MARITAL STATUS AND OCCUPATION VERSUS SERUM TOTAL CHOLESTEROL AND HDL – CHOLESTEROL LEVELS IN HEALTHY ADULTS FROM KANO METROPOLIS, NIGERIA

Atiku, M.K. and Yusuf, A.B.
Department Of Biochemistry, Bayero University, P.M.B 3011, Kano, Nigeria

ABSTRACT
The influence of marital status and occupation on serum total cholesterol (TC) and high density lipoprotein cholesterol (HDL – CH) concentrations was studied in sixty one (61) adult male and female Hausa subjects aged 20 – 50 years. Irrespective of marital status and occupation, female subjects had higher mean serum TC and HDL – CH levels than male subjects. Married subjects of both sexes had higher mean serum TC and HDL – CH levels than their non – married counterparts. Male subjects (students) had significantly (p<0.05) lower mean serum TC than the other male subjects (university workers).

Keywords: Occupation, Cholesterol, Kano, Serum Lipid

INTRODUCTION
Differences in serum HDL – CH and low density lipoprotein cholesterol (LDL – CH) levels between communities have been employed in explaining the postulated relationship that exist between serum lipoprotein levels and the incidence of coronary heart disease (CHD). Epidemiologic studies (Reddy, 2002) revealed that communities in which incidence of CHD is low, have low values of LDL – CH and high values of HDL – CH. Factors known to increase the risk of CHD which are primarily due to culture and environment are cigarette smoking (Atiku *et al.,* 2001), dietary habits (Kerver *et al.,* 2003), lack of physical exercise (Lee *et al.,* 2003), occupation (Henry *et al.,* 2003), etc. Therefore, serum lipid and lipoprotein pattern should be interpreted against the socio-economic and cultural backgrounds of individuals or communities at large.

Very little or nothing is known about the variation of serum total cholesterol and HDL – cholesterol and HDL – cholesterol levels with occupation and marital status in the Hausa community of Kano State. This study was therefore undertaken to assess the effect of marital status and occupation on serum total cholesterol and HDL – CH levels in an adult Nigerian populace. It is hoped that the results of the study would provide a basis for the interpretation of serum total cholesterol and HDL – CH profile in the Hausa community of Kano State.

MATERIALS AND METHODS
Study Sites
Subjects for this study were adult male and female Hausas resident in Kano Municipality. A total of sixty – one subjects (42 males and 19 females) aged 20 to 60 years were selected on the basis of their responses to a randomly administered questionnaire. Forty – four percent of the subjects were students, the remaining fifty six percent were workers of Bayero University, Kano. Informed consent was given by each subject.

Information concerning each respondent's age, marital status, sex and occupation were recorded.

Laboratory Analysis
Fasting various blood ($5cm^3$) sample was collected from each subject according to standard procedure (Bachorik, 1982). After serum separation, the samples were stored at 20^oC until analysed. Serum TC level was estimated according to the ferric chloride acetic cid procedure (Zlatkis *et al.,* 1953). Chylomicrons, very low density lipoproteins (VLDL) and low density lipoproteins (LDL) were precipitated in serum according to the phosphotungstic acid – magnesium chloride procedure of Lopes – Virella *et al.* (1977), and HDL – cholesterol was measured in the resultant supernatant (Zlatkis *et al.,* 1953).

Statistical Analysis
Differences in the levels of mean serum TC and HDL – CH amongst the subjects were analyzed using students 't' test.

RESULTS
Table 1 shows the mean serum total cholesterol and HDL – cholesterol concentrations in the subjects according to sex. Female subjects had higher mean serum total cholesterol and HDL – cholesterol levels than male subjects.

Table 2 presents the mean serum total cholesterol and HDL – cholesterol concentrations in the subjects according to marital status and occupation. Irrespective of marital status and occupation, female subjects had higher mean serum total cholesterol and HDL – cholesterol levels than male subjects.

Married male subjects had significantly (p<0.05) higher mean serum total cholesterol than their non married male counterparts. Non – married female subjects had significantly (p<0.05) higher mean serum total cholesterol level than non – married male subjects.

Male subjects (students) had significantly (p<0.05) lower mean serum total cholesterol level than other male subjects (University workers), while female students had significantly (p<0.05) higher mean serum total cholesterol level than male students.

Table 1: Serum total cholesterol, and high density lipoprotein cholesterol concentrations in subjects according to sex.

Subjects	TC (mg/dl)	HDL – CH (mg/dl)	HDL – CH/TC
Males (n = 42)	143.15 ± 34.03	28.04 ± 12.40	0.19
Females (n = 19)	162.34 ± 32.71	32.69 ± 15.16	0.20

Values are given as mean ± standard deviation; n = number of subjects.

Table 2: Serum total cholesterol and high density lipoprotein cholesterol concentration in subjects according to marital status and occupation.

	Subjects		TC (mg/dl)	HDL – CH (mg/dl)	HDL – CH/TC
Marital status	Married	M (n = 19)	154.38[a] ± 34.52	28.15 ± 9.82	0.18
		F (n = 12)	165.57 ± 27.6	35.42 ± 15.17	0.21
	Non Married	M (n=23)	125.58[a,b] ± 30.45	23.76 ± 11.76	0.19
		F (n = 7)	159.79[b] ± 37.10	27.64 ± 15.18	0117
Occupation	Students	M (n = 23)	124.30[c,d] ± 24.06	24.44 ± 12.75	0.20
		F (n = 7)	172.47[c] ± 40.33	36.09 ± 13.119	0.21
	Others	M (n = 7)	156.62[d] ± 34.88	26.78 ± 11.65	0.17
		F (n = 12)	159.78 ± 25.67	29.41 ± 15.89	0.18

Values are given as mean ± standard deviation n = number of subjects Values bearing similar superscript in the same row are significantly different at p<0.05.

DISCUSSION

The relatively small sample size and nature of the samples employed in this study are a reflection of the difficulties associated with blood sampling in this community. With the women folk, the difficulties assume a greater dimension and therefore female subjects constituted only 31 percent of the total number of subjects studied. In this study, serum TC and HDL – CH levels were found to very with marital status and occupation. This variation can be attributed to differences in personal lifestyle and dietary habits of the subjects (Reddy, 2002; Lee *et al.,* 2003; Kerver *et al.,* 2003).

Comparison of the serum TC and HDL – CH levels observed in this study (Table 1) with the levels obtained in other parts of Nigeria reveals remarkable differences in the levels of these lipids. In Calabar (Essien *et al.,* 1992) and Nsukka (Ononogbu, 1979), the serum total cholesterol and HDL – CH levels were higher than the corresponding values recorded in this study for both male and female subjects. Serum levels of HDL – cholesterol and total cholesterol levels reported for students in Zaria (Abdulazeez *et al.,* 2008) are close to values obtained in this study. These differences in serum total cholesterol and HDL – cholesterol levels between our subjects and subjects reported in other parts of the country, go further to confirm geographical and ethnic differences in lipid and lipoprotein concentrations (Ononogbu, 1988). A lot of work still remains to be done in establishing the serum lipid and lipoprotein patterns in this community, specifically the influence of body mass index, income, occupation, cigarette smoking and alcohol consumption on the serum lipid and lipoprotein patterns in the community are areas that await further investigation.

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