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Pattern of adult obesity in Kabul capital of Afghanistan: a cross sectional study using who stepwise tool

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ABSTRACT:-Background: Obesity has altered to be a major global health challenge due to considerable increase in prevalence as well as being contributing factor for main noncommunicable diseases. This study aims to identify the prevalence and associated factors of obesity in Kabul city.
Methods and Materials: The study was conducted using WHO STEPwise approach among adults of age group of 25-70 years in November 2015 in Kabul city. Demographic, socioeconomic and behavioral variables collected using structured questionnaire. The Body Mass Index (BMI) was calculated by measuring height and weight. Biochemical markers were tested by using blood serums collected from the field. Data was analyzed using *SPSS* v.20.
Results: Out of 1172 study subjects, 599 (51.1%) were females and 573 (48.9%) males. Illiteracy was 49.6%, 77.5% were married, 8.1% were smokers and 9.8% were mouth snuff users. The prevalence of overweight was 36.9% with differentiation of male 32.7% and female 41.2% and the prevalence of obesity was 20.6 % with differentiation of obesity stage I, 14.8% obesity stage II, 4.2% and obesity stage III, 1.6%. The overall mean of BMI was 26.22±5.39 while there is much difference in terms of females (27.33±6.07) and males (25.07±4.28). At multivariate level the factors such as age, gender, central obesity, blood pressure, physical activity and frequency of taking fruits were independently associated with obesity.
Conclusions: This study presented high prevalence of obesity as well as overweight in urban setting of Kabul city. It is recommended of focusing on interventions to prevent and control obesity among adult populations mostly females in Kabul city.

Keywords: *Pattern, Obesity, Overweight, Adults, BMI, Kabul, Afghanistan*

I. INTRODUCTION

Obesity has altered to be a major global health challenge due to considerable increase in prevalence as well as being contributing factor for main noncommunicable diseases. Globally it is estimated that more than 2 billion people are overweight and one third of them obese. The proportion of adults with overweight and obesity increased between 1980 and 2013 from about 29 to 37% in men and from about 30 to 38% in women [1]. Obesity as a complex and multifactorial disease arises from the interactions between genetic, environmental and behavioral factors and contributes to global burden of chronic diseases of all ages and socioeconomic groups [2, 3]. The problem is worldwide affecting developed and developing countries. In low-income countries, obesity mostly affects middle-aged groups and specially women; whereas in high-income countries it affects both sexes and all ages [4]. The main factors associated with obesity and overweight are age, gender, urbanization, education status, economic status, marriage, physical activity, smoking, and alcohol consumption and diet [5-8]. In the Eastern Mediterranean Region the prevalence of obesity among adolescents ranges from 15% to 45% with more occurrences in women versus men [9]. While a decade review of data in same region showed that obesity reached an alarming level with prevalence of overweight and obesity ranging from 25% to 81.9% [10]. For instance in Iran the prevalence of overweight and obesity was 40%, 35% respectively with significant difference of age, gender, education level, economic status, and residence [11]. Recent studies in Kabul [12] shows that the prevalence of obesity in age group of ≥40 years was 31.2% and in Jalalabad city [13], the eastern city of the country, was 27.4%. Beyond these studies due to war and conflict very few information is available on burden of non-communicable diseases including obesity and high priority is given to infectious diseases while the country is suffering from double burden of diseases. This study aims to identify the prevalence and associated factors of obesity in Kabul City.

II. METHODS AND MATERIALS

Population, setting and design

The Population from which the subjects were selected in the study were adult citizens (25-70) years of Kabul city. The main study was a cross-sectional study conducted in November 2015 using the WHO STEP-wise approach [14]. Using this dataset a descriptive and analytical study was performed to identify the

prevalence of obesity and related risk factors in Kabul city. All permanent adults residents and household members, including men and women who gave consent to participate were included in the study. Temporary residents (resident < 6 months), inhabitants of institutionalized settings and insecure areas were excluded.

Sample Size and Strategy

As census is not conducted in last 38 years and the complete list of villages were not available, the 2015 Expanded Programme for Immunization (EPI) list of clusters was used as the sampling frame. Assuming the highest prevalence (50%), 95% confidence interval (CI) and margin of error of 5%, a sample size of 385 subjects was calculated to be included in the study. However taking into account the proportion of other risk factors and design effect of cluster sampling the final sample size was increased to (2 × 600) = 1200 for the city. We used multistage cluster sampling. In the first stage, from the list we selected five districts using random number of excel sheet. In the second stage from each selected district we randomly selected the 2 cluster; later the overall sample of 1200 household distributed among these selected area conferring to the proportional to the size of household number in each districts/ areas. Finally, the number of households in each area divided by the sample size assigned for each areas and data collection started.

Data collection and Measurement

WHO STEPwise approach used for data collection by interviewers which covered information on demographic, behavioral and physical measurements. Experienced and trained data collectors as couples (males and females) were recruited and trained to fill the questionnaires, take anthropometric measurements, check blood pressure and finally collect blood samples in the field. A household was defined as a group of people who share the same food pot. According to plan one adult individual was selected from each household and in case of more than one eligible person, we used random methods to select only one respondent. In cases of rejection the interviewer approached the next alternate household. Anthropometric measurements including height and weight were used to calculate body mass index (BMI). A BMI ≥ 30 kg/m^2 was considered asobese, 25–30 kg/m^2 as overweight and 18.5–25 kg/m^2 as normal weight [15]. A waist circumference of 94 cm for men and 80 cm for women was defined as central obesity [16]. Systolic blood pressure (SBP) ≥140 mmHg and diastolic pressure (DBP) ≥ 90 mmHg were considered as hypertensive [17]. A fasting blood sugar of ≥ 126 mg/dL was considered as diabetes mellitus [18]. Blood samples were collected the next morning after the respondent had fasted for 10–12 hours. Using Cry-vials the samples were coded with ID number of the questionnaire. On arrival in laboratory all serum samples were stored at -80°C and later on were tested for triglyceride, cholesterol and glucose. The cut off for total biochemical markers was determined as: cholesterol 190 mg/dL, LDL 100 mg/dL, HDL for male 40 mg/dL and female 50 mg/dL, and finally triglycerides 150 mg/dL. For this study a general approval was given by the institutional review board (IRB) of the Ministry of Public Health and informed consent was taken from each individual before the interview. The results of physical and biochemical measurements communicated to required participants and the confidentiality of the information gathered was maintained.

Data Analysis

Data entry, management and analysis was done using *Epi-info*, version 7 and *SPSS*, version20. Descriptive analyses were used to explain the socio-demographic, behavioral and life style characteristics of study population. Means and standard deviations were used to describe the proportion or prevalence and chi-squared tests and binary logistic regression were used to evaluate association of factors and obesity. Multivariate analysis was conducted to identify the association of factors independently with obesity using body mass index.

III. RESULTS

After cleaning the dataset we conducted analysis of 1172 subjects in Kabul city with a mean age of 38.6±12.2 years. Out of these, 599 (51.1%) were females and 573 (48.9%) males. Description of variables in table 1 shows that 49.6% illiterate, 77.5% were married, 8.1% were smokers and 9.8% were mouth snuff users. According to the BMI classification for adult population in Kabul city the overall prevalence of overweight was 36.9% with differentiation of male 32.7% and female 41.2%. Moreover the overall prevalence of obesity was 20.6 % with differentiation of obesity stage I, 14.8% obesity stage II, 4.2% and obesity stage III, 1.6% (figure 1). The overall mean of body mass index was 26.22±5.39 while there is much difference in terms of females (27.33±6.07) and males (25.07±4.28). Furthermore graphic distribution of body mass index for females and males reflect the same pattern meaning that the peak is higher and there is more variation in females versus males (figure 2). Besides 60% were centrally obese using waist circumference. Their employment status shows that around 31.5% busy as housework and 15% were government or nongovernment employees. Cigarette smoking and mouth snuff using was also prevalent among these adult citizens with pattern of 8.1% and 9.8% respectively. On average subjects were taking fruits and vegetables 3.08±1.88 and 3.10±1.73 days per week.

About 33.1% of study participants were using liquid fat and 52% were using solid fat in their kitchen. Additionally 9.4% and 20.3% responded to practice strong and moderate physical activities during routine life while 46.8% reported to have a sedentary life of reclining 3 hours or more per day. Nine percent (9.1%) recorded as raised blood sugar, 30% had higher cholesterol and 41% had higher triglycerides. Furthermore high level of low density lipoprotein (LDL) was 42.2% and high level of high density lipoprotein (HDL) were both 52% in both groups. The full description of these variables could be reviewed in table 2.At bivariate level we conducted analysis of each factors with obesity. As showed in table 3, odds of being obese was consistently increased as the age were increased. Similarly there was significant difference between mean age of those obese and non-obese (p value=0.001). Males were 0.31 times less obese as compare to females (OR=0.31, 95%CI: 0.23 – 0.43) which shows sex variation in obesity. Education level had significant association with obesity. Literate were less likely to be obese as compare to illiterate (OR= 0.61, 95%CI: 0.45 – 0.82). The study found significant relationship between marital status and obesity showing married group were 1.83 times (95%CI: 1.07 – 3.12) more likely to be obese as compare to those who were single. Furthermore there was statistically significant association between using tobacco in terms of smoking (OR= 0.43, 95%CI: 0.22 – 0.83) and using mouth snuff (OR= 0.55, 95%CI: 10.31 – 0.97) and obesity. Although strong physical activity was not statistically associated with obesity but we found such a significant association between moderate physical activity and obesity (OR=1.48, 95%CI: 1.06 – 2.07). Frequency of taking vegetables had no significant association with obesity but conversely frequency of taking fruits were associated with obesity (OR= 1.73, 95%CI: 1.29 – 2.33). As reflected in table 4 we could not found significant association of taking table salt, type of kitchen oil, diabetes mellitus and various groups of blood lipid biochemical and obesity. However those who were hypertensive had 2.55 times (95%CI: 1.90 – 3.40) more odds of being obese. Furthermore centrally fatty were associated with obesity (OR= 4.86, 95%CI: 3.28 – 7.22). Finally we conducted multiple logistic regressions to find independent association using biological as well as statistical significance. Factors such as age, sex, central obesity, blood pressure, frequency of taking fruits and physical activity were independently associated with obesity after controlling for other variables. For further details you are referred to table 5 which shows results of multivariate analysis with adjusted OR and Confidence Intervals.

IV. DISCUSSION

We found that the prevalence of both overweight and obesity (57.5%) was high in Kabul and one fifth of the population (20.6%) were suffering from just obesity. In another study in adult population of ≥40 years approximately 70 % of Kabul urban citizen were overweight and obese with close to one third of them are just obese. Seemingly this finding is lower than other studies in Kabul and Jalalabad [12, 13] which it could be due to being people well versed of healthy lifestyles. Furthermore this finding is supported by other studies as [5, 19-20]. Central obesity is another main finding from which is supported in earlier studies [5, 12-13]. These high burden of obesity and overweight could combine and may contribute to high prevalence of noncommunicable diseases. Age and gender as non-modifiable of factors have affected negatively the level of obesity at both level of analysis. It means that by increasing age the level of obesity increased and female were more likely to be obese. These findings are supported by Afghan, Pakistani as well as Turkish and other studies [6, 10-13 and 21-23]. Blood pressure was also a contributing factor for obesity in this study which shows the factors occur in combination. This independent significant association of obesity and blood pressure was supported by other studies as well [5, 12-13]. The health education campaigns should be tailored to cover combination of factors and mostly the higher age groups. Strong physical activity as a protective factor was associated with obesity, however other proxies of physical activities have been recorded in literature to be negatively associated with obesity and overweight [21-27]. Like other findings our study showed that frequency of taking fruits and rice was independently associated with obesity. Therefore deterrent measures should promote physical activity along with healthy diet to prevent and control this problem.Notwithstanding of these important findings we had financial limitations to list all households ahead of implementations and security as a challenge caused us to exclude some areas from the study. However the study reflects that the great proportion of adult citizens, mostly women, are suffering from obesity which make them candidate for other noncommunicable diseases. Obesity is a concurrent public health challenge with other risk factors that requires concerted interventions. Predominantly the coexistence of obesity, blood pressure and diabetes provides a basis to explain the relationship and their contribution to complicated noncommunicable diseases [28]. Health education and public awareness as cost effective are direly needed.

V. ACKNOWLEDGEMENTS

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REFERENCES

[1] Ng M, Fleming T, Robinson M. et al: Global, regional, and national prevalence of overweight and obesity in children and adults during 1980-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet 2014; 384:766-781.

[2] Farooqi S, et al. Large, rare chromosomal deletions associated with severe early-onset obesity .Nature Journal 2010; 463(7281): 666-670.

[3] World Health Organization. Global strategy on diet, physical activity and health. Geneva: World Health Organization, 2004. http://www.who.int/dietphysicalactivity/en/

[4] Swinburn BA, Sacks G, Hall KD, et al. The global obesity pandemic: shaped by global drivers and local environments. Lancet 2011; 378: 804–14

[5] Jafar TH, Chaturvedi N, Pappas G. Prevalence of overweight and obesity and their association with hypertension and diabetes mellitus in an Indo-Asian population. CMAJ 2006;175(9):1071-7

[6] Shayo and Mugusi. Prevalence of obesity and associated risk factors among adults in Kinondoni municipal district, Dares Salaam Tanzania. BMC Public Health 2011 11:365.

[7] Wahab et al. Prevalence and determinants of obesity - a cross-sectional study of an adult Northern Nigerian population. International Archives of Medicine 2011 4:10.

[8] Erem C, Arslan C, Hacihasanoglu A, et al. Prevalence of Obesity and Associated Risk Factors in a Turkish Population (Trabzon City,Turkey). Obesity Research Vol. 12 No. 7 July 2004

[9] Musaiger AO. Overweight and obesity in the Eastern Mediterranean Region: can we control it? Eastern Mediterranean Health Journal, Vol. 10, No. 6, 2004

[10] Musaiger AO, Overweight and Obesity in Eastern Mediterranean Region: Prevalence and Possible Causes. Journal of Obesity. Volume 2011, Article ID 407237, pp. 1-17. doi:10.1155/2011/407237

[11] Veghari GR, Sedaghat M, Joshaghani HR, et al. The prevalence of obesity and its related risk factor in the North of Iran in 2006. JRHS. 2010; 10 (2):116-121.

[12] Saeed KMI, Rasooly MH. Prevalence and Risk Factors Associated with Obesity among Adult Kabul Citizens (Afghanistan), 2012. Iranian Journal of Diabetes and Obesity (2012); 4(4): pp152-161

[13] Saeed KMI, Prevalence and associated risk factors for obesity in Jalalabad city – Afghanistan, Alex J Med (2015), http://dx.doi.org/10.1016/j.ajme.2014.12.004

[14] Bonita R, deCourten M, Dwyer T, et al. Surveillance of risk factors for noncommunicable diseases: the WHO STEP-wise approach. Geneva: World Health Organization; 2002 (WHO/NMH/CCS/01.2002).

[15] World Health Organization. Obesity: preventing and managing the global epidemic. Geneva: World Health Organization; 2000 (WHO Technical Report Series No. 894).

[16] The IDF consensus worldwide definitions of the metabolic syndrome. Brussels: International Diabetes Federation; 2006 (http://www.idf.org/webdata/docs/IDF_Meta_def_final.pdf.

[17] Whitworth JA. World Health Organization, International Society of Hypertension Writing Group. World Health Organization (WHO)/International society of Hypertension (ISH) statement on management of hypertension. J Hypertens.2003Nov; 21(11):1983–92.

[18] World Health Organization. Diabetes. Fact sheet no. 312.Geneva: World Health Organization; 2015 (http://www.who.int/mediacentre/factsheets/fs312/en/.

[19] World Health Organization. 2008-2013 Action Plans for the Global Strategy for the Prevention and Control of Non-communicable Diseases. WHO 2008

[20] Wang R, Zhang P, Gao C, et al. Prevalence of overweight and obesity and some associated factors among adult residents of northeast China: a cross sectional study. BMJ Open 2016; 6:e010828. doi:10.1136/bmjopen-2015- 010828

[21] Yalçin Bm, Sahin Em, Yalçin E. Prevalence and epidemiological risk factors of obesity in Turkey. Middle East Journal of Family Medicine, 2004; Vol. 6 (6)

[22] Musaiger AO, Al-Mannai MA. Weight, height, body mass index and prevalence of obesity among the adult population in Bahrain. Ann Hum Biol. 2001; 28:346-350.

[23] Al-Nuaim AA, Bamgboye EA, al-Rubeaan KA, et al. Overweight and obesity in Saudi Arabian adult population, role of sociodemographic variables. J Community Health. 1997; 22(3):211-223.

[24] Sibai AM, Hwalla N, Adra N, et al. Prevalence of and covariates of obesity in Labanon: finding from the first epidemiological study. Obes Res. 2003; 11:1353-1361.

[25] Azadbakht L, Mirmiran P, Shiva N, et al. General obesity and central adiposity in a representative sample of Tehranian adults: prevalence and determinants. Int J VitamNutr Res. 2005; 75(4):297-304.

[26] Gutierrez-Fisac JL, Guallar-Castillon P, Diez- Ganan L, at al. Work- related physical activity is not associated with body mass index and obesity. Obes Res 2002; 10:270-276.

[27] Lahti-Koski M, Pietinen P, Heliovaara M, et al. Association of body mass index and obesity with physical activity, food choices, alcohol intake and smoking in the 1982-1997. Am J ClinNutr. 2002; 75:809-817.

[28] Brown CD, Higgins M, Donato KA, et al. Body mass Index and prevalence of hypertension and dyslipidemia. Obes. Res. 2000; 8:605–19.

Table 1: Distribution of demographic characteristics of the study participants, Kabul city (N=1172)

Questions	Categorization	Frequency	Percentages
Age Groups			
	25-35	588	50.2
	35-45	289	24.7
	45-55	165	14.1
	55+	126	10.8
Gender			
	Female	599	51.1
	Male	573	48.9
Education Level			
	Illiterate	575	49.6
	Primary and unofficial	202	17.4
	Secondary school	226	19.5
	High school and over	118	10.2
	Refused	38	3.3
Type of employments			
	Official Employees	173	14.8
	Students	17	1.5
	Private Business	55	4.7
	Worker/Farmer	77	6.6
	Jobless	61	5.2
	Housework	368	31.6
	Unable to work/DKN	415	35.6
Marital Status			
	Single	136	11.7
	Married	897	77.5
	Widow/Widower	54	4.7
	Divorced	6	0.5

Figure 1: Classification of body mass index (BMI)

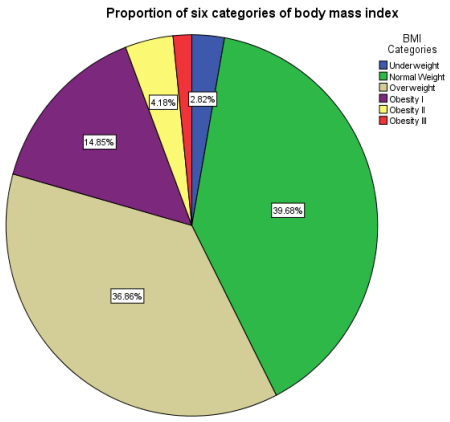

Figure 2: Histogram distribution of body mass index by gender

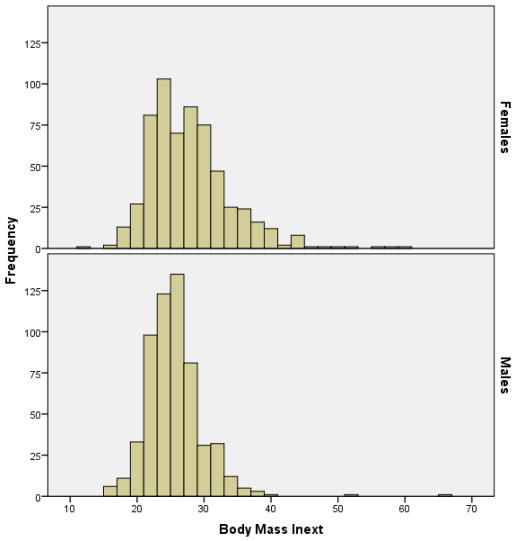

Table 2: Distribution of behavioral risk factors among the study participants, Kabul city (N=1172)			
Questions	**Categorization**	**Frequency**	**Percentage**
Smoking (cigarette)			
	No	1075	91.9
	Yes	95	8.1
Using of mouth snuff			
	No	1052	90.2
	Yes	114	9.8
Intake of fruits (days per week)			
	< 3	750	66.4
	≥ 3	380	33.6
Intake of vegetables (days per week)			
	< 3	756	65.3
	≥ 3	402	34.7
Use of kitchen oil (type)			
	Liquid	388	33.3
	Solid	607	52.1
	Both	165	14.2
Vigorous Physical Activity			
	No	1057	90.6
	Yes	110	9.4
Moderate Physical Activity			
	No	930	79.7
	Yes	237	20.3
Sedentary lifestyle (hours per day)			
	< 3 hours	597	53.2
	≥ 3 hours	525	46.8
Total Cholesterol			
	<190 mg/dL	817	69.7
	≥ 190 mg/dL	355	30.3
Low Density Lipoprotein (LDL)			
	<100 mg/dL	678	57.8
	≥100 mg/dL	494	42.2
HDL(borderline 40 mg/dL for male and 50mg/dL for female)			
	≥40 and 50mg/dL	563	48
	<40 and 50mg/dL	609	52
Triglycerides			

	<150 mg/dL	691	59
	≥150 mg/dL	481	41

Table 3: Bivariate analysis of bio demographic and socio-economic factors and Obesity among study participants in Kabul Afghanistan

Questions	Categorization	BMI<30	BMI □30	Odds Ratio	CI 95% LL	CI 95% UL
Age in years						
	25 - 35	497 (84.5)	91 (15.5)	1	Reference	
	35 - 45	207 (71.6)	82 (28.4)	2.164	1.54	3.038
	45 - 55	122 (73.9)	43 (26.1)	1.925	1.273	2.91
	55 and over	100 (79.4)	26 (20.6)	1.42	0.873	2.308
Gender						
	Female	423 (70.6)	176 (29.4)	1	Reference	
	Male	507 (88.5)	66 (11.5)	0.313	0.229	0.427
Level of education						
	Illiterate	435 (75.7)	140 (24.3)	1	Reference	
	Literate	456 (83.5)	90 (16.5)	0.613	0.456	0.824
Marital Status						
	Single	119 (87.5)	17 (12.5)	1	Reference	
	Married	711 (79.3)	186 (20.7)	1.831	1.074	3.121
Smoking						
	No	843 (78.4)	232 (21.6)	1	Reference	
	Yes	85 (89.5)	10 (10.5)	0.427	0.218	0.836
Snuffing						
	No	826 (78.5)	226 (21.5)	1	Reference	
	Yes	99 (86.8)	15 (13.2)	0.554	0.315	0.972
Strong Physical Activity						
	No	831 (78.6)	226 (21.4)	1	Reference	
	Yes	95 (86.4)	15 (13.6)	0.581	0.33	1.021
Moderate Physical Activity						
	No	751 (80.8)	179 (19.2)	1	Reference	
	Yes	175 (73.8)	62 (26.2)	1.486	1.066	2.073
Sedentary lifestyle in hours daily						
	< 3 hours	481 (80.6)	116 (19.4)	1	Reference	
	≥ 3 hours	410 (78.1)	115 (21.9)	1.163	0.871	1.554
Fruits serving days per week						
	< 3 days	619 (82.5)	131 (17.5)	1	Reference	
	≥ 3 days	278 (73.2)	102 (26.8)	1.734	1.291	2.329
Vegetables serving days per week						
	< 3 days	600 (79.4)	156 (20.6)	1	Reference	
	≥ 3 days	317 (78.9)	85 (21.1)	1.031	0.766	1.388

Table 4: Bivariate analysis of pathophysiologic factors and obesity among study participants in Kabul city Afghanistan

Questions	Categorization	BMI<30	BMI □30	Odds Ratio	CI 95% LL	CI 95% UL
Taking Table Salt						
	No	660 (80.3)	162 (19.7)	1	Reference	
	Yes	204 (77.3)	60 (22.7)	1.198	0.857	1.675
Taking type of oil kitchen						
	Liquid	316 (81.4)	72 (18.6)	1	Reference	
	Solid	474 (78.1)	133 (21.9)	1.231	0.894	1.696
Central Obesity						
	No	396 (92.5)	32 (7.5)	1	Reference	
	Yes	534 (71.8)	210 (28.2)	4.867	3.282	7.217
Diabetes Mellitus						

	No	852 (80)	213 (20)	1	Reference	
	Yes	78 (72.9)	29 (27.1)	1.487	0.946	2.337
Blood Pressure						
	No	671 (84.6)	122 (15.4)	1	Reference	
	Yes	259 (68.3)	120 (31.7)	2.548	1.907	3.405
Total Cholesterol						
	<190 mg/dL	654 (80)	163 (20)	1	Reference	
	≥ 190 mg/dL	276 (77.7)	79 (22.3)	1.148	0.848	1.555
Low Density Lipoprotein (LDL)						
	<100 mg/dL	534 (78.8)	144 (21.2)	1	Reference	
	≥100 mg/dL	396 (80.2)	98 (19.8)	0.918	0.688	1.224
High Density Lipoprotein (HDL)						
	<40 and 50mg/dL	479 (78.7)	130 (21.3)	1	Reference	
	≥40 and 50mg/dL	451 (80.1)	112 (19.9)	0.915	0.689	1.215
Triglycerides						
	<150 mg/dL	557 (80.6)	134 (19.4)	1	Reference	
	≥150 mg/dL	373 (77.5)	108 (22.5)	1.204	0.905	1.601

Table 5: Multivariable analysis of risk factors and obesity among study participants in Kabul city Afghanistan

Questions	Categorization	Adjusted Odds Ratio	CI 95% LL	CI 95% UL	P Value
Age groups					
	25-35	1	Reference		
	35-45	1.738	1.189	2.542	< 01
	45-55	1.325	0.825	2.129	0.245
	55 and over	1.108	0.638	1.923	0.715
Sex					
	Female	1	Reference		
	Male	0.453	0.32	0.641	< 001
Central Obesity					
	No	1	Reference		
	Yes	2.3	1.556	3.399	< 001
Blood Pressure					
	No	1	Reference		
	Yes	1.957	1.395	2.746	< 001
Fruits taking in days per week					
	< 3 days		Reference		
	≥ 3 days	1.707	1.242	2.347	< 01
Strong Physical Activity					
	No	1	Reference		
	Yes	0.507	0.263	0.977	< 05
Taking rice in days per week					
	< 3 days		Reference		
	≥ 3 days	1.334	0.97	1.833	0.076