, ATD) were reported.

Number of FTD reached 4 719 people; average age of the clients increases, in 2002 the average age was 21.8 years. About 55 % of the clients demanding treatment are amphetamines users, 23 % of them are cannabis users and 16 % are opioids users. While the national FTD incidence was 7.7 per 100 thousand for heroin, it reached 25.5 per 100 thousand for pervitin (methamphetamine) and other stimulants. The highest number of treatment demands for opioids was reported in Usti nad Labem, Capital Prague and Southern Bohemia; pervitin (methamphetamine) treatment demands were observed in Usti nad Labem, Southern Moravia, Olomouc and Zlin (Table 9 and Figure 17 - 18).

Table 9: First treatment demands for opioids and stimulants (Polanecky et al. 2003)

Region	Heroin and other opioids	Pervitin (methamphetamine) and other stimulants
Capital Prague	19.07	20.80
Central Bohemia	6.84	13.77
Southern Bohemia	8.96	21.45
Pilsen	5.64	24.39
Karlovy Vary	6.58	13.83
Usti nad Labem	23.55	54.06
Liberec	1.64	21.06
Hradec Kralove	2.92	19.14
Pardubice	1.38	19.73
Vysocina	1.93	16.60
Southern Moravia	5.43	44.53
Olomouc	5.49	29.34
Zlin	1.69	28.48
Northern Moravia	3.48	16.77
Czech Republic	7.72	25.47

Fig. 17: FTD for heroin (Polanecky et al. 2003)

Figure 18: FTD for pervitin (Polanecky et al. 2003)



Secondary drug used is reported as well – 2 427 out of 4 719 clients demanding treatment used a secondary drug. In most cases, the secondary drug reported was cannabis.

Psychiatric out-patient centers report alcohol use prevalence and incidence together with drug use. In 2002, 23 psychiatric disorders in connection with alcohol (diagnosis F10 according to ICD) were reported and 10 psychiatric disorders in connection with other psychoactive substances (diagnoses F11-F19 according to ICD) per 10 thousand inhabitants (UZIS, 2003a). It has proved that the prevalence of disorders in population is much higher for alcohol than for other psychoactive substances.

The highest prevalence of disorders in connection with alcohol was reported in Olomouc, Northern Moravia and Zlin, prevalence of disorders in connection with other drug use was the highest in Capital Prague, Pilsen, Olomouc and Usti nad Labem (Table 10).

Table 10: Prevalence of psychiatric diagnoses – alcohol and other psychoactive substances (UZIS, 2003a)

Region	dg. F10 – alcohol (per 10 thousand inh.)	dg. F11-19 - other psychoactive substances (per 10 thousand inh.)
Capital Prague	29.6	27.1
Central Bohemia	13.5	7.8
Southern Bohemia	17.0	6.0
Pilsen	23.6	18.0
Karlovy Vary	16.8	4.5
Usti nad Labem	10.5	10.6
Liberec	16.5	3.9
Hradec Kralove	23.5	10.0
Pardubice	14.9	3.3
Vysocina	13.2	2.0
Southern Moravia	18.9	5.7
Olomouc	46.1	13.1
Zlin	30.1	3.7
Northern Moravia	35.2	9.2
Czech Republic	22.9	10.0

Health consequences

Drug use and especially injecting drug use brings several health consequences including infectious diseases such as HIV/AIDS or viral hepatitis (HBV and HCV). Death is the most negative consequence of drug use.

Concerning the viral hepatitis, data available include the reported incidence of new cases of HBV and HCV and results of HCV seroprevalence study. In 2002, altogether 413 cases of acute HBV were reported, of these 112 cases of injecting drug users, and 213 cases of acute HCV, of these 127 cases of injecting drug users (Polanecky et al. 2003). The highest incidence of HCV was reported in Usti nad Labem, Capital Prague and Central Bohemia. Injecting drug users create 27 % of all HBV and 60 % of all HCV infected.

Since 2002, the Czech National focal point for drugs and drug addiction has run a multisite seroprevalence study to assess the level of HCV antibodies among injecting drug users and to identify the risk factors for infection. Together 12 low-threshold centers (LT) have participated in the study and by the end of 2002 about 619 respondents were tested. Regional participation and results are shown in Table 12 and Figure 19.

Table 12: Interim results of the HCV seroprevalence study (NMS, 2003a)

Facility	Region	Number of respondents tested	Number of positive tests	
			abs.	%
Drop in Prague	Capital Prague	90	46	51.1
SANANIM Prague	Capital Prague	55	23	41.8
LT Ceske Budejovice	Southern Bohemia	28	13	46.4
LT Tabor	Southern Bohemia	36	6	16.7
LT Plzen	Pilsen	59	9	15.3
LT Usti nad Labem	Usti nad Labem	91	50	54.9
LT Decin	Usti nad Labem	33	12	36.4
LT Liberec	Liberec	36	5	13.9
LT Hradec Kralove	Hradec Kralove	64	10	15.6
LT Jihlava	Vysocina	18	1	5.6
LT Brno	Southern Moravia	65	14	21.5
LT Opava	Northern Moravia	28	2	7.1
Total	Czech republic	619	193	31.2

Fig. 19: Positive results of HCV seroprevalence study (%) (NMS, 2003a)



The highest percentage of positive results was reported in Usti nad Labem, Capital Prague and Southern Bohemia. On the other hand, Vysocina, Northern Moravia and Olomouc report the lowest HCV seroprevalence rate.

Regional data for HIV/AIDS status are not available; nor are data for drug related deaths by regions available.

Drug use situation is less favorable in Usti nad Labem, Capital Prague, Pilsen and Southern Moravia where we can see higher lifetime prevalence of illicit drug use among the students, higher numbers of problem drug users and higher numbers of clients demanding treatment. At the same time, these regions dispose of sufficient number of facilities providing treatment and services for drug users, and dispose relatively high grants for these services.

Much more favorable situation in drug use can be observed in Vysocina, Pardubice, Hradec Kralove and Northern Moravia. These regions are characterized by lower prevalence of drug use among students, lower number of problem drug users and people demanding treatment, but also lower number of facilities and limited spectrum of services.

Generally, the situation analysis showed that there is a similar pattern in the regional distribution of different environment risk factors (unfavorable demographic and socioeconomic indicators) and the distribution of the selected indicators of drug use and its consequences. Both the environment risk factors and the risk behavior forms (drug use and criminality in our case) tend to concentrate into the most urbanized regions of Capital Prague and North-western Bohemia.

4 Regional analysis of state of the drug use

This part is focused on more detailed relationship between individual indicators using the method of correlation analysis. Then factor analysis is used to reduce the number of indicators into principal components and finally, cluster analysis assesses the similarities and differences between the 14 Czech regions.

4.1 Correlation analysis

Correlation analysis was used to assess the mutual relationship between environment and behavior indicators described above. The analysis was done in SPSS software and the Pearson correlation coefficient at an alpha level of 0.05 was used for evaluation of the relationship.

All of the indicators mentioned in the situation analysis entered the correlation analysis. Table 13 shows the existence of relationship between the indicators; significant correlation is marked in bold. A close relation was proved within the demographic and social indicators and the indicators of health status. At the same time, the socioeconomic indicators correlate with the indicators of institutional context. The analysis proved that criminality concentrates into the regions with higher average income, and the drug use tends to concentrate into these regions as well. These regions consist of bigger cities and/or urbanized areas.

A significant relationship has been proven between the indicators of drug use and its consequences. A notable correlation exists between the prevalence of drug use and number of problem drug users, as well as between the drug use prevalence and treatment demands. At the same time, these indicators correlate with the level of grants for facilities providing treatment and services for drug users, as well as with number of distributed needles and syringes. Thus it approves that drug programs and projects are of great importance in those regions where drugs are sought after and their availability is relatively high.

Table 13: Pearson correlation coefficient between observed indicators

	Crude divorce rate	Crude abortion rate	University education	Religious confession	Life expectancy for women	Infant mortality	Unemployment	Average monthly salary	Criminality	Drug related criminality	Needles + syringes exchanged	Grants for drug projects	Cannabis prevalence	Non-cannabis prevalence	Problem drug use estimate	First treatment demands - heroin	Incidence of F11-19 diagnoses
Crude divorce rate	1	0.883	-0.042	-0.838	-0.714	0.425	0.218	0.272	0.443	0.275	0.299	0.213	0.188	0.553	0.398	0.567	0.216
Crude abortion rate	0.883	1	-0.279	-0.803	-0.855	0.515	0.232	0.066	0.251	0.106	0.146	0.094	0.287	0.691	0.261	0.481	0.022
University education	-0.041	-0.279	1	0.032	0.521	-0.547	-0.482	0.892	0.822	0.894	0.822	0.846	0.495	0.288	0.759	0.376	0.764
Religious confession	-0.838	-0.803	0.032	1	0.597	-0.284	0.096	-0.316	-0.448	-0.267	-0.289	-0.169	-0.108	-0.560	-0.337	-0.489	-0.262
Life expectancy for women	-0.714	-0.855	0.521	0.597	1	-0.752	-0.554	0.172	-0.014	0.134	0.054	0.093	-0.200	-0.463	-0.072	-0.404	0.241
Infant mortality	0.425	0.515	-0.547	-0.284	-0.752	1	0.715	-0.369	-0.230	-0.324	-0.126	-0.175	0.036	0.226	-0.153	0.329	-0.275
Unemployment	0.218	0.232	-0.482	0.096	-0.554	0.715	1	-0.481	-0.332	-0.397	-0.204	-0.231	0.084	0.004	-0.211	0.144	-0.285
Average monthly salary	0.272	0.066	0.892	-0.316	0.172	-0.369	-0.481	1	0.957	0.971	0.886	0.872	0.5586	0.491	0.899	0.581	0.782
Criminality	0.443	0.251	0.822	-0.448	-0.014	-0.230	-0.332	0.957	1	0.974	0.910	0.862	0.642	0.629	0.906	0.660	0.709
Drug related criminality	0.275	0.106	0.894	-0.267	0.134	-0.324	-0.397	0.971	0.974	1	0.929	0.905	0.672	0.579	0.914	0.601	0.717
Needles exchanged	0.299	0.146	0.822	-0.289	0.054	-0.126	-0.204	0.886	0.910	0.929	1	0.917	0.639	0.607	0.937	0.777	0.741
Grants for drug projects	0.213	0.094	0.846	-0.169	0.093	-0.175	-0.231	0.872	0.862	0.905	0.917	1	0.725	0.566	0.927	0.685	0.816
Cannabis prevalence	0.188	0.287	0.495	-0.108	-0.200	0.036	0.084	0.559	0.642	0.672	0.639	0.725	1	0.796	0.647	0.487	0.473
Non-cannabis prevalence	0.553	0.691	0.288	-0.560	-0.463	0.226	0.004	0.491	0.629	0.579	0.607	0.566	0.796	1	0.598	0.617	0.386
Problem drug use estimate	0.398	0.261	0.759	-0.337	-0.072	-0.152	-0.211	0.899	0.906	0.914	0.938	0.927	0.647	0.598	1	0.817	0.754
First treatment demands - heroin	0.567	0.481	0.376	-0.489	-0.404	0.329	0.144	0.581	0.660	0.601	0.777	0.685	0.487	0.617	0.817	1	0.553
Incidence of F11-19 diagnoses	0.216	0.022	0.764	-0.262	0.241	-0.275	-0.285	0.782	0.709	0.717	0.741	0.816	0.473	0.386	0.75	0.553	1

4.2 Factor analysis

Before the assessment of similarities between the regions, factor analysis was done to reduce the original number of indicators into principal factors. The analysis resulted in creation of two factors which together explain about 82 % of the original variance of the data set. The factors were called according to the combination of principal indicators (Table 14):

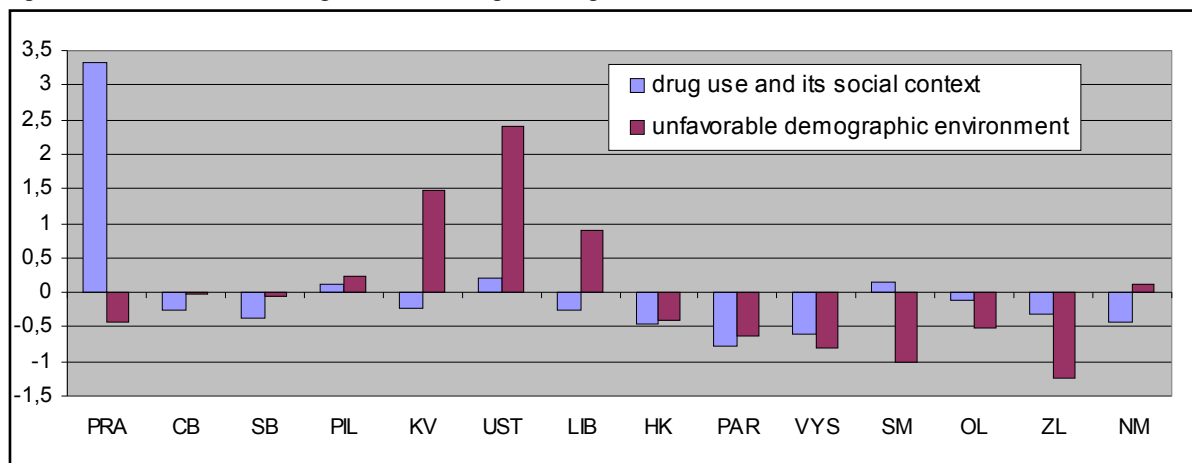
- **“Drug use and its social context”** – this factor was combined by percentage of adults with university education, average monthly salary, criminality and drug related criminality, needles distributed, grants for drug projects, prevalence of cannabis and non-cannabis use, problem drug use prevalence estimate, treatment demands and incidence of F11-F19 diagnoses. This component explains 55 % of the variance of the indicator set.
- **“Unfavorable demographic environment”** combines crude divorce and abortion rates, infant mortality, low life expectancy and low level of religiosity. The component explains 27 % of the data set variance.

Table 14: Principal components resulting from factor analysis (factor loadings)

	Factor 1 – Drug use and its social context	Factor 2 – Unfavorable demographic environment
Crude divorce rate	0,2437	0,8591
Crude abortion rate	0,0773	0,9547
University education	0,9128	-0,3649
Religious confession	-0,2470	-0,7764
Life expectancy for women	0,1701	-0,9372
Infant mortality	-0,3202	0,7152
Average monthly salary	0,9614	-0,0130
Criminality	0,9470	0,1835
Drug related criminality	0,9760	0,0224
Needles exchanged	0,9502	0,1208
Grants for drug projects	0,9530	0,0390
Cannabis prevalence	0,6821	0,2454
Non-cannabis prevalence	0,5762	0,6258
Problem drug use estimate	0,9407	0,2042
First treatment demands - heroin	0,6592	0,5407
Incidence of F11-19 diagnoses	0,8311	-0,0448

Based on the two factors, the character of individual regions was compared with the average of the Czech Republic (Figure 20).

Fig. 20: Character of the regions according to the given factor scores



Favorable conditions of both the demographic environment and drug use context were proved in Hradec Kralove, Pardubice and Vysocina, and to a certain extent in Southern Moravia, Olomouc and Zlin. Relatively favorable drug use situation could be found in Central and Southern Bohemia; these regions display average demographic conditions. To a certain extent, Pilsen region is comparable with the last two regions mentioned.

Unfavorable demographic environment and concentration of risk social phenomena was found in Karlovy Vary and Liberec. At the same time, these regions are characterized by average drug use situation. Usti nad Labem forms an independent category with unfavorable demographic and social conditions and concentration of drug use and its consequences.

Capital Prague forms an independent category as well. The region is characterized by unfavorable drug use situation and concentration of social problems on one side and relatively favorable demographic development and health status.

4.3 Cluster analysis

As it was already proven, similarities exist within the 14 regions of the Czech Republic. Cluster analysis was used to show the similarities and differences in more details. Finally, a typology of the regions was generated on the basis of the principal components resulting from the factor analysis.

The 14 regions were combined into 5 types (clusters). The relationship between the clusters is described in Figure 21; Figure 22 shows the resulting typology of the regions of the Czech Republic.

Figure 21: Dendrogram of similarities

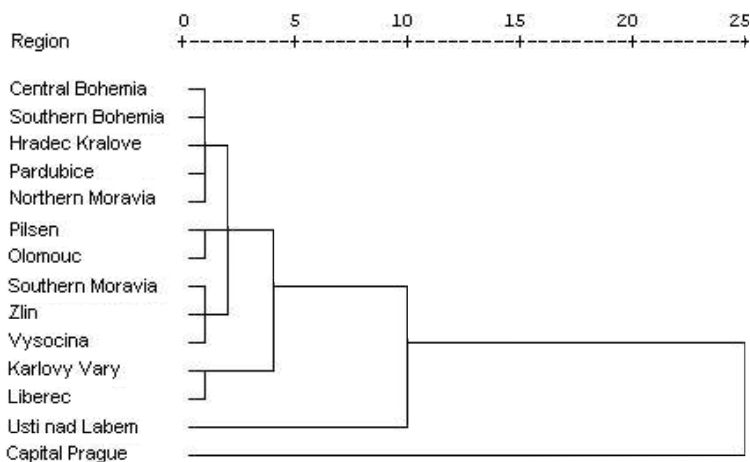


Figure 22: Typology of the regions



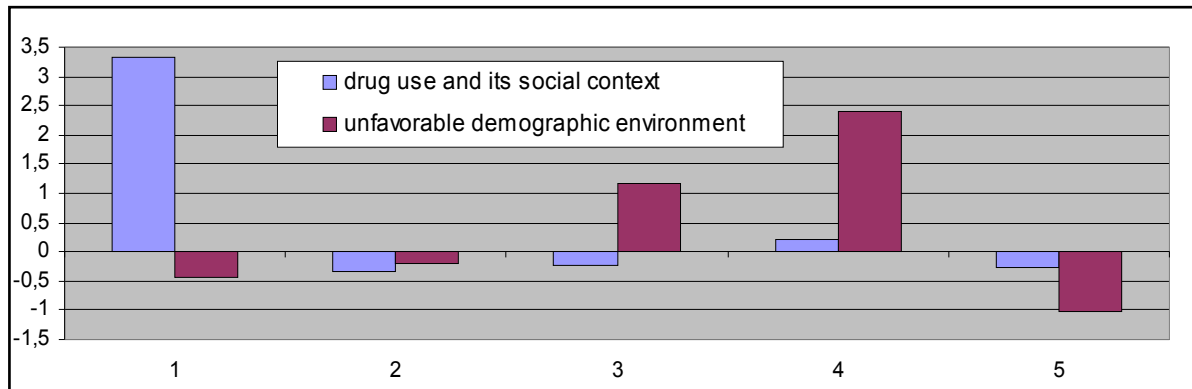
Based on the value of the factor score, the resulting clusters can be characterized similarly as the individual regions in the previous part (Figure 23).

Cluster 1 (Capital Prague) is characterized with extremely unfavorable social environment and a great extent of drug use and its consequences; the general criminality including the drug related criminality is concentrated here, prevalence of drug use together with prevalence of problem drug use and treatment demands are on much higher level compared to the rest of the republic. On the other hand, Capital Prague is characterized with higher education and exceptionally high average salary, favorable demographic development and health status of the inhabitants.

Cluster 2 includes seven regions of the Czech Republic: Central and Southern Bohemia, Pilsen, Hradec Kralove, Pardubice, Olomouc and Northern Moravia. This type combines

relatively favorable drug use situation (lower level of experimental and problem drug use) and favorable socio-demographic conditions and health status. Mostly it covers less urbanized regions with one regional node, where the risk phenomena can concentrate, and surroundings with relatively positive demographic, social and drug use conditions.

Fig. 23: Characteristics of the clusters



Karlovy Vary and Liberec form the **third cluster**. This cluster is characterized by unfavorable environment conditions while the drug use situation is of the national average.

Usti nad Labem forms independent **cluster 4**. It combines unfavorable social conditions, i.e. the concentration of risk phenomena such as drug use and criminality. Here we can find higher prevalence of drug use including problem drug use and treatment demands. At the same time, this region is characteristic with unfavorable demographic development and health status, lower level of education and religiosity.

Cluster 5 includes Vysocina, Zlin and Southern Moravia regions. These regions display favorable demographic and health status, as well as positive characteristics of the drug use situation – lower level of experimental and problem drug use, and lower number of treatment demands. At the same time, the criminality in these regions is below the national average.

5 Conclusion

The analysis of the situation of the drug use and its consequences showed that significant regional differences in drug use situation exist within the Czech Republic which reflect the general demographic, social and institutional structure of the individual regions to a great extent. It proved that the drug use concentrates into the regions with higher concentration of risky demographic and socioeconomic phenomena.

At the same time, some regions display very similar characteristics and thus form integrated areas. One such area combines 3 regions (Vysocina, Zlin and Southern Moravia) with very favorable environment and behavior characteristics, another area combines 7 regions with relatively favorable environmental conditions and drug use situation (Central and Southern Bohemia, Pilsen, Hradec Kralove, Pardubice, Olomouc and Northern Moravia). Third area covers two regions with average drug use situation and less favorable environment conditions (Karlovy Vary and Liberec). The last two regions (Capital Prague and Usti nad Labem) display specific characteristics; therefore, they form independent type each. Both of the regions are characterized by unfavorable situation in the means of the concentration of the environment risk factors and concentration of drug use. But compared to Usti nad Labem, Capital Prague is specific with more favorable health status, higher level of education and better economic performance.

It is necessary to add that significant differences could be found not only between the regions but within them as well. The local differences could not be assessed since no local data on demographic, socioeconomic, institutional and drug use context were available. We

can expect significant differences between the cities and towns on one side and less urbanized areas; the accessibility of a big city plays an important role. Other factors which were not included in this analysis could influence the final typology as well.

The information gained on the relationship between the concentrations of the environment risk factors and forms of problem behavior should be reflected when forming and implementing the measures of both the national and regional drug policies. For the formulation of effective responses and interventions of the health, social and drug policy, more research in this area is needed to reach the goal of reducing health, social and other consequences related to both licit and illicit drug use.

6 References

- CSU (2003a) Okresy Ceske republiky za rok 2002. Praha: Cesky statisticky urad. On-line publikace, www.czso.cz. (Districts of the Czech Republic in 2002. Prague: Czech Statistical Office. On-line publication, www.czso.cz)
- CSU (2003b) Pohyb obyvatelstva v CR za rok 2002. Praha: Cesky statisticky urad. On-line publikace, www.czso.cz. (Movement of the Population of the Czech Republic in 2002. Prague: Czech Statistical Office. On-line publication, www.czso.cz)
- CSU (2003c) Scitani lidu, domu a bytu 2001. Praha: Cesky statisticky urad. On-line publikace, www.czso.cz. (Population Census 2001. Prague: Czech Statistical Office. On-line publication, www.czso.cz)
- CSU (2003d) Statisticka rocenka Ceske republiky 2003. Praha: Cesky statisticky urad. On-line publikace, www.czso.cz. (Statistical Yearbook of the Czech Republic 2003. Prague: Czech Statistical Office. On-line publication, www.czso.cz)
- CSU (2002) Pohyb obyvatelstva v CR za rok 2001. Praha: Cesky statisticky urad. On-line publikace, www.czso.cz. (Movement of the Population of the Czech Republic in 2001. Prague: Czech Statistical Office. On-line publication, www.czso.cz)
- Douglas, M., Wildavsky, A. (1982) Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers. Berkeley: University of California Press.
- Douglas, M. (1992) Risk and Blame: Essay in Cultural Tudory. London: Routledge.
- EMCDDA (2003a) Annual Report 2003: The State of the Drugs Problem in the EU and Norway. Lisbon: European Monitoring Centre for Drugs and Drug Addiction.
- EMCDDA (2003b) Annual Report 2003: The State of the Drugs Problem in the Acceding and Candidate Countries to the European Union. Lisbon: European Monitoring Centre for Drugs and Drug Addiction.
- Forsyth, A.J.M., Barnard, M. (1999) Contrasting Levels of Adolescent Drug Use between Adjacent Urban and Rural Communities in Scotland.
- Hampl, M. et al. (1996) Geograficka organizace spolecnosti a transformacni procesy v Ceske republice. Praha: Prirodovedecka fakulta Univerzity Karlovy. (Geographic Organization of the Society and Transformation Processes in the Czech Republic. Prague: Faculty of Natural Sciences, Charles University.)
- Lynch, J.W., Kaplan, G.A., Salonen, J.T. (1997) Why Do Poorer People Behave Poorly? Variation in Adult Health Behaviours and Psychological Characteristics by Stages of the Socioeconomic Lifecourse. Social Science and Medicine, pp. 809-819.
- Marmot, M. (1997) Inequality, Deprivation and Alcohol Use. Addiction S1, pp. S13-S20.
- Mravcik, V., Zabransky, T., Korcisova, B., Lejkova, P., Skrdlantova, E., Stastna, L., Macek, V., Petros, O., Gajdosikova, H., Miovsky, M., Kalina, K., Vopravil, J. (2003) Vyrocní zpráva o stavu ve vecích drog v Ceske republice v roce 2002. Praha: Urad vlady CR. (Annual Report on the State of Drugs in the Czech Republic in 2002. Prague: Office of the Government of the Czech Republic.)
- NMS (2003a) Prubezne vysledky studie "Seroprevalence VHC u injekcnich uzivatelu drog". Narodni monitorovaci stredisko pro drogy a drogove zavislosti. Nepublikovano. (Interim results of „HCV Seroprevalence in injecting drug users“. Czech National Focal Point for Drugs and Drug

Addictions. Unpublished.)

- NMS (2003b) Zpracovani zaverecnych zprav k dotacnimu rizeni RVKPP 2002. Narodni monitorovaci stredisko pro drogy a drogove zavislosti. Nepublikovano. (Analysis of Final Reports for Grant Funding 2002. Czech National Focal Point for Drugs and Drug Addictions. Unpublished.)
- Palm, R., Zabransky, T. (2001) Basics of Social Diagnosis of the Drugs Problem. Practical Outcomes, Part I. Copernicus Project „Global Approach on Drugs“.
- Polanecky, V., Sejda, J., Studnickova, B., Klika, J., Seblova, J. and Bartu, I. (2003) Vyrocni zprava CR 2002: incidence, prevalence, zdravotni dopady a trendy lecenych uzivatelu drog. Praha: HS hl. m. Prahy. (Annual Report CR 2002: Incidence, Prevalence, Health Consequences and Trends of treated drug users. Prague: Hygienic Station of Capital Prague.)
- Policejni prezidium CR (2003) Statisticky vykaz kriminality za rok 2002. Praha: Policejni prezidium CR. (Statistical Report of Criminality in 2002. Prague: Police Presidium of the Czech Republic.)
- PCP (2003) GENACIS (Gender and Alcohol Comparative International Study). Psychiatricke Centrum Praha. Nepublikovane vysledky pruzkumu realizovaneho v roce 2002. (GENACIS. Prague Psychiatric Center. Unpublished results of 2002 survey.)
- PCP (1999) ESPAD 99 (Evropska skolni studie o alkoholu a jinych drogach). Praha: Psychiatricke centrum Praha. Prehled hlavnich vysledku pro Meziresortni protidrogovou komisi. (ESPAD 99: European School Survey Project on Alcohol and Other Drugs. Prague: Prague Psychiatric Center. Report on main results for National Drug Commission.)
- Rhodes, T., Stimson, G.V., Crofts, N., Ball, A., Dehne, K., Khodakevich, L. (1999) Drug Injecting, Rapid HIV Spread and the 'Risk Environment'. AIDS 13 Suppl. A, pp. S259-S269.
- UN AIDS (2003) Internetove stranky Programu UN AIDS www.unaids.org. (Web pages of UN AIDS Program. www.unaids.org)
- UZIS (2003a) Cinnost oboru psychiatrie. Aktualni informace 21. Praha: Ustav zdravotnickych informaci a statistiky. On-line publikace, www.uzis.cz. (Psychiatry. Actual Information 21. Prague: Institute for Health Information and Statistics. On-line publication, www.uzis.cz)
- UZIS (2003b) Zdravotnictvi CR 2002 ve statistickych udajich. Praha: Ustav zdravotnickych informaci a statistiky. On-line publikace, www.uzis.cz. (Health Sector in Statistics. Prague: Institute for Health Information and Statistics. On-line publication, www.uzis.cz)