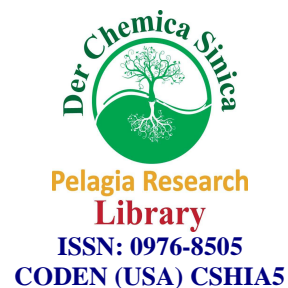




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Heroin: Assessment of use and abuse: A Review

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ABSTRACT

A lot of drug abuse treatment centers and health care providers have implemented special education programs for individuals who take drugs. The purpose of this article is to provide a brief outline on the assessment of Heroin use and abuse. This paper revealed the National-level drug prevalence studies which indicate the rate of Heroin use/abuse in the past years in different age groups among less than high school, high school, some college graduate students, young adults and other grades. The paper further focuses on percentage of heroin use/abuse in different age groups and various demographic characteristics which includes the comparison of gender, race/ethnicity and population density.

Keywords: Heroin; drug abuse; Narcotic agents; Demographic Characteristics.

INTRODUCTION

Drug abuse and addiction are major public health problems and contribute significantly to mortality and morbidity in our society [1-4]. Unlike the illegal drugs of abuse among adolescents and younger adults (eg. Marijuana, cocaine, heroin), the substances abused by older adults are usually alcohol, nicotine, and prescription drugs [5]. In the last decade, China experienced a rapid increase in illicit drug use, predominantly that of heroin. From 1990 to 2000, the number of drug abusers documented officially in China (e.g., those who were arrested for drug use by law reinforcement agencies or who voluntarily participated in drug treatment programs) increased 11-fold from 70,000 to 860,000 [6]. The number of registered addicted individuals in 2003 was 1.05 million. Many believe that these official numbers underestimate the extent of drug abuse in China. According to an official report [7] and a survey by [8] at least 75–85% of drug-addicted individuals in China are heroin addicted individuals.

Narcotic agents are potent analgesics which are effective for the relief of severe pain. Analgesics are selective central nervous system depressants used to relieve pain. The term analgesic means

"without pain". Even in therapeutic doses, narcotic analgesics can cause respiratory depression, nausea, and drowsiness. Long term administration produces tolerance, psychic, and physical dependence called addiction. Narcotic agents may be classified into four categories:

- 1) Morphine and codeine - natural alkaloids of opium.
- 2) Synthetic derivatives of morphine such as heroin.
- 3) Synthetic agents which resemble the morphine structure.
- 4) Narcotic antagonists which are used as antidotes for overdoses of narcotic analgesics.

The main pharmacological action of analgesics is on the cerebrum and medulla of the central nervous system. Another effect is on the smooth muscle and glandular secretions of the respiratory and gastro-intestinal tract. The precise mechanism of action is unknown although the narcotics appear to interact with specific receptor sites to interfere with pain impulses.

2. Heroin

Heroin is synthesized from morphine by a relatively simple esterification reaction of two alcohol (phenol) groups with acetic anhydride (equivalent to acetic acid). Heroin is much more potent than morphine but without the respiratory depression effect. A possible reason may be that heroin passes the blood-brain barrier much more rapidly than morphine. Once in the brain, the heroin is hydrolyzed to morphine which is responsible for its activity.

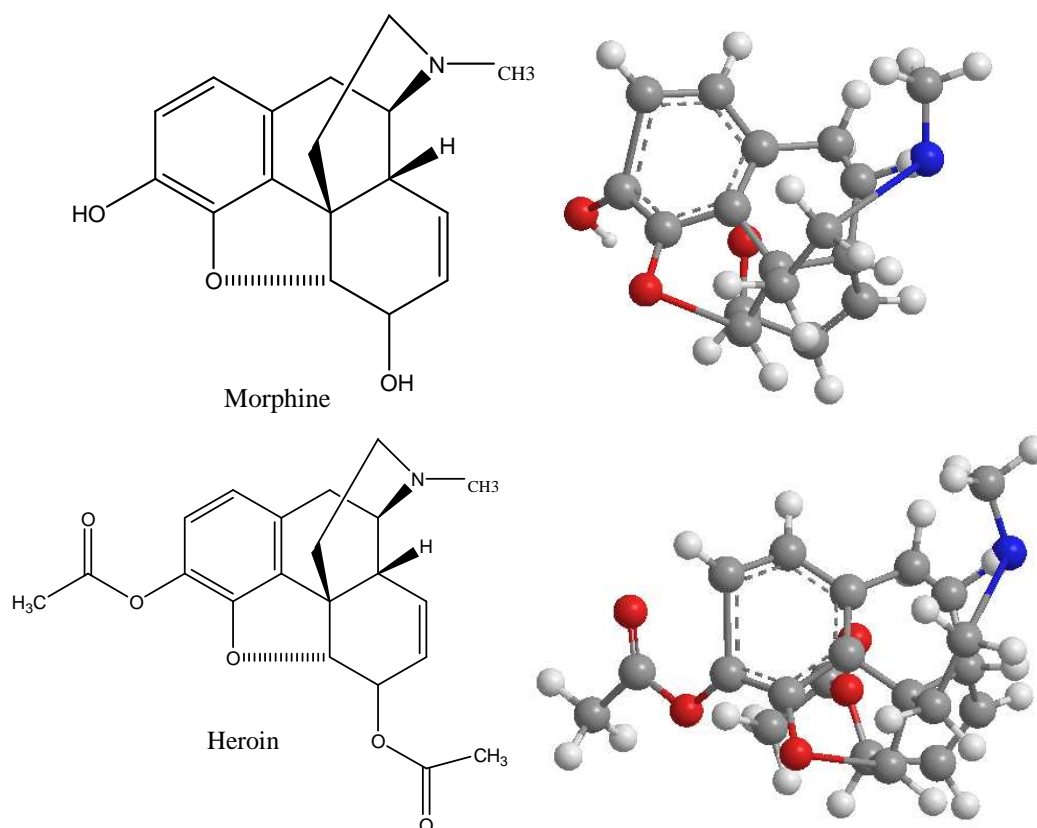


Figure1. Structure of Morphine and Heroin

3. Graphic presentation of Heroin use/abuse in Lifetime (in %), by Age Group and Demographic Characteristics

Demographical studies of race/ethnicity reveals some interesting and logical statistic showing higher percentage of heroin use in Hispanics (Spanish origin) to the extent of about 2.2 percent compare to a black non-Hispanics and white non-Hispanics between 1-1.5 percent in the age group of 35+ years. The highest percentage of heroin use in life time in the age group of 18-25 years was 1.3 percent in white non-Hispanics and 0.4 percent in Hispanics as well as in black non-Hispanics.

Table.1 Percentage of heroin use/abuse in Lifetime, by Age Group and Demographic Characteristics (Gender & Race/Ethnicity)

Age Group (In years)	Demographic Characteristics				
	Gender		Race/Ethnicity		
	Male (%)	Female (%)	White, Non Hispanic (%)	Black, Non Hispanic (%)	Hispanic (%)
12-17	0.4	0.6	0.6	0.1	0.3
18-25	1.3	0.7	1.3	0.4	0.4
26-34	1.0	1.0	1.0	0.9	1.0
35 +	1.5	0.5	0.8	1.5	2.2
Total	1.3	0.6	0.9	1.0	1.4

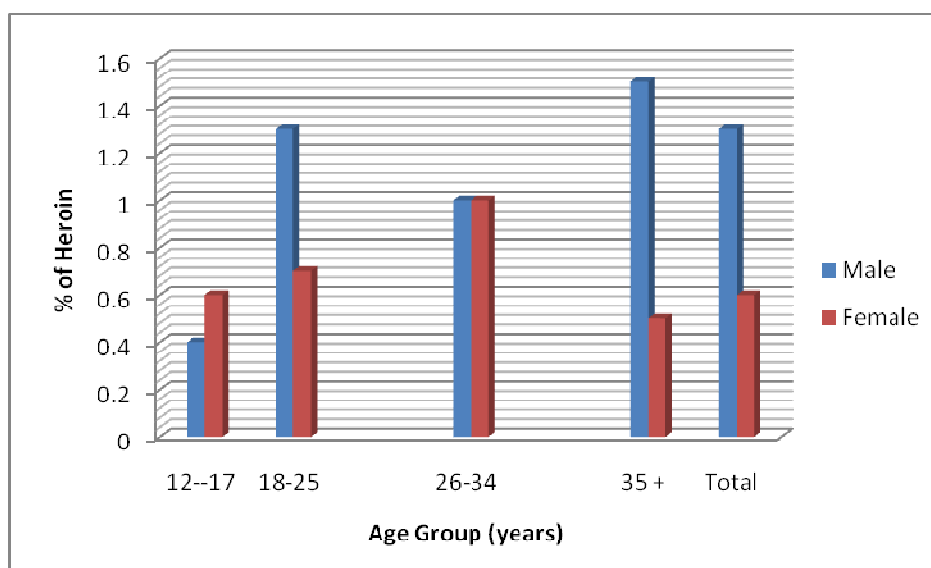


Figure 2. Comparison of Percentage of Heroin Use/abuse in Their Lifetime, by Age Group (In Gender)

Considering the gender, the highest percentage of heroin use between the age group of 35+ years was 1.5 percent in male and about one percent in female between the age group of 26-34 years. Following this in the age group of 18-25 years it was 1.3 and 0.7 percent in male and female respectively. In the lower age group it is not much alarming and was about 0.4-0.6 percent in both the genders.

Comparing the use of Heroin in life time by age group (in gender) it was observed that the highest rate was in the age group of 35+ in male as compared to age group of 26-34 in female. The lower percentage of usage was observed in female in the age group of 35+.

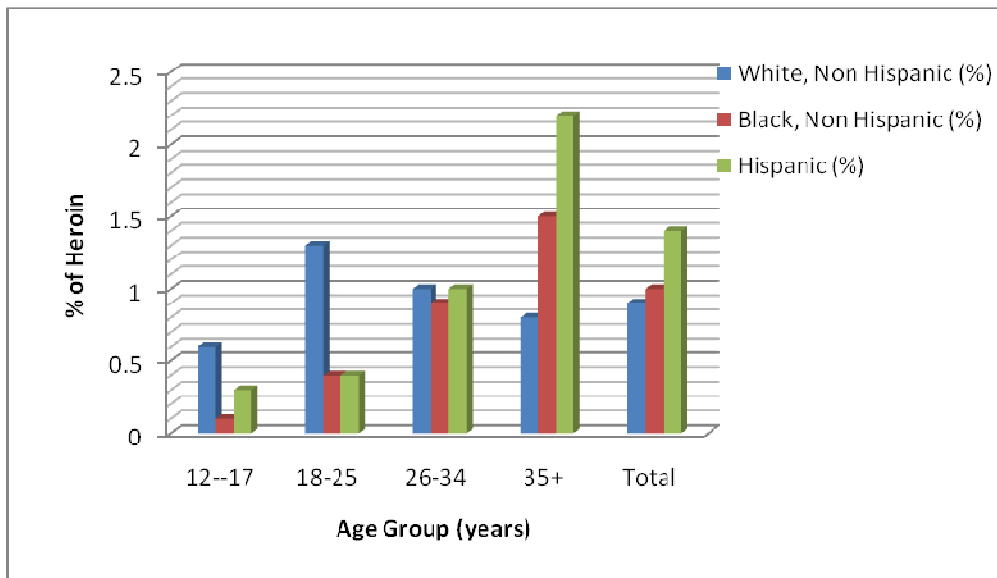


Figure 3. Comparison of Percentage of Heroin Use/abuse in Their Lifetime, by Age Group (In Race/Ethnicity)

Considering the population density, the highest use of Heroin is espied in large metros in the age group of 26 - 34 years. In small metros the use of Heroin was nearly the same in the age group of 18 - 25 and 35+, but certainly less than in large metros. In large metros the highest is in the age group of 18 – 25 years which is as high as one percent.

Table.2 Percentage of heroin use/abuse in Lifetime, by Age Group and Demographic Characteristics (Population Density)

Age Group (In years)	Demographic Characteristics		
	Population Density		
	Large Metro	Small Metro	Non Metro
12-17	0.5	0.5	0.4
18-25	1.2	0.8	0.9
26-34	0.7	1.5	0.8
35 +	1.1	1.2	0.3
Total	1.0	1.1	0.5

Demographic Characteristics in adult education demonstrated wide variation in the heroin use. It was quite logical that the use of heroin should have been highest in college graduate but on the contrary the figure shows the lowest percentage that is 0.5 percent in the age group of 26-34 years. Use/abuse of heroin was much less than 0.5 percent in other age groups. Those educated up to high school showed a wide variation between the age groups of 18-25 and 35+ having use/abuse of heroin up to 0.7 and 2.2 respectively. In the same age groups those educated up to

junior high school the use/abuse of heroin did not show marked difference and it ranged from 1.7 to 0.8 percent respectively. The percentage was much less in 35+ age group compare to those educated up to high school.

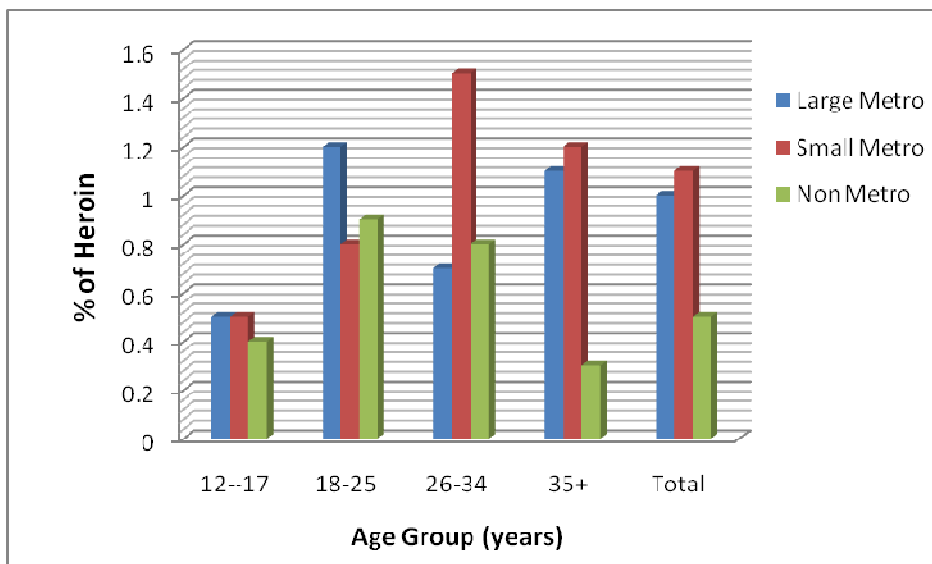


Figure 4. Comparison of Percentage of Heroin Use/abuse in Their Lifetime, by Age Group (In Population Density)

Table.3 Percentage of heroin use/abuse in Lifetime, by Age Group and Demographic Characteristics (Adult Education)

Age Group (In years)	Demographic Characteristics		
	Adult Education		
	Junior High school	High school	college graduate
12-17	NA	NA	NA
18-25	1.7	0.7	0.2
26-34	1.9	0.5	0.5
35 +	0.8	2.2	0.3
Total	1.1	1.6	0.3

CONCLUSION

Drug abuse is a mindset of a person. It's not a weakness or a lack of willpower. It's a choice to begin using a drug, but as one uses it more and more the brain begins to adapt. This change can lead to a craving for the drug. Heroin is very addictive and difficult to evict from the addiction and the only drug that can dislodge this grave effect is methadone. There has been more abuse than the use of this drug commonly known as “smack” or “junk”.

According to National-level drug prevalence studies in past years, rates of heroin abuse in lifetime, by age group, demonstrated a wide variation. It is inferred that young adults are serious victims of drug abuse. According to demographical studies of race/ethnicity higher percentage of abuse was seen in the age group of 35+ years and lowest in the age group of 12-17 years. It is

quite obvious that heroin is consumed by people who are in depression although the adverse effect of drug itself produces depression. Taking into account the use/abuse of heroin, according to population density, higher consumption was in the age group of 26-34 years in small metros. People need to be educated about the harmful effect of heroin in small metros.

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