

# GENDER ASPECTS OF EPIDEMIOLOGICAL CHARACTERISTICS OF HEROIN ADDICTS CLINICALLY TREATED IN PSYCHIATRY DEPARTMENT FROM NORTH-EASTERN POST-WAR BOSNIA AND HERZEGOVINA

Mevludin Ibrahim Hasanovic, Abdurahman Kuldija, Izet Meho Pajevic, Sandra Zoric

© 2012 by Acta Medica Saliniana  
ISSN 0350-364X

Mevludin Ibrahim Hasanovic  
Abdurahman Kuldija  
Izet Meho Pajevic  
Sandra Zoric

DOI: 10.5457/ams.219.11

**Aim** To assess gender differences in the frequency of some epidemiological characteristics amongst heroin-dependant psychiatric patients in an area of north-eastern post-war Bosnia and Herzegovina.

**Methods** By using the Pompidou questionnaire, from 1st July 2007- 30th Jun 2008 we interviewed 60 heroin addicts (47 males, aged  $26.6 \pm 5.6$  years) who were treated in the Department of Psychiatry of Tuzla.

**Results** The average age of first exposure to heroin was  $20.5 \pm 4.5$  years with average duration of heroin addiction been  $5.2 \pm 4.4$  years. On average, parents were unaware of the addiction for  $2.8 \pm 1.2$  years.

Out of 60 patients, 40 commenced treatment on their own initiative, 45 came from urban areas, 46 were unemployed, 13 finished elementary school and 45 finished secondary school only. Out of the whole group, 23 patients were intravenous drug users (IVDU) and 36 inhaled it.

Males more frequently had a history of polysubstance abuse (cannabis and benzodiazepines). Common accessories for IVDU were used by 20 patients. Out of 60 patients, just over half, 34, held a driving license (males - 31/47 and females 3/13). There were 34 unmarried patients and 11 had children (1-3).

The economic status of parents was below average for 16/60, and average for 42/60. Twenty two patients had parental history of psychiatric illness.

Two thirds of the patients had appeared in court with 32/60 receiving convictions. These were more common amongst males. Hepatitis C virus infections were reported by 20 patients.

**Conclusion** The majority of heroin addicts treated at Tuzla's Psychiatry Clinic were males from urban areas, unemployed and not married. Most had secondary school qualifications and were owners of a driving license. The majority hailed from families with average economic status.

Forensic history was positive in most with common sentencing predominantly in male patients. Hepatitis C infection was common. Male patients lived more often in primary families and they more commonly had a history of polysubstance use.

**Keywords** Heroin addiction - epidemiology – Pompidou questionnaire - Bosnia and Herzegovina

## Institution

University Clinical Center  
Tuzla, Department of Psychiatry  
Tuzla, Bosnia and Herzegovina

## Received:

23.09.2011

## Accepted:

25.11.2011

## Correspondence to:

Mevludin Hasanović  
Department of Psychiatry  
Tuzla University Clinical Center  
Ulica Rate Dugonjića bb  
75 000 Tuzla, Bosnia and Herzegovina

hameaz@bih.net.ba

## Competing interests

The authors declare no competing interests.

## INTRODUCTION

As in other countries of former Yugoslavia, heroin addiction is a relatively new phenomenon in Bosnia and Herzegovina, although addiction has been prevalent in Balkan countries since the 1970s.

Evidence shows that heroin addiction has rapidly increased in Bosnia and Herzegovina over the last few years. The considerable increase in hospital admissions for the treatment of heroin addicts supports this evidence. This increase has been accompanied by an unstable geopolitical situation in post-war Bosnia and Herzegovina [1, 2]. While heroin addiction has been extensively studied in Western countries [3] and South-East Asia [4], there is a lack of

relevant information for the Balkan countries [5, 6].

Many studies have examined the consequences associated with heroin abuse, mostly in terms of criminal behaviour, morbidity, and mortality [7, 8].

In the Psychiatry Clinic of the University Clinical Centre in Tuzla, registering of substance users began with completion of the Pompidou form. This is a standardised questionnaire brought out by an epidemiology expert group of the Cooperation Group to Combat Drug abuse (known as the Pompidou group) of the Council of Europe and based on the initiative of the Federal Epidemiology Institute of Public Health in 2007. It provides comprehensive information

about the health history of individual drug user. Completed forms are then sent to the services of Epidemiology, the Federal Institute of Public Health, who seek to obtain the official number of addicts in the Federation of Bosnia and Herzegovina.

Unlike many countries in the world, Bosnia and Herzegovina does not have evidence-based national guidelines on the treatment and surveillance of addiction. Subsequently, it is essential that the Federal Institute of Public Health organises a collection of data on patients who due to drug use are treated within the national health sector. This data could then be processed and analysed in order to establish a national register of persons treated for abuse of narcotics.

Since 1983, in the neighbouring Republic of Croatia, both the public and health professionals are regularly informed by the annual 'Report on individuals treated for substance abuse' published by the Croatian National Institute of Public Health. Since 1995, all drug users seen and treated in the outpatient clinics have been included in this register.

In order to achieve both flow of the data and its processing on a local level, a unique software solution used by all those involved in outpatient care of the drug users would be necessary. The resulting register would fundamentally be used in order to monitor prevalence, aetiology and use of the services.

### Pompidou form

Within Europe, patients who are undergoing treatment for drug use are reported to the Pompidou group of the Council of Europe, allowing for comparison of data from different countries of Europe.

In Bosnia and Herzegovina each individual will be assessed by means of a standardised Pompidou questionnaire on an annual basis, regardless of the frequency of their contact with services. This will subsequently result in registration and follow up of each individual. Initial data will be submitted to the Federal Institute of Public Health at the beginning of the process and then quarterly.

A patient's personal details will be confidential and only accessible by authorised personnel.

Due to the inequality of resources both in personnel and equipment in some of the centres, there is need to re-organise existing resources and implement a standardised service across the Cantonal Institute for Public Health.

For this reason, recent clinical research on patterns and the socio-demographic characteristics of heroin addiction in Tuzla Canton, the north-eastern part of post-war Bosnia and Herzegovina, is summarised in this article, focusing on gender aspects using Pompidou questionnaire.

### Participants and Methods

In the Department of Psychiatry Tuzla, during the period 1st July 2007- 30th Jun 2008, 60 heroin users were interviewed using a standardised Pompidou form.

All patients were diagnosed as opioid addicts with physical dependence (according to DSM IV criteria) and gave informed consent for study participation.

### Statistical Analysis

The results were analyzed using descriptive statistics, ANOVA and  $\chi^2$ -test. Data was statistically analyzed by using Statistical Package for Social Sciences, version 10.0 (SPSS Inc. Chicago. IL USA).

### Results

Within the sample, there were significantly more males 47 (78.3%) than females 13 (21.7%) ( $\chi^2$ -test=19.3,  $P<0.001$ ). The average age was  $26.6\pm 5.6$  years and the average age of the first intake of any illicit substance was  $17.4\pm 4.3$  years. The first consumption of heroin was  $20.5\pm 4.5$  years and average duration of heroin addiction was  $5.24\pm 4.4$  years. None of the above showed any significant statistical differences between males and females.

**Table 1.** Time-related epidemiological characteristics of sixty heroin addicts clinically treated from north-eastern region of post-war Bosnia and Herzegovina during period 1st July 2007 30th Jun 2008 year.

Time related epidemiological characteristics of heroin addicts clinically treated for one year in the Department of Psychiatry Tuzla	Treated heroin addicts						
	Male (n=47)	Female (n=13)	Total (n=60)	df	F	P*	Min Max
	<b>Mean±Std. Dev. (years)</b>						
Age	26.8±6.2	25.9±2.9	26.6±5.6	1	0.269	0.606	20 43
Age of the first consumption of any illicit substance	17.4±4.6	17.2±3.2	17.4±4.3	1	0.015	0.904	12 40
Age of the first consumption of heroin	20.8±4.8	19.5±3.1	20.5±4.5	1	0.902	0.346	10 41
Duration of regular heroin consumption	5.1±4.8	5.4±2.7	5.2±4.4	1	0.046	0.831	1 20
Duration of fathers' education	10.8±2.8	11.8±1.8	11.0±2.6	1	1.541	0.220	2 17
Duration of mothers' education	9.0±3.7	9.2±5.1	9.0±4.0	1	0.048	0.828	0 16
Period passed from the first consumption of any illegal substance to time of parental awareness	2.7±1.3	2.9±1.1	2.8±1.2	1	0.269	0.606	1 6

\*ANOVA

The average duration of father's education was  $11.0 \pm 2.6$  years, and mother's education was  $9.0 \pm 4.0$  years. Average period of parental unawareness of child's drug use was  $2.8 \pm 1.2$  years. Both groups showed no statistical gender differences (Table 1).

The majority of patients initiated their own treatment and were from urban areas. There was a high level of unemployment and most participants held secondary school qualifications. Within these groups, there were no gender differences observed.

Most participants live with primary family with males more often than females.

The IVDU route of consumption was equally common in both males and females; however males more frequently used inhalation method. There were no gender differences concerning frequency of consumption

with most of the participants using heroin daily over the previous month.

The polysubstance drug use (in particular cannabis and benzodiazepines) was more common amongst males and around third of participants, equally in both groups, used accessories associated with IVDU.

Significantly more males than females held a driving license. The marital status, the parental marital and economic status showed no significant difference between genders.

The majority of patients had previous forensic history and around a third of patients had current involvement with courts at the time of commencing treatment. No gender differences were observed.

Males were significantly more often imprisoned, while there were no differences in reporting of positive Anti-HCV laboratory findings (Table 2).

**Table 2.** Some epidemiological characteristics of sixty heroin addicts clinically treated in post-war Bosnia and Herzegovina during period 1st July 2007 30th Jun 2008 year.

Epidemiological characteristics of heroin addicts collected with Pampidou form	Treated heroin addicts N (%)			Chi-square test	P
	Males (n=47)	Females (n=13)	Total (n=60)		
Mode of commencing treatment:					
Own decision	34 (72.3)	9 (69.2)	43 (71.7)	0.501	0.779
Family decision	11 (23.4)	4 (30.8)	15 (25.0)		
Social service decision	2 (4.3)		2 (3.3)		
Urban resident	34 (72.3)	11 (84.6)	45 (75.0)	0.818	0.366
Living arrangements:					
Lives alone	3 (6.4)	3 (23.1)	6 (10.0)	12.042	0.007
Lives with primary family	39 (83.0)	8 (61.4)	47 (78.3)		
Lives with secondary family	5 (10.6)	2 (15.4)	7 (11.7)		
Patient is living with another drug addict(s)	3 (6.4)	3 (23.1)	6 (10.0)	3.482	0.175
Unemployed	34 (72.3)	12 (92.3)	46 (76.7)	4.935	0.552
Finished elementary school only	9 (19.2)	4 (30.8)	13 (21.7)	0.741	0.389
Finished secondary school only	36 (76.6)	9 (69.2)	45 (75.0)	0.251	0.616
Method of administration:					
Intravenous applications	17 (36.3)	6 (46.2)	23 (38.3)	4.246	0.120
Inhalation	30 (63.8)	6 (46.2)	36 (60.0)		
Eating/drinking		1 (7.6)	1 (1.7)		
Frequencies of heroin consumption in the last month:					
Every day	39 (83.0)	9 (69.2)	48 (80.0)	3.868	0.424
2-6 days per week	5 (10.6)	4 (30.4)	9 (15.0)		
Once a week	3 (6.4)		3 (5.0)		
Secondary drugs:					
Cannabis/ Hashish	9 (19.2)		9 (15.0)	10.313	0.016
Ecstasy		1 (7.6)	1 (1.7)		
Cocaine		1 (7.6)	1 (1.7)		
Benzodiazepine	3 (6.4)	1 (7.6)	4 (6.7)		
Common use of IVDU accessories	16 (34.0)	4 (30.4)	20 (33.3)	0.355	0.837
Owner of driver license	31 (66.0)	3 (23.1)	34 (56.7)	7.600	0.006
Marriage experience:					
Married	9 (19.2)	2 (15.4)	11 (18.3)	2.100	0.150
Never married	34 (72.3)	8 (61.5)	42 (70.0)		
Divorced	4 (8.5)	3 (23.1)	7 (11.7)		
Had own children (1-3 kids)	7 (14.9)	4 (30.4)	11 (18.3)	1.714	0.190
Parental marriage status:					
Married	30 (43.8)	10 (76.9)	40 (66.7)	2.156	0.707
Had experience of parents' divorce	8 (17.0)	1 (7.6)	9 (15.0)		
Had lost one parent	7 (14.9)	2 (15.4)	9 (15.0)		

Lost both parents	2 (4.3)		2 (3.3)		
<b>Economic status of family:</b>					
Below average income	11 (23.4)	5 (38.5)	16 (26.7)	1.589	0.452
Average income	34 (72.3)	8 (61.5)	42 (70.0)		
Above average income	2 (4.3)		2 (3.3)		
Had parent(s) who suffered from certain psychiatric disorder(s).	17 (36.2)	5 (38.5)	22 (36.7)	0.023	0.879
<b>History of crime sentencing</b>					
Before consumption of any drug	5 (10.6)		5 (8.3)	3.635	0.304
After consumption of light drugs	8 (17.0)	1 (7.6)	9 (15.0)		
After consumption of heavy drugs	14 (29.8)	3 (23.1)	17 (28.3)		
<b>History of court appearances</b>					
Initiated a trial		2 (15.4)	2 (3.3)	8.908	0.068
Trial is underway	8 (17.0)	2 (15.4)	10 (16.7)		
He expects execution of penalty	1 (2.1)		1 (1.7)		
He is under conditional sentence	5 (10.6)		5 (8.3)		
<b>Convictions:</b>					
He was convicted for misdemeanour	5 (10.6)		5 (8.3)	11.970	0.036
He/she was punished conditionally	8 (17.0)	2 (15.4)	10 (16.7)		
He was imprisoned once	12 (25.5)		12 (20.0)		
He/she was imprisoned more than once	4 (8.5)	1 (7.6)	5 (8.3)		
Anti-HCV were positively reported	18 (38.3)	2 (15.4)	20 (33.3)	1.630	0.202

## DISCUSSION

We found that our results were similar to those of Maremmani et al. (2007) who found the average age of the 1090 patients to be 29±6 (range 16–51) with most of patients being male (76.2%) [9].

Male patients more frequently lived in primary families and females more frequently lived on their own. Poly-substance abuse was more prominent amongst males with secondary drugs being cannabis and benzodiazepines. In addition, males more frequently held a driving license and had a history of prison sentences.

Maremmani et al. found the rate of unemployment to be 39.6% [5]. Similarly, we found that amongst our group three quarters of patients were unemployed. Contrary to this, the Mendes study (1985) found that only 5% of addicts were unemployed and 35% were self-employed, mainly engaged in the tourist trade [4]. However, our study might reflect widespread, high-level unemployment in Bosnia and Herzegovina in general.

A significant difference was noted between the average level of education in our research and the Maremmani et al. [9] sample, who found that 70.7% of heroin addicts had an educational level of below nine years.

Mendes stated in his study that in respect of education, 43% cent of the heroin addicts had left school before completing the eighth grade and 48% had left before the tenth grade in Sri Lanka [4]. It could be noted that in former Yugoslavia, secondary education was compulsory, so subsequently only a small number of the younger population has only elementary school qualifications. Furthermore, during the war, the educational system was maintained.

During the war, the school system continually worked and as a result the majority of children and adolescents completed their education except those who frequently relocated due to the circumstances of war, post war refugee status and those internally displaced [10].

We found that more than half of heroin addicts owned a driver's license. This is potentially a safety problem, in particular as at the current time no Driving Licence Authority regulations exist on such issues in Bosnia and Herzegovina. In addition, most drug addicts do not meet the health standards required for licensed drivers.

The issues with drug use and driving are mostly encountered by traffic police or during medical check-ups that are required for a driving license. Long term, multi-agency research is required in order to determine appropriate fitness to drive assessments for these individuals. [11].

Our results showed that almost half of heroin addicts had incomplete families. The research of Glavak et al. [12] indicates the importance of parental-rearing practices, especially mothers', on adolescent drug abuse and addiction. Addicts more commonly perceived maternal rejection than non-addicts, making this one of the possible risk factors for development of drug addiction.

Our finding regarding marriage status of heroin addicts was almost identical with Maremmani et al. who found that 64.4% heroin dependant patients had never married and in the Mendes study who reported 66.7% who were single [4].

In our study low income was reported more frequently than in study of Maremmani et al. (16.7%) [5]. However,

er higher numbers of low income earners in our study group can be explained by ongoing post-war economic difficulties. [13]

In our sample, 33.3% of patients tested positive for Hepatitis 'C'. This is much lower than found by Backmund et al. [14] who found that about 61.3% of 1049 IVDUs were anti-HCV positive and Xia et al., [15] who found 61.4% prevalence of HCV infection among IVDUs in China. However it is important to note that in our sample male patients preferred inhalation method to IVDU.

These data support the need for early prevention strategies, namely, education of teachers in schools and further prevention training of counsellors to minimize cross-infection and accidental death by overdose.

Our research has certain limitations, mainly the sample group. In addition, the collecting of socio-demographic data of heroin addicts 14 years after the war does not entail a direct correlation between addiction and post-war trauma. In general, the prevalence of heroin dependency shows unexplained fluctuations.

Little is known about the social experience of these adolescents and their additional traumas after the war in view of the fact that Bosnia and Herzegovina is in its transition period with constant changes in the social framework.

As in other neighbouring countries, heroin addiction in Bosnia and Herzegovina is a recent phenomenon, and the extent of the problem is still not known. It is essential to establish a national register of persons treated for abuse of narcotics and the Pompidou form could be a standardised means of collecting data from such persons who ask for treatment in specialised institutions. This will subsequently allow comparison of data from different European countries and help establish the extent of the problem. [16, 17]

## ACKNOWLEDGEMENT

We would like to thank all participants in this research, their parents, their spouses and their children. We are using this opportunity to thank Tommy Strandberg, Halid Hadžimusić and Ahmo Gerin from Örebro in Sweden as well as to the late Zlatko Puvačić and all those who kindly helped the people of BH to alleviate the tragic consequences of the 1992-1995 war.

## REFERENCES

- Cerić I, Basara N, Murga D. Characteristics of the dangerous and harmful use of alcohol and psychoactive drugs in Bosnia and Herzegovina in the postwar period. *Med.Arh.* 2003;57(5-6 Suppl 1):19-22.
- Hasanović M. Psychological consequences of war-traumatized children and adolescents in Bosnia and Herzegovina. *Acta Medica Academica.* 2011;40(1):45-66.
- Bewley T. Study of 100 consecutive inpatients. *British Medical Journal.* 1968; 1:727 - 730.
- Mendis N. Heroin addiction among young people: a new development in Sri Lanka. *United Nations Office on Drugs and Crime (UNODC) Bulletin.* 1985; pp 25-29.
- Sakoman S. Substance abuse in the Republic of Croatia and National Program for Drug Control. *Croat Med J.* 2000;41(3):270-86.
- Bezinović P, Malatestinić Đ. Perceived Exposure to Substance Use and Risk-taking Behavior in Early Adolescence: Cross-sectional Study. *Croat Med J.* 2009;50(2):157-164.
- Booth MW, Castro RG, Anglin MD. What do we know about Hispanic substance abuse? A review of the literature. In: Glick R, Moore J., editors. *Drugs in Hispanic Communities.* Rutgers University Press; New Brunswick, NJ: 1991. pp. 21-43.
- Hser YI, Anglin MD, Powers K. A 24-Year follow-up of California Narcotics Addicts. *Arch Gen Psychiatry.* 1993;50:577-584.
- Maremmani I, Pacini M, Pani PP, Perugi G, Deltito J, Akiskal H. The mental status of 1090 heroin addicts at entry into treatment: should depression be considered a 'dual diagnosis'? *Annals of General Psychiatry.* 2007; 6:31.
- Hasanović M, Sinanović O, Pavlović S. Acculturation and psychological problems of adolescents from Bosnia and Herzegovina during exile and repatriation. *Croatian Medical Journal.* 2005; 46[1]:105-115.
- Bilban M, Bilban Jakopin C. Methadone maintenance treatment and drugs. *Collegium Antropologicum.* 2002;26[1]:107-117.
- Glavak R, Kuterovac-Jagodić G, Sakoman S. Perceived parental acceptance-rejection, family-related factors, and socioeconomic status of families of adolescent heroin addicts. *Croatian Medical Journal.* 2003;44[2]:199-206.
- Hasanović M, Haračić E, Ahmetspahić Š, Kurtović S, Haračić H. War, poverty and hopelessness in Bosnia-Herzegovina. *Liberman A, Merrick J (Eds) Poverty and Children: A Public Health Concern.* New York: Nova Publishers 2009; pp:81-101.
- Backmund M, Meyer K, Wachtler M, Echenlaub D. Hepatitis C virus infection in injection drug users in Bavaria: risk factors for seropositivity. *European Journal of Epidemiology.* 2003;18(6):563-8.
- Xia X, Luo J, Bai J, Yu R. Epidemiology of hepatitis C virus infection among injection drug users in China: systematic review and meta-analysis. *Public Health.* 2008;122(10):990-1003.
- Seblova J, Polanecky V, Sejda J, Studnickova B. Trends in substance abuse by teenagers in the Czech Republic. *Journal of Emergency Medicine.* 2005;28(1):95-100.
- Paparrigopoulos T, Liappas J, Mellos E, Rabavilas A. Assessment of an Abstinence-Oriented, Outpatient Drug Addiction Service in Greece. *Psychological Reports.* 2007;100(3):1024-1042.

Scan this QR code with your mobile device for instant access to the current Issue of Acta Medica Saliniana

