

Nutritional status and dietary intake pattern of male drug addicts undergoing rehabilitation

Abstract

Background: Drug addiction is now prevalent everywhere in Bangladesh; in the house, streets, in the workplace, parks, slums, markets and even in educational institutions both in rural and urban areas. Although there is no precise figure of the drug dependant people, it is estimated that around 4.0million people, mostly youth are dependant to some form of drugs, and increased trend among all kinds of people is alarming.

Objective: This study was conducted to explore nutritional status and dietary intake pattern of male drug addicts undergoing rehabilitation.

Methodology: This was a cross sectional descriptive study carried out among male drug addicts who were admitted for detoxification and rehabilitation therapy, counseling and motivation. A total of 100 samples were collected randomly with face to face interview by using pre-tested semi structured questionnaire.

Result: Mean age of respondents was 34.02 ± 7.12 years. The prevalence of malnutrition among the respondents was assessed by body mass index. Fifty four percent of the drug addicts were suffering from varying degrees of Chronic Energy Deficiency (CED) of which 16%, 09%, and 29% were in CED-III, CED-II and CED-I respectively whereas 46% of the addicts were normal. It was observed that more than half of the respondents (56%) were irregular to take three meals in a day and 44% were taking their meal regularly. Mean energy intake of below 30 years of age was 2179 kilocalorie and it met 78.9% of recommended dietary allowances. Mean energy intake of 30 and above years of age was 2420 kilocalorie and it met 86.19% of recommended dietary allowances.

Conclusion: Nutritional status of drug addicts was not satisfactory. Further large scale study may be recommended.

Keywords: nutritional status, diet intake pattern, drug addicts

Volume 1 Issue 1 - 2014

Monoarul Haque,¹ Rijwan Bhuiyan,² Shahanaz Chowdhury,³ Khaleda Islam⁴

¹Department of Community Nutrition, Bangladesh University of Health Sciences, Bangladesh

²Department of Health Education & Health Promotion, Bangladesh Institute of Health Sciences, Bangladesh

³Department of Community Medicine, Bangladesh University of Health Sciences, Bangladesh

⁴Institute of Nutrition and Food Science, University of Dhaka, Bangladesh

Correspondence: Monoarul Haque, Department of Community Nutrition, Faculty of Public Health, Bangladesh University of Health Sciences (BUHS), I25/1, Darus Salam, Mirpur, Dhaka 1216, Bangladesh, Tel 008801915839550, Email monoarmunna@yahoo.com

Received: April 24, 2014 | **Published:** May 05, 2014

Abbreviations: CED, chronic energy deficiency; DAM, dhaka ahsania mission

Introduction

Though Bangladesh is not a drug producing country, but due to its geographical location in between the golden and crescent triangle and passing of the crescent ways through it, here the problem of drug abuse has got epidemic form that destroys the productive forces creating special imbalances through narco-terrorism and handicaps the development process.¹ Consequently it has now turned into a wide drug market for the drug traders having national, regional and international roots and during last one and half decade, it has flooded over the countries through a compact network of distributive channel.^{1,2} This flood appeared so abruptly that the traditional values and inherent social security system even could have any time and scope to develop any preventive measure.^{3,4} Drug addiction is now prevalent everywhere in Bangladesh; in the house, streets, in the workplace, parks, slums, markets and even in educational institutions both in rural and urban areas. Although there is no precise figure of the drug dependant people, it is estimated that around 4.0million people, mostly youth are dependant to some form of drugs, and increased trend among all kinds of people is alarming.⁵ Virtually all segments of society are severely affected by this problem. Near about 25 thousand hundred people are drug addicted and among them about 22 thousands are addicted in Dhaka city. In Bangladesh about 80 percent of the drug addicts are adolescents and young men of 15

to 30 years of age.⁶ Drug addiction is a lifestyle disease. In recent times it has become a universal social and public health problem. No nation is immune to the horrendous consequences of illicit drug use. Devastation of family and social values has reached unprecedented levels. It has become a challenge to traditional and civic human norms and values.⁷ Emergence of illicit drug use has resulted in an explosive social violence around the world. Productive young adults are wading into the sea of drug experimentation.⁸ Drug addiction induces immunonutritional deficiency.⁹ Use of illicit drugs produces multiple nutrient deficiencies or malnutrition^{9,10} which is the most common cause of immunodeficiency.¹¹⁻¹⁴ Immunocompetence is a sensitive and functional determinant of nutritional status because it is altered even before the onset of clinical symptoms of malnutrition.⁹ Illicit drugs are themselves immunosuppressive.¹⁵⁻²⁰ Use of these drugs undermines appetite,²¹ affects food habits, leading drug addicts to crave 'empty-energy', potentially nutrient-deficient foods²² and causes micronutrient deficiency.¹⁰ Thus, the use of illicit drugs produces immunonutritional deficiencies, and influences susceptibility to infectious agents, including HIV infection.¹⁰ In addition drug addicts' behavioral risk factors such as needle-sharing, unprotected sex, sex with multiple partners, etc.^{10,23,24} ranks them at the highest risk of HIV infection.^{10,25} Because of its geographical position in the middle of the world's two largest illicit drug-producing regions, the 'Golden Triangle' and the 'Golden Crescent',²⁶ Bangladesh is being used as a trans-shipment point for the international drug markets. This has resulted in severe infliction of drug addiction in Bangladesh, which is rising with time. As in the developed world,⁸ illicit drug use amongst young adults is also

soaring.¹⁰ It has also been addressed as a social and health problem. However, despite a focus on its fatal consequences worldwide,²⁷ until recently research on illicit drug use has received little attention in Bangladesh. In continuation of our previous attempts,^{10,28} we report here the nutritional status of drug addicts and influence of their drug habit and lifestyle factors on their nutritional indices.

Methodology

Study design

This was a cross sectional study.

Study population and area

This study was carried out among male drug addicts who were admitted for detoxification and rehabilitation therapy, counseling and motivation at Dhaka Ahsania Mission (DAM).

Study sample and sampling method

For the purpose of this study, 100 drug addicts were selected randomly from DAM.

Study Period

This study was conducted from March, 2011 to December, 2011.

Tools

A semi structured questionnaire was used to conduct this study. Questionnaire includes socio-demographic conditions, anthropometrical information, twenty four hour dietary intake and dietary habit on some selected food item.

Data collection methods

Data was collected by face to face interview from the respondents.

Data analysis

The data were analyzed using SPSS/PC (version 12). The raw data recorded in questionnaire was coding first. The coded data were entered in to computer in SPSS program. Finally all required analysis was done by simple cross-tabulation.

Results

Socio-economic characteristics of the respondents

Table 1 showed distribution of the respondents by age. About 30% were in the 26-30years age group. About 10% were found in the age group of 20-26years. Besides, 23% were in the age group of 31-35 and 21% were found in 36-40. The overwhelming more than 50% of the respondents were married and 44% of them unmarried. Table showed that 35% of the respondents had passed secondary classes while 19% were completed primary education. Almost 21% respondents were found to sign, read and write only. Moreover, 17% were illiterate whereas only 8% respondents had graduation degree and higher secondary certificate examination. Regarding occupation, 36% of the respondents had small business. 14% respondents were Rickshaw puller and driver. day laborer was 5% and 6% were jobless. 10% respondents were found to picking paper and remaining 10% were involved in other function. Study shows 07% respondents had no income. 36% of the respondents were found in 4100-8000/- income group and 28% had income within 4000/-. About 40% of the

respondents were addicted due to their friend's incitement and 2% were addicted due to self curiosity. 1% were addicted intentionally and carelessness of their family member. 8.0% were addicted due to their surrounding environment. 24.0% were addicted during buying drugs for other. 9% were addicted due to more than one reason whereas 10.0% were for other reasons. In case of the age when they first took drug, 58.0% of the respondents were found in the 13-18years age group whereas 12.0% were in the 8-12years age group. 30% respondents were found in the 19 and above year's age group.

Table 1 Socio-economic characteristics of the respondents (n=100)

Items	Frequency	Percentage (%)	Mean±SD
Age			
20-25	10	10.0	
26-30	30	30.0	
31-35	23	23.0	34.02±7.12
36-40	21	21.0	
41 & above	16	16.0	
Marital Status			
Married	56	56.0	
Unmarried	44	44.0	
Educational Level			
Illiterate	17	17.0	
Can sign, read, write	21	21.0	
Primary	19	19.0	
Secondary	35	35.0	
Graduate	08	8.0	
Occupation			
Rickshaw Puller and Driver	14	14.0	
Day labor	05	5.0	
Small business	36	36.0	
Service	19	19.0	
Jobless	06	6.0	
Paper picking	10	10.0	
Others	10	10.0	
Monthly Income			
No income	07	7.0	
Up to 4,000	28	28.0	
4,000-8,000	36	36.0	
8,000-12,000	18	18.0	
> 12,000	11	11.0	
Reason for Addiction			
Self curiosity	2	2.0	
Friend incitement	40	40.0	
Intentionally	1	1.0	
Carelessness of the family	1	1.0	
Environmental	8	8.0	
During buying drugs	5	5.0	
Emotional	24	24.0	
Self curiosity & Emotionally	9	9.0	
Others	10	10.0	
Age of Taking First Drug			
Child hood (8-12)	12	12.0	
Teen age (13-18)	58	58.0	
19 & above	30	30.0	

Anthropometric measurement of the respondents

Table 2 shows that the mean Ht. and Wt. of the respondents were 163.38cm and 50.19kg respectively. The prevalence of malnutrition

among the respondents was assessed by body mass index (BMI). 54% of the drug addicts were suffering from varying degrees of CED of which 15%, 09%, and 29% were in CED-III, CED-II and CED-I respectively. 46% of the addicts were normal.

Table 2 Mean height, weight and prevalence of malnutrition among the respondents (n=100)

Parameter	Number	Percent (%)	Mean±SD
Average Height(cm.)			163.38±7.48
Average Weight(kg.)			50.19±7.72
BMI(kg/m ²)			18±2.64
<16.0 (CED-III)severe	15	15.0	
16.0-16.99(CED-II) moderate	09	9.0	
17.0-18.49(CED-I)mild	29	29.0	
18.5-24.99	46	46.0	
25-29.99(over wt.)	01	1.0	
Total	100	100.00	

Distribution of the respondents by taking three meals regularly in a day

Table 3 shows daily frequency of food intake of the respondents. It was observed that, more than half of the respondents (56%) were irregular to take three meals in a day and 44% were taking their meal regularly.

Table 3 Dietary intake pattern of the respondents (n=100)

Taking three meal regularly				
Items	Frequency	Percentage		
Yes	44	44.0		
No	56	56.0		
Frequencies of food items				
Period	Fruits(%)	Egg/ Milk(%)	Meat/ Fish(%)	Vegetable(%)
1-2days	60	52	36	20
3-4day	7	4	33	47
>4days	-	-	17	23
Never taking	33	44	14	10
Daily intake energy				
Age(years)	Mean±SD	Number	RDA (Kcal)	Intake% of RDA
Below 30	2179.74 ±1063.22	26	2763	78.9
30 and above	2420.34 ±935.01	74	2807	86.19

Distribution of the respondents by consumption frequencies of selected food items

In the table 33.60% of the respondents consumed fruits 1-2days weekly whereas, 7% consumed 3-4days in a week and 33% did not consume fruit in a week. 52% of the respondents consumed egg and milk 1-2days and 44% did not consume in a week. 36% of

the respondents consumed meat and fish 1-2days in a week, 33% consumed 3-4days 17% consumed more than 4days and 14% never consumed. A good parents of the respondents consumed vegetables 3-4days and 10% never consumed vegetable in a week.

Daily mean intake of energy by the respondents in relation to RDA and% of RDA intake

In Table 3 it was seen that mean (±SD) energy intake of the respondents were below the RDA. Mean (±SD) Energy intake of below 30years of age were 2179 (±1063) and it met 78.9% of RDA. Mean (±SD) energy intake of 30 and aboveyears of age were 2420 (±935) and it met 86.19% of RDA. Table 4 showed that 46% of the respondents met their energy requirement but protein requirement were fulfilled in 74% addicted people. Iron intake was satisfactory and fulfilled by more than 80% of the respondents. Vitamin C intake was alarming and no respondents were found to meet their daily need.

Table 4 Distribution of the respondents by their meeting requirements of different nutrients (n=100)

Nutrients	Respondents meeting requirement	Respondents below requirement	Total
Energy(Kcal)	46.0	54.0	100
Protein(g)	74.0	26.0	100
Fat(g)	6.0	94.0	100
Calcium(mg)	15.0	85.0	100
Iron	87.0	13.0	100
Carotene(mcg)	45.0	55.0	100
Vit B1(mg)	75.0	25.0	100
Vit B2(mg)	24.0	76.0	100
Vit C(mg)	-	100	100

Discussion

Of the studied drug addicts, more than one third (38%) had mild to moderate BMI, and 15% were suffering from severe malnutrition. Lowered BMI and nutrient deficiencies had also been previously reported for drug addicts.^{9,10,29} The reduced nutritional indices may be possibly because of the consumption of poor quality nutrient-deficient foods.^{21,22,29} The clinical signs of nutrient deficiency, particularly, were reported to be associated with micronutrient deficiencies,³⁰⁻³² which have also been documented for drug addicts.^{9,10} Study showed that 44% took 3 time meal everyday. Two third (60%) and half (50%) respondents took fruits and milk 1-2days weekly where almost half (47%) respondents take vegetables 3-4days weekly. However the present study revealed that drug addicts had moderate nutritional status. Mild multiple malnutrition or nutrient deficiency was prevalent among them. In addition to illicit drug use, some of the socioeconomic factors contributed to affect their nutritional indices. Since malnutrition or nutritional deficiency was the main cause of immunodeficiency¹³ that may influence susceptibility to HIV infection,³³⁻³⁵ an efficient careful nutritional intervention would be of particular importance in the clinical management of drug addicts, as well as of HIV-infected or AIDS patients.

Conclusion

Nutritional status of drug addicts is a vital issue as it increases the risk of HIV/AIDS. So it is very necessary for any detoxification

program to consider the nutritional status as a part of rehabilitation program. Further study is needed by considering the immunological assessment.

Acknowledgments

None.

Conflict of interest

Author declares that there is no conflict of interest.

References

- Kamal M. *Drug Abuse in Bangladesh: Responses of Public and Non Public Governance*. 2006.
- Firowz AA. Implication of Drugs in the Workplace in Bangladesh, Role of Employers, Employees & Unions. *Paper presented of the Seminar on mobilizing workplaces to Prevent Drug Abuse in Asia*, Bangkok, Thailand; 2001.
- SAARC Forum. *The Role of NGO's in Drug Demand Reduction*. Report of the meeting held at Dhaka, Bangladesh; 1995.
- Ahmed SK. *Community intervention team: an approach to drug abuse risk, livelihoods and Communities in Asia*. International Harm Reduction Conference, New Delhi, India; 2001.
- Ahsania Mission. Drug Addiction Treatment & Rehabilitation Centre.
- Shazzad MN, Abdal SJ, Majumder MSM, et al. Drug Addiction in Bangladesh and its Effect. *Medicine Today*. 2013;25(2):84–89
- Finnegan LP. Perinatal morbidity and mortality in substance using families: effects and intervention strategies. *Bull Narc*. 1994;46(1):19–43.
- Johnson RA, Gerstein DR. Initiation of use of alcohol, cigarettes, marijuana, cocaine, and other substances in US birth cohorts since 1919. *Am J Public Health*. 1998;88(1):27–33.
- Varela P, Marcos A, Santacruz I, et al. Human immunodeficiency virus infection and nutritional status in female drug addicts undergoing detoxification: anthropometric and immunologic assessments. *Am J Clin Nutr*. 1997;66(2):504S–508S.
- Islam NSK, Hossain KJ, Ahsan M. Serum vitamin E, C and A status of the drug addicts undergoing detoxification: influence of drug habit, sexual practice and life style factors. *Eur J Clin Nutr*. 2001;55(11):1022–1027.
- Beisel WR. Nutrition in paediatric HIV infection: setting the research agenda. Nutrition and immune function: Overview. *J Nutr*. 1996;126(10 Suppl):2611S–2615S.
- Chandra RK. Nutrition and the immune system: an introduction. *Am J Clin Nutr*. 1997;66(2):460S–463S.
- Chandra RK. Introduction and state of the art and science of nutrition and immunology. *The 17th International Congress on Nutrition, Vienna, Austria*. In: I Elmadfa, J Konig, editors. New York, London: Medical and Science Publishers; 2001. 288p.
- Hegde HR, Woodman RC, Sankaran K. Nutrients as modulators of anergy in acquired immune deficiency syndrome. *J Assoc Physicians India*. 1999;47(3):318–325.
- Brown SM, Stimmel B, Taub RN, et al. Immunologic dysfunction in heroin addicts. *Arch Intern Med*. 1974;134(6):1001–1006.
- Rouveix B. Opiates and immune function. Consequence on infectious diseases with special reference to AIDS. *Therapie*. 1992;47(6):503–512.
- Courssons-Reed ME, Dykstra LA, Lysle DT. Pavlovian conditioning of morphine-induced alterations of immune status: evidence for peripheral beta-adrenergic receptor involvement. *Brain Behav Immun*. 1994;8(3):204–217.
- Carr DJ, Serou M. Exogenous and endogenous opioids as biological response modifiers. *Immunopharmacology*. 1995;31(1):59–71.
- Thomas PT, Bhargava HN, House RV. Immunomodulatory effects of in vitro exposure to morphine and its metabolites. *Pharmacology*. 1995;50(1):51–62.
- Miyagi T, Chuang LF, Lam KM, et al. Opioids suppress chemokine-mediated migration of monkey neutrophils and monocytes - an instant response. *Immunopharmacology*. 2000;47(1):53–62.
- Vasko ME. Drug abuse and dependence. In: *Goth's Medical Pharmacology*. In: WO Clerk, DE Brater, AR Johnson, editors. 13th ed. St. Louis: Mosby Year Book; 1992. p. 336–353.
- Mohs ME, Watson RR, Leonard-Green T. Nutritional effects of marijuana, heroin, cocaine, and nicotine. *J Am Diet Assoc*. 1990;90(9):1261–1267.
- Bluthenthal RN, Kral AH, Gee L, et al. The effect of syringe exchange use on high-risk injection drug users: a cohort study. *AIDS*. 2000;14(5):605–611.
- Booth RE, Kwiatkowski CF, Chitwood DD. Sex related HIV risk behaviors: differential risks among injection drug users, crack smokers, and injection drug users who smoke crack. *Drug Alcohol Depend*. 2000;58(3):219–226.
- Choi KH, Xiwen Z, Shuquan Q, et al. HIV risk among patients attending sexually transmitted diseases clinic in China. *AIDS and Behavior*. 2000;4(1):111–119.
- United Nations International Drug Control Programme. Recent trends and development in cultivation, production, trafficking and consumption: an overview. New York: In World Drug Report, Oxford University Press; *UNDCP*. 1997:16–43.
- Califano JA. Substance abuse and addiction - the need to know. *Am J Public Health*. 1998;88(1):9–11.
- Islam SKN, Hossain KJ, Ahsan M. Sexual life style, drug habit and socio-demographic status of the drug addicts in Bangladesh. *Public Health*. 2000;114(5):389–392.
- Himmelgreen DA, Perez-Escamilla R, Segura-Millan S, et al. A comparison of the nutritional status and food security of drug-using and non-drug-using Hispanic women in Hartford, Connecticut. *Am J Phys Anthropol*. 1998;107(3):351–361.
- Leklem JE. Vitamin B6. In *Present Knowledge in Nutrition*. In: EE Ziegler, LJ Filer Jr, editors. 7th ed. Washington, DC: ILSI Press; 1996. p. 174–183.
- Levine M, Rumsey S, Wang Y. Vitamin C. In *Present Knowledge in Nutrition*. In: EE Ziegler, LJ Filer Jr, editors. 7th ed. Washington, DC: ILSI Press; 1996. p. 146–159.
- Nagati K. Multiple approaches to micronutrient deficiency in developing countries. *The 17th International Congress of Nutrition, Vienna, Austria*. In: I Elmadfa, J Konig, editors. New York, London: Medical and Science Publishers; 2001. 7p.
- Baum MK, Shor-Posner G, Campa A. Zinc status in human immunodeficiency virus infection. *J Nutr*. 2000;130(5S):1421S–1423S.
- Allard JP, Aghdassi E, Chau J, et al. Oxidative stress and plasma antioxidant micronutrients in humans with HIV infection. *Am J Clin Nutr*. 1998;67:143–147.
- Kotler DP. Antioxidant therapy and HIV infection. *Am J Clin Nutr*. 1998;67:7–9.