The analysis of specific factors influencing health related quality of life: large scale studies on women population age 12 to 85.

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TABLE OF CONTENTS

Table of Contents

ABSTRACT

Objective: The objective of this study if to verify currently accepted clinical descriptions of normotension, hypertension, hyperlipidemia, and hyperuricemia versus the extended data set. ***Design:*** Women age 12 to 85 encompassed by NHANES III and NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2005 datasets were included in the study. The analysis of the combined data set allowed for the analysis of the large sample comprising of 20022 subjects. The association between the clinically accepted values of the specific factors such as for example, total cholesterol levels, HDL cholesterol levels, LDL cholesterol levels versus tobacco smoking status, alcohol consumption status, pregnancy status and others were analyzed using Pearson Chi-Square Statistics and Cochran-Mantel-Haenszel Statistics. ***Results:*** The analysis of the results of the tests for general association confirmed the majority of recent reports indicating correlations between the studied parameters. However, in some cases significant discrepancies between this report and others were found. ***Conclusions:*** The presented report is among a very few ever performed on such a large scale. The confirmation of some of the recent reports indicates that current trends of research that are focused on large scale analysis of a variety epidemiological data leads to congruent results. Thus, the assessment of health related quality of life based on currently accepted clinical values is possible however, a caution have to be exercised.

INTRODUCTION

Health Related Quality of Life

For many years both clinicians and policymakers are engaged in development of a universal measure of health-related quality of life (HRQL). Among multiple means that may be employed for assessment of HRQL are self – or interviewer-administered questionnaires and analytical methods allowing following the changes in homeostasis in response to a variety of environmental factors. However, the gravity of a variety of factors influences HRQL. This in turn requires a robust definition or HRQL. Following the definition proposed by Patric et al. [1] health related quality of life encompasses health status, functional status, and quality of life. HQRL may be utilized for measuring the impact of many chronic diseases such as, for example, chronic heart disease [2]. Another reason for measurement the health related quality of life is an assessment of personal response to clinical criteria that are similar among different subjects. Additionally, clinicians and policy makers should be able to differentiate between people with different level of HRQLs [3].

Currently there are two approaches the allows to characterize HRQL: the first comprises generic instruments such as single indicators or health profiles; the second comprises specific instruments [4]. The Sickness Impact Profile, a part of health profile is an instrument allowing to measure physical dimension (ambulation, mobility and movement) in concordance with psychosocial dimension (social interaction, behavior, and communication).

Among different approaches to quality-of-life measurement there are also specific instruments; it is the instruments allowing to assess the health status as a function of specific factors. These are the instruments that are used primarily by clinicians. In the presented study we decided to undertake the analysis of HRQL expressed as clinically accepted blood pressure. We analyze the changes in blood pressure in a large women population as a function of a variety of factors such as serum blood lipids, body mass index, kidney disease, and serum uric acid level and compare the derived results with those previously reported.

Blood pressure: Systolic and Diastolic Blood Pressure

We know that en elevation of systolic blood pressure may be used for prediction of a cardiovascular disease[5-6]. Although, this method of health assessment is currently quite obvious we had to walk a long way before understanding what we measure. The measurement of pulse palapation was already carried in ancient Egypt. However, only in the eighteen century Stephen Hales performed the first mensuration of blood pressure (BP) and till mid-nineteen century there was no other means of arterial blood assessment than puncture of an artery. In 1855 Vierordt proposed an indirect and noninvasive technique employing a counter pressure to force the pulsation in an artery. In 1856, Faivre was the first clinician who managed to accurately estimate the blood pressure with the following parameters: 120 mm Hg in the femoral artery and 115-120 mm Hg in the brachial artery. In early 1900 a Russian surgeon N.C. Korotkoff reported that when he listen to the blood flow using the stethoscope placed over the brachial artery at the *cubital fossa*, distal to the *Riva-Rocci* cuff, tapping sound could be heard. This is his technique that is currently used with practically no changes. It was also a corner stone in work of Pal Wood and William Evans [7].

However, the applicability of isolated systolic (SBP) and diastolic (DPB) blood pressures was recognized only two decades ago [8]. Since then many studies on SBP as a function of a variety of factors, such as age [9], height, body mass index [10], body weight [11], serum creatinine, and serum uric acid [12], were performed. Some of the studies were also focused on changes of the blood pressure as a function of specific biological events such as, for example, menopause [13-14].

In the recent decade an extensive analysis of assonant changes in SPB and DPB revealed specific age dependent between the SPB, DPB, and the mean arterial pressure (MAP) [9]. The results of studies indicated the progressive increase in blood pressure as a function of age [15-16]. It was also shown that SPB rise continuously to the ninth decade. This phenomenon is associated by a congruent two phase increase the pulse pressure (PP). The first phase comprises age below 50 years of age and the second above this age. The changes in the DBP have different pattern; DBP rises until age of 50 where it may level for the rest of the live or fall later in life [9].

The last few decades of study on hypertension related health risk indicated that the specific attention should be given to SPB changes, since these are the main risk factors for cardiovascular diseases. Franklin at al.[9]

also indicated that diastolic hypertension predominates before age 50 and that the prevalence of systolic hypertension increases with age. Hypertension is also a problem during pregnancy. Studies have shown that at the beginning of the first trimester there is a gradual decrease in SBP caused by prostacyclin and nitric oxide induced vasolidation. It continues till reaching nadir about 22-24 week and from this point in time it rises again. Women whose blood pressure was normal throughout pregnancy may however, experience transient hypertension in the early post partum period [17-19].

The analysis of the third National Health and Nutrition Examination Survey (NHANES III) indicated that almost 80% of subjects aged 50 or over with high BP, at least on a single occasion, had systolic hypertension [20] This and the other studies also showed that this type of hypertension was the least well managed, perhaps because it particularly affects the elderly[21].

The majority of studies describing age-dependent BP dynamics are cross-sectional studies. However, longitudinal studies reported the analogous pattern [22]. The recent cohort study indicate age dependent increase in BP to hypertensive levels [23]. Fifty percent of those 65 years and older have BP in the 130–139/85–89 mmHg range and only 26 percent have BP between 120–129/80–84 mmHg range [23]. This observation combined with the observation derived from Framingham Heart Study indicating that BP values above 120/80 mmHg are associated with a significant increase in relative risk from cardiovascular disease (CVD) [24], exposes imminent need for periodical BP monitoring along the aging process.

The striking is that data previously accepted as non correlated with risk of hypertension appeared to be correlated with high frequency of CVD. These observations gave ground to the new Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC) 7 report [25], which introduced the new classification including the term "prehypertension". This new term applies for those with SBPs ranging from 120–139 mmHg and/or DBP from 80–89 mmHg.

Table 1. Blood pressure classification according to JNC 6 [26] and JNC 7 [25].

JNC 6 category	SBP/DBP	JNC 7 Category
OPTIMAL	< 120/80	NORMAL
NORMAL	120-129/80-84	PREHYPERTENSION
BORDERLINE	130-139/85-89	
HYPERTENSION	≥ 140/90	HYPERTENSION
STAGE 1	140-159/90-99	STAGE 1
STAGE 2	160-179/100-109	STAGE 2
STAGE 3	≥ 180/110	

Blood Pressure: The Role of Blood Lipids Levels - Total Cholesterol, LDL Cholesterol and HDL Cholesterol.

Lipids play an enormous role in the homeostasis. For example, cholesterol present in cell membranes gates its integrity and fluidity. It also serves other multiple purposes in human organism and one of its most important roles is biosynthesis of cortisone-like hormones; testosterone, estrogen, and cortisone. It is also used in biosynthesis of bile acids which are essential for digestion of fats. Lipids are also present in the human organism as a lipid-protein combination. Among lipoproteins there are three classes present in human serum that play a paramount physiological role: low density lipoproteins (LDL), high density lipoproteins (HDL), and very low density lipoproteins (VLDL).

The observed relationship between total cholesterol and coronary heart disease (CHD) implied that an elevated LDL level is a powerful risk factor and that the serum total cholesterol level can be used as a surrogate for LDL cholesterol concentration which typically makes up 60 to 70 percent of the total serum cholesterol. The large scale epidemiological studies, The Framingham Heart Study[27] and the Multiple Risk Factor Intervention Trial (MRFIT)[28] have found a direct relationship between LDL cholesterol concentration and the rate of new-onset of CHD in men and women initially not threaten by this disease. It also appears that LCL concentration above 2.59 mmol/L (100 mg/dL) is atherogenic. The results of the recent clinical trials indicate a direct proportional relation in LDL cholesterol level and CHD risk. Thus a 1 percent decrease in LDL concentration leads to the reduction of CHD risk by 1 percent. Large population study also indicate that cohorts maintaining low level of cholesterol are exposed to much lower risk for CHD than cohorts generally defined by an increased cholesterol level [29-30].

HDL cholesterol normally makes up 20–30 percent of the total serum cholesterol. Epidemiological studies have shown that the level of serum HLD cholesterol is reverse proportionally correlated with CHD morbidity and mortality [27, 31] to such an extent that 1 percent decrease in HDL cholesterol yield 2 to 3 percent increase in CHD risk[32]. It has been shown that HDL is a direct cause of atherosclerosis but can also be an indicator of the other health risk correlates [33-35]. It is now clear that low concentration of HDL caused by increased obesity or low level of physical activity predicts CHD. Taking these facts into account Adult Treatment Panel II [36] (ATP II) specified that low HDL cholesterol concentration i.e. the concentration less than <35 mg/dL is one of the major risk factors used to modify the therapeutic goal for LDL cholesterol. The same range

of low HDL is proposed for both genders. ATP III [37] panel adjusted the cut point of HDL cholesterol at 40 mg/dL, for both men and women indicating that subjects having the cholesterol concentration less than 40 mg/dL should be classified as low cholesterol subjects and those with the level of cholesterol greater than 40 mg/dL should be classified as high cholesterol subjects.

The ongoing analysis of a variety of epidemiological studies lead to reassessment of ATPII lipid classification and the new classification, ATPIII classification, of total cholesterol, LDL cholesterol and HDL cholesterol with the CHD risk and has been proposed, Table 2.

Table 2. Classification of Total Cholesterol, LDL Cholesterol, and HDL Cholesterol Accordingly to ATP III Panel [37].

Total Cholesterol (mg/dL)		LDL Cholesterol (mg/dL)		HDL Cholesterol (mg/dL)	
		< 100	Optimal	< 40	Low
< 200	Desirable	100-129	near optimal/ above optimal	40-60	Normal
200-239	Borderline High	130-159	Borderline High		
≥ 240	High	160-189	High	≥60	High
		≥ 190	Very High		

Blood Pressure: The role of Triglycerides Levels.

Although early analyses did not identify triglycerides as an independent risk factor for CHD [38] a number of current studies indicates that there is a direct proportional relation between the concentration of serum triglyceride and CHD [33, 39-40]. The primary failure in finding triglycerides as CHD risk factor is associated with its integral linking with a number of physiological covariates such as total cholesterol, LDL cholesterol, and HDL cholesterol. Triglycerides levels dynamics is also a function of obesity, hypertension, and cigarette smoking [41]. All aforementioned associations indicate that subjects with elevated serum triglycerides concentrations are at increased risk for CHD. This observation is strengthen by results of the recent study [39-40] indicating that in fact triglycerides can be considered as an independent risk factor for CHD.

Elevation in blood triglyceride levels is a derivative of a variety of factors which can be divided into two groups. The first group comprises the factors related to quality of life and the second to diseases inducing elevation of triglyceride level. Thus, the fist group comprises obesity, physical inactivity, tobacco smoking, excess alcohol intake, and high-carbohydrate diet. The second group comprises type 2 diabetes, chronic renal failure, nephrotic syndrome, and genetic factors. However, the most common are obesity and physical inactivity [8, 42-44]. At current state of knowledge we assume that a healthy subject not exposed to any of aforementioned factors is defined by an average serum triglyceride levels of 100 mg/dL [44].

Triglyceride-raising factors may increase triglyceride levels about 150 to 200 percent that is related to concentration range 150 to 200 mg/dL [43-44]. The analysis of correlations between serum triglycerides levels and CHD resulted in recognition of the fact that blood triglyceride levels can be adopted as risk markers for CHD. The recent findings indicate that triglyceride level≥ 200 mg/dL is consonant with an elevated level of atherogenic factors that increase the risk for CHD significantly more than triglycerides alone [45-46]. Taking into account the applicability of serum triglycerides levels in predicting the risk for CHD, ATPIII proposed the updated triglyceride classification.

Table 3. Triglyceride categories accordingly to ATP II [36] and ATP III [37].

Triglyceride Category	ATP II Levels	ATP III Levels
Normal triglycerides	<200 mg/dL	<150 mg/dL
Borderline-high triglycerides	200–399 mg/dL	150–199 mg/dL
High triglycerides	400–1000 mg/dL	200–499 mg/dL
Very high triglycerides	≥1000 mg/dL	≥500 mg/dL

Blood Pressure: The Role of Serum Uric Acid Level.

Uric acid is a product of purine metabolism. In humans it is catabolized by the urate oxidase (EC 1.7.3.3) to allantoin excreted with urine. The level of uric acid in humans is generally higher than in other mammals and is generally greater than 2 mg/dL. The level of uric acid is a function of a specific diet, alcohol consumption or a disease. For example reduction in glomerular filtration rate increases the level of serum uric acid [47]. The physiological state described by an elevated level of serum uric acid is called hyperuricemia and is usually defined as > 7.0 mg/dL in men and >6.0 mg/dL in women. A number of reports indicated correlation between an elevated level of serum uric acid level and CHD [48-53]. The recent study on association between serum uric acid concentration and the risk of CHD indicates that subjects with baseline serum uric acid values in the top 33 percent of the population are defined by about a 10 percent greater risk of CHD than those in the bottom 33 percent [54].It has also been shown that correlation between serum uric acid and CHD risk is stronger in females than in males [54-55].

It has been observed that the level of uric acid in postmenopausal women is higher than in premenopausal and in perimenopausal women [49]. Also obese subjects and subjects with impairment of renal urate excretion are described by an increased level of serum uric acid. For over fifty years we know that the level of uric acid is directly proportional to BP[51]. One of the possible explanation of this phenomenon is that an increase in serum uric acid may be due to the decrease in renal blood flow [52].

Elevation in serum uric acid level can also be caused by factors such as alcohol drinking [56], obesity, and use of diuretic. The recent studies indicated that serum uric acid level is a function of multiple and *per se* merely mark increased risk of cardiovascular diseases [57-58] (Table 4).Thus, hyperuricemia is consider benign if is not assonant to kidney stones [59-60].

Table 4. Studies on Uric Acid Level as a Function of CHD since 1990.

Study	Univariate correlation with cardiovascular risk
Framingham	
1999 [61]	yes
Honolulu Heart	
1995 [62]	yes
1999 [63]	yes
NHANES I	
1995 [55]	yes
2000 [64]	yes
ARIC (Atherosclerosis Risk in Communities Study)	
2000 [65]	yes
British Regional Hart Study	
1997 [66]	yes
MONICA (Monitoring Trends and Determinants in Cardiovascular Diseases)	
1999 [67]	yes
CASTEL (Cardiovascular Study in the Elderly)	
1993 [68]	yes

Blood Pressure: The Role of Serum Creatinine Level.

One of the markers of chronic kidney disease (CKD) is a ratio of 30 mg/g or greater of urine albumin to creatinine ratio (UCAR) [69]. A normal UACR in women is less than 30 mg/g [70]. It has been shown that reduction in UACR id directly proportional to incidence of cardiovascular disease [71]. A variety of studies focused on the specific groups of subjects, such as hypertensive subjects, elderly, subjects with recent stroke of survives of myocardial infarction, have shown that serum creatinine level may be consider an independent predictor of cardiovascular disease [72-75].

The extensive study on applicability of serum creatine level [76] as a marker for long-term effects of elevated blood pressure indicated that about 14 percent of hypertensive subjects were defined by a serum creatinine level greater or equal to 116 μmol/L. However, this study also indicated that a single measurement of serum creatinine level is not satisfactory to assess with high probability a risk of cardiovascular disease.

Another marker considered to be useful for assessment of the risk of cardiovascular disease is creatinine clearance, which is a significantly more sensitive measurement of kidney function as compared to serum creatinine (Table 5). It has been shown that creatinine clearance lower than 60 ml/min per 1.73 m^2 is associated with an increased risk of cardiovascular disease [77]. Large scale analysis of NHNAES II data [78] indicated that about 14.2 percent of subjects with hypertension had glomerular flow rate (GFR) below 60 mL per minute per 1.73 m^2 and that prevalence of low GFR progressively increases with age. However the recent study [79] on the subject using predicted creatinine clearance values [80] did not confirmed the direct applicability of this factor in prognosis of cardiovascular risk.

Table 5. Stages of Chronic Kidney Disease [81]

Stage	GFR (mL per minute per 1.73 m^2)
1	≥ 90
2	60 - 89
3	30 - 59
4	15 - 29
5	< 15

Blood Pressure: The Role of Body Mass Index.

Body Mass Index (BMI) is a ratio of weight-to-height allowing to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in meters (kg/m^2). Currently the World Health Organization [82] in its web database presents the following classification of obesity: underweight, normal range, overweight, pre-obese, and obese (Table 6).

Table 6. Body Mass Index (BMI) classification accordingly to the World Health Organization (WHO) [82].

Classification		BMI (kg/m^2)
		Principal cut-off points
Underweight		
	Severe thinness	< 16.00
	Moderate thinness	16.00-16.99
	Mild thinness	17.00-18.49
Normal range		18.50-24.99
Overweight		
Pre-obese		25-29.99
Obese		
	Obese class I	30.00-34.99
	Obese class II	35.00-39.99
	Obese class III	≥40.00

The general believe is that the risk of hypertention is reverse proportionally associated with cardiorespiratory fitness and regular physical activity. Although, it has been shown that exercise training usually lowers elevated BP, the individual differences are largely driven by intrapersonal genetic factors. A number of epidemiological studies confirmed that risk of developing hypertension is lower in subjects that are physically active [83-87] and fit[88-91]. The intervention studies indicated a

decrease in SPB on the order of 2 to 11 mm Hg and in DPB on the order of 1 to 8 mm Hg after moderate-intensity endurance training [92-98]. A variety of study also showed that obesity is directly proportional to an increased risk of hypertension and CHD [99-100] and that body mass loss results in lowering BP [100-101]. These observations have their reflection in the outcome of Nurses' Health Study indicating that weight gain after age of 18 years is significantly associated with increased hypertension risk whereas weight-stable women or those that lost weight are exposed to significantly lower risk of hypertension [100]

The HERITAGE family study indicated that changes in blood pressure in response to exercise training is significantly influenced by intrapersonal factors [102]. On average the observed decrease in BP is between 7 to 3.5 mm Hg. However, in some individuals a slight increase of BP after exercise training may be observed [102-103].

The TROMSO study [11] exposed that obese women experience a greater increase in SBP and DBP than normal BMI women. The researchers have also observed that an increase in BMI induces significantly higher hypertension in women than in men. It has also been confirmed that there is a direct proportional association between increase in BMI and BP however, no mechanism driving this association is currently known as well the aethiology of this correlation in not fully understood. Nevertheless, it was noticed that consonant increase in BMI and blood pressure are correlated with increased serum glucose, insulin and rennin levels [104-105].

METHODS

Subjects

The National Health and Nutrition Examination Surveys (NHANES) are national, cross-sectional, population-based studies of non-institutionalized civilian persons conducted by the National Center for Health Statistics, USA. Sampling in the NHANES survey is designed in such a way that it allows for representation of the U.S. population of all ages and ethnic groups. Health examination procedures are performed in mobile centers, and interviews are conducted in respondents' homes. Data collection includes in-person interviews, physical examinations, and laboratory procedures. The NHANES survey is an ongoing project run in separate stages since 1971. Since 1999, NHANES results have been presented to the scientific community in two-year batches [106-109].

Table 7. Subjects Frequency Table by Database NHANES III [110] and NHANES 1999-2006 [106-109].

ORIGIN	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NHANES III	9401	46.95	9401	46.95
NHANES 1999-2006	10621	53.05	200223	100.00

BMI Analysis

Using the WHO guidance [111], we divided the studied sample into two body mass index (BMI) groups. The subjects with a BMI less than 18.5 were classified as an underweight BMI class and subjects with a BMI greater than or equal to 18.5 and less than or equal to 24.99 were classified as a normal BMI class. The subjects defined by a BMI greater than 24.99 were classified as an obese BMI class.

The combination of NHANES datasets for 1999-2000, 2001-2002, 2003-2005, and 2005-2006 yielded the primary sample size of women aged 1-85 equal to 22,908. There are 7079 subjects in the normal BMI class, 9552 in overweight BMI class and 6277 in underweight BMI class.

NHANES III

Measurements of standing height were performed on the stadiometer. The subject had to stand in an erect position with hers back to the vertical backboard. The weight should be evenly distributed on both feet. The arms should hang freely by the sides of the trunk with palms facing the thighs. The special persuasion was taken that hairs does not obscure the scale. All the measurements were recorded to the nearest 0.1 cm

All the measurements of body weight were performed using the electronic digital scale should. Before a measurement the scale was tarred. The subject was asked to stand in the center of weighing platform. All the measurements were recorded to the nearest 0.01 kg.

Body Mass Index was calculated using the following formula:

$$BMI = \frac{mass\ (kg)}{(height\ (m))^2}$$

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

Standing height was measured by means of a stadiometer. To measure the stature properly the measured subject was asked to remove any hair ornaments from the top of the head. The body weight should be evenly distributed and both feet flat on the floor. The arms and shoulders should be fully relaxed. All the measurements were recorder to the nearest 0.1 cm.

Measurements of body weight were performed by mean a Toledo digital scale. All the measurements are taken in pounds and electronically converted to the SI system. All adults are weight in the underwear. All the measurements were recorded to the nearest 0.01 kg.

Body Mass Index was calculated using the following formula:

$$BMI = \frac{mass\ (kg)}{(height\ (m))^2}$$

Table 8. BMI Class by Origin: NHANES III and NHANES 1999-2006. The Normal Class Comprises BMI≤ 18.49, the Underweight Class Comprises BMI≥ 18.50 and ≤ 24.99, the Overweight Class Comprises BMI ≥ 25.

BMICLASS Frequency Percent	ORIGIN NHANES III	 NHANES 1999-2006	Total
NORMAL	3595 17.76	3686 17.91	7181 35.87
OVERWEIGHT	5483 27.38	5341 26.68	10824 54.06
UNDERWEIGHT	323 1.61	1694 8.46	2017 10.07
Total	9401 46.95	10621 53.05	20022 100.00

Alcohol Consumption and Tobacco Smoking

NHANES III and NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

The following exclusion rules were applied to both data sets: current smoking status: NHANESIII data set - if a mean of cigarettes, pipes, and cigars smoked in the past five days from the first and the second examination was greater than 0, then the subject was classified as an active smoker and excluded from further study. NHANES 1999-2002: if the answer to the question "Do you now smoke cigarettes?" or "Do you now smoke a pipe?" or "Do you now smoke cigars?" was "yes" or "some days", then the subject was treated as an active smoker and excluded from further study.

Table 9. Frequency Table of Tobacco Smoking Status by Data Sets NHANES III or NHANES 1999-2006. Smoking Analysis Include Two Cases; (1) Smoking One or More Cigarettes, Pipes, Cigars per day and (2) Smoking Within 30 Minutes Before Measurement of Blood Pressure. 1- Smoking, 2- no Smoking.

SMOKE Frequency Percent	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
1	101 0.50	1278 6.38	1379 6.98
2	9300 46.45	9343 46.66	18643 93.11
Total	9401 46.95	10621 53.05	20022 100.00

It has been shown that subjects drinking alcohol beverages containing higher level of alcohol had borderline higher systemic hypertension (HTN) than those drinking predominantly beer or wine [112]. Additionally the majority of the data indicate no important role of the type of an alcohol beverage on HTN[113]. The recent studies [113-114] have also shown that BP increase cannot be considered as immediate effect of alcohol use. Thus, at current stage the athopysiological coupling between alcohol consumption and BP remains unknown and the effects of alcohol in BP increase are rather speculative [112]. However, one has to take into account the fact that intense alcohol consumption influences the daily style of life. The recent study performed by Saarni et al [115] indicates that extensive use of alcohol beverages is reverse proportional with health utility, quality of life (QoL) and mental distress. However, the moderate consumption alcohol has minimal if not none influence on every-day well being. Although this information indicates that moderate alcohol drinking should not affect BP we still decided to elucidate this group of subject from the main group of "healthy" women and study this group separately.

Table 10. Frequency Table of Alcohol Consumption Status by Data Sets NHANES III or NHANES 1999-2006. The Consumption Analysis Includes Two Cases; (1) Drinking One or More Alcohol Beverages Per Day and (2) Drinking Within 30 Minutes Before Measurement of Blood Pressure. 1- Drinking, 2 – no Drinking.

DRINK Frequency Percent	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
1	97 0.48	3217 16.07	3314 16.55
2	9304 46.4751	7404 36.98	16708 83.45
Total	9401 46.95	10621 5305	20022 100.00

Pregnancy, Breastfeeding, and Contraception.

NHANES III and NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006.

It is know that hypertension in pregnancy comprises at least four different factors [116-117]: (1) chronic hypertension which may predate pregnancy, (2) pregnancy induced hypertension developing after 20 weeks of gestation, (3) gestational hypertension and (4) pre-eclampsia, pregnancy induced hypertension in association with proteinuria or oedema.

Taking into account these facts we decided to create a spate group of pregnant women and exclude them from the "healthy" women. Thus, 280 subjects from the NHANES III and 332 subjects from the NHANES 1999-2006 were assigned to a separate group because of pregnancy, Table 11.

Although no one ever reported that breastfeeding leads to elevation or decrease of BP we decided to elucidate a separate group comprising breastfeeding women. The decision was made on the assumption that it is a specific stage in biological life of women and as such should be treated separately. Thus, hundred one subjects from NHANES III and nineteen subjects from NHANES 1999-2002 were excluded because of current breastfeeding, Table 12.

Although present there is no agreement as to the contraception induced hypertension. However, we still decided to exclude this group from the main study group. This approach resulted in exclusion of nine hundred thirty two subjects from the NHANES III. In this case, the exclusion criterion was a combination of three questions: "How many months ago stop taking BC pills?" (code: MAPF32S), "Do you now have NORPLANT implanted under your skin?" (code: MAPF34B), and "Days since stopped birth control pills" (code: HXRH16S). If the answer to the first question indicated a time period of less than a month, or the answer to the second question indicated that the subject was currently using a NORPLANT implant, or the answer to the third question concurred a time period less than one month from stopping the use of birth control pills, then the subject was treated as currently using contraceptives and excluded from further study. In NHANES 1999-2002, contraceptive-based exclusion was based on the following rule: If the answer to the question "Taking birth control pills now?" (code: RHD440 for 1999-2000 and 2001-2002, and RHD442 for 2003-2004 and 2005-2006) or "Now using Depo-Provera or injectables?" (code: RHQ520) was "yes" , then the

subject was treated as using contraception and excluded from further study, Table 13.

Table 11. Pregnancy Status by Origin: NHANES III and NHANES 1999-2006. 1- Pregnant 2- no Pregnant.

PREGNANT Frequency Percent	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
1	280 1.40	332 1.66	612 3.06
2	9121 45.55	10289 51.39	19410 96.94
Total	9401 46.95	10621 53.05	20022 100.00

Table 12. Breastfeeding Status by Origin: NHANES III and NHANES 1999-2006. 1 - Breastfeeding 2- no Breastfeeding.

BREAST Frequency Percent	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
1	101 0.50	19 0.09	120 0.60
2	9300 46.45	10602 52.95	19902 99.40
Total	9401 46.95	10621 53.05	20022 100.00

Table 13. Contraception Status by Origin: NHANES III and NHANES 1999-2006. 1 – Use Contraception 2- Do Not Use Contraception.

CONTRACEPTION USE Frequency Percent	ORIGIN NHANES III	 NHANES 1999-2006	Total
1	932 4.65	515 2.57	1447 7.23
2	8469 42.30	10106 50.47	18575 92.77
Total	9401 46.952	10621 53.05	20022 100.00

Blood Pressure Measurements

NHANES III

Each blood pressure measurement session comprises of the three sets of blood pressure measurements taken in the examination center. For the age group 5 to 19 years three Korotkoff sounds were recorded: K1 (systolic); K4, muffling of pulse sounds (diastolic); and K5, disappearance of pulse sounds (diastolic). For adults older than 20 years of age, only K1 (systolic) and K5 (diastolic) measurements were collected. All measurements were recorded to the nearest even number. All the measurements were performed by means of a mercury sphygmomanometer (W. A. Baum Co., Inc, Copiague, NY) according to the standardized blood pressure measurement protocols recommended by the American Heart Association [118]. The contingency table of hypertension classification in shown below, Table 14.

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

Blood pressure, SPB and DBP were measured for subjects eight years and older. In majority of the cases three measurements of systolic and diastolic blood pressure were taken. All the measurements were taken in the mobile examination center or at examinee's home using a mercury sphygmomanometer. Final blood pressure was calculated an arithmetical average of successful measurements. If only one blood pressure reading was obtained that reading is the average. However, it there is more than one blood pressure measurement that first measurement is always excluded for the average. In case of two measurements the second reading is an average. Blood measurement protocol follows the recommendations of American Heart Association Human Blood Pressure Determination by sphygmomanometers [119]. The contingency table of hypertension classification in shown below, Table 14.

Table 14. Hypertension Classification Accordingly to JNC 7 of Woman Age 12 and Older.

Hypertension classification Frequency Percent	ORIGIN NHANES III	 NHANES 1999-2006	Total
Normal	4868 24.31	7176 35.84	12044 60.15
Prehypertension	4526 22.61	3437 17.17	7963 39.77
Hypertension Stage 1	7 0.03	8 0.04	15 0.07
Total	9401 46.95	10621 53.05	20022 100.00

Triglyceride Measurements

NHANES III

The subject's fasting status was not taken into consideration when measuring serum triglyceride level (TG). The enzymatic procedure based on the set of consecutive reactions was used for serum or plasma triglycerides level. In the first reaction lipase converts triglycerides to glycerol and fatty acids in the second glycerokinase converts glycerol and ATP into glycerol -3-phosphate and ADP. This reaction is followed by enzymatic oxidation of glycerol by means of glycerol oxidase in the presence of H2O2 and the concentration of the product of this reaction is assessed by means of absorbance measurement at 500 nm. The resulting absorbance value is directly proportional to TG level. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). The contingency table of triglyceride classification is presented below, Table 15.

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

The serum concentration of triglycerides was assessed enzymatically by means of four coupled reactions. The first comprised lipase that converts triglycerides into glycerol and fatty acids. The second glycerolkinase converts glycerol to glycerol-2-phosohate and the third glycerophosphate oxidase converts glycerol-3-phosphate into dihydroxyacetone phosphate. In the fourth, the final reaction, the enzyme peroxidase produce 4-(p-benzoquinone-monoimino)-phenazone which concentration is directly proportional to the triglyceride concentration and can be spectrophotometrically measured at λ=500 nm. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). The contingency table of triglyceride classification is presented below, Table 15.

Table 15. Triglyceride Classification by Origin: NHANES III and NHANES 1999-2006. Normal < 150 mg/dL (1.68 mmol/L) ≤Borderline High < 200mg/dL (2.24 mmol/L) ≤ High < 500 mg/dL (5.6 mmol/L) ≤ High.

Triglyceride Classification	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
borderline high	1191 5.95	438 2.19	1629 8.14
high	1251 6.25	408 2.04	1659 8.29
normal	6856 34.24	9756 48.73	16612 82.97
very high	103 0.51	19 0.09	122 0.61
Total	9401 46.95	10621 53.05	20022 100.00

LDL Cholesterol Measurements

NHANES III

It is known that circulating cholesterol can found in three major fractions: very low density lipoproteins (VLDLs), low density lipoprotein (LDLs), and high density lipoprotein (HDLs) [120]. They are bound by the following formula: *Total Cholesterol = VLDL + LDL + HDL*. The serum level of LDL cholesterol was calculated using the values of total cholesterol, triglycerides and HDL-cholesterol according to the formula: *LDL = total cholelsterol – HDL- (TG/5)*. The last term in the equation is an estimate of VLDL. All the values in the formula are expressed in mg/dL. The blood sample volume for the measurement of serum LDL level was 0.2 ml. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). Frequency of LDL cholesterol classification is shown in Table 16.

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

Analogous to the NHANES III approach LDL cholesterol concentration was assessed by means of the following formula: *LDL = total cholelsterol – HDL- (TG/5)*. All the values in the formula are expressed in mg/dL. The blood sample volume for the measurement of serum LDL level was 0.2 ml. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). Frequency of LDL cholesterol classification is shown in Table 16.

Table 16. LDL Cholesterol Classification by Origin: NHANES III and NHANES 1999-2006. Optimal < 100 mg/dL (2.6 mmol/L) ≤Near Optimall < 130mg/dL (3.741 mmol/L) ≤ Borderline High < 160 mg/dL (4.16 mmol/L)≤ High < 190 mg/dL (4.94 mmol/L) ≤ High.

LDL Cholesterol Class	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
optimal	6636 33.14	7692 38.42	14328 71.56
near optimal	1224 6.11	1250 6.24	2474 13.36
borderline high	913 4.56	904 4.52	1817 9.08
high	410 2.05	472 2.36	882 4.41
very high	218 1.09	303 1.51	674 2.60
Total	9401 46.95	10621 53.05	20022 100.00

HDL Cholesterol Measurements

NHANES III

The level of HDL-cholesterol was measured on the bases of the precipitation of the other lipoproteins with a polyanion/divalent cation mixture. The required sample volume was 0.2 ml. All the analyses were performed using Hitachi 704 Analyzer. The sample preparation for HDL cholesterol measurements comprised the following steps: (1) addition of 100 μL of heparin sulfate-MnCl mixture to the serum for each sample; (2) removal of precipitate by centrifuging at 1500 x g for 30 min; (3) mixing of supernatant and sodium bicarbonate; (4) measurement of HDL cholesterol in clear supernatant. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). HDL cholesterol classification is summarized in Table 17.

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

In NHANES 1999-2006, two methods were employed for HDL-cholesterol measurement. In the first method a heparin-manganese (Mn) precipitation method combined with a direct immunoassay technique were used. However, for the subjects no heparin-manganese HDL-cholesterol the direct HDL-cholesterol measurement method was used. In the heparin-Mn precipitation method lipoproteins bound to apolipoprotein-B are removed with a mixture of heparin sulfate and MnCl2 and HDL-cholesterol is measured in clear supernatant. In the direct immunoassay method HDL concentration is used in the serum. The method employs the set of reactions combining apo lipoproteins-B, α-cyclodextrin, Mg ionsm dextran SO4 in the first reaction; HDL-cholesteryl esters and PEG-cholesteryl esterase in the second reaction and 5-aminophenazone, *N*-ethyl-*N*-(3-methylphenyl)-*N*'-succinyl ethylene diamine and H^+ peroxidase which converts into quinoneimine dye. The absorbance of quinoneimine dye is measured at 600 nm and its concentration is directly proportional to the concentration of HDL-cholesterol. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). HDL cholesterol classification is summarized in Table 17.

Since it has been noticed that measurements of HDL cholesterol in NHANES 1999-2000 to 2005-2006 are approximately 6 percent lower than the measurement obtained in NHANES III the NHANES 1999-2006 HDL-cholesterol values for both the precipitated and direct methods were adjusted using the following formula:

$$Corrected\ HDL = \frac{(Solomon\ Park\ \ HDL\ conc.) * (Participand\ HDL\ conc.)}{(Quality\ Contorl\ HDL\ conc.\ \ associated\ with\ the\ participant)}$$

Table 17. HDL Cholesterol Class by Origin: NHANES III and NHANES 1999-2006. Low < 40 mg/dL (1.04 mmol/L)≤Normal < 60 mg/dL (1.56 mmol/L) ≤ High.

HDL Cholesterol Class	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
normal	4717	3283	8000
	23.56	16.40	39.96
low	2005	2157	4162
	10.01	10.77	20.79
high	2679	5181	7860
	13.38	25.88	39.26
Total	9401	10621	20022
	46.95	53.05	100.00

Total Cholesterol Measurements

NHANES III

Cholesterol is measured enzymatically[121-122] in serum or plasma in a series of coupled reactions that hydrolyze cholesterol esters and oxidize the 3-OH group of cholesterol. The reaction byproduct proportional to cholesterol concentration is quantitatively measured through absorbance at 500 nm. The required sample for the total cholesterol measurement is 0.2 mL. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). Frequency of total cholesterol classes is shown in Table 18.

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

Serum or plasma total cholesterol was measured using a set of enzymatic reactions using cholesteryl ester hydrolase, cholesterol oxidase, and peroxidase. These three enzymes catalize three step reaction from cholesteryl ester to 4-(p-benzoquinonemonoimino)-phenazone which concentration can be assessed by colorimetry. Absorbance of 4-(p-benzoquinonemonoimino)-phenazone is measured at $\lambda = 500$ nm and its value is proportional to cholesterol concentration. All the analyses were performed using Hitachi 704 Analyzer (Boehringer Mannheim Diagnostics, Indianapolis, IN). Frequency of total cholesterol classes is shown in Table 18.

Table 18. Total Cholesterol Class by Origin: NHANES III and NHANES 1999-2006. Desirable < 200 mg/dL (5.2 mmol/L) ≤Borderline High < 240 mg/dL (6.24 mmol/L) ≤ High

Total Cholesterol Class Frequency Percent	ORIGIN NHANES III	 NHANES 1999-2006	Total
Desirable	4941 24.68	7364 36.78	12305 61.46
Borderline High	2636 13.17	2076 10.37	4712 23.53
High	1824 9.11	1181 5.90	3005 15.01
Total	9401 46.95	10621 53.05	20022 100.00

Serum Uric Acid Measurements

NHANES III

Uric Acid measurement employed the specificity of the oxidation of uric acid by uricase to alantoin and H_2O_2, which in turn reacts with 2,4,6-tribromo-3- hydroxybenzoic acid and 4-aminophenazone forming quinone-imine dye that is proportional to the uric acid concentration. The spectrophotometric measurement of uric acid is linear up to 20.0 mg/dL. The sample with the concentration of uric acid higher than 20.0 mg/dL were twofold diluted and the results were multiplied by 2 to account for dilution. Frequency of serum uric acid tierces is presented in Table 19.

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

All the uric acid measurements were commenced using the uric acid oxidization product which is allantoin and hydrogen peroxide. In the presence of peroxidase hydrogen peroxide reacts with 2,4,6-tribromo-3- 2 2 2 2 hydroxybenzoic acid (TBHB) and 4-aminophenazone and form quinone-imine dye and hydrogen bromide (HBr). The intensity of the red color proportional to the uric acid concentration can be measured by means of colorimetry. Analogous to NHANES III approach the sample with the concentration of uric acid greater than 20.0 mg/dL were twofold diluted and the resultant concentration was multiplied by two. Frequency of serum uric acid tierces is presented in Table 19.

Table 19. Tierces of serum uric acid concentration by Origin: NHANES III and NHANES 1999-2006. 1- the first tierce, 2- the second tierce, and 3- the third tierce. Division accordingly to findings of Wheeler at al.[54]

Tierces of Uric Acid Level	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
1	4992 24.93	5326 26.60	10318 51.53
2	3740 18.68	3442 17.19	7182 35.87
3	669 3.34	1853 9.25	2522 12.60
Total	9401 46.95	10621 53.05	20022 100.00

Serum Creatinine Measurements

NHANES III

Serum creatinine measurement is based on Jaffe reaction and modified by Popper, Seeling, and Wuest. The measurement utilized the property that in an alkaline medium, creatinine forms a yellow-orange-colored complex with picric acid. The light absorbance is proportional to the concentration of creatinine and may be measured photometrically.

NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006

Analogous to NHANES III approach the creatinine concentration was assessed by means of the modified Jaffe reaction. A yellow-orange-colored complex, a product of creatinine and piric acid in an alkaline solution was measured phtometrically. The light absorbance is proportional to creatinine concentration.

Analysis of glomerular filtration rate GFR and Kidney Disease Stage

Creatinine clearance was calculated accordingly to the KD-EPI equation [123-124] where GFR is glomerular filtration rate (mL/min per 1.73 m^2) and Src is serum creatinine concentration (mg/dL).

(1) black female and serum creatinine concentration is less or equal to 62 μmol/L (≤ 0.7mg/dL)

$$GFR = 166 * (Scr/0.7)^{-0.329} * (0.993)^{Age}$$

(2) black female and serum creatinine concentration is greater than 62 μmol/L (> 0.7mg/dL)

$$GFR = 166 * (Scr/0.7)^{-1.209} * (0.993)^{Age}$$

(3) white female and serum creatinine concentration is less or equal to 62 μmol/L (≤ 0.7mg/dL)

$$GFR = 144 * (Scr/0.7)^{-0.329} * (0.993)^{Age}$$

(2) black female and serum creatinine concentration is greater than 62 μmol/L (> 0.7mg/dL)

$$GFR = 144 * (Scr/0.7)^{-1.209} * (0.993)^{Age}$$

The frequency of Kidney Disease Stage as a function of glomerular filtration rate is shown in Table 20.

Table 20 Kidney Disease Stage by Origin: NHANES III and NHANES 1999-2006. Stage 1 – GFR ≥ 90; Stage 2- GFR < 90 and GFR ≥ 60; Stage 3 – GFR < 60 and GFR≥ 30; Stage 4 – GFR < 30 and GFR≥ 15 and Stage 5 – GFR < 15. Glomerular Flow Rate (mL/min per 1.73 m²) was calculated accordingly to KD-EPI equation[124].

Kidney Disease Stage	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
1	1238 6.18	5803 28.98	7041 35.17
2	4729 23.62	1965 9.81	6694 33.43
3	1259 6.29	456 2.28	1715 8.57
4	142 0.71	74 0.37	216 1.08
5	2033 10.15	2323 11.60	4356 21.76
Total	9401	10621	20022

Kidney Disease Stage	ORIGIN		Total
	NHANES III	NHANES 1999-2006	
	46.95	53.05	100.00

Statistical Analyses

Test for Association

The scale of measurement defined the statistical technique used for the data analysis. Categorical response variables can be divided into (1) dichotomous, (2) ordinal, (3) nominal, (4) discrete counts, and (5) grouped survival times. *Dichotomous* responses always have two possible outcomes "yes" or "no". Categorical response data that are possible to order and represent more than two outcomes have an ordinal scale of measurements. However, in there is no inherent ordering to the categories, the response data are measured on the *nominal* measurement scale. In specific cases categorical response variables fall into discrete counts. Thus instead of yes and no the discrete numbers 1 and 2 are used. The response variable may also fall into the category of *survival times*. With this type of data one may track the subject with certain outcome over time.

In a test for association the objective is to evaluate the association between the independent variable and the response variable while adjusting for the effect of the stratification variables.

The test *per se* involves calculating the differences between the observed and expected frequencies. Large differences between these two frequencies indicate the presence of association the small in turn indicate the lack of association. The test statistics is calculated using the following formula:

$$\sum_{i=1}^{r}\sum_{j=1}^{c}\frac{\left(O_{ij}-E_{ij}\right)^2}{E_{ij}}$$

, where O_{ij} is the observed frequency and E_{ij} is the expected frequency in the cell.; i is a row number and j is a column number. The calculated test statistic approximately follows a χ^2 distribution with $(r - 1) \times (c - 1)$ degrees of freedom. Thus, the χ^2 test indicates whether there is an association between two categorical variables. However, the statistics itself does not reflect the strength of association. This can be done be residual standardization using the following rule: the larger the absolute value of the residual, the more significant the association between the two variables.

RESULTS AND DISCUSSION

Association Between BMI and Tobacco Smoking Status.

In our study the association between body mass index (BMI) and the tobacco smoking status was measured by means of a test for general association. In the sufficiently large sample as in this case, with the expected cell counts greater than 5, Pearson "Q_P" has approximately the χ^2 distribution with (s-1)(r-1) degrees of freedom whereas randomization statistic "Mantel-Haenszel Chi-Squares statistics" is described by the following equation: $Q = \frac{n-1}{n} Q_p$.

The analysis of contingency table of body mass index by tobacco smoking status, Output 1, reveals that the majority of the studied subjects in all BMI classes do not smoke tobacco. The examination of Pearson chi-square statistics, it is the analysis of an association between BMI class and smoking status, Output 2, reveals the statistics value of Qp = 46.8 with two degrees of freedom, df = 2, that results in $p < 0.0001$. The evaluation of Mantel-Haenszel (MH) statistics, Output 3, reveals the Q value of "General Association" of 46.8066 with two degrees of freedom and the p value significantly less than 0.01. Both results indicate an association between the tobacco smoking status and BMI classes. Since contingency table is on interval scale we may employ the Pearson correlation coefficient for measurement of the strength of an association. The analysis of measures of the strength of association between BMI classes and the smoking status, Output 4, clearly indicates a very week positive association between BMI classes, underweight, normal, and overweight with tobacco smoking status. In other words an increase in body mass index is coupled with a smoking habit. Our results are in agreement with some of the previous reports. However, they also contradict a few. It is because current research on associations between BMI and tobacco smoking yields contradicting results. Some of the studies indicate an inverse association [125-126] while others exposed positive association [127] or no association at all [128]. There are also study presenting a mixed association between BMI and smoking such as, for example, Tromso study [129] that indicate the U-shaped relationship between smoking and BMI. The study on relations between BMI vs. tobacco smoking status indicates that former smoker are defined by higher BMI that non smokers or current smokers [130-131]. Results of one of the largest project that undertook the analysis of correlations between tobacco smoking and body mass that is MONICA Project [132], indicate that independently of a gender smokers are described by less body mass that individuals who had never smoked.

Association Between BMI and Alcohol Consumption Status.

The analysis of the contingency table of BMI class by an alcohol consumption status, Output 5Output 5, reveals a clear increase in alcohol consumption between the underweight BMI and normal and overweight BMI classes. There are also clear intra-class differences in alcohol consumption statuses. Thus in the overweight BMI the ratio of no-drinking subjects to alcohol drinking subjects is 4:1 whereas in the underweight BMI class the ratio is equal about 15:1. The test for general association between BMI class and alcohol consumption status, under the null hypothesis of no association, yields both p values, it is p value for $\chi 2$ statistics, Output 6, and p value for Cochran-Mantel-Haenszel statistics Output 7, significantly less than 0.01 indicating the presence of an association between the BMI classes and alcohol consumption status. The analysis of the strength of the correlation, Output 8, yields the Pearson correlation value r equal to -0.0991 which is indicative of extremely week association between body mass index and alcohol drinking habits. In other word, more subjects in the overweight BMI then in the underweight BMI class consume alcohol.

A multitude of studies on drinking and BMI [130, 133-141] indicated that moderate drinkers had the BMI values lower than frequent alcohol drinkers. However there are also reports indicating the opposite i.e. an increase in BMI associated with alcohol consumption [142-143]. Thus the latter confirm and are confirmed by our results.

Association Between BMI and Pregnancy Status.

In this study we perform the primary analysis of the association between body mass index and the pregnancy status using the contingency table of BMI classes vs. pregnancy status; pregnant, no-pregnant. Since the main objective of this study is to analyze changes in BP versus different health quality related factors we decided to check if pregnancy is a covariate of BP. The contingency table of BMI versus the pregnancy status for the NHANES III and NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006 data is shown in Output 9. The test for general association under the null hypothesis of no association yields both p values, p value for χ^2 statistics, Output 10, and p value for Cochran-Mantel-Haenszel statistics, Output 11, significantly less than 0.01. This indicates an association between defined BMI classes and pregnancy status. The analysis of the strength of the association indicates extremely week negative association between BMI and pregnancy status, Output 12. This observation confirms an increase of body weight during pregnancy. However, across all ages and ethnic groups this change is rather weak.

The analysis of current literature on this subject indicates that changes of body mass during pregnancy have a paramount influence on both mother and infant health risk [144-148]. For example, results of subsequent twenty one years of study [149] indicated that women experiencing hypertensive disorders of pregnancy have elevated weight gain when compared to these not experiencing such disorder. It has also been shown that postpartum weight gain is driven mainly by en excessive gain during pregnancy period [150-153]. The adverse implications of an excessive gestational weight elevation on multiple health related issues, among them hypertension, can however be both prevented and monitored through the weight development during pregnancy [153-157].

Association Between BMI and Chemotherapy Status.

Accordingly to Dorland's Medical Dictionary *"chemotherapy is the treatment of illness by chemical means (medication); the term was first applied to the treatment of infectious diseases, but it now is used primarily to refer to treatment of mental illness and cancer. adj., chemotherapeutic"*. Taking into account the invasive nature of chemotherapy we may expect chemotherapy induced changes in BMI. The recent studies on the subject indicated significant increase in body mass index in response to chemotherapy treatment of testicular cancer [158]. Similar results were reported for adjuvant chemotherapy in women with breast cancer [159]. It has also been shown that cranial irradiation may also induce increase in body mass index in survivors of childhood acute lymphoblastic leukemia [160]. All these information indicate that chemotherapy, if administered, should be considered and important factor when assessing BMI induced changes in hypertension. The analysis of the prevalence of chemotherapy patients in the NHANES III and NHANES 1999-2006 data sets results indicate significantly greater number of subject undergoing chemotherapy among the overweight subjects than this observed for normal and underweight BMI classes, Output 13.

The test for general association under the null hypothesis of no association yields both p values, it is p value for χ^2 statistics, Output 14, and p value for Cochran-Mantel-Haenszel statistics, Output 15, significantly less than 0.01 indicating the presence of an association between defined BMI classes and administration of chemotherapy. However, the analysis of the strength of the association, Output 16, indicates extremely week negative association between BMI and chemotherapy. In other words there is an increase in BMI in chemotherapy administered patients.

Association Between BMI and Breastfeeding Status.

The literature on the subject of correlations between pregnancy and body mass gain had shown that during pregnancy women gain total body weight and accrue body fat. To prevent undesirable weight gain and BMI gain lactation, due to its high energy cost, is often suggested as an efficient means of postpartum weight loss [161-165]. In the recent study on correlations of breastfeeding and maternal body composition [166] the researchers have shown that breastfeeding not only prevents postpartum maternal obesity gain but also accelerate return to pre-pregnancy state. This may obviously correlate with improvement in health related quality of life. Taking this into account we analyzed frequency table of self reported breastfeeding status and BMI classes as well as performed the test for general association for these two parameters.

The test for general association yields p value for χ^2 statistics, Output 18, and p value for Cochran-Mantel-Haenszel statistics, Output 19, significantly less than 0.01 indicating for an association between defined BMI classes and breastfeeding. The analysis of the strength of the association, Output 20, indicates extremely week negative association between both parameters. In other words the analysis of the strength of the association contradicts the trend observed by others. However, taking into account the strength of the association from statistical point of view our results are rather inconclusive.

Association Between BMI and Contraception Use.

There is a general believe that hormonal contraceptive induce elevation in body weight [167]. The random survey among 1753 randomly selected women aged 15-45 performed in Great Britain at the beginning of 1990s indicated that contraceptive use results in weight gain [168]. The early observation derived from the Great Britain study was later confirmed by the two independent reports [169-170]. Similar study performed in the United States indicated that a majority of contraceptive pills users were much concerned about their weight gain [171]. As reported letter [170] not only weight gain is associated with contraception use, but also nausea, headache and menstrual abnormalities. These factors are also among the causes of discontinuation of contraception [170, 172]. All these observations are supported by the newer studies on the subject [173-174]. However, they also indicated that although there is an increase in body mass after administering contraception, the observed increase is no significant. To analyze the association between BMI and contraception use we arranged the NHANE III and NHANES 1999-2006 data into contingency table, Output 21, and performed a test for general association. The analysis of p values of χ^2 association statistics, Output 22, and Cochran-Mantel-Haenszel statistics, output 23, yields the presence of an association between BMI and contraception use. The analysis of the strength of the association reveals very weak, positive association between these two parameters Output 24. This observation indicates that indeed the administration of contraception may lead to an increase in body mass.

Association Between BMI and Total Cholesterol Levels

A number of studies demonstrated a directly proportional relation between blood cholesterol and age [175-179] and body mass index [180-182]. However, there are also studies indicating the absence of direct correlations between body mass index and total cholesterol level [183-186]. For many years the majority of the studies on rather small size groups of subjects which might lead to significant bias in the obtained results. This was overcome by the WHO Multinational Monitoring of Trends and Determinants in Cardiovascular Disease (MONICA) - the study initiated in the early 1980s[187]. Although the main objective of this study was to assess risk factors in CHD one of the reports based on MONICA results undertook the task of analysis of correlations between BMI and blood total cholesterol [188]. The results of this study indicate that prevalence of hypercholesterolaemia (PHC) defined as cholesterol level > 6.5 mmol/l increases with age. Statistically significant a positive association between hypercholesterolaemia and BMI was also observed. However, the strength of the correlation between PHC and BMI decreases along the progressing age resulting in the absence of statistically significant association in females older than 50 years of age. To verify the previously made observation against the NHANES III and NHANES 1999-2006 we analyzed contingency table of BMI classes by total cholesterol levels, Output 25 and probability values of Pearson chi-square, Output 26, and Cochran-Mantel-Haenszel Statistics, Output 27, for the test for association. We have to point there that in our study we do not stratify for age and in this regard our study differs from those of Gostynski et al. [188]. The visual scrutiny of contingency table reveals that underweight BMI class is defined by significantly less subjects with high serum total cholesterol levels than normal and overweight BMI classes. The tests for association yield the presence of an association between BMI class and total cholesterol class. The analysis of the Pearson correlation, Output 28, between BMI and total cholesterol classes yield week positive association indicating the indeed overweight subjects are defined by undesirable high levels of total cholesterol.

Association Between BMI and HDL Cholesterol Levels.

It has been shown that BMI is reverse-proportionally associated with levels of HDL cholesterol [189-190]. However, the effect of the gender on age dependent HDL levels change is at current stage not clear. For example the study on nondiabetic american indians [191] revealed clinically significant changes in HDL-C and BMI ratio in men but not in women. Anderson et al. [192] also indicates that there are no statistically significant differences in lipoprotein levels between men and women. The results reported by Choi et al. [193] indicates the opposite correlation between HDL-C and total body fat (TFB) between men and women. Thus, in men there is a reverse proportional relation between HDL-C and TFB and in women a proportional relation between HDL-C and TFB. To assess the presence of an association between BMI and HDL-C levels as well as to analyze the strength and direction of this association we grouped the NHANES III and NHANES 1999-2006 data into contingency table, Output 29, and performed chi-square, Output 30, and Cochran-Mantel-Haenszel , Output 31, tests for association, and analyzed the strength of the association by means of Pearson correlation, Output 32. The analysis of the results yields the very week positive association between BMI classes and HDL-C levels.

Association Between BMI and LDL Cholesterol Levels.

Although the subject of correlations between BMI and LDL-C should, because of its direct connection with HQoL, attract a lot of attention only a few reports undertook the topic. Though recent studies on relationships of body mass index with serum lipids in elementary school students reveals significant correlation between BMI an LDL-C [194]. However, the study analyzing body mass dependent lipid profiles in women from Kaduna, Northern Nigeria [195] reveal the lack of statistically significant differences between different body mass index groups. This result is at least partially contradicted by the results of the recent research on correlation of dyslipidemia with BMI in Iranian adults [196] indicating week correlation between LDL-C and BMI index. To assess the presence of correlations between LDL-C and BMI as well as to analyze the strength of this correlation, under the null hypothesis that such is present, we grouped the data into contingency table, Output 33 and performed χ^2 and Cochran-Mantel-Haenszel test for association. The results of these tests are shown in Outputs 34 and 35. The analysis of the results of association tests reveals the presence of the association between body mass index and the level of LDL cholesterol. The analysis of the strength of this association, measured by means or Pearson coefficient, Output 36, yields the weak value of 0.15. In other words an increase in body mass is accompanied by an increase in LDL-C levels.

Association Between BMI and Triglyceride Levels.

A number of reports indicated the association of lipid profiles with a lifestyle [197-198], age [199], obesity [191] and BMI [200]. The progressing increase in obesity [201-203] and the metabolic syndrome [204-205] indicate that industrial development may lead to increase of a rate of cardiovascular disease in highly developed nations. However, the recent study indicates that the situation is not that dramatic. The Framingham study exposed a progressing decrease in triglyceride level in US population between 1998-2001 and 1990-1994 [206]. Independently of this observation dyslipidemia accompanies obesity and as such is among the main risk factors of CVD. Similar pattern of increase in triglycerides level as a function of obesity was observed for men [44], women [207], and children [208].

To confirm the previously reported observations it is to verify that an increase in body mass index is directly proportional to an increase in triglyceride level, which has its reflection if increased risk of CVD, we performed the analysis of the association between BMI classes and ATP III defined triglyceride categories. The analysis of the contingency table, Output 37, of BMI class by triglyceride category reveals that obesity if accompanied by an increase in subjects defined by debilitated triglyceride levels. The analysis of probability values of Person chi-square statistics and Cochran-Mantel-Haenszel statistics reveals the presence of an association between BMI class and triglyceride level, Outputs 38 and 39. The analysis of the strength of association performed by means Pearson correlation, Output 40, yields directly proportional association weak association. Thus, an increase in BMI index class is associated by an increase in the triglyceride class.

Association Between BMI and Glomerular Flow Rate (GFR).

The recent studies indicate obesity as a potential risk factor in renal function loss. However, this only applies to condition such a unilateral nephrecomy [209] or renal transplant [210-215]. Clinical studies have also shown a direct proportional increase in renal risk in subject without overt comorbidity [209, 216-218]. Studies on correlations between BMI and renal function within the non obese subjects indicated a higher BMI is associated with an elevated GFR relative to effective renal plasma flow (ERPF) [219]. However, the recent study on age depended correlations between age and chronic kidney disease (CKD) [220] which can be measured by changes in GFR [221] indicate positive correlation between age and CKD. The analysis of correlations between the BMI and GFR expressed as stages of chronic kidney disease results in the contingency table shown in Output 41. The chi-square statistics, Output 42, and Cochran-Mantel-Haenszel statistics, Output 43, p values reveal the presence of an association between BMI and stages of chronic kidney disease. The analysis of the strength of the association, Output 44, yields a weak reverse proportional relation between BMI and CKD. This result is somehow surprising since it indicate that underweight subjects are defined by failure in renal function which contradicts the earlier findings.

Association Between BMI and Serum Uric Acid Level.

In the recent years epidemiological studies indicated that serum uric acid level (SUA) is related, among others, to risk of hypertension and coronary heart disease [222]. In clinical and epidemiological studies, serum uric acid (SUA) has been found to be related not only to risk of gout, but also to risk of hypertension [223-226], coronary heart disease [67, 227-229], and diabetes mellitus [230-231]. It has also been shown that the level of SUA is correlated with age gender and body weight [232-234]. A number of studies also found directly proportional relation between BMI and SUA [233, 235-239].

Also in this report we analyze the correlation between body mass index and tierces of serum uric acid in NHANES III and NHANES 1999-2006 comprised samples. The contingency table of BMI and a SUA tierce is shown in Output 45. The visual analysis of contingency table reveals that underweight sample is defined by the highest frequency in the third tierce of SUA. The results of the association analysis performed by means of χ^2 and Cochran-Mantel-Haenszel Statistics reveals the presence of an association between BMI and tierces of serum uric acid levels, Output 45 and 46. However, contrary to the previous reports we observe very week negative correlation between BMI and tierces of serum uric acid level; Output 48.

Association Between Pregnancy Status and Levels of Total Cholesterol.

Six years longitudinal study on a cohort of 831 Dutch women revealed statistically higher total cholesterol level than non pregnant women [240], thus confirming the previous observations [241]. However the analysis of changes of total cholesterol level stratified by pregnancy trimesters revealed a decrease in TC level during the first trimester and peaking during the third trimester [242]. This result is partially confirmed by the comparative study on two groups pregnant and non-pregnant which indicate that the level of total cholesterol increased considerably during the second trimester and peaked during the third trimester [243]. However, on this study the researchers did not observe previously described first trimester related changes. During post-partum the level of total cholesterol decreased significantly.

The statistical analysis of NHANES III and NHANES 1999-2006 data encompassed by contingency table, Output 49, reveals the presence of an association between pregnancy and total cholesterol level, Output 50 and 51. The analysis of the strength of the association points to extremely weak and negative association between these two parameters, indicating that pregnancy is very weakly associated with undesirable changes in total cholesterol level, Output 52.

Association Between Pregnancy Status and Levels of HDL Cholesterol.

The longitudinal study on a cohort of Dutch women revealed statistically higher HDL cholesterol level than non pregnant women [240]. This result is in agreement with the earlier study reporting extreme increase in HDL-C level increase during pregnancy [241]. The results of the recent study on pregnancy-related hyperlipidemia confirm the previous observation and indicate that pregnancy is accompanied by significant increase in HDL-C cholesterol [244].

The analysis of the contingency table, Output 53, of pregnancy status versus HLD-C levels reveals higher ratio of High Class/Normal Class in HDL-C level among pregnant women as compared to non-pregnant. The analysis of the result of test for association, Output 54 and Output 55, reveals the presence of an association between pregnancy status and predefined HDL-C levels. The association strength analysis reveals very week and negative association between studied parameters, Output 56, indicating an increase in HDL cholesterol among pregnant women. In this regard our findings support the previous reports.

Association Between Pregnancy Status and Levels of LDL Cholesterol.

The study on LDL level changes as a function of pregnancy revealed that LDL-C profile remained unchanged throughout pregnancy [245]. These observations are contradicted by results of the study on Asian vegetarians and non-vegetarians, and in Caucasian meat eating mothers indicating that LDL cholesterol concentration rises during pregnancy period [241]. The results of this study are congruent with the recent data indicating significant increase in the level of LDL cholesterol during pregnancy [244]. However, the study on pregnancy induced hypertension indicates also an increase in serum LDL-C concentration [246].

The analysis of the NHANES III and NHANES 1999-2006 data yields contingency table, Output 57, used for the test of association between pregnancy status and LCL cholesterol levels. The analysis of the tests for association, Outputs 58 and Output 59, reveals the presence of an association between pregnancy status and levels of LDL cholesterol. The analysis of the strength of the association indicates a very week negative association between these two parameters, Output 60. Thus, the analysis of NHANES III and NHANES 1999-2006 confirms the previous results.

Association Between Pregnancy Status and Levels of Triglycerides.

The early study on correlations between pregnancy and triglyceride levels reported dramatic increase in triglyceride concentrations during pregnancy [241]. It was also observed that triglyceride levels increased significantly during the second trimester, peaked in the third trimester and significantly decreased during post-partum [243]. These results are concomitant with the recent data indicating significant increase in triglyceride levels during pregnancy [244]. The analysis of serum lipid and apolipoprotein levels in pregnancy-induced hypertension revealed pregnancy induced increase in serum triglyceride level [247].

The analysis of the NHANES III and NHANES 1999-2006 data results in contingency table, Output 61 indicating extremely low frequency of high triglyceride levels among pregnant women. The analysis of Pearson chi-square statistics, Output 62, and Cochran-Mantel-Haenszel statistics, Output 63, indicates an association between pregnancy status and triglyceride levels category. The analysis of the strength of the association reveals the presence of a week negative association between pregnancy status and triglyceride levels, Output 64. In other words an increase in triglyceride levels concomitant with pregnancy.

Association Between Breastfeeding Status and Levels of Total Cholesterol.

The study on an influence of lactation on lipid metabolism in women with recent gestational diabetes revealed that lactation plays a salubrious role on lipid metabolism [245]. The study on serum cholesterol levels during prolonged lactation [248] revealed that mean levels of serum total cholesterol significantly decreases during the first six months of lactation. However, it was observed that in some women total cholesterol levels increased two month after ceasing of lactation.

The statistical analysis of contingency table, Output 65, comprising NHANES III and NHANES 1999-2006 breastfeeding status by levels of total cholesterol results reveals the lack of association between breastfeeding and total cholesterol levels, Outputs 66 and 67.

Association Between Breastfeeding Status and Levels of HDL Cholesterol.

The analysis of the current literature on the subject exposed extremely scarce information on correlations between breastfeeding status and maternal blood HDL cholesterol levels. One of the recent studies on the subject indicates that HDL-C levels increase during lactation period [249]. The same study has also shown that in smoking lactating mothers HDL cholesterol levels were lower than in non smoking mothers.

The analysis of Pearson Chi-Square Statistics, Output 69, and Cochran-Mantel-Haenszel Statistics, Output 70 based on the content of contingency table, Output 68, indicates the presence of statistically significant association between breastfeeding status and HDL-C levels. The analysis of the strength of the association, Output 71 reveals week positive association between the studied parameters. This observation contradicts the previous report and indicates that breastfeeding is not associated by an increase in HDL-C levels

Association Between Breastfeeding Status and Levels of LDL Cholesterol.

The mean value of LDL cholesterol concentrations decreased significantly between delivery and 6 months of exclusive lactation [248]. This observation was confirmed by the study revealing a decrease in LDL-C levels during three months of lactation [249]. It has also been shown that smoking during lactation induces an increase in LDL cholesterol levels [249].

The statistical analysis of contingency table of NHANES III and NHANES 1999-2006 data, Output 72, reveals the presence of an association, at an alfa level of 0.05 but not at 0.01, between breastfeeding status and LDL cholesterol levels, Outputs 73 and Output 74. Thus, the analysis of the combined data, i.e. the data comprising NHANES III and NHANES 1999-2006 data, yields the results that contradict those reported previously.

Association Between Breastfeeding Status and Levels of Triglycerides.

The analysis of the dynamics of blood triglyceride levels changes as a function of lactation revealed that women who did not breastfeed their infants maintained an elevated level of triglycerides longer that those breastfeeding [242]. It has also been shown that the lactation period leads to a decrease in triglyceride levels in both smoking and nonsmoking mothers [249].

The statistical analysis of contingency table of breastfeeding by predefined serum triglyceride levels, Output 75, indicates the lack of association between the analyzed parameters, Outputs 76 and Output 77. Thus, the analysis of NHANES III and NHANES 1999-2006 data disproves the earlier statements indicating changes in serum triglyceride levels as a function of breastfeeding status.

Association Between Tobacco Smoking Status and Levels of Total Cholesterol.

Smoking may be a cause of a multitude of diseases [250]. However, cancer is the most prevalent among them [250]. A very high death rate has also been reported for smokers [251]. It has also been shown that current smoking is coupled with an acute increase of hypertension [252]. Nonetheless, results on smoking and increased blood pressure are obscure. Some of the earlier studies indicated that lower blood pressure accompany higher level of cigarette smoking [253-254]. The recent study on correlations between cigarette consumption and blood pressure revealed that older men smokers are defined by significantly higher SBPs and comparable DBPs to never smokers. Nevertheless, in non-clinical samples a higher blood pressure was found in former or never smokers than in current smokers [252, 255-257]. These results are coupled with observations that consumption of cigarettes is congruent with consumption of alcoholic beverages [258] and gives an indication as to the etiology of smoking induced changes in systolic blood pressure. The recent findings also indicate that increased smoking burden is *per se* a factor leading to a small increase in total cholesterol levels [259]. It has been shown that smoking intensifies the effect of total cholesterol and HDL cholesterol on CHD [260-261]. Additionally an observation has been made that smoking is directly associated with detrimental lipid changes which are do not directly affect an increase in the risk of CHD [262]. Smoking also has a significant influence on changes in the HDL cholesterol/total cholesterol ratio [263]. However, it affects HDL cholesterol levels more than total cholesterol levels.

In our study we analyze the contingency table of smoking status by levels of total cholesterol, Output 78, by means of chi-square, Output 79 and Cochran-Mantel-Haenszel statistics, Output 80. The analysis of the respective p values, 0.3928 and 0.805, exposes the lack of association between smoking status and total cholesterol levels predefined by ATP III panel [37]. In conclusion, our results do not confirm the statement indicating that tobacco smoking induced changes in total cholesterol levels.

Association Between Tobacco Smoking Status and Levels of HDL Cholesterol.

The study on the association between quitting smoking and weight gain indicted that there is a significant independent and favorable effect of smoking cessation on HDL cholesterol levels [263-267] . The Israeli CORDIS study [268] partially supports the findings indicating that smoking cessation results in a non-significant increase in serum HDL cholesterol levels. These results combined with the recent data indicate that an increased exposure to tobacco smoking is associated with a small decrease in HDL-C levels [259], as well as confirm tobacco smoking relation to health risk. The results of the previous study on an association between blood lipid and smoking habits among 18 year-old men also indicated that tobacco smoking is associated with a non significant decrease in HDL-C levels [269].

The statistical analysis of NHANESIII and NHANES 1999-2006 data on smoking status and HDL-C classification, Output 81, yields the p values for chi-square, Output 82, and Cochran-Mantel-Haenszel statistics, Output 83, less than 0.01. This observation indicates that there is a general association between tobaccos and HDL cholesterol levels. The analysis of the strength of the association, Output 84, reveals very week negative association between these two parameters. Thus, our study confirms the previous findings and indicates that tobacco consumption decreases HDL-C levels.

Association Between Tobacco Smoking Status and Levels of LDL Cholesterol.

It has recently been shown that smoking habit is associated with a small increase in LDL-C levels [259]. This result contradicts the earlier reports on tobacco smoking and blood lipids correlations indicating a small and statistical non significant increase in LDL-C levels among young smoking men [269]. However, the study on smoking cessation blood lipids driven changes indicates that tobacco smoking cessation results in a non significant increase in serum LDL-C levels [268].

The statistical analysis of NHANESIII and NHANES 1999-2006 data reported in smoking status by LDL-C levels contingency table, Output 85, yields the p values for chi-square, Output 86, and Cochran-Mantel-Haenszel statistics, Output 87, less than 0.01 that indicates the presence of general association between tobacco smoking status and HDL cholesterol levels. The analysis of the Pearson correlation coefficient indicates an extremely week negative association between these two parameters, Output 88 that confirms the earlier findings that indicate an increase in LDL-C levels as a function of tobacco consumption.

Association Between Tobacco Smoking Status and Triglyceride Levels.

The recent studies on cigarette consumption and serum blood lipids levels revealed that smoking is associated with small increase in blood triglycerides levels [259]. Smoking cessation, however, correlates with a slight decrease in serum triglycerides levels [268].

The statistical analysis of NHANESIII and NHANES 1999-2006 data, Output 89, yields the p values for chi-square, Output 90, and Cochran-Mantel-Haenszel statistics, Output 91, less than 0.01. This allows to draw a conclusion that there is an association between tobacco smoking status and blood HDL cholesterol levels. The analysis of the Pearson correlation coefficient indicates an extremely week negative association between these two parameters, Output 92. Thus a conclusion can be drawn that tobacco smoking is accompanied by an increase in blood triglyceride levels.

Association Between Alcohol Consumption Status and Levels of Total Cholesterol.

Alcohol consumption my influence total cholesterol levels [270]. However, the changes in total cholesterol levels are more extreme when excessive alcohol consumption is combined with nutritional deficiencies. In such a case total serum cholesterol [271] levels are decreased. However, this observation is not conclusive since another study has reported the lack of alcohol induced changes in total plasma cholesterol [272]. It has also been shown that in non-smoking men total cholesterol levels are positively correlated with alcohol intake and that an association between total cholesterol and alcohol consumption is significantly influenced by cigarette smoking [273].

The analysis of the results of chi-square statistics as well as Cochran-Mantel-Haenszel Statistics, Output 94 and 95, based on contingency table of alcohol consumption by total cholesterol category, Output 93, yields an association between alcohol consumption and total cholesterol levels. The analysis of the strength of an association by means of the Pearson "r" factor, Output 96, indicates a very weak and negative association between these two parameters. In other words tobacco smoking is associated with an increase in total cholesterol levels.

Association Between Alcohol Consumption Status and Levels of HDL Cholesterol.

It has been shown that HDL concentration raises together with moderate alcohol consumption[274-279] , which in turn may play protective role against CHD [32]. The study performed in two Serbian cohorts of the Seven Countries indicated that men consuming one or more alcoholic beverages per day have 16.5% higher HDL-C levels than those abstaining alcohol [280]. It was, however, shown that the significance of a change is defined by the type of an alcohol. Thus, changes are statistically significant only after beer and spirits, consumption. On the other hand, wine consumption does not results in statistically significant changes in HDL-C levels [281]. However, the study on correlations between alcohol consumption including beer and wine and health indicators such as HDL cholesterol levels indicated alcohol induced increase in HDL cholesterol levels [282]. Similar results were reported for Japanese population. Another study also indicated that an increase in the HDL cholesterol levels is independent of the kind of an alcoholic beverage [283]. It has also been shown that among postmenopausal women fed a controlled diet, HDL cholesterol levels increases after consumption of 30 g of ethanol per day over a period of eight weeks [284]. The study on alcohol consumption and HDL cholesterol level among premenopausal women also indicated an increase in HDL cholesterol levels [285]. The new finding also reports an association between the body mass influence on an association between alcohol consumption and hypertension as well as the lack of an influence of body mass on association between alcohol consumption and HDL-C levels [286].

The analysis of the results of chi-square statistics as well as Cochran-Mantel-Haenszel Statistics, Output 98 and 99, based on contingency table of alcohol consumption by total cholesterol category, Output 97, indicates the presence of an association between alcohol consumption and HDL cholesterol levels. The analysis of the association strength by means of the Pearson "r" factor, Output 100, indicates a very weak and negative association between these two parameters revealing that alcohol consumption is weakly associated with an increase in blood HDL-C levels.

Association Between Alcohol Consumption Status and Levels of LDL Cholesterol.

It has been shown that LDL-cholesterol levels have a statistically significant negative relationship [283] with alcohol consumption. Similar results were reported for six year follow up in the Copenhagen male study [287]. The study on correlations between alcohol consumption and LDL-C levels among older adults also indicated negative relationship between alcohol consumption and LDL cholesterol levels [288]. The report on alcohol consumption driven serum lipids changes among premenopausal women indicated eight percent decrease in blood LDL cholesterol levels [285] associated with alcohol consumption. Congruent results were obtained in the study on postmenopausal women [284] indicating that plasma LDL cholesterol levels decreases after consumption of 15 g ethanol per day [284]. These observation were confirmed by a multicenter, randomized, clinical intervention trial [289].

The analysis of the results of chi-square statistics as well as Cochran-Mantel-Haenszel Statistics, Outputs 102 and 103, based on contingency table of alcohol consumption table by total cholesterol category, Output 101, exposed an association between alcohol consumption and blood LDL cholesterol levels. The analysis of the association strength by means of the Pearson "r" factor, Output 104, indicates extremely weak and negative association between these two parameters. In our opinion the design of our experiment is so much different presented by the others that the obtained level of the strength of the association is rather inconclusive.

Association Between Alcohol Consumption Status and Levels of Triglycerides.

The study on an influence of tobacco and alcohol consumption on serum lipid levels indicated that in non-smoking men triglyceride levels are positively associated with an alcohol intake and that association between total cholesterol levels and alcohol consumption is influenced by cigarette smoking [273]. The study on effects of an alcohol on plasma lipoproteins and cholesterol levels in hospitalized patients fed with a defined diet indicated that alcohol consumption did not cause any changes in low density lipoprotein levels [290]. However the study on correlations between specific alcohol consumption and triglycerides levels indicated significantly lower levels of the latter among beer drinking subjects [283]. Hence, the report based on results of The British Regional Heart Study on alcohol consumption and the levels of blood lipids indicated that among non-smokers triglyceride levels are significantly and positively associated with alcohol consumption [273]. The contradicting results were reported by German National Health Survey indicating that in moderate alcohol drinkers there is no significant relationship between triglyceride levels and alcohol consumption [282]. The recent study performed on a population with high alcohol consumption indicated that triglyceride levels are higher among non drinkers than heavy drinkers [291].

Summarizing, we may say that levels of lipoproteins are defined by a variety of factors such as gender: HDL-C is higher in prememopausal women than in men of the same age; age: total cholesterol levels increase with age and HDL-C cholesterol levels decrease with age; diet: total cholesterol levels, HDL-C levels, triglyceride levels increase when exposed to fat rich diet; physical exercise: HDL-C levels increase and triglyceride level decrease as a function of physical exercise.

Diseases may also influence changes in triglyceride levels. For example diabetes leads to an increase in total cholesterol levels, HDL-C levels and triglyceride levels. All the aforementioned phenomena can be stimulated or decreased by an alcohol consumption as well as cigarette smoking. Thus, in our opinion the analysis of alcohol consumption on levels of lipoproteins is extreme importance when assessing health related quality of life.

The analysis of the results of chi-square statistics as well as Cochran-Mantel-Haenszel Statistics, Output 106 and Output 107, based on contingency table of alcohol consumption table by total cholesterol category, Output 105, yields the presence of an association between these

two variables. The analysis of the association strength, Output 108, reveals an extremely weak and positive association between these two parameters. In other word alcohol consumption is associated with a decrease in serum triglyceride levels.

Association Between Chemotherapy and Levels of Total Cholesterol.

Chemotherapy is associated by a variety of side effects such as anemia, appetite changes, bleeding problems, constipation, diarrhea, fatigue, hair loss (llopecia), increased susceptibility to infections, memory changes, mouth and throat diseases, nausea and vomiting, nerve changes, pain, sexual and fertility changes, skin and nail changes, and swelling (fluid retention). Since chemotherapy induce toxicities (or side-effects) that on the scale from one to five have is median around 2 to 3 we may definitely expect its influence on a variety of physiological factors and among them changes in blood lipids levels; it is changes in total cholesterol levels, HDL-C, LDL-C, and triglyceride levels.

The study on blood serum lipid changes as a function of chemotherapy in patients with chemosensitive cancers revealed significant increase in serum total cholesterol levels among the patients who responded favorably to the chemotherapy procedure [292].

The study on serum lipids in 61 breast cancer patients undergoing cancer therapy revealed that levels of serum total cholesterol decreases significantly after breast cancer therapy [293]. On the other hand, there are the study on chemotherapy induced changes in total cholesterol levels, performed on 40 patients with hematological malignancies, that indicated the lack of significant changes in total cholesterol levels within a short time after therapy [294].

Partially contradicting results are presented for the patients treated with adjuvant chemotherapy for early stages of breast cancer [295]. The results reported by this study indicate that changes in total cholesterol levels are a function of an ovarian function. Thus, total cholesterol levels increased in patients that developed ovarian dysfunction or amenorrhoea. However, among the patients who preserved regular menstruation after chemotherapy the serum total cholesterol levels did not change. This observation are in agreement with the previous reports indicating that chemotherapy induces changes of serum lipids but only with association with ovarian dysfunction [296].

The statistical analysis of contingency table, Output 109, comprising chemotherapy status by levels of total cholesterol results reveals the lack of association between chemotherapy and total cholesterol levels, Output 110 and Output 111. In the design presented here our study does not confirm the earlier findings indicating chemotherapy induced changes in

serum total cholesterol levels. However, it has to be stressed that we study general influence of chemotherapy on total cholesterol levels and this may differ from the specific treatments of the specific cancers.

Association Between Chemotherapy and Levels of HDL Cholesterol.

The study on subjects treated using chemotherapy for chemosensitive cancers revealed the lack of significant changes in HDL cholesterol levels among patients that favorably responded to the treatment [292]. Two other studies reported assonantiall results as to the level and direction of changes in blood HDL cholesterol in response the chemotherapy. Thus, Rzymowska et al. [297] report a non-significant increase in HDL-C cholesterol levels in breast cancer chemotherapy patients [297]. Similar observation was reported earlier of Subramaniam at al. [298]. Congruent observation was also reported by Vehmanen at al. [295]. We have to point that although the authors state that "HDL cholesterol levels slightly decreased regardless of menstrual function" the analysis of Table 1 in the original report indicates the opposite, it is non-significant increase in HDL-C levels irrespectively of regular menses, irregular menses or amenorrhoa.

The statistical analysis of contingency table, Output 112, comprising chemotherapy by levels of total cholesterol results reveals the lack of association between chemotherapy status and total cholesterol levels, Output 113 and Output 114. The tests for general association between serum HDL levels and chemotherapy status do not confirm the previous findings.

Association Between Chemotherapy and Levels of LDL Cholesterol.

It has been shown that among untreated breast cancer patients LDL cholesterol levels decreased significantly after a chemotherapy treatment [293]. The studies on changes of LDL cholesterol concentrations in response to a chemotherapy of chemosensitive cancers revealed that patients favorably responding to the therapy were defined by an increase in LDL cholesterol levels [292]. Similar observation was reported in the study on tamoxifen treatment and chemotherapy-induced ovarian failure [295]. An increase in LDL-C levels was observed among patients with irregular menses, amenorrhoa in six months follow up after the treatment. In regular menses patients a U-shaped change in LDL-C levels was observed. These results partially contradicts those reported by Rzymowska et al [297] that indicate a significant decrease in chemotherapy induced LDL-C changes in pre- and postmenopausal women. Different pattern of changes in levels was reported in the study on serum lipids levels in chemotherapy patients for disseminated and nonseminomatous testicular cancer. In the study an elevation in LDL-C levels in the majority of the patients was reported [299].

The statistical analysis of contingency table, Output 115, comprising chemotherapy status by serum total cholesterol levels reveals the lack of association, at a significance level of 0.01, between chemotherapy status and total cholesterol levels, Output 116 and Output 117. Thus, we conclude that the analysis of NHANES III and NHANES 1999-2006 data does not confirm the previous findings. This observation may be driven by the fact that we do not distinguished between chemotherapy treatments for different cancers. Our study are an attempt of generalization of the problem which in this case indicate that there is no change in serum LDL cholesterol levels in response to broadly defined chemotherapy.

Association Between Chemotherapy and Triglyceride Levels.

The study on changes in serum triglyceride levels as a function of chemotherapy of four different chemosensitive cancers, i.e., malignant lymphomas, breast carcinomas, small-cell lung carcinomas, and urothelial-cell carcinomas revealed an increase in serum triglyceride levels only in patients treated for breast carcinomas [292]. Another study focused on the analysis of changes in blood triglyceride levels according to menstrual status of chemotherapy patients across a time period of 12 months revealed a non-significant increase in triglyceride level [295]. This observation is partially in agreement with the previous reports indicating non-significant changes in serum lipid levels in patients treated for testis cancer [300].

The statistical analysis of contingency table, Output 118, comprising chemotherapy by serum triglyceride levels reveals the lack of association between chemotherapy and total cholesterol levels, Output 119 and Output 120. This observation is in partial agreement with the previous studies indicating statistically non significant changes in serum triglyceride levels in response to chemotherapy treatment.

Association Between Contraception Use and Levels of Serum Total Cholesterol.

The study on 17-year-old girls using oral contraceptives revealed an elevation in serum total cholesterol levels in response to contraceptives administration [301]. However, the studies on changes in plasma cholesterol levels among Nigerian long term oral contraception users report the lack of statistically significant differences in total cholesterol levels between women using oral contraception and those in the control group [302].

The analysis of the current literature on the subject indicates that changes in blood total cholesterol levels depend on the type of the used contraception. Thus, a comparative study of three contraception methods indicates that total cholesterol levels increased in subject administered with ethinyl estradiol and norgestrel, and medroxyprogesterone acetate. The group receiving levonorgestrel is described by a decrease in the total cholesterol levels after six month of contraception use [303]. The recent study on the influence of transdermal contraception on blood total cholesterol levels reveals a statistically significant increase in total cholesterol concentrations after using contraceptive patches [304]. However, the studies on an influence of levonorgestrel-releasing intrauterine system on total cholesterol levels yield the lack of statistically significant changes in blood total cholesterol [305].

Primarily to data analysis and discussion we have to state that our analysis does not differentiate between types of contraception. The analysis of the contingency table, Output 121, indicates that there is an association between contraception use and serum total cholesterol levels,

Output 122 and Output 123. The analysis of the association strength, Output 124, reveals extremely week positive association between these two factors. This observation indicates that contraception use, regardless of its type, i.e., oral, patches or intrauterine system, leads to a decrease in serum total cholesterol levels. Thus in this regard our results confirm the previous findings.

Association Between Contraception Use and HDL Cholesterol Levels.

One of the early studies on the oral contraceptive use and HDL cholesterol levels indicted the lack of statistically significant changes in response to oral contraceptive use [306]. However, the recent study on the influence of progestogen-only contraceptives on serum lipids levels indicated that use of levonorgestrel is correlated with a moderate increase of HDL-C levels whereas use of oral norethisterone or lynestrenol, or depot medroxyprogesterone acetate is associated with a high increase in HDL cholesterol levels [307]. This observation contradicts the earlier observation indicating that use of oral contraception is associated with a decrease in HDL cholesterol levels [308]. The study on correlations between an oral contraceptive and serum lipids profile among teenage women revealed the lack of statistically significant changes in response to contraceptive administration [309]. Thus, the physiological response if different from this observed for adult women.

The analysis of the contingency table, Output 125, indicates the presence of an association between contraception use and serum HDL cholesterol levels, Output 126 and Output 127. The analysis of the association strength, Output 128, reveals extremely week negative association between the studied factors indicating an increase in contraception induced HDL cholesterol levels. Thus, our findings confirm some of the earlier reports.

Association Between Contraception Use and LDL Cholesterol Levels.

There is a difference between LDL cholesterol changes in response to oral contraception between adult and teenage women [309-310]. Thus, the recent study on LDL cholesterol changes as a function of oral contraception use among young women revealed significant increase in LDL-C level [309]. However, Lobo et al. [310] indicated a decrease in LDL-C level among women administered with desogestrel-30 micrograms ethinyl E2. The early study on an influence of different formulations of oral contraceptive on serum lipids levels revealed that LDL cholesterol levels were reduced by 14 to 12 percent between women administered with desogestrel and those administered with low-dose norethindrone [308]. The recent study on an oral contraception formulation with drospirenone (Yasmin®) on lipid metabolism also indicates a decrease in LDL-C levels [311]. However, the latest results on an association between an oral contraceptive and serum lipids levels contradict the earlier observations and indicate that there is no change in LDL-C levels in the response to oral contraceptive administration [312].

The statistical analyses, Output 130 and Output 131, base on contingency table, Output 129, indicate that there is an association between contraception use and serum LDL cholesterol levels. The analysis of the association strength, Output 132, reveals extremely week positive association between the studied parameters. On one hand our results confirm those reported by Lobo et al. [310] in the same time disproving the results presented by Berenson et al [312]. Since we do not distinguish between types of the contraception used i.e. oral or patches our data are a general description of physiological response to contraception administration and as such indicate a marginal decrease in LDL-C levels in women using contraceptives.

Association Between Contraception Use and Triglyceride Levels.

The latest study on blood lipid changes in response to nonhormonal injectable and oral contraception indicate an increase in levels of blood triglycerides for both types. However, it has been noticed the increase caused by oral contraceptives is significantly greater than this induced by injective nonhormonal contraceptives [312]. Similar response is reported for the study on drospirenone induced blood lipid changes [311]. The study on an influence of oral contraceptive on blood lipid levels in teenage women also confirms the finding related to adult women and indicates a significant increase in blood triglyceride levels in response to contraception [309]. Thus, the results of the earlier study on effects of oral contraceptive agents on blood triglyceride levels [308] are thoroughly confirmed.

In our study the analysis of contingency table comprising NHANES III and NHANES 1999-20006 data, Output 133, reveals statistically significant association between contraception use and serum triglyceride levels, Output 134 and Output 135. Surprisingly, the analysis of the strength of the association between these two parameters, Output 136, yields the positive r factor between contraception use and serum triglyceride levels. This observation indicates a decrease in serum triglyceride levels as a function of contraception use. Thus, our results contradict those previously reported. This phenomenon may be partially due to lack of division between the types of contraception as well as lack of the stratification for the age.

Association Between Glomerular Filtration Rate and Levels of Serum Total Cholesterol.

The recent study on correlations between serum creatinine, glomerular flow rate (GFR), and the profile of serum lipids a revealed very week negative association between GFR and serum total cholesterol levels [313]. This result is contradicted by the earlier study indicating a positive association with eGFR and total serum cholesterol [314] that in turn is in agreement with the Korea Medical Institute Study on associations between renal function and serum lipids profile [315]. Another study on a glomerular filtration rate in non-insulin-dependent diabetic subjects indicated an inverse relationship between GFR and blood total cholesterol levels [316] confirming the results reported previously by Lin et al [313]. Thus, currently results on the association between glomerular filtration rate and serum total cholesterol levels are non-conclusive and study design dependent. This may indicate that serum cholesterol may not be an independent predictor of the end-stage of renal disease [317]

The statistical analysis based on contingency table, Output 137, indicates that there is an association glomerular filtration rate represented as a kidney disease stage and serum total cholesterol levels, Output 138 and Output 139. The analysis of the strength of the association, Output 140, reveals extremely week positive association between these two factors. This in turn is in agreement with the previous study indicating a negative association between GFR and serum total cholesterol levels.

Association Between Glomerular Filtration Rate and Levels of HDL Cholesterol.

The recent study on the correlations between glomerular filtration rate and its association with HDL-C levels indicates the lack statistically significant correlations between GFR and HDL-C levels [318]. However the study on glomerular hyperfiltration [319] indicated that low HDL cholesterol increased the multivariate-adjusted odds ratio of glomerular hyperfiltration. The recent study on glomerular filtration rate and low HDL-C in patients with and without chronic kidney disease indicated that low HDL-C is prevalent in patients with chronic kidney disease but there is not obvious correlation between the severity of the disease and low HDL-C level [320].

The analysis of contingency table, Output 141 indicates that there is an association between glomerular filtration rate and serum HDL cholesterol levels, Output 142 and Output 143. The analysis of the association strength, Output 144, reveals week negative association between these two factors. This observation reveals assonantial decrease in glomerular flow and HDL-C levels that is in agreement with the previous results.

Association Between Glomerular Filtration Rate and Levels of LDL Cholesterol.

The study on correlations between glomerular filtration rate and its association with LDL-C levels indicates the lack statistically significant correlations between GFR and LDL-C [318]. However, another study on this subject indicated that plasma levels of LDL-C decreases congruently with GFR [321] The study on glomerular filtration rates as a function of, among others, serum lipids in obese women indicated a significant increase in the level of LDL-C in low GFR group≤92 ml/ min/1.73 m^2 as compared to high GRF group > 92 ml/min/1.73 m^2 [322].

The analysis of contingency table, Output 145 indicates the presence of an association between glomerular filtration rate and LDL-C levels, Output 146 and Output 147. The analysis of the strength of the association, Output 148, yields extremely week negative association between these two factors. This observation indicates a parallel decrease in GFR and LDL-C. Thus, our results confirm those of Morita et al. [321].

Association Between Glomerular Filtration Rate and Levels of Triglycerides.

The recent study on effects of alcohol consumption on estimated glomerular rate (eGFR) and creatinine clearance rate indicated that serum triglycerides are indirectly, it is through alcohol consumption, positively correlated with eGFR [323]. This result confirms the data presented by Bayraktaroglu et al. [322] indicating a significant increase in blood triglyceride levels as a function of eGFR. These observations are contradicted by the earlier data presented by Tozawa at al. [324] indicating that in women high triglyceride levels may predict the decline of renal function.

The analysis of contingency table, Output 149 reveals the presence of an association between glomerular filtration rate and serum triglyceride levels, Output 150 and Output 151. The analysis of the association strength, Output 152, reveals very week positive association between these two factors. It is a decrease in glomerular filtration rate is associated with a decrease in triglyceride levels. This results in turn confirms the results presented by Tozawa et al. [324].

Association Between Serum Uric Acid Level and Levels of Serum Total Cholesterol.

The study of correlations between serum uric acid levels and primary pulmonary hypertension revealed the lack of significant differences between serum uric acid level and serum total cholesterol levels [325]. The recent study by Forman et al. [326] indicated that an increase in uric acid level is associated by an increase in serum total cholesterol. Similar observation was made in study on population dependent correlations between serum uric acid level and total cholesterol levels in Bankok and Mual Pol groups [327]. Another reports also indicated that total cholesterol levels are an independent positive predictor of serum uric acid level [328].

The analysis of the contingency table, Output 153, indicates that there is an association between serum uric acid level and serum total cholesterol levels, Output 154 and Output 155. The analysis of the strength of the association, Output 156, reveals a very week negative association between these two factors. Thus our results partially contradict the previous data and indicate that an increase in uric acid tierce is associated with a decrease in serum total cholesterol levels. However, the strength of the association is extremely week and significantly diminishes the strength of the conclusion.

Association Between Serum Uric Acid Level and HDL Cholesterol Levels.

The study on correlations between serum uric acid level and metabolic syndrome in Japanese subjects revealed the assonantial stepwise graded decrease in HDL-C levels with the uric acid levels quartiles [227]. In the recent study on serum uric acid influence on specific components of metabolic syndrome an observation contradicting the latter was reported. Thus, serum uric acid level was significantly higher in subjects with abnormally high level of HDL-C [329].

The analysis of the contingency table, Output 157, yields an association between serum uric acid level and HDL cholesterol levels, Output 158 and Output 159. The analysis of the strength of the association, Output 160, reveals a very week negative association between these two factors. This, in turn indicate that HDL-C levels decrease as serum uric acid level increase what is in agreement with the results reported by Ishizaka et al. [227]. However, the strength of the association may render our data inconclusive.

Association Between Serum Uric Acid Level and LDL Cholesterol Levels.

In the recent study on associations of an elevated level of serum uric acid as micro vascular function in patients with idiopathic dilated cardiomyopathy [330] a negative correlation between serum uric acid and LDL-C levels was reported. This, however, is incongruous with the results of the study on serum uric acid association with cardiovascular mortality [331]. In this study subjects defined by the upper tertile of serum uric acid levels are defined by higher LDL cholesterol levels. This observation is in agreement with the report on association between serum uric acid levels and suspected coronary artery disease: in this case an increase in LDL-C cholesterol levels is associated with significant increase in SUA level [332].

The analysis of contingency table, Output 161 indicates an association between serum uric acid level and serum LDL cholesterol levels, Output 162 and Output 163. The analysis of the strength of the association, Output 164, yields a very week negative association between these two factors. Thus, the observed association indicates a negative correlation between LDL-C levels and serum uric acid level and confirms the results reported by Zopini et al. [330]. The strength of the association may render the observed relation as inconclusive.

Association Between Serum Uric Acid Level and Triglyceride Levels.

It has been shown that higher serum uric acid level is correlated with a variety of metabolic abnormalities and among them higher triglyceride levels [325, 333-336]. These results are confirmed by the study on correlations between plasma uric acid level and the risk for hypertension [326]. They are also in agreement with the observation of Lin et al. [329] indicating an increase in blood triglyceride levels as a function of an increase in serum uric acid level.

The analysis of the contingency table, Output 165 reveals the presence of an association between serum uric acid level and serum triglyceride levels, Output 166 and Output 167. The analysis of the association strength, Output 168 reveals a very week positive association between these two factors. Thus, an increase in level of serum uric acid is accompanied by an increase in serum triglyceride levels. We may state that our data confirms the previously presented results.

Association Between Hypertension and Serum Total Cholesterol Levels.

The recent studies on correlations between serum total cholesterol levels and hypertension indicated an increase of the former as a function of blood pressure [337]. Similar observation was also reported by Chehrei et el [338]. Thus, statistically significant difference in total cholesterol levels between hypertensive and normotensive patients was observed. This observation was also confirmed in the recent studies by Sarkar et al. [337]. Summarizing, we may say that all the current studies indicate that hypertension is associated by an elevated serum cholesterol levels.

The analysis of contingency table, Output 165, yields an association between hypertension stage and serum total cholesterol levels, Output 166 and Output 167. The analysis of the strength of the association, Output 168, reveals a week and positive association between the studied parameters. In other words hypertension is associated with an increase in blood total cholesterol levels and our result confirms those presented by others.

Association Between Hypertension and Serum HDL Cholesterol Levels.

Research on correlation between serum lipid levels and hypertension reports as the most frequent combination an arterial hypertension accompanied by low HDL cholesterol levels [339]. Statistically significant decrease in serum HDL-C levels as a function of hypertension class was also observed in the recent report by Lungu et al [340] on dyslipidemia in hypertensive patients in a primary care. The significant drop in HDL-C levels among hypertensive patients was also observed in hypertensive patients in the northern region of Bangladesh [341].

The analysis of contingency table, Output 165, yields an association between predefined hypertension stages and serum HDL cholesterol levels, Output 174 and Output 175. The analysis of the association strength, Output 168, reveals extremely week positive association between the studied factors. In the light of the previous results this observation is somehow puzzling. However, when taking into account the strength of the observed association obtained result may be, in our opinion, treated as inconclusive.

Association Between Hypertension and Serum LDL Cholesterol Levels.

The analysis of the current literature on serum LDL cholesterol levels changes as a function of hypertension unanimously indicates that the concentration of serum LDL cholesterol is greater in hypertensive patients than this observed for normotensive patients [196, 337-338, 341].

The analysis of contingency table, Output 177, reveals the presence of an association between predefined hypertension stage and serum LDL cholesterol levels, Output 178 and Output 179. The analysis of the association strength, Output 180, also reveals a week and positive association between these two factors. Thus, an increase in blood pressure is accompanied by an increase in LDL cholesterol levels. Thus, we may confidently state that obtained results confirmed those reported by others.

Association Between Hypertension and Serum Triglyceride Levels.

The recent studies congruently indicate that triglyceride levels are greater in hypertensive than in normotensive patients [196, 337]. This observation is strengthen by the fact that similar phenomenon is observed among children 2 to 18 years of age [342].

The analysis of contingency table, Output 181, also reveals an association between hypertension stages and serum HDL cholesterol levels, Output 182 and Output 183. The analysis of the association strength, Output 184, confirms the reports presented by other and indicate a congruent increase in serum triglyceride levels and blood pressure.

Association Between Hypertension and Glomerular Filtration Rate.

The recent study has shown that an impaired renal function is independently associated with hypertension [318]. It has also been shown that an elevation in SBP and DBP may be correlated with low GFR [343]. Similar observation it is a reduction in GFR in hypertensive patients was also observed in elderly [344]. Summarizing, we may say that the current scientific reports are congruent in description of hypertension associated changes in glomerular flow rate.

The analysis of contingency table, Output 185, reveals the presence of an association between hypertension stages and serum HDL cholesterol levels, Output 186 and Output 187. The analysis of the association strength, Output 188, indicates a congruent elevation in kidney disease stage which is reverse proportionally associated with glomerular flow rate and blood pressure. Thus out results confirm previously presented results.

Association Between Hypertension and Serum Uric Acid Levels.

One of the recent reports on a pathogenetic role of uric acid in hypertension suggests that an increase in serum uric acid level may lead to hypertension [345]. However, the recent studies on serum uric acid level as a function of hypertension among Chinese nonagenarians/centenarians [346] indicate the lack of statistical differences in serum uric acid level between normotensive and hypertensive patients. However, this study contradicts the earlier observations indicating that serum uric acid is positively associated with an increase in BP [347] which in turn are in agreement with three year longitudinal study indicating that elevated serum uric acid level is correlated with an elevation in blood pressure [348].

The analysis of contingency table, Output 189, yields the presence of an association between hypertension stages and serum uric acid levels, Output 190 and Output 191. The analysis of the association strength, Output 192, indicates an assonantial increase in serum uric acid levels and blood pressure and as such confirms some of the previous results.

Summary and Conclusions

Accordingly to our knowledge the presented study is among the most extensive ever that undertook the analysis of associations between such a wide ranges of health inducing factors.

In this study we attempt to evaluate currently accepted clinical values of blood pressure, serum total cholesterol levels, serum HDL cholesterol levels, serum LDL cholesterol levels, serum triglyceride levels, glomerular filtration rate expressed as a function of serum creatinine clearance and kidney disease stage, and serum uric acid level.

This study is spurred by the simple fact that these parameters are the reference values for the majority of clinicians and a used for defining of health related quality of life.

The presented study is a combination on very extensive literature analysis and state of the art analysis of the combined data of the largest publicly available databases, i.e. the NHANES III and NHANES 1999-2000, 2001-2002, 2003-2004, and 2005-2006.

The National Health and Nutrition Examination Survey (NHANES) is an ongoing project lasting currently for more than twenty years. Its uniqueness is driven by the fact that it combines interviews and physical examinations. Thus, it gives the majority of researchers unexampled opportunity to study and examine a variety of different factors that may influence or influence our daily life.

The frequency of utilization of NHANES database can easily be visualized through the search of PubMed: a service of the US National Library of Medicine that provide free access to indexed citations and abstracts to medical, nursing, dental, veterinary, health care, and preclinical sciences journal articles. Thus, the recent search of PubMed entries comprising NHANES phase in the title or abstract returns 17,130 citations. This number *per se* is a good example how important is NHANES and how often it is used in a multitude of scientific research.

In our study we concentrated on the analysis of an elevated blood pressure, it is hypertension, and its direct and indirect associations with a variety of epidemiological factors. We have to firmly state that the presented study does not "saturate " this subject. However, the study is ,our opinion, a very important step in a large scale assessment of currently

accepted clinical threshold values of serum lipids, creatinine clearance, and serum uric acid.

The analysis of the content of the consecutive chapters results in Tables 21-30.

Table 21. The Analysis of Associations Between Predefined Values of Body Mass Index and Tobacco Smoking, Alcohol Consumption, Pregnancy Status, Chemotherapy Status, Breastfeeding, Contraception Use, Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels, Kidney Disease Stage, and Serum Uric Acid Level. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Variable	Variable	Elucidated association	Agreement with the majority of current research
Body Mass Index	Tobacco Smoking	p	n
Body Mass Index	Alcohol Consumption	n	c
Body Mass Index	Pregnancy Status	n	not comp
Body Mass Index	Chemotherapy Status	p	c
Body Mass Index	Breastfeeding	?	
Body Mass Index	Contraception use	p	c
Body Mass Index	Total cholesterol Levels	p	c
Body Mass Index	HDL cholesterol levels	p	c
Body Mass Index	LDL cholesterol levels	p	c
Body Mass Index	Triglyceride levels	p	c
Body Mass Index	Kidney Disease Stage	n	n
Body Mass Index	Serum uric acid level	n	n

Table 22. The Analysis of Associations Between Pregnancy Status and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Pregnancy Status	Total cholesterol Levels	p	c
Pregnancy Status	HDL cholesterol levels	p	c
Pregnancy Status	LDL cholesterol levels	n	c
Pregnancy Status	Triglyceride levels	p	c

Table 23. The Analysis of Associations Between Breastfeeding Status and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Breastfeeding	Total cholesterol Levels	0	n
Breastfeeding	HDL cholesterol levels	p	n
Breastfeeding	LDL cholesterol levels	0	n
Breastfeeding	Triglyceride levels	0	n

Table 24. The Analysis of Associations Between Tobacco Smoking Status and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Tobacco Smoking	Total cholesterol Levels	0	n
Tobacco Smoking	HDL cholesterol levels	n	c
Tobacco Smoking	LDL cholesterol levels	p	c
Tobacco Smoking	Triglyceride levels	p	c

Table 25. The Analysis of Associations Between Alcohol Consumption Status and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Alcohol Consumption	Total cholesterol Levels	p	c
Alcohol Consumption	HDL cholesterol levels	p	c
Alcohol Consumption	LDL cholesterol levels	?	
Alcohol Consumption	Triglyceride levels	p	c

Table 26. The Analysis of Associations Between Chemotherapy Status and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Chemotherapy Status	Total cholesterol Levels	0	n
Chemotherapy Status	HDL cholesterol levels	0	n
Chemotherapy Status	LDL cholesterol levels	0	n
Chemotherapy Status	Triglyceride levels	0	c

Table 27. The Analysis of Associations Between Contraception Use and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Contraception Use	Total cholesterol Levels	n	c
Contraception Use	HDL cholesterol levels	n	c
Contraception Use	LDL cholesterol levels	p	c
Contraception Use	Triglyceride levels	0	c

Table 28. The Analysis of Associations Between Kidney Disease Stage and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Kidney Disease Stage	Total cholesterol Levels	0	c
Kidney Disease Stage	HDL cholesterol levels	n	c
Kidney Disease Stage	LDL cholesterol levels	n	c
Kidney Disease Stage	Triglyceride levels	?	

Table 29. The Analysis of Associations Between Serum Uric Acid Level and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Serum Uric Acid Level	Total cholesterol Levels	?	
Serum Uric Acid Level	HDL cholesterol levels	n	c
Serum Uric Acid Level	LDL cholesterol levels	?	
Serum Uric Acid Level	Triglyceride levels	n	c

Table 30. The Analysis of Associations Between Hypertension Status and Total Cholesterol Levels, HDL Cholesterol Levels, LDL Cholesterol Levels, Triglyceride Levels. The study elucidated association: p –positive, n-negative, ?-non conclusive. Agreement with the majority of current research: n- the study does not confirm the majority of the previous reports, c- the study confirms the majority of the previous reports.

Hypertension Status	Total cholesterol Levels	p	c
Hypertension Status	HDL cholesterol levels	?	
Hypertension Status	LDL cholesterol levels	p	c
Hypertension Status	Triglyceride levels	p	c
Hypertension Status	Kidney Disease Stage	p	c
Hypertension Status	Serum Uric Acid Level	p	c

The analysis of Tables 21-30 reveals that our observations in majority of cases supports previously observed relation. There are, however, a few cases in which we were not able to obtain conclusive results or the observed association differs from some of the reported in current literature on the subject. We have to stress that we compared our data to the majority of the reports and in many cases there are the reports contradicting those to which we are referring to in above presented table. We also have to indicate that the majority of the observed associations are, from statistical point of view, week and thus are more indicative of trends.

In the appendix to this study we attached the list of all the original computations including contingency tables, tests for associations and the analysis of the strength of association. If the reader will find such a need as to verify his hers analysis against our data analysis we hope he/she will find the additional material very useful.

Appendix

Output 1. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI≥ 25.0) by Tobacco Smoking Status (1 - Smoking, 2-no Smoking).

BMI CLASS	SMOKING		
Frequency Row Pct	1	2	Total
UNDERWEIGHT	209 10.36	1808 89.64	2017
NORMAL	431 6.00	6750 94.00	7181
OVERWEIGHT	739 6.83	10085 93.17	10824
Total	1379	18643	20022

Output 2. Pearson Chi-Square Statistics of the Association Test between BMI Class and Tobacco Smoking Status.

Statistic	DF	Value	Prob
Chi-Square	2	46.8090	<.0001
Likelihood Ratio Chi-Square	2	42.4284	<.0001
Mantel-Haenszel Chi-Square	1	10.1962	0.0014
Phi Coefficient		0.0484	
Contingency Coefficient		0.0483	
Cramer's V		0.0484	

Output 3. Cochran-Mantel-Haenszel Statistics for the Association Test between BMI Class and Tobacco Smoking Status

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	10.1962	0.0014
2	Row Mean Scores Differ	2	46.8066	<.0001
3	General Association	2	46.8066	<.0001

Output 4. Measures of the strength of association between BMI classes and Tobacco Smoking Status.

Statistic	Value	95% Confidence Limits	
Gamma	0.0509	0.0006	0.1011
Kendall's Tau-b	0.0141	0.0000	0.0281
Stuart's Tau-c	0.0076	-0.0000	0.0152
Somers' D C|R	0.0067	-0.0000	0.0134
Somers' D R|C	0.0296	0.0000	0.0592
Pearson Correlation	0.0226	0.0075	0.0377
Spearman Correlation	0.0146	-0.0000	0.0291
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0042	0.0016	0.0069
Uncertainty Coefficient R|C	0.0011	0.0004	0.0019
Uncertainty Coefficient Symmetric	0.0018	0.0007	0.0029

Output 5. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by Alcohol Consumption Status (1 - Drinking, 2-no Drinking).

BMI CLASS	Alcohol Consumption (1-yes, 2-no)		Total
Frequency Row Pct	1	2	
UNDERWEIGHT	125 6.20	1892 93.80	2017
NORMAL	1113 15.50	6068 84.50	7181
OVERWEIGHT	2076 19.18	8748 80.82	10824
Total	3314	16708	20022

Output 6. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Alcohol Consumption Status.

Statistic	DF	Value	Prob
Chi-Square	2	216.4411	<.0001
Likelihood Ratio Chi-Square	2	254.8644	<.0001
Mantel-Haenszel Chi-Square	1	196.4525	<.0001
Phi Coefficient		0.1040	
Contingency Coefficient		0.1034	
Cramer's V		0.1040	

Output 7 Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Alcohol Consumption Status.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	196.4525	<.0001
2	Row Mean Scores Differ	2	216.4303	<.0001
3	General Association	2	216.4303	<.0001

Output 8. Measures of the Strength of Association Between BMI Classes and Alcohol Consumption Status.

Statistic	Value	95% Confidence Limits	
Gamma	-0.2330	-0.2661	-0.1999
Kendall's Tau-b	-0.0886	-0.1009	-0.0763
Stuart's Tau-c	-0.0703	-0.0802	-0.0604
Somers' D C|R	-0.0618	-0.0704	-0.0531
Somers' D R|C	-0.1272	-0.1449	-0.1095
Pearson Correlation	-0.0991	-0.1111	-0.0870
Spearman Correlation	-0.0918	-0.1046	-0.0790
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0142	0.0111	0.0173
Uncertainty Coefficient R|C	0.0068	0.0053	0.0083
Uncertainty Coefficient Symmetric	0.0092	0.0072	0.0112

Output 9. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by Pregnancy Status (1 - Drinking, 2-no Drinking).

BMI CLASS	Pregnancy Status (1-yes, 2-no)		Total
Frequency Row Pct	1	2	
UNDERWEIGHT	18 0.89	1999 99.11	2017
NORMAL	197 2.74	6984 97.26	7181
OVERWEIGHT	397 3.67	10427 96.33	10824
Total	612	19410	20022

Output 10. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Drinking Status.

Statistic	DF	Value	Prob
Chi-Square	2	47.9035	<.0001
Likelihood Ratio Chi-Square	2	59.2536	<.0001
Mantel-Haenszel Chi-Square	1	45.3716	<.0001
Phi Coefficient		0.0489	
Contingency Coefficient		0.0489	
Cramer's V		0.0489	

Output 11. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Pregnancy Status.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	45.3716	<.0001
2	Row Mean Scores Differ	2	47.9011	<.0001
3	General Association	2	47.9011	<.0001

Output 12. Measures of the Strength of Association Between BMI Classes and Pregnancy Status.

Statistic	Value	95% Confidence Limits	
Gamma	-0.2517	-0.3240	-0.1794
Kendall's Tau-b	-0.0433	-0.0552	-0.0313
Stuart's Tau-c	-0.0159	-0.0204	-0.0114
Somers' D C|R	-0.0140	-0.0179	-0.0100
Somers' D R|C	-0.1341	-0.1707	-0.0974
Pearson Correlation	-0.0476	-0.0590	-0.0362
Spearman Correlation	-0.0448	-0.0572	-0.0325
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0108	0.0061	0.0155
Uncertainty Coefficient R|C	0.0016	0.0009	0.0023
Uncertainty Coefficient Symmetric	0.0028	0.0016	0.0040

Output 13 Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by Chemotherapy Status (1 – Currently Undergoing Chemotherapy, 2-no Chemotherapy).

BMICLASS Frequency Row Pct	CHEMOTHERAPY (1 - yes, 2- no)		Total
	1	2	
UNDERWEIGHT	11 0.55	2006 99.45	2017
NORMAL	94 1.31	7087 98.69	7181
OVERWEIGHT	187 1.73	10637 98.27	10824
Total	292	19730	20022

Output 14. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Chemotherapy Status.

Statistic	DF	Value	Prob
Chi-Square	2	18.2750	0.0001
Likelihood Ratio Chi-Square	2	21.6729	<.0001
Mantel-Haenszel Chi-Square	1	17.5509	<.0001
Phi Coefficient		0.0302	
Contingency Coefficient		0.0302	
Cramer's V		0.0302	

Output 15. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Chemotherapy Status.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	17.5509	<.0001
2	Row Mean Scores Differ	2	18.2741	0.0001
3	General Association	2	18.2741	0.0001

Output 16. Measures of the Strength of Association Between BMI Classes and Chemotherapy Status.

Statistic	Value	95% Confidence Limits	
Gamma	-0.2251	-0.3300	-0.1202
Kendall's Tau-b	-0.0271	-0.0392	-0.0150
Stuart's Tau-c	-0.0069	-0.0101	-0.0038
Somers' D C|R	-0.0061	-0.0089	-0.0033
Somers' D R|C	-0.1205	-0.1740	-0.0670
Pearson Correlation	-0.0296	-0.0414	-0.0179
Spearman Correlation	-0.0281	-0.0406	-0.0155
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0071	0.0018	0.0124
Uncertainty Coefficient R|C	0.0006	0.0001	0.0010
Uncertainty Coefficient Symmetric	0.0011	0.0003	0.0019

Output 17. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by BreastFeeding Status (1 – Currently Breastfeeding, 2-no Breastfeeding).

BMI CLASS Frequency Row Pct	BREASTFEEEDING (1- yes, 2-no) 1	 2	Total
UNDERWEIGHT	4 0.20	2013 99.80	2017
NORMAL	57 0.79	7124 99.21	7181
OVERWEIGHT	59 0.55	10765 99.45	10824
Total	120	19902	20022

Output 18. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Breastfeeding Status.

Statistic	DF	Value	Prob
Chi-Square	2	10.5360	0.0052
Likelihood Ratio Chi-Square	2	12.0470	0.0024
Mantel-Haenszel Chi-Square	1	0.0919	0.7617
Phi Coefficient		0.0229	
Contingency Coefficient		0.0229	
Cramer's V		0.0229	

Output 19. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Breastfeeding Status.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	0.0919	0.7617
2	Row Mean Scores Differ	2	10.5354	0.0052
3	General Association	2	10.5354	0.0052

Output 20. Measures of the Strength of Association Between BMI Classes and Breastfeeding Status.

Statistic	Value	95% Confidence Limits	
Gamma	0.0234	-0.1269	0.1737
Kendall's Tau-b	0.0019	-0.0104	0.0142
Stuart's Tau-c	0.0003	-0.0017	0.0023
Somers' D C|R	0.0003	-0.0015	0.0020
Somers' D R|C	0.0131	-0.0716	0.0978
Pearson Correlation	-0.0021	-0.0138	0.0095
Spearman Correlation	0.0020	-0.0107	0.0147
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0082	0.0000	0.0165
Uncertainty Coefficient R|C	0.0003	0.0000	0.0007
Uncertainty Coefficient Symmetric	0.0006	0.0000	0.0013

Output 21. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by Contraception Use (1 – Currently Breastfeeding, 2-no Breastfeeding).

BMI CLASS Frequency Row Pct	CONTRACEPTION (1- yes, 2-no) 1	 2	Total
UNDERWEIGHT	71 3.52	1946 96.48	2017
NORMAL	792 11.03	6389 88.97	7181
OVERWEIGHT	584 5.40	10240 94.60	10824
Total	1447	18575	20022

Output 22. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Contraception Use.

Statistic	DF	Value	Prob
Chi-Square	2	250.3239	<.0001
Likelihood Ratio Chi-Square	2	244.2185	<.0001
Mantel-Haenszel Chi-Square	1	25.3619	<.0001
Phi Coefficient		0.1118	
Contingency Coefficient		0.1111	
Cramer's V		0.1118	

Output 23. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Contraception Use.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	25.3619	<.0001
2	Row Mean Scores Differ	2	250.3114	<.0001
3	General Association	2	250.3114	<.0001

Output 24. Measures of the Strength of Association Between BMI Classes and Contraception Use.

Statistic	Value	95% Confidence Limits	
Gamma	0.1836	0.1418	0.2253
Kendall's Tau-b	0.0521	0.0396	0.0645
Stuart's Tau-c	0.0288	0.0218	0.0357
Somers' D C|R	0.0253	0.0191	0.0314
Somers' D R|C	0.1072	0.0818	0.1326
Pearson Correlation	0.0356	0.0235	0.0477
Spearman Correlation	0.0539	0.0411	0.0668
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0226	0.0148	0.0304
Lambda Symmetric	0.0195	0.0128	0.0263
Uncertainty Coefficient C|R	0.0235	0.0177	0.0293
Uncertainty Coefficient R|C	0.0065	0.0049	0.0082
Uncertainty Coefficient Symmetric	0.0102	0.0077	0.0128

Output 25 Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by Total Cholesterol Category. Desirable <200 mg/dL ≤ Borderline High < 240 mg/dL ≤ High.

BMI CLASS	Total Cholesterol Classification			
Frequency Row Pct	Desirable	Borderline High	High	Total
UNDERWEIGHT	1781 88.30	173 8.58	63 3.12	2017
NORMAL	4894 68.15	1445 20.12	842 11.73	7181
OVERWEIGHT	5630 52.01	3094 28.58	2100 19.40	10824
Total	12305	4712	3005	20022

Output 26. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Total Cholesterol Category.

Statistic	DF	Value	Prob
Chi-Square	4	1171.0293	<.0001
Likelihood Ratio Chi-Square	4	1290.3488	<.0001
Mantel-Haenszel Chi-Square	1	1054.9248	<.0001
Phi Coefficient		0.2418	
Contingency Coefficient		0.2351	
Cramer's V		0.1710	

Output 27. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Total Cholesterol Category.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	1054.9248	<.0001
2	Row Mean Scores Differ	2	1058.7995	<.0001
3	General Association	4	1170.9708	<.0001

Output 28. Measures of the Strength of Association Between BMI Classes and Total Cholesterol Category.

Statistic	Value	95% Confidence Limits	
Gamma	0.3970	0.3759	0.4182
Kendall's Tau-b	0.2155	0.2038	0.2271
Stuart's Tau-c	0.1799	0.1700	0.1898
Somers' D C|R	0.2108	0.1993	0.2222
Somers' D R|C	0.2203	0.2083	0.2323
Pearson Correlation	0.2295	0.2179	0.2411
Spearman Correlation	0.2326	0.2200	0.2452
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0349	0.0314	0.0384
Uncertainty Coefficient R|C	0.0346	0.0312	0.0380
Uncertainty Coefficient Symmetric	0.0347	0.0313	0.0382

Output 29. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by HDL Cholesterol Category. Low < 40 mg/dL ≤ Normal < 60 mg/dL ≤ High.

BMI CLASS	HDL Cholesterol Classification			
Frequency Row Pct	Low	Normal	High	Total
UNDERWEIGHT	1149 56.97	333 16.51	535 26.52	2017
NORMAL	898 12.51	2710 37.74	3573 49.76	7181
OVERWEIGHT	2115 19.54	4957 45.80	3752 34.66	10824
Total	4162	8000	7860	20022

Output 30. Pearson Chi-Square Statistics of the Association Test Between BMI Class and HDL Cholesterol Level.

Statistic	DF	Value	Prob
Chi-Square	4	2236.9446	<.0001
Likelihood Ratio Chi-Square	4	1937.0700	<.0001
Mantel-Haenszel Chi-Square	1	76.7627	<.0001
Phi Coefficient		0.3343	
Contingency Coefficient		0.3170	
Cramer's V		0.2364	

Output 31. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and HDL Cholesterol Level.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	76.7627	<.0001
2	Row Mean Scores Differ	2	1320.6266	<.0001
3	General Association	4	2236.8328	<.0001

Output 32. Measures of the Strength of Association Between BMI Classes and HDL Cholesterol Level.

Statistic	Value	95% Confidence Limits	
Gamma	-0.0008	-0.0231	0.0214
Kendall's Tau-b	-0.0005	-0.0144	0.0133
Stuart's Tau-c	-0.0005	-0.0130	0.0121
Somers' D C|R	-0.0006	-0.0153	0.0142
Somers' D R|C	-0.0005	-0.0135	0.0125
Pearson Correlation	0.0619	0.0464	0.0774
Spearman Correlation	0.0030	-0.0120	0.0180
Lambda Asymmetric C|R	0.1397	0.1263	0.1530
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0791	0.0714	0.0868
Uncertainty Coefficient C|R	0.0456	0.0415	0.0498
Uncertainty Coefficient R|C	0.0519	0.0473	0.0566
Uncertainty Coefficient Symmetric	0.0486	0.0442	0.0530

Output 33. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by LDL Cholesterol Category. Optimal < 100 mg/dL ≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

BMI CLASS	LDL-C Classification					
Frequency Row Pct	optimal	near optimal	borderline high	high	very high	Total
UNDERWEIGHT	1792 88.84	139 6.89	54 2.68	24 1.19	8 0.40	2017
NORMAL	5251 73.12	978 13.62	561 7.81	253 3.52	138 1.92	7181
OVERWEIGHT	7285 67.30	1357 12.54	1202 11.10	605 5.59	375 3.46	10824
Total	14328	2474	1817	882	521	20022

Output 34. Pearson Chi-Square Statistics of the Association Test Between BMI Class and LDL Cholesterol Level.

Statistic	DF	Value	Prob
Chi-Square	4	2236.9446	<.0001
Likelihood Ratio Chi-Square	4	1937.0700	<.0001
Mantel-Haenszel Chi-Square	1	76.7627	<.0001
Phi Coefficient		0.3343	
Contingency Coefficient		0.3170	
Cramer's V		0.2364	

Output 35. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and LDL Cholesterol Level.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	76.7627	<.0001
2	Row Mean Scores Differ	2	1320.6266	<.0001
3	General Association	4	2236.8328	<.0001

Output 36. Measures of the Strength of Association Between BMI Classes and LDL Cholesterol Level.

Statistic	Value	95% Confidence Limits	
Gamma	0.2505	0.2262	0.2748
Kendall's Tau-b	0.1236	0.1118	0.1353
Stuart's Tau-c	0.0950	0.0858	0.1042
Somers' D C|R	0.1113	0.1006	0.1220
Somers' D R|C	0.1371	0.1241	0.1502
Pearson Correlation	0.1456	0.1342	0.1571
Spearman Correlation	0.1336	0.1208	0.1465
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0151	0.0129	0.0173
Uncertainty Coefficient R|C	0.0154	0.0131	0.0177
Uncertainty Coefficient Symmetric	0.0153	0.0130	0.0175

Output 37. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI≥ 25.0) by Triglyceride Category. Normal <150 mg/dL ≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High.

BMI CLASS	TRIGLYCERIDE CATEGORY				
Frequency Row Pct	normal	high	borderline high	very high	Total
UNDERWEIGHT	1958 97.07	22 1.09	35 1.74	2 0.10	2017
NORMAL	6464 90.02	309 4.30	387 5.39	21 0.29	7181
OVERWEIGHT	8190 75.67	1328 12.27	1207 11.15	99 0.91	10824
Total	16612	1659	1629	122	20022

Output 38. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Triglyceride Category.

Statistic	DF	Value	Prob
Chi-Square	6	957.8060	<.0001
Likelihood Ratio Chi-Square	6	1084.1035	<.0001
Mantel-Haenszel Chi-Square	1	847.9879	<.0001
Phi Coefficient		0.2187	
Contingency Coefficient		0.2137	
Cramer's V		0.1547	

Output 39. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Triglyceride Category.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	847.9879	<.0001
2	Row Mean Scores Differ	2	884.5801	<.0001
3	General Association	6	957.7581	<.0001

Output 40. Measures of the Strength of Association Between BMI Classes and Triglyceride Category.

Statistic	Value	95% Confidence Limits	
Gamma	0.5417	0.5136	0.5697
Kendall's Tau-b	0.2063	0.1956	0.2170
Stuart's Tau-c	0.1274	0.1202	0.1346
Somers' D C|R	0.1493	0.1409	0.1577
Somers' D R|C	0.2850	0.2705	0.2995
Pearson Correlation	0.2058	0.1957	0.2159
Spearman Correlation	0.2184	0.2071	0.2298
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0454	0.0407	0.0501
Uncertainty Coefficient R|C	0.0291	0.0260	0.0322
Uncertainty Coefficient Symmetric	0.0354	0.0317	0.0392

Output 41. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by Stages of Kidney Chronic Disease. Stage 1 ≥ 90 > Stage 2 ≥ 60 > Stage 3 ≥30 Stage 4 ≥15 > Stage 5. The values are given in ml per minute per 1.73 m².

BMI CLASS	Stages of Chronic Kidney Disease					
Frequency Row Pct	1	2	3	4	5	Total
UNDERWEIGHT	534 26.47	256 12.69	77 3.82	13 0.64	1137 56.37	2017
NORMAL	2861 39.84	2529 35.22	533 7.42	61 0.85	1197 16.67	7181
OVERWEIGHT	3646 33.68	3909 36.11	1105 10.21	142 1.31	2022 18.68	10824
Total	7041	6694	1715	216	4356	20022

Output 42. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Stage of Chronic Kidney Disease.

Statistic	DF	Value	Prob
Chi-Square	8	1738.3027	<.0001
Likelihood Ratio Chi-Square	8	1501.9655	<.0001
Mantel-Haenszel Chi-Square	1	375.6623	<.0001
Phi Coefficient		0.2947	
Contingency Coefficient		0.2826	
Cramer's V		0.2084	

Output 43. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Stage of Chronic Kidney Disease.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	375.6623	<.0001
2	Row Mean Scores Differ	2	1176.6294	<.0001
3	General Association	8	1738.2159	<.0001

Output 44. Measures of the Strength of Association Between BMI Classes and Stage of Chronic Kidney Disease.

Statistic	Value	95% Confidence Limits	
Gamma	-0.0752	-0.0958	-0.0547
Kendall's Tau-b	-0.0483	-0.0616	-0.0350
Stuart's Tau-c	-0.0461	-0.0588	-0.0334
Somers' D C|R	-0.0540	-0.0688	-0.0392
Somers' D R|C	-0.0433	-0.0552	-0.0313
Pearson Correlation	-0.1370	-0.1525	-0.1214
Spearman Correlation	-0.0562	-0.0709	-0.0415
Lambda Asymmetric C|R	0.0667	0.0527	0.0807
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0390	0.0307	0.0474
Uncertainty Coefficient C|R	0.0283	0.0253	0.0313
Uncertainty Coefficient R|C	0.0403	0.0361	0.0444
Uncertainty Coefficient Symmetric	0.0332	0.0298	0.0367

Output 45. Frequency Table of Body Mass Index Class (Normal Class: BMI ≤ 18.49; Underweight Class: BMI ≥ 18.50 and ≤ 24.99; Overweight Class BMI ≥ 25.0) by Serum Uric Acid Tierces.

BMIC LASS	Serum Uric Acid Trit			
Frequency Row Pct	1	2	3	Total
UNDERWEIGHT	697 34.56	242 12.00	1078 53.45	2017
NORMAL	4845 67.47	1754 24.43	582 8.10	7181
OVERWEIGHT	4776 44.12	5186 47.91	862 7.96	10824
Total	10318	7182	2522	20022

Output 46. Pearson Chi-Square Statistics of the Association Test Between BMI Class and Serum Uric Acid Tierces.

Statistic	DF	Value	Prob
Chi-Square	4	4573.6644	<.0001
Likelihood Ratio Chi-Square	4	3507.5734	<.0001
Mantel-Haenszel Chi-Square	1	170.7060	<.0001
Phi Coefficient		0.4779	
Contingency Coefficient		0.4312	
Cramer's V		0.3380	

Output 47. Cochran-Mantel-Haenszel Statistics for the Association Test Between BMI Class and Serum Uric Acid Tierces.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	170.7060	<.0001
2	Row Mean Scores Differ	2	2006.2417	<.0001
3	General Association	4	4573.4360	<.0001

Output 48. Measures of the Strength of Association Between BMI Classes and Serum Uric Acid Tierces.

Statistic	Value	95% Confidence Limits	
Gamma	0.0372	0.0134	0.0609
Kendall's Tau-b	0.0228	0.0083	0.0374
Stuart's Tau-c	0.0198	0.0072	0.0324
Somers' D C|R	0.0233	0.0084	0.0381
Somers' D R|C	0.0224	0.0081	0.0367
Pearson Correlation	-0.0923	-0.1090	-0.0757
Spearman Correlation	0.0169	0.0012	0.0326
Lambda Asymmetric C|R	0.0815	0.0605	0.1025
Lambda Asymmetric R|C	0.0310	0.0084	0.0535
Lambda Symmetric	0.0569	0.0379	0.0759
Uncertainty Coefficient C|R	0.0903	0.0840	0.0965
Uncertainty Coefficient R|C	0.0940	0.0876	0.1005
Uncertainty Coefficient Symmetric	0.0921	0.0858	0.0984

Output 49. Frequency Table of Pregnancy Status (1 - Pregnant, 2 – No Pregnant) by Total Cholesterol Category. Desirable <200 mg/dL ≤ Borderline High < 240 mg/dL ≤ High.

PREGNANCY STATUS 1 - pregnant, 2- no pregnant	Total Cholesterol Classification			Total
Frequency Row Pct	Desirable	Borderline	High	
1	262 42.81	178 29.08	172 28.10	612
2	12043 62.05	4534 23.36	2833 14.60	19410
Total	12305	4712	3005	20022

Output 50. Pearson Chi-Square Statistics of the Association Test Between Pregnancy Status and Total Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	116.1227	<.0001
Likelihood Ratio Chi-Square	2	105.2958	<.0001
Mantel-Haenszel Chi-Square	1	115.8799	<.0001
Phi Coefficient		0.0762	
Contingency Coefficient		0.0759	
Cramer's V		0.0762	

Output 51. Cochran-Mantel-Haenszel Statistics for the Association Test Between Pregnancy Status and Total Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	115.8799	<.0001
2	Row Mean Scores Differ	1	115.8799	<.0001
3	General Association	2	116.1169	<.0001

Output 52. Measures of the Strength of Association Between Pregnancy Status and Total Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.3446	-0.4041	-0.2851
Kendall's Tau-b	-0.0711	-0.0855	-0.0567
Stuart's Tau-c	-0.0255	-0.0310	-0.0201
Somers' D C|R	-0.2155	-0.2584	-0.1727
Somers' D R|C	-0.0235	-0.0285	-0.0185
Pearson Correlation	-0.0761	-0.0918	-0.0604
Spearman Correlation	-0.0741	-0.0891	-0.0591
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0028	0.0017	0.0040
Uncertainty Coefficient R|C	0.0192	0.0117	0.0267
Uncertainty Coefficient Symmetric	0.0050	0.0030	0.0069

Output 53. Frequency Table of Pregnancy Status (1 - Pregnant, 2 – No Pregnant) by HDL Cholesterol Category. Low < 40 mg/dL≤ Normal < 60 mg/dL ≤ High.

PREGNANCY STATUS 1 - pregnant, 2- no pregnant	HDL Cholesterol Classification			Total
Frequency Row Pct	Low	Normal	High	
1	62 10.13	158 25.82	392 64.05	612
2	4100 21.12	7842 40.40	7468 38.48	19410
Total	4162	8000	7860	20022

Output 54. Pearson Chi-Square Statistics of the Association Test Between Pregnancy Status and HDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	164.9429	<.0001
Likelihood Ratio Chi-Square	2	161.7407	<.0001
Mantel-Haenszel Chi-Square	1	140.0952	<.0001
Phi Coefficient		0.0908	
Contingency Coefficient		0.0904	
Cramer's V		0.0908	

Output 55. Cochran-Mantel-Haenszel Statistics for the Association Test Between Pregnancy Status and HDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	140.0952	<.0001
2	Row Mean Scores Differ	1	140.0952	<.0001
3	General Association	2	164.9346	<.0001

Output 56. Measures of the Strength of Association Between Pregnancy Status and HDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.4290	-0.4935	-0.3646
Kendall's Tau-b	-0.0818	-0.0942	-0.0694
Stuart's Tau-c	-0.0319	-0.0372	-0.0267
Somers' D C|R	-0.2694	-0.3089	-0.2298
Somers' D R|C	-0.0248	-0.0289	-0.0207
Pearson Correlation	-0.0837	-0.0964	-0.0709
Spearman Correlation	-0.0863	-0.0993	-0.0732
Lambda Asymmetric C|R	0.0195	0.0157	0.0233
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0185	0.0149	0.0221
Uncertainty Coefficient C|R	0.0038	0.0026	0.0050
Uncertainty Coefficient R|C	0.0295	0.0207	0.0384
Uncertainty Coefficient Symmetric	0.0067	0.0047	0.0088

Output 57. Frequency Table of Pregnancy Status (1 – Pregnant, 2- no Pregnant) by LDL Cholesterol Category. Optimal < 100 mg/dL ≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

PREGNANCY STATUS 1 - pregnant, 2- no pregnant	LDL Cholesterol Classification					Total
Frequency Row Pct	optimal	near optimal	borderline high	high	very high	
1	422 68.95	73 11.93	52 8.50	37 6.05	28 4.58	612
2	13906 71.64	2401 12.37	1765 9.09	845 4.35	493 2.54	19410
Total	14328	2474	1817	882	521	20022

Output 58. Pearson Chi-Square Statistics of the Association Test Between Pregnancy Status and LDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	4	14.2274	0.0066
Likelihood Ratio Chi-Square	4	12.1460	0.0163
Mantel-Haenszel Chi-Square	1	7.9094	0.0049
Phi Coefficient		0.0267	
Contingency Coefficient		0.0266	
Cramer's V		0.0267	

Output 59. Cochran-Mantel-Haenszel Statistics for the Association Test Between Pregnancy Status and HDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	7.9094	0.0049
2	Row Mean Scores Differ	1	7.9094	0.0049
3	General Association	4	14.2267	0.0066

Output 60. Measures of the Strength of Association Between Pregnancy Status and LDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.0745	-0.1521	0.0032
Kendall's Tau-b	-0.0128	-0.0267	0.0011
Stuart's Tau-c	-0.0042	-0.0089	0.0004
Somers' D C|R	-0.0357	-0.0746	0.0032
Somers' D R|C	-0.0046	-0.0096	0.0004
Pearson Correlation	-0.0199	-0.0356	-0.0041
Spearman Correlation	-0.0134	-0.0280	0.0012
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0003	0.0000	0.0007
Uncertainty Coefficient R|C	0.0022	0.0000	0.0049
Uncertainty Coefficient Symmetric	0.0006	0.0000	0.0012

Output 61. Frequency Table of Pregnancy Status (1 – Pregnant, 2-no Pregnant) by Triglyceride Category. Normal <150 mg/dL≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High.

PREGNANCY STATUS 1 - pregnant, 2- no pregnant	Triglyceride Classidication				Total
Frequency Row Pct	normal	borderline high	high	very high	
1	400 65.36	83 13.56	127 20.75	2 0.33	612
2	16212 83.52	1546 7.96	1532 7.89	120 0.62	19410
Total	16612	1629	1659	122	20022

Output 62. Pearson Chi-Square Statistics of the Association Test Between Pregnancy Status and Triglyceride Classes.

Statistic	DF	Value	Prob
Chi-Square	3	165.6601	<.0001
Likelihood Ratio Chi-Square	3	129.7961	<.0001
Mantel-Haenszel Chi-Square	1	138.3938	<.0001
Phi Coefficient		0.0910	
Contingency Coefficient		0.0906	
Cramer's V		0.0910	

Output 63. Cochran-Mantel-Haenszel Statistics for the Association Test Between Pregnancy Status and Triglyceride Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	138.3938	<.0001
2	Row Mean Scores Differ	1	138.3938	<.0001
3	General Association	3	165.6518	<.0001

Output 64. Measures of the Strength of Association Between Pregnancy Status and Triglyceride Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.4354	-0.4980	-0.3728
Kendall's Tau-b	-0.0829	-0.1003	-0.0654
Stuart's Tau-c	-0.0220	-0.0269	-0.0172
Somers' D C|R	-0.1859	-0.2245	-0.1472
Somers' D R|C	-0.0370	-0.0451	-0.0288
Pearson Correlation	-0.0831	-0.1013	-0.0649
Spearman Correlation	-0.0847	-0.1026	-0.0669
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0054	0.0034	0.0075
Uncertainty Coefficient R|C	0.0237	0.0149	0.0325
Uncertainty Coefficient Symmetric	0.0088	0.0055	0.0122

Output 65. Frequency Table of Breasfeeding Status (1 - Yes, 2 – No Pregnant) by Total Cholesterol Category. Desirable <200 mg/dI≤ Borderline High < 240 mg/dL ≤ High.

Breastfeeding Status 1- yes, 2-no	Total Cholesterol Classification			Total
	Desirable	Borderline	High	
1	79 65.83	32 26.67	9 7.50	120
2	12226 61.43	4680 23.52	2996 15.05	19902
Total	12305	4712	3005	20022

Output 66. Pearson Chi-Square Statistics of the Association Test Between Breastfeeding Status and Total Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	5.4143	0.0667
Likelihood Ratio Chi-Square	2	6.4108	0.0405
Mantel-Haenszel Chi-Square	1	3.1062	0.0780
Phi Coefficient		0.0164	
Contingency Coefficient		0.0164	
Cramer's V		0.0164	

Output 67. Cochran-Mantel-Haenszel Statistics for the Association Test Between Breastfeeding Status and Total Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	3.1062	0.0780
2	Row Mean Scores Differ	1	3.1062	0.0780
3	General Association	2	5.4141	0.0667

Output 68. Frequency Table of Breastfeeding Status (1 - yes, 2 – no) by HDL Cholesterol Category. Low < 40 mg/dL Normal < 60 mg/dL ≤ High.

Breastfeeding Status 1 - yes, 2- no	HDL Cholesterol Classification			Total
Frequency Row Pct	Low	Normal	High	
1	19 15.83	77 64.17	24 20.00	120
2	4143 20.82	7923 39.81	7836 39.37	19902
Total	4162	8000	7860	20022

Output 69. Pearson Chi-Square Statistics of the Association Test Between Breastfeeding Status and HDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	30.5390	<.0001
Likelihood Ratio Chi-Square	2	30.4184	<.0001
Mantel-Haenszel Chi-Square	1	4.3607	0.0368
Phi Coefficient		0.0391	
Contingency Coefficient		0.0390	
Cramer's V		0.0391	

Output 70. Cochran-Mantel-Haenszel Statistics for the Association Test Between Breastfeeding Status and HDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	4.3607	0.0368
2	Row Mean Scores Differ	1	4.3607	0.0368
3	General Association	2	30.5375	<.0001

Output 71. Measures of the Strength of Association Between Breastfeeding Status and HDL Cholesterol.

Statistic	Value	95% Confidence Limits	
Gamma	0.1947	0.0765	0.3128
Kendall's Tau-b	0.0168	0.0063	0.0273
Stuart's Tau-c	0.0029	0.0010	0.0048
Somers' D C|R	0.1232	0.0469	0.1995
Somers' D R|C	0.0023	0.0008	0.0038
Pearson Correlation	0.0148	0.0037	0.0258
Spearman Correlation	0.0177	0.0066	0.0288
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0007	0.0002	0.0012
Uncertainty Coefficient R|C	0.0207	0.0066	0.0348
Uncertainty Coefficient Symmetric	0.0014	0.0004	0.0024

Output 72. Frequency Table of Breastfeeding Status (1 – yes, 2- no) by LDL Cholesterol Category. Optimal < 100 mg/dL ≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Breastfeeding 1- yes, 2-no	LDL Cholesterol Classification					Total
Frequency Row Pct	optimal	near optimal	borderline high	high	very high	
1	75 62.50	23 19.17	16 13.33	5 4.17	1 0.83	120
2	14253 71.62	2451 12.32	1801 9.05	877 4.41	520 2.61	19902
Total	14328	2474	1817	882	521	20022

Output 73. Pearson Chi-Square Statistics of the Association Test Between Breastfeeding Status and LDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	4	9.7958	0.0440
Likelihood Ratio Chi-Square	4	9.4223	0.0514
Mantel-Haenszel Chi-Square	1	0.6813	0.4091
Phi Coefficient		0.0221	
Contingency Coefficient		0.0221	
Cramer's V		0.0221	

Output 74. Cochran-Mantel-Haenszel Statistics for the Association Test Between Breastfeeding Status and LDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	0.6813	0.4091
2	Row Mean Scores Differ	1	0.6813	0.4091
3	General Association	4	9.7953	0.0440

Output 75. Frequency Table of Breastfeeding Status (1 – yes, 2- no) by Triglyceride Category. Normal <150 mg/dL≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High.

Breastfeeding 1- yes, 2-no	Triglyceride Classification				Total
Frequency Row Pct	normal	borderline high	high	very high	
1	97 80.83	11 9.17	12 10.00	0 0.00	120
2	16515 82.98	1618 8.13	1647 8.28	122 0.61	19902
Total	16612	1629	1659	122	20022

Output 76. Pearson Chi-Square Statistics of the Association Test Between Breastfeeding Status and LDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	3	1.3876	0.7084
Likelihood Ratio Chi-Square	3	2.0865	0.5546
Mantel-Haenszel Chi-Square	1	0.2103	0.6465
Phi Coefficient		0.0083	
Contingency Coefficient		0.0083	
Cramer's V		0.0083	

Output 77. Cochran-Mantel-Haenszel Statistics for the Association Test Between Breastfeeding Status and HDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	0.2103	0.6465
2	Row Mean Scores Differ	1	0.2103	0.6465
3	General Association	3	1.3876	0.7084

Output 78. Frequency Table of Smoking Status (1 - Smoking, 2 – No Smoking) by Total Cholesterol Category. Desirable <200 mg/dL≤ Borderline High < 240 mg/dL ≤ High.

Smoking Status 1-yes, 2-no Frequency Row Pct	Total Cholesterol Classification			Total
	Desirable	Borderline	High	
1	834 60.48	345 25.02	200 14.50	1379
2	11471 61.53	4367 23.42	2805 15.05	18643
Total	12305	4712	3005	20022

Output 79. Pearson Chi-Square Statistics of the Association Test Between Smoking Status and Total Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	1.8687	0.3928
Likelihood Ratio Chi-Square	2	1.8463	0.3973
Mantel-Haenszel Chi-Square	1	0.0605	0.8057
Phi Coefficient		0.0097	
Contingency Coefficient		0.0097	
Cramer's V		0.0097	

Output 80. Cochran-Mantel-Haenszel Statistics for the Association Test Between Smoking Status and Total Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	0.0605	0.8057
2	Row Mean Scores Differ	1	0.0605	0.8057
3	General Association	2	1.8686	0.3929

Output 81. Frequency Table of Tobacco Smoking Status (1 - Smoking, 2 – no Smoking) by HDL Cholesterol Category. Low < 40 mg/dL ≤ Normal < 60 mg/dL ≤ High.

Smoking Status 1-yes, 2-no	HDL Cholesterol Classification			Total
Frequency Row Pct	Low	Normal	High	
1	313 22.70	490 35.53	576 41.77	1379
2	3849 20.65	7510 40.28	7284 39.07	18643
Total	4162	8000	7860	20022

Output 82. Pearson Chi-Square Statistics of the Association Test Between Tobacco Smoking Status and HDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	12.2334	0.0022
Likelihood Ratio Chi-Square	2	12.3798	0.0020
Mantel-Haenszel Chi-Square	1	0.0948	0.7582
Phi Coefficient		0.0247	
Contingency Coefficient		0.0247	
Cramer's V		0.0247	

Output 83. Cochran-Mantel-Haenszel Statistics for the Association Test Between Tobacco Smoking Status and HDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	0.0948	0.7582
2	Row Mean Scores Differ	1	0.0948	0.7582
3	General Association	2	12.2328	0.0022

Output 84. Measures of the Strength of Association Between Tobacco Smoking Status and HDL Cholesterol.

Statistic	Value	95% Confidence Limits	
Gamma	-0.0138	-0.0607	0.0332
Kendall's Tau-b	-0.0040	-0.0175	0.0096
Stuart's Tau-c	-0.0023	-0.0101	0.0055
Somers' D C|R	-0.0089	-0.0392	0.0214
Somers' D R|C	-0.0018	-0.0078	0.0043
Pearson Correlation	-0.0022	-0.0165	0.0121
Spearman Correlation	-0.0042	-0.0185	0.0101
Lambda Asymmetric C|R	0.0072	0.0018	0.0125
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0064	0.0017	0.0112
Uncertainty Coefficient C|R	0.0003	0.0000	0.0006
Uncertainty Coefficient R|C	0.0012	0.0000	0.0026
Uncertainty Coefficient Symmetric	0.0005	0.0000	0.0010

Output 85. Frequency Table of Tobacco Smoking Status (1 – yes, 2-no) by LDL Cholesterol Category. Optimal < 100 mg/dL ≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Smoking Status 1-yes, 2-no	LDL Cholesterol Classification					Total
Frequency Row Pct	Optimal	Near Optimal	Borderline High	High	Very High	
1	970 70.34	128 9.28	142 10.30	79 5.73	60 4.35	1379
2	13358 71.65	2346 12.58	1675 8.98	803 4.31	461 2.47	18643
Total	14328	2474	1817	882	521	20022

Output 86. Pearson Chi-Square Statistics of the Association Test Between Tobacco Smoking Status and LDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	4	37.3720	<.0001
Likelihood Ratio Chi-Square	4	35.0681	<.0001
Mantel-Haenszel Chi-Square	1	15.7229	<.0001
Phi Coefficient		0.0432	
Contingency Coefficient		0.0432	
Cramer's V		0.0432	

Output 87. Cochran-Mantel-Haenszel Statistics for the Association Test Between Tobacco Smoking Status and LDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	15.7229	<.0001
2	Row Mean Scores Differ	1	15.7229	<.0001
3	General Association	4	37.3701	<.0001

Output 88. Measures of the Strength of Association Between Tobacco Smoking Status and LDL Cholesterol.

Statistic	Value	95% Confidence Limits	
Gamma	-0.0565	-0.1108	-0.0023
Kendall's Tau-b	-0.0140	-0.0279	-0.0002
Stuart's Tau-c	-0.0068	-0.0136	-0.0001
Somers' D C|R	-0.0266	-0.0530	-0.0003
Somers' D R|C	-0.0074	-0.0147	-0.0001
Pearson Correlation	-0.0280	-0.0436	-0.0124
Spearman Correlation	-0.0147	-0.0293	-0.0002
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0009	0.0003	0.0016
Uncertainty Coefficient R|C	0.0035	0.0011	0.0059
Uncertainty Coefficient Symmetric	0.0015	0.0005	0.0025

Output 89. Frequency Table of Tobacco Smoking Status (1 – Smoking, 2- no Smoking) by Triglyceride Category. Normal <150 mg/dL ≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High.

Smoking Status 1-yes, 2-no	Triglyceride Classification				Total
Frequency Row Pct	Normal	Borderline High	High	Very High	
1	1210 87.74	88 6.38	72 5.22	9 0.65	1379
2	15402 82.62	1541 8.27	1587 8.51	113 0.61	18643
Total	16612	1629	1659	122	20022

Output 90. Pearson Chi-Square Statistics of the Association Test Between Tobacco Smoking Status and Triglycerides Classes.

Statistic	DF	Value	Prob
Chi-Square	3	26.5092	<.0001
Likelihood Ratio Chi-Square	3	29.2366	<.0001
Mantel-Haenszel Chi-Square	1	22.4163	<.0001
Phi Coefficient		0.0364	
Contingency Coefficient		0.0364	
Cramer's V		0.0364	

Output 91. Cochran-Mantel-Haenszel Statistics for the Association Test Between Tobacco Smoking Status and Triglycerides Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	22.4163	<.0001
2	Row Mean Scores Differ	1	22.4163	<.0001
3	General Association	3	26.5079	<.0001

Output 92. Measures of the Strength of Association Between Tobacco Smoking Status and Triglycerides Classes.

Statistic	Value	95% Confidence Limits	
Gamma	0.1960	0.1194	0.2727
Kendall's Tau-b	0.0341	0.0222	0.0460
Stuart's Tau-c	0.0133	0.0086	0.0180
Somers' D C|R	0.0520	0.0339	0.0702
Somers' D R|C	0.0224	0.0145	0.0302
Pearson Correlation	0.0335	0.0214	0.0456
Spearman Correlation	0.0349	0.0227	0.0471
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0012	0.0004	0.0021
Uncertainty Coefficient R|C	0.0029	0.0009	0.0049
Uncertainty Coefficient Symmetric	0.0017	0.0005	0.0029

Output 93. Frequency Table of Alcohol Consumption Status (1 - yes, 2 – no Smoking) by Total Cholesterol Category. Desirable <200 mg/dL ≤ Borderline High < 240 mg/dL ≤ High.

Alcohol Drinking Status 1-yes, 2-no Frequency Row Pct	Total Cholesterol Classification Desirable	Borderline	High	Total
1	1809 54.59	947 28.58	558 16.84	3314
2	10496 62.82	3765 22.53	2447 14.65	16708
Total	12305	4712	3005	20022

Output 94. Pearson Chi-Square Statistics of the Association Test Between Alcohol Consumption Status and Total Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	82.2509	<.0001
Likelihood Ratio Chi-Square	2	80.7381	<.0001
Mantel-Haenszel Chi-Square	1	54.7581	<.0001
Phi Coefficient		0.0641	
Contingency Coefficient		0.0640	
Cramer's V		0.0641	

Output 95. Cochran-Mantel-Haenszel Statistics for the Association Test Between Alcohol Consumption Status and Total Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	54.7581	<.0001
2	Row Mean Scores Differ	1	54.7581	<.0001
3	General Association	2	82.2468	<.0001

Output 96. Measures of the Strength of Association Between Alcohol Consumption Status and Total Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.1381	-0.1700	-0.1061
Kendall's Tau-b	-0.0559	-0.0694	-0.0424
Stuart's Tau-c	-0.0433	-0.0538	-0.0328
Somers' D C|R	-0.0784	-0.0974	-0.0595
Somers' D R|C	-0.0398	-0.0495	-0.0301
Pearson Correlation	-0.0523	-0.0664	-0.0382
Spearman Correlation	-0.0582	-0.0723	-0.0442
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0022	0.0012	0.0031
Uncertainty Coefficient R|C	0.0045	0.0025	0.0065
Uncertainty Coefficient Symmetric	0.0029	0.0016	0.0042

Output 97. Frequency Table of Alcohol Consumption Status (1 - yes, 2 – no) by HDL Cholesterol Category. Low < 40 mg/dL≤ Normal < 60 mg/dL ≤ High.

Alcohol Drinking Status 1-yes, 2-no Frequency Row Pct	HDL Cholesterol Classification			Total
	Low	Normal	High	
1	332 10.02	996 30.05	1986 59.93	3314
2	3830 22.92	7004 41.92	5874 35.16	16708
Total	4162	8000	7860	20022

Output 98. Pearson Chi-Square Statistics of the Association Test Between Alcohol Consumption Status and HDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	751.2583	<.0001
Likelihood Ratio Chi-Square	2	753.7757	<.0001
Mantel-Haenszel Chi-Square	1	693.1164	<.0001
Phi Coefficient		0.1937	
Contingency Coefficient		0.1902	
Cramer's V		0.1937	

Output 99. Cochran-Mantel-Haenszel Statistics for the Association Test Between Alcohol Consumption Status and HDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	693.1164	<.0001
2	Row Mean Scores Differ	1	693.1164	<.0001
3	General Association	2	751.2208	<.0001

Output 100. Measures of the Strength of Association Between Alcohol Consumption and HDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.4288	-0.4571	-0.4005
Kendall's Tau-b	-0.1800	-0.1923	-0.1677
Stuart's Tau-c	-0.1517	-0.1626	-0.1408
Somers' D C|R	-0.2746	-0.2931	-0.2561
Somers' D R|C	-0.1180	-0.1264	-0.1095
Pearson Correlation	-0.1861	-0.1988	-0.1734
Spearman Correlation	-0.1899	-0.2029	-0.1769
Lambda Asymmetric C|R	0.0823	0.0738	0.0909
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0646	0.0579	0.0712
Uncertainty Coefficient C|R	0.0178	0.0153	0.0202
Uncertainty Coefficient R|C	0.0420	0.0361	0.0478
Uncertainty Coefficient Symmetric	0.0250	0.0215	0.0284

Output 101. Frequency Table of Alcohol Consumption Status (1 – yes, 2- no) by LDL Cholesterol Category. Optimal < 100 mg/dL ≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Alcohol Drinking Status 1-yes, 2-no	LDL Cholesterol Classification					Total
Frequency Row Pct	Optimal	Near optimal	Borderline high	High	Very High	
1	2178 65.72	394 11.89	388 11.71	216 6.52	138 4.16	3314
2	12150 72.72	2080 12.45	1429 8.55	666 3.99	383 2.29	16708
Total	14328	2474	1817	882	521	20022

Output 102. Pearson Chi-Square Statistics of the Association Test Between Alcohol Consumption Status and LDL Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	4	127.4400	<.0001
Likelihood Ratio Chi-Square	4	117.1181	<.0001
Mantel-Haenszel Chi-Square	1	119.2549	<.0001
Phi Coefficient		0.0798	
Contingency Coefficient		0.0795	
Cramer's V		0.0798	

Output 103. Cochran-Mantel-Haenszel Statistics for the Association Test Between Alcohol Consumption Status and LDL Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	119.2549	<.0001
2	Row Mean Scores Differ	1	119.2549	<.0001
3	General Association	4	127.4336	<.0001

Output 104. Measures of the Strength of Association Between Alcohol Consumption and LDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.1664	-0.2007	-0.1322
Kendall's Tau-b	-0.0636	-0.0777	-0.0495
Stuart's Tau-c	-0.0454	-0.0555	-0.0353
Somers' D C|R	-0.0822	-0.1004	-0.0639
Somers' D R|C	-0.0492	-0.0601	-0.0382
Pearson Correlation	-0.0772	-0.0926	-0.0618
Spearman Correlation	-0.0666	-0.0814	-0.0518
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0031	0.0019	0.0042
Uncertainty Coefficient R|C	0.0065	0.0041	0.0090
Uncertainty Coefficient Symmetric	0.0042	0.0026	0.0058

Output 105. Frequency Table of Alcohol Consumption Status (1 – yes, 2- no) by Triglyceride Category. Normal <150 mg/dL ≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High.

Alcohol Drinking Status 1-yes, 2-no	Triglyceride Classification				Total
Frequency Row Pct	Normal	Borderline High	High	Very High	
1	2958 89.26	175 5.28	168 5.07	13 0.39	3314
2	13654 81.72	1454 8.70	1491 8.92	109 0.65	16708
Total	16612	1629	1659	122	20022

Output 106. Pearson Chi-Square Statistics of the Association Test Between Alcohol Consumption Status and Triglyceride Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	3	111.3859	<.0001
Likelihood Ratio Chi-Square	3	122.5070	<.0001
Mantel-Haenszel Chi-Square	1	98.7679	<.0001
Phi Coefficient		0.0746	
Contingency Coefficient		0.0744	
Cramer's V		0.0746	

Output 107. Cochran-Mantel-Haenszel Statistics for the Association Test Between Alcohol Consumption Status and Triglyceride Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	98.7679	<.0001
2	Row Mean Scores Differ	1	98.7679	<.0001
3	General Association	3	111.3804	<.0001

Output 108. Measures of the Strength of Association Between Alcohol Consumption and Triglyceride Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.2894	0.2376	0.3412
Kendall's Tau-b	0.0728	0.0613	0.0844
Stuart's Tau-c	0.0418	0.0350	0.0486
Somers' D C|R	0.0756	0.0636	0.0877
Somers' D R|C	0.0701	0.0589	0.0813
Pearson Correlation	0.0702	0.0585	0.0820
Spearman Correlation	0.0745	0.0626	0.0863
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0051	0.0034	0.0068
Uncertainty Coefficient R|C	0.0068	0.0045	0.0091
Uncertainty Coefficient Symmetric	0.0059	0.0039	0.0078

Output 109. Frequency Table of Chmotherapy Status (1 - Yes, 2 – No Pregnant) by Total Cholesterol Category. Desirable <200 mg/dL ≤ Borderline High < 240 mg/dL ≤ High.

Chemotherapy Status 1 – yes, 2 - no Frequency Row Pct	Total Cholesterol Classification			Total
	Desirable	Borderline	High	
1	177 60.62	75 25.68	40 13.70	292
2	12128 61.47	4637 23.50	2965 15.03	19730
Total	12305	4712	3005	20022

Output 110. Pearson Chi-Square Statistics of the Association Test Between Chemotherapy Status and Total Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	0.9553	0.6202
Likelihood Ratio Chi-Square	2	0.9489	0.6222
Mantel-Haenszel Chi-Square	1	0.0119	0.9132
Phi Coefficient		0.0069	
Contingency Coefficient		0.0069	
Cramer's V		0.0069	

Output 111. Cochran-Mantel-Haenszel Statistics for the Association Test Between Chemotherapy Status and Total Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	0.0119	0.9132
2	Row Mean Scores Differ	1	0.0119	0.9132
3	General Association	2	0.9553	0.6202

Output 112. Frequency Table of Chemotherapy Status (1 - yes, 2 – no) by HDL Cholesterol Category. Low < 40 mg/dL ≤ Normal < 60 mg/dL ≤ High.

Chemotherapy Status 1 – yes, 2 - no	HDL Cholesterol Classification			Total
Frequency Row Pct	Low	Normal	High	
1	47 16.10	117 40.07	128 43.84	292
2	4115 20.86	7883 39.95	7732 39.19	19730
Total	4162	8000	7860	20022

Output 113. Pearson Chi-Square Statistics of the Association Test Between Chemotherapy Status and HDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	2	4.7207	0.0944
Likelihood Ratio Chi-Square	2	4.9263	0.0852
Mantel-Haenszel Chi-Square	1	4.4961	0.0340
Phi Coefficient		0.0154	
Contingency Coefficient		0.0154	
Cramer's V		0.0154	

Output 114. Cochran-Mantel-Haenszel Statistics for the Association Test Between Chemotherapy Status and HDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	4.4961	0.0340
2	Row Mean Scores Differ	1	4.4961	0.0340
3	General Association	2	4.7204	0.0944

Output 115. Frequency Table of Chemotherapy Status (1 – yes, 2-no) by LDL Cholesterol Category. Optimal < 100 mg/dL ≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Chemotherapy Status 1 – yes, 2 - no	LDL Cholesterol Classification					Total
Frequency Row Pct	Optimal	Near Optimal	Borderline High	High	Very High	
1	199 68.15	28 9.59	39 13.36	18 6.16	8 2.74	292
2	14129 71.61	2446 12.40	1778 9.01	864 4.38	513 2.60	19730
Total	14328	2474	1817	882	521	20022

Output 116. Pearson Chi-Square Statistics of the Association Test Between Chemotherapy Status and LDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	4	10.4062	0.0341
Likelihood Ratio Chi-Square	4	9.5816	0.0481
Mantel-Haenszel Chi-Square	1	3.9776	0.0461
Phi Coefficient		0.0228	
Contingency Coefficient		0.0228	
Cramer's V		0.0228	

Output 117. Cochran-Mantel-Haenszel Statistics for the Association Test Between Chemotherapy Status and LDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	3.9776	0.0461
2	Row Mean Scores Differ	1	3.9776	0.0461
3	General Association	4	10.4057	0.0341

Output 118. Frequency Table of Chemotherapy Status (1 – yes, 2-no) by Triglyceride Category. Normal <150 mg/dL ≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High.

Chemotherapy Status 1 – yes, 2 - no	Triglyceride Classification				Total
Frequency Row Pct	Normal	Borderline High	High	Very High	
1	252 86.30	18 6.16	20 6.85	2 0.68	292
2	16360 82.92	1611 8.17	1639 8.31	120 0.61	19730
Total	16612	1629	1659	122	20022

Output 119. Pearson Chi-Square Statistics of the Association Test Between Chemotherapy Status and Triglyceride Levels.

Statistic	DF	Value	Prob
Chi-Square	3	2.5783	0.4613
Likelihood Ratio Chi-Square	3	2.7470	0.4323
Mantel-Haenszel Chi-Square	1	1.5908	0.2072
Phi Coefficient		0.0113	
Contingency Coefficient		0.0113	
Cramer's V		0.0113	

Output 120. Cochran-Mantel-Haenszel Statistics for the Association Test Between Chemotherapy Status and Triglyceride Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	1.5908	0.2072
2	Row Mean Scores Differ	1	1.5908	0.2072
3	General Association	3	2.5782	0.4613

Output 121. Frequency Table of Contraception Use (1 - yes, 2 – no Smoking) by Total Cholesterol Category. Desirable <200 mg/dl≤ Borderline High < 240 mg/dL ≤ High.

Contraception Use 1- yes, 2 - no Frequency Row Pct	Total Cholesterol Classification Desirable	Borderline	High	Total
1	1000 69.11	346 23.91	101 6.98	1447
2	11305 60.86	4366 23.50	2904 15.63	18575
Total	12305	4712	3005	20022

Output 122. Pearson Chi-Square Statistics of the Association Test Between Contraception Use and Total Cholesterol Classes.

Statistic	DF	Value	Prob
Chi-Square	2	81.9368	<.0001
Likelihood Ratio Chi-Square	2	96.8904	<.0001
Mantel-Haenszel Chi-Square	1	69.8550	<.0001
Phi Coefficient		0.0640	
Contingency Coefficient		0.0638	
Cramer's V		0.0640	

Output 123. Cochran-Mantel-Haenszel Statistics for the Association Test Between Contraception Use and Total Cholesterol Classes.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	69.8550	<.0001
2	Row Mean Scores Differ	1	69.8550	<.0001
3	General Association	2	81.9327	<.0001

Output 124. Measures of the Strength of Association Between Contraception Use and Total Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.2019	0.1522	0.2517
Kendall's Tau-b	0.0513	0.0394	0.0632
Stuart's Tau-c	0.0277	0.0212	0.0343
Somers' D C|R	0.1034	0.0796	0.1273
Somers' D R|C	0.0255	0.0195	0.0315
Pearson Correlation	0.0591	0.0474	0.0707
Spearman Correlation	0.0535	0.0411	0.0659
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0026	0.0017	0.0036
Uncertainty Coefficient R|C	0.0093	0.0060	0.0126
Uncertainty Coefficient Symmetric	0.0041	0.0026	0.0056

Output 125. Frequency Table of Contraception Use (1 - yes, 2 – no) by HDL Cholesterol Category. Low < 40 mg/dL Normal < 60 mg/dL ≤ High.

Contraception Use 1- yes, 2 - no	HDL Cholesterol Classification			Total
Frequency Row Pct	Low	Normal	High	
1	195 13.48	656 45.34	596 41.19	1447
2	3967 21.36	7344 39.54	7264 39.11	18575
Total	4162	8000	7860	20022

Output 126. Pearson Chi-Square Statistics of the Association Test Between Contraception Use and HDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	2	52.8833	<.0001
Likelihood Ratio Chi-Square	2	57.7391	<.0001
Mantel-Haenszel Chi-Square	1	23.5271	<.0001
Phi Coefficient		0.0514	
Contingency Coefficient		0.0513	
Cramer's V		0.0514	

Output 127. Cochran-Mantel-Haenszel Statistics for the Association Test Between Contraception Use and HDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	23.5271	<.0001
2	Row Mean Scores Differ	1	23.5271	<.0001
3	General Association	2	52.8806	<.0001

Output 128. Measures of the Strength of Association Between Contraception Use and HDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.1020	-0.1448	-0.0592
Kendall's Tau-b	-0.0294	-0.0417	-0.0171
Stuart's Tau-c	-0.0173	-0.0245	-0.0100
Somers' D C|R	-0.0644	-0.0912	-0.0375
Somers' D R|C	-0.0134	-0.0190	-0.0078
Pearson Correlation	-0.0343	-0.0470	-0.0216
Spearman Correlation	-0.0310	-0.0440	-0.0181
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0014	0.0007	0.0020
Uncertainty Coefficient R|C	0.0056	0.0028	0.0083
Uncertainty Coefficient Symmetric	0.0022	0.0011	0.0033

Output 129. Frequency Table of Chemotherapy Status (1 – yes, 2-no) by LDL Cholesterol Category. Optimal < 100 mg/dL ≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Contraception Use 1- yes, 2 - no	LDL Cholesterol Classification					Total
Frequency Row Pct	Optimal	Near Optimal	Borderline High	High	Very High	
1	1048 72.43	217 15.00	132 9.12	37 2.56	13 0.90	1447
2	13280 71.49	2257 12.15	1685 9.07	845 4.55	508 2.73	18575
Total	14328	2474	1817	882	521	20022

Output 130. Pearson Chi-Square Statistics of the Association Test Between Contraception Use and LDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	4	38.4575	<.0001
Likelihood Ratio Chi-Square	4	45.4330	<.0001
Mantel-Haenszel Chi-Square	1	14.3561	0.0002
Phi Coefficient		0.0438	
Contingency Coefficient		0.0438	
Cramer's V		0.0438	

Output 131. Cochran-Mantel-Haenszel Statistics for the Association Test Between Contraception Use and LDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	14.3561	0.0002
2	Row Mean Scores Differ	1	14.3561	0.0002
3	General Association	4	38.4556	<.0001

Output 132. Measures of the Strength of Association Between Contraception Use and LDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.0492	-0.0034	0.1018
Kendall's Tau-b	0.0121	-0.0005	0.0246
Stuart's Tau-c	0.0060	-0.0003	0.0122
Somers' D C|R	0.0224	-0.0009	0.0456
Somers' D R|C	0.0065	-0.0003	0.0133
Pearson Correlation	0.0268	0.0151	0.0384
Spearman Correlation	0.0126	-0.0005	0.0258
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0012	0.0006	0.0018
Uncertainty Coefficient R|C	0.0044	0.0021	0.0066
Uncertainty Coefficient Symmetric	0.0019	0.0009	0.0029

Output 133. Frequency Table of Contraception Use (1 – yes, 2- no) by Triglyceride Category. Normal <150 mg/dL ≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High.

Contraception Use 1- yes, 2 - no	Triglyceride Classification				Total
Frequency Row Pct	Normal	Borderline High	High	Very High	
1	1258 86.94	113 7.81	73 5.04	3 0.21	1447
2	15354 82.66	1516 8.16	1586 8.54	119 0.64	18575
Total	16612	1629	1659	122	20022

Output 134. Pearson Chi-Square Statistics of the Association Test Between Contraception Use and Triglyceride Levels.

Statistic	DF	Value	Prob
Chi-Square	3	27.0762	<.0001
Likelihood Ratio Chi-Square	3	31.3540	<.0001
Mantel-Haenszel Chi-Square	1	25.2215	<.0001
Phi Coefficient		0.0368	
Contingency Coefficient		0.0367	
Cramer's V		0.0368	

Output 135. Cochran-Mantel-Haenszel Statistics for the Association Test Between Contraception Use and Triglyceride Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	25.2215	<.0001
2	Row Mean Scores Differ	1	25.2215	<.0001
3	General Association	3	27.0749	<.0001

Output 136. Measures of the Strength of Association Between Contraception Use and Triglyceride Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.1693	0.0961	0.2424
Kendall's Tau-b	0.0307	0.0187	0.0427
Stuart's Tau-c	0.0123	0.0075	0.0171
Somers' D C|R	0.0458	0.0279	0.0637
Somers' D R|C	0.0206	0.0125	0.0287
Pearson Correlation	0.0355	0.0240	0.0470
Spearman Correlation	0.0314	0.0191	0.0437
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0000	0.0000	0.0000
Uncertainty Coefficient C|R	0.0013	0.0005	0.0022
Uncertainty Coefficient R|C	0.0030	0.0011	0.0049
Uncertainty Coefficient Symmetric	0.0018	0.0007	0.0030

Output 137. Frequency Table of Kidney Disease Stage Kidney Disease Stage (Stage 1 – GFR ≥ 90; Stage 2- GFR < 90 and GFR≥ 60; Stage 3 – GFR < 60 and GFR ≥ 30; Stage 4 – GFR < 30 and GFR ≥ 15 and Stage 5 – GFR < 15. Glomerular Flow Rate: mL/min per 1.73 m²) by Total Cholesterol Category (Desirable <200 mg/dL Borderline High < 240 mg/dL ≤ High) .

ney Disease Stage	Total Cholesterol Classification			
Frequency Row Pct	Desirable	Borderline	High	Total

Kidney Disease Stage	Total Cholesterol Classification			
Frequency Row Pct	Desirable	Borderline	High	Total
1	4932 70.05	1381 19.61	728 10.34	7041
2	3763 56.21	1942 29.01	989 14.77	6694
3	492 28.69	629 36.68	594 34.64	1715
4	80 37.04	63 29.17	73 33.80	216
5	3038 69.74	697 16.00	621 14.26	4356
Total	12305	4712	3005	20022

Output 138. Pearson Chi-Square Statistics of the Association Test Between Kidney Disease Stage and Total Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	8	1444.0107	<.0001
Likelihood Ratio Chi-Square	8	1388.2298	<.0001
Mantel-Haenszel Chi-Square	1	28.1063	<.0001
Phi Coefficient		0.2686	
Contingency Coefficient		0.2594	
Cramer's V		0.1899	

Output 139. Cochran-Mantel-Haenszel Statistics for the Association Test Between Kidney Disease Stage and Total Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	28.1063	<.0001
2	Row Mean Scores Differ	4	1252.0704	<.0001
3	General Association	8	1443.9385	<.0001

Output 140. Measures of the Strength of Association Between Kidney Disease Stage and Total Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.1263	0.1074	0.1452
Kendall's Tau-b	0.0804	0.0682	0.0925
Stuart's Tau-c	0.0750	0.0636	0.0863
Somers' D C|R	0.0704	0.0597	0.0811
Somers' D R|C	0.0918	0.0779	0.1057
Pearson Correlation	0.0375	0.0239	0.0510
Spearman Correlation	0.0885	0.0749	0.1021
Lambda Asymmetric C|R	0.0178	0.0093	0.0262
Lambda Asymmetric R|C	0.0633	0.0529	0.0737
Lambda Symmetric	0.0463	0.0391	0.0536
Uncertainty Coefficient C|R	0.0375	0.0336	0.0414
Uncertainty Coefficient R|C	0.0262	0.0235	0.0289
Uncertainty Coefficient Symmetric	0.0308	0.0276	0.0340

Output 141. Frequency Table of Kidney Disease Stage Kidney Disease Stage (Stage 1 – GFR ≥ 90; Stage 2- GFR < 90 and GFR ≥ 60; Stage 3 – GFR < 60 and GFR ≥ 30; Stage 4 – GFR < 30 and GFR ≥ 15 and Stage 5 – GFR < 15. Glomerular Flow Rate: mL/min per 1.73 m²) by HDL Cholesterol Category. Low < 40 mg/dL≤ Normal < 60 mg/dL ≤ High.

Kidney Disease Stage	HDL Cholesterol Classification			Total
Frequency Row Pct	Low	Normal	High	
1	449 6.38	2937 41.71	3655 51.91	7041
2	866 12.94	3223 48.15	2605 38.92	6694
3	245 14.29	791 46.12	679 39.59	1715
4	41 18.98	108 50.00	67 31.02	216
5	2561 58.79	941 21.60	854 19.61	4356
Total	4162	8000	7860	20022

Output 142. Pearson Chi-Square Statistics of the Association Test Between Kidney Disease Stage and HDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	8	5190.3569	<.0001
Likelihood Ratio Chi-Square	8	4615.3600	<.0001
Mantel-Haenszel Chi-Square	1	3394.0155	<.0001
Phi Coefficient		0.5091	
Contingency Coefficient		0.4537	
Cramer's V		0.3600	

Output 143. Cochran-Mantel-Haenszel Statistics for the Association Test Between Kidney Disease Stage and HDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	3394.0155	<.0001
2	Row Mean Scores Differ	4	3549.7896	<.0001
3	General Association	8	5190.0977	<.0001

Output 144. Measures of the Strength of Association Between Kidney Disease Stage and HDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.4546	-0.4704	-0.4389
Kendall's Tau-b	-0.3204	-0.3323	-0.3085
Stuart's Tau-c	-0.3247	-0.3370	-0.3124
Somers' D C|R	-0.3050	-0.3165	-0.2935
Somers' D R|C	-0.3367	-0.3490	-0.3243
Pearson Correlation	-0.4117	-0.4249	-0.3986
Spearman Correlation	-0.3608	-0.3740	-0.3477
Lambda Asymmetric C|R	0.1945	0.1798	0.2092
Lambda Asymmetric R|C	0.1847	0.1717	0.1978
Lambda Symmetric	0.1894	0.1768	0.2020
Uncertainty Coefficient C|R	0.1087	0.1026	0.1148
Uncertainty Coefficient R|C	0.0870	0.0820	0.0920
Uncertainty Coefficient Symmetric	0.0966	0.0911	0.1021

Output 145. Frequency Table of Kidney Disease Stage Kidney Disease Stage (Stage 1 – GFR ≥ 90; Stage 2- GFR < 90 and GFR≥ 60; Stage 3 – GFR < 60 and GFR ≥ 30; Stage 4 – GFR < 30 and GFR ≥ 15 and Stage 5 – GFR < 15. Glomerular Flow Rate: mL/min per 1.73 m²) by LDL Cholesterol Category. Optimal < 100 mg/dL Near Optimal < 130 mg/dL≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Kidney Disease Stage	LDL Cholesterol Classification					Total
Frequency Row Pct	Optimal	Near Optimal	Borderline High	High	Very High	
1	4878 69.28	1061 15.07	632 8.98	284 4.03	186 2.64	7041
2	4564 68.18	963 14.39	694 10.37	306 4.57	167 2.49	6694
3	1085 63.27	180 10.50	245 14.29	119 6.94	86 5.01	1715
4	160 74.07	18 8.33	17 7.87	8 3.70	13 6.02	216
5	3641 83.59	252 5.79	229 5.26	165 3.79	69 1.58	4356
Total	14328	2474	1817	882	521	20022

Output 146. Pearson Chi-Square Statistics of the Association Test Between Kidney Disease Stage and LDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	16	575.9996	<.0001
Likelihood Ratio Chi-Square	16	599.6737	<.0001
Mantel-Haenszel Chi-Square	1	113.1199	<.0001
Phi Coefficient		0.1696	
Contingency Coefficient		0.1672	
Cramer's V		0.0848	

Output 147. Cochran-Mantel-Haenszel Statistics for the Association Test Between Kidney Disease Stage and LDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	113.1199	<.0001
2	Row Mean Scores Differ	4	305.7924	<.0001
3	General Association	16	575.9708	<.0001

Output 148. Measures of the Strength of Association Between Kidney Disease Stage and LDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.1176	-0.1383	-0.0969
Kendall's Tau-b	-0.0673	-0.0790	-0.0555
Stuart's Tau-c	-0.0481	-0.0566	-0.0397
Somers' D C|R	-0.0542	-0.0637	-0.0448
Somers' D R|C	-0.0834	-0.0980	-0.0688
Pearson Correlation	-0.0752	-0.0879	-0.0624
Spearman Correlation	-0.0772	-0.0905	-0.0640
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0065	0.0000	0.0131
Lambda Symmetric	0.0045	0.0000	0.0091
Uncertainty Coefficient C|R	0.0158	0.0134	0.0182
Uncertainty Coefficient R|C	0.0113	0.0096	0.0130
Uncertainty Coefficient Symmetric	0.0132	0.0111	0.0152

Output 149. Frequency Table of Kidney Disease Stage Kidney Disease Stage (Stage 1 – GFR ≥ 90; Stage 2- GFR < 90 and GFR≥ 60; Stage 3 – GFR < 60 and GFR ≥ 30; Stage 4 – GFR < 30 and GFR ≥ 15 and Stage 5 – GFR < 15. Glomerular Flow Rate: mL/min per 1.73 m2) by Triglyceride Category. Normal <150 mg/dL≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High

Kidney Disease Stage	Triglyceride Classification				Total
Frequency Row Pct	Normal	Borderline High	High	Very High	
1	6240 88.62	379 5.38	394 5.60	28 0.40	7041
2	5441 81.28	654 9.77	555 8.29	44 0.66	6694
3	1096 63.91	258 15.04	342 19.94	19 1.11	1715
4	115 53.24	40 18.52	54 25.00	7 3.24	216
5	3720 85.40	298 6.84	314 7.21	24 0.55	4356
Total	16612	1629	1659	122	20022

Output 150. Pearson Chi-Square Statistics of the Association Test Between Kidney Disease Stage and Triglyceride Levels.

Statistic	DF	Value	Prob
Chi-Square	12	815.2294	<.0001
Likelihood Ratio Chi-Square	12	693.7604	<.0001
Mantel-Haenszel Chi-Square	1	45.9262	<.0001
Phi Coefficient		0.2018	
Contingency Coefficient		0.1978	
Cramer's V		0.1165	

Output 151. Cochran-Mantel-Haenszel Statistics for the Association Test Between Kidney Disease Stage and Triglyceride Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	45.9262	<.0001
2	Row Mean Scores Differ	4	735.6888	<.0001
3	General Association	12	815.1887	<.0001

Output 152. Measures of the Strength of Association Between Kidney Disease Stage and LDL Triglyceride Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.1680	0.1441	0.1920
Kendall's Tau-b	0.0803	0.0686	0.0921
Stuart's Tau-c	0.0493	0.0420	0.0565
Somers' D C|R	0.0521	0.0444	0.0597
Somers' D R|C	0.1240	0.1060	0.1420
Pearson Correlation	0.0479	0.0349	0.0609
Spearman Correlation	0.0886	0.0756	0.1015
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0348	0.0281	0.0415
Lambda Symmetric	0.0276	0.0223	0.0329
Uncertainty Coefficient C|R	0.0290	0.0245	0.0336
Uncertainty Coefficient R|C	0.0131	0.0110	0.0151
Uncertainty Coefficient Symmetric	0.0180	0.0152	0.0208

Output 153. Frequency table of Serum Uric Acid Tierces by Total Cholesterol Category (Desirable <200 mg/dL≤ Borderline High < 240 mg/dL ≤ High).

Uric Acid Tierces	Total Cholesterol Classification			Total
Frequency Row Pct	Desirable	Borderline	High	
1	6478 62.78	2434 23.59	1406 13.63	10318
2	3420 47.62	2216 30.85	1546 21.53	7182
3	2407 95.44	62 2.46	53 2.10	2522
Total	12305	4712	3005	20022

Output 154. Pearson Chi-Square Statistics of the Association Test Between Serum Uric Acid Tierces and Total Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	4	1836.5523	<.0001
Likelihood Ratio Chi-Square	4	2217.4426	<.0001
Mantel-Haenszel Chi-Square	1	151.5587	<.0001
Phi Coefficient		0.3029	
Contingency Coefficient		0.2899	
Cramer's V		0.2142	

Output 155. Cochran-Mantel-Haenszel Statistics for the Association Test Between Serum Uric Acid Tierces and Total Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	151.5587	<.0001
2	Row Mean Scores Differ	2	1566.0461	<.0001
3	General Association	4	1836.4605	<.0001

Output 156. Measures of the Strength of Association Between Serum Uric Acid Tierces and Total Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.0811	-0.1029	-0.0593
Kendall's Tau-b	-0.0459	-0.0581	-0.0336
Stuart's Tau-c	-0.0390	-0.0495	-0.0285
Somers' D C|R	-0.0441	-0.0558	-0.0324
Somers' D R|C	-0.0478	-0.0606	-0.0349
Pearson Correlation	-0.0870	-0.0990	-0.0750
Spearman Correlation	-0.0506	-0.0639	-0.0373
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0144	0.0035	0.0253
Lambda Symmetric	0.0080	0.0020	0.0141
Uncertainty Coefficient C|R	0.0599	0.0558	0.0640
Uncertainty Coefficient R|C	0.0571	0.0532	0.0609
Uncertainty Coefficient Symmetric	0.0585	0.0545	0.0624

Output 157. Frequency table of Serum Uric Acid Tierces by HDL Cholesterol Category. Low < 40 mg/dL ≤ Normal < 60 mg/dL ≤ High.

Uric Acid Tierces	HDL Cholesterol Classification			
Frequency Row Pct	Low	Normal	High	Total
1	783 7.59	4414 42.78	5121 49.63	10318
2	1043 14.52	3486 48.54	2653 36.94	7182
3	2336 92.62	100 3.97	86 3.41	2522
Total	4162	8000	7860	20022

Output 158. Pearson Chi-Square Statistics of the Association Test Between Serum Uric Acid Tierces and HDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	4	9350.2879	<.0001
Likelihood Ratio Chi-Square	4	7810.8341	<.0001
Mantel-Haenszel Chi-Square	1	4772.8994	<.0001
Phi Coefficient		0.6834	
Contingency Coefficient		0.5642	
Cramer's V		0.4832	

Output 159. Cochran-Mantel-Haenszel Statistics for the Association Test Between Serum Uric Acid Tierces and HDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	4772.8994	<.0001
2	Row Mean Scores Differ	2	6195.8845	<.0001
3	General Association	4	9349.8209	<.0001

Output 160. Measures of the Strength of Association Between Serum Uric Acid Tierces and HDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.5760	-0.5918	-0.5602
Kendall's Tau-b	-0.3860	-0.3982	-0.3738
Stuart's Tau-c	-0.3566	-0.3687	-0.3445
Somers' D C|R	-0.4030	-0.4155	-0.3905
Somers' D R|C	-0.3697	-0.3817	-0.3577
Pearson Correlation	-0.4883	-0.5002	-0.4764
Spearman Correlation	-0.4180	-0.4311	-0.4049
Lambda Asymmetric C|R	0.2448	0.2293	0.2603
Lambda Asymmetric R|C	0.1600	0.1497	0.1704
Lambda Symmetric	0.2069	0.1957	0.2182
Uncertainty Coefficient C|R	0.1840	0.1765	0.1915
Uncertainty Coefficient R|C	0.2010	0.1933	0.2087
Uncertainty Coefficient Symmetric	0.1921	0.1846	0.1997

Output 161. Frequency table of Serum Uric Acid Tierces by LDL Cholesterol Category. Optimal < 100 mg/dL≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Uric Acid Tierces	LDL Cholesterol Classification					
Frequency Row Pct	Optimal	Near Optimal	Borderline High	High	Very High	Total
1	7262 70.38	1495 14.49	913 8.85	403 3.91	245 2.37	10318
2	4616 64.27	949 13.21	889 12.38	460 6.40	268 3.73	7182
3	2450 97.15	30 1.19	15 0.59	19 0.75	8 0.32	2522
Total	14328	2474	1817	882	521	20022

Output 162. Pearson Chi-Square Statistics of the Association Test Between Serum Uric Acid Tierces and LDL Cholesterol Levels.

Statistic	DF	Value	Prob
Chi-Square	8	1104.8158	<.0001
Likelihood Ratio Chi-Square	8	1446.4431	<.0001
Mantel-Haenszel Chi-Square	1	131.9364	<.0001
Phi Coefficient		0.2349	
Contingency Coefficient		0.2287	
Cramer's V		0.1661	

Output 163. Cochran-Mantel-Haenszel Statistics for the Association Test Between Serum Uric Acid Tierces and LDL Cholesterol Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	131.9364	<.0001
2	Row Mean Scores Differ	2	813.9866	<.0001
3	General Association	8	1104.7606	<.0001

Output 164. Measures of the Strength of Association Between Serum Uric Acid Tierces and LDL Cholesterol Levels.

Statistic	Value	95% Confidence Limits	
Gamma	-0.1384	-0.1617	-0.1152
Kendall's Tau-b	-0.0701	-0.0818	-0.0585
Stuart's Tau-c	-0.0549	-0.0641	-0.0458
Somers' D C|R	-0.0621	-0.0723	-0.0518
Somers' D R|C	-0.0793	-0.0925	-0.0660
Pearson Correlation	-0.0812	-0.0925	-0.0699
Spearman Correlation	-0.0778	-0.0905	-0.0651
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0082	0.0008	0.0157
Lambda Symmetric	0.0052	0.0005	0.0099
Uncertainty Coefficient C|R	0.0381	0.0351	0.0411
Uncertainty Coefficient R|C	0.0372	0.0343	0.0401
Uncertainty Coefficient Symmetric	0.0377	0.0347	0.0406

Output 165. Frequency table of Serum Uric Acid Tierces by Triglyceride Category. Normal <150 mg/dL ≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High

Uric Acid Tierces	Triglyceride Classification				Total
Frequency Row Pct	Normal	Borderline High	High	Very High	
1	8921 86.46	722 7.00	640 6.20	35 0.34	10318
2	5245 73.03	879 12.24	975 13.58	83 1.16	7182
3	2446 96.99	28 1.11	44 1.74	4 0.16	2522
Total	16612	1629	1659	122	20022

Output 166. Pearson Chi-Square Statistics of the Association Test Between Serum Uric Acid Tierces and Triglyceride Levels.

Statistic	DF	Value	Prob
Chi-Square	6	961.2003	<.0001
Likelihood Ratio Chi-Square	6	1058.8144	<.0001
Mantel-Haenszel Chi-Square	1	2.0674	0.1505
Phi Coefficient		0.2191	
Contingency Coefficient		0.2140	
Cramer's V		0.1549	

Output 167. Cochran-Mantel-Haenszel Statistics for the Association Test Between Serum Uric Acid Tierces and Triglyceride Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	2.0674	0.1505
2	Row Mean Scores Differ	2	871.1453	<.0001
3	General Association	6	961.1523	<.0001

Output 168. Measures of the Strength of Association Between Serum Uric Acid Tierces and Triglyceride Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.0873	0.0600	0.1147
Kendall's Tau-b	0.0368	0.0251	0.0485
Stuart's Tau-c	0.0232	0.0158	0.0305
Somers' D C|R	0.0262	0.0178	0.0345
Somers' D R|C	0.0518	0.0353	0.0682
Pearson Correlation	0.0102	-0.0010	0.0214
Spearman Correlation	0.0389	0.0264	0.0514
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0556	0.0443	0.0670
Lambda Symmetric	0.0412	0.0328	0.0496
Uncertainty Coefficient C|R	0.0443	0.0396	0.0490
Uncertainty Coefficient R|C	0.0272	0.0243	0.0302
Uncertainty Coefficient Symmetric	0.0338	0.0301	0.0374

Output 169. Frequency table of Hypertension Level by Total Cholesterol Category (Desirable <200 mg/dL≤ Borderline High < 240 mg/dL ≤ High).

Hypertension classification	Total Cholesterol Classification			Total
Frequency Row Pct	Desirable	Borderline	High	
Normal	8856 73.53	2163 17.96	1025 8.51	12044
Prehypertension	3437 43.16	2547 31.99	1979 24.85	7963
Hypertension Stage 1	12 80.00	2 13.33	1 6.67	15
Total	12305	4712	3005	20022

Output 170. Pearson Chi-Square Statistics of the Association Test Between Hypertension Level by Total Cholesterol Category.

Statistic	DF	Value	Prob
Chi-Square	4	1975.2436	<.0001
Likelihood Ratio Chi-Square	4	1976.6433	<.0001
Mantel-Haenszel Chi-Square	1	1879.2612	<.0001
Phi Coefficient		0.3141	
Contingency Coefficient		0.2997	
Cramer's V		0.2221	

Output 171. Cochran-Mantel-Haenszel Statistics for the Association Test Between Hypertension Level by Total Cholesterol Category.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	1879.2612	<.0001
2	Row Mean Scores Differ	2	1907.2964	<.0001
3	General Association	4	1975.1450	<.0001

Output 172. Measures of the Strength of Association Between Hypertension Level by Total Cholesterol Category.

Statistic	Value	95% Confidence Limits	
Gamma	0.5293	0.5102	0.5484
Kendall's Tau-b	0.3000	0.2872	0.3128
Stuart's Tau-c	0.2300	0.2200	0.2400
Somers' D C|R	0.3195	0.3057	0.3333
Somers' D R|C	0.2817	0.2697	0.2937
Pearson Correlation	0.3064	0.2930	0.3197
Spearman Correlation	0.3128	0.2995	0.3262
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.1677	0.1480	0.1874
Lambda Symmetric	0.0853	0.0749	0.0956
Uncertainty Coefficient C|R	0.0534	0.0488	0.0580
Uncertainty Coefficient R|C	0.0728	0.0665	0.0791
Uncertainty Coefficient Symmetric	0.0616	0.0563	0.0669

Output 173. Frequency table of Hypertension Level by HDL Cholesterol Category. Low < 40 mg/dl≦ Normal < 60 mg/dL ≤ High.

Hypertension classification	Total Cholesterol Classification			Total
Frequency Row Pct	Desirable	Borderline	High	
Normal	2723 22.61	4631 38.45	4690 38.94	12044
Prehypertension	1436 18.03	3361 42.21	3166 39.76	7963
Hypertension Stage 1	3 20.00	8 53.33	4 26.67	15
Total	4162	8000	7860	20022

Output 174. Pearson Chi-Square Statistics of the Association Test Between Hypertension Level by HDL Cholesterol Category.

Statistic	DF	Value	Prob
Chi-Square	4	67.3101	<.0001
Likelihood Ratio Chi-Square	4	68.0617	<.0001
Mantel-Haenszel Chi-Square	1	23.8945	<.0001
Phi Coefficient		0.0580	
Contingency Coefficient		0.0579	
Cramer's V		0.0410	

Output 175. Cochran-Mantel-Haenszel Statistics for the Association Test Between Hypertension Level by HDL Cholesterol Category.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	23.8945	<.0001
2	Row Mean Scores Differ	2	24.9928	<.0001
3	General Association	4	67.3068	<.0001

Output 176. Measures of the Strength of Association Between Hypertension Level by HDL Cholesterol Category.

Statistic	Value	95% Confidence Limits	
Gamma	0.0527	0.0293	0.0762
Kendall's Tau-b	0.0293	0.0163	0.0423
Stuart's Tau-c	0.0244	0.0135	0.0352
Somers' D C|R	0.0339	0.0188	0.0489
Somers' D R|C	0.0253	0.0140	0.0365
Pearson Correlation	0.0345	0.0209	0.0482
Spearman Correlation	0.0309	0.0172	0.0446
Lambda Asymmetric C|R	0.0049	0.0000	0.0206
Lambda Asymmetric R|C	0.0000	0.0000	0.0000
Lambda Symmetric	0.0030	0.0000	0.0124
Uncertainty Coefficient C|R	0.0016	0.0008	0.0024
Uncertainty Coefficient R|C	0.0025	0.0013	0.0037
Uncertainty Coefficient Symmetric	0.0020	0.0010	0.0029

Output 177. Frequency table of Hypertension Level by LDL Cholesterol Category. Optimal < 100 mg/dL≤ Near Optimal < 130 mg/dL ≤ Borderline High < 160 ≤ High < 190 ≤ Very High.

Hypertension classification	LDL Cholesterol Classification					
Frequency Row Pct	Optimal	Near optimal	Borderline high	High	Very high	Total
Normal	8990 74.64	1576 13.09	902 7.49	367 3.05	209 1.74	12044
Prehypertension	5328 66.91	894 11.23	915 11.49	514 6.45	312 3.92	7963
Hypertension Stage 1	10 66.67	4 26.67	0 0.00	1 6.67	0 0.00	15
Total	14328	2474	1817	882	521	20022

Output 178. Pearson Chi-Square Statistics of the Association Test Between Hypertension Level by LDL Cholesterol Category.

Statistic	DF	Value	Prob
Chi-Square	8	356.6429	<.0001
Likelihood Ratio Chi-Square	8	350.3615	<.0001
Mantel-Haenszel Chi-Square	1	296.7764	<.0001
Phi Coefficient		0.1335	
Contingency Coefficient		0.1323	
Cramer's V		0.0944	

Output 179. Cochran-Mantel-Haenszel Statistics for the Association Test Between Hypertension Level by LDL Cholesterol Category.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	296.7764	<.0001
2	Row Mean Scores Differ	2	300.1349	<.0001
3	General Association	8	356.6251	<.0001

Output 180. Measures of the Strength of Association Between Hypertension Level by LDL Cholesterol Category.

Statistic	Value	95% Confidence Limits	
Gamma	0.1986	0.1719	0.2253
Kendall's Tau-b	0.0961	0.0827	0.1095
Stuart's Tau-c	0.0679	0.0583	0.0774
Somers' D C|R	0.0943	0.0810	0.1075
Somers' D R|C	0.0980	0.0844	0.1116
Pearson Correlation	0.1218	0.1077	0.1358
Spearman Correlation	0.1008	0.0867	0.1148
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.0330	0.0193	0.0467
Lambda Symmetric	0.0192	0.0112	0.0273
Uncertainty Coefficient C|R	0.0092	0.0073	0.0111
Uncertainty Coefficient R|C	0.0129	0.0102	0.0156
Uncertainty Coefficient Symmetric	0.0108	0.0085	0.0130

Output 181. Frequency table of Hypertension Level by Triglyceride Category. Normal <150 mg/dL≤ High < 200 mg/dL ≤ Borderline High < 500 mg/dL ≤ Very High

Hypertension classification	Triglyceride Classification				
Frequency Row Pct	Normal	Borderline high	High	Very high	Total
Normal	10766 89.39	654 5.43	594 4.93	30 0.25	12044
Prehypertension	5833 73.25	973 12.22	1065 13.37	92 1.16	7963
Hypertension Stage 1	13 86.67	2 13.33	0 0.00	0 0.00	15
Total	16612	1629	1659	122	20022

Output 182. Pearson Chi-Square Statistics of the Association Test Between Hypertension Level by Triglyceride Levels.

Statistic	DF	Value	Prob
Chi-Square	6	900.8330	<.0001
Likelihood Ratio Chi-Square	6	884.7617	<.0001
Mantel-Haenszel Chi-Square	1	829.7047	<.0001
Phi Coefficient		0.2121	
Contingency Coefficient		0.2075	
Cramer's V		0.1500	

Output 183. Cochran-Mantel-Haenszel Statistics for the Association Test Between Hypertension Level by Triglyceride Levels.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	829.7047	<.0001
2	Row Mean Scores Differ	2	841.2317	<.0001
3	General Association	6	900.7880	<.0001

Output 184. Measures of the Strength of Association Between Hypertension Level by Triglyceride Levels.

Statistic	Value	95% Confidence Limits	
Gamma	0.4898	0.4623	0.5174
Kendall's Tau-b	0.2062	0.1927	0.2197
Stuart's Tau-c	0.1170	0.1089	0.1251
Somers' D C|R	0.1625	0.1513	0.1737
Somers' D R|C	0.2617	0.2448	0.2786
Pearson Correlation	0.2036	0.1899	0.2172
Spearman Correlation	0.2109	0.1971	0.2248
Lambda Asymmetric C|R	0.0000	0.0000	0.0000
Lambda Asymmetric R|C	0.1068	0.0932	0.1203
Lambda Symmetric	0.0748	0.0653	0.0843
Uncertainty Coefficient C|R	0.0370	0.0323	0.0418
Uncertainty Coefficient R|C	0.0326	0.0283	0.0369
Uncertainty Coefficient Symmetric	0.0347	0.0302	0.0392

Output 185. Frequency table of Hypertension Level by Kidney Disease Stage. Stage 1 – GFR ≥ 90; Stage 2- GFR < 90 and GFR≥ 60; Stage 3 – GFR < 60 and GFR ≥ 30; Stage 4 – GFR < 30 and GFR ≥ 15 and Stage 5 – GFR < 15. Glomerular Flow Rate (mL/min per 1.73 m^2) was calculated accordingly to KD-EPI equation[124].

Hypertension classification	Kidney Disease Stage					Total
Frequency Row Pct	1	2	3	4	5	
Normal	5419 44.99	3891 32.31	286 2.37	27 0.22	2421 20.10	12044
Prehypertension	1615 20.28	2799 35.15	1429 17.95	189 2.37	1931 24.25	7963
Hypertension Stage 1	7 46.67	4 26.67	0 0.00	0 0.00	4 26.67	15
Total	7041	6694	1715	216	4356	20022

Output 186. Pearson Chi-Square Statistics of the Association Test Between Hypertension Level by Kidney Disease Stage.

Statistic	DF	Value	Prob
Chi-Square	8	2446.4643	<.0001
Likelihood Ratio Chi-Square	8	2539.4921	<.0001
Mantel-Haenszel Chi-Square	1	679.7921	<.0001
Phi Coefficient		0.3496	
Contingency Coefficient		0.3300	
Cramer's V		0.2472	

Output 187. Cochran-Mantel-Haenszel Statistics for the Association Test Between Hypertension Level by Kidney Disease Stage.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	679.7921	<.0001
2	Row Mean Scores Differ	2	686.1876	<.0001
3	General Association	8	2446.3421	<.0001

Output 188. Measures of the Strength of Association Between Hypertension Level by Kidney Disease Stage.

Statistic	Value	95% Confidence Limits	
Gamma	0.3717	0.3528	0.3907
Kendall's Tau-b	0.2268	0.2147	0.2390
Stuart's Tau-c	0.1986	0.1879	0.2093
Somers' D C|R	0.2758	0.2610	0.2906
Somers' D R|C	0.1865	0.1765	0.1965
Pearson Correlation	0.1843	0.1707	0.1978
Spearman Correlation	0.2456	0.2325	0.2588
Lambda Asymmetric C|R	0.0912	0.0816	0.1008
Lambda Asymmetric R|C	0.1636	0.1537	0.1734
Lambda Symmetric	0.1188	0.1120	0.1255
Uncertainty Coefficient C|R	0.0479	0.0444	0.0513
Uncertainty Coefficient R|C	0.0936	0.0867	0.1004
Uncertainty Coefficient Symmetric	0.0633	0.0588	0.0679

Output 189. Frequency table of Hypertension Level by Uric Acid Tierces.

Hypertension classification	Serum Uric Acid Tierce			Total
Frequency Row Pct	1	2	3	
Normal	7026 58.34	3142 26.09	1876 15.58	12044
Prehypertension	3288 41.29	4032 50.63	643 8.07	7963
Hypertension Stage 1	4 26.67	8 53.33	3 20.00	15
Total	10318	7182	2522	20022

Output 190. Pearson Chi-Square Statistics of the Association Test Between Hypertension Level by Uric Acid Tierces.

Statistic	DF	Value	Prob
Chi-Square	4	1293.3399	<.0001
Likelihood Ratio Chi-Square	4	1292.5910	<.0001
Mantel-Haenszel Chi-Square	1	91.4733	<.0001
Phi Coefficient		0.2542	
Contingency Coefficient		0.2463	
Cramer's V		0.1797	

Output 191. Cochran-Mantel-Haenszel Statistics for the Association Test Between Hypertension Level by Uric Acid Tierces.

Cochran-Mantel-Haenszel Statistics				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	91.4733	<.0001
2	Row Mean Scores Differ	2	92.3514	<.0001
3	General Association	4	1293.2753	<.0001

Output 192. Measures of the Strength of Association Between Hypertension Level by Uric Acid Tierces.

Statistic	Value	95% Confidence Limits	
Gamma	0.1840	0.1608	0.2072
Kendall's Tau-b	0.1020	0.0888	0.1152
Stuart's Tau-c	0.0814	0.0709	0.0919
Somers' D C|R	0.1131	0.0985	0.1276
Somers' D R|C	0.0920	0.0800	0.1040
Pearson Correlation	0.0676	0.0541	0.0811
Spearman Correlation	0.1063	0.0926	0.1200
Lambda Asymmetric C|R	0.0771	0.0605	0.0937
Lambda Asymmetric R|C	0.1116	0.0919	0.1312
Lambda Symmetric	0.0926	0.0766	0.1087
Uncertainty Coefficient C|R	0.0333	0.0297	0.0368
Uncertainty Coefficient R|C	0.0476	0.0425	0.0527
Uncertainty Coefficient Symmetric	0.0392	0.0350	0.0434

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