

Vulnerability to Cardiovascular Diseases among Senior Civil Servants in Ekiti State, Nigeria:

Implications for Health Education

LA VULNÉRABILITÉ DES MALADIES CARDIO-VASCULAIRES CHEZ LES HAUTS FONCTIONNAIRES DE L'ÉTAT D'EKITI, NIGÉRIA:

IMPLICATIONS POUR L'ÉDUCATION SANITAIRE

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Abstract: This study examined vulnerability to cardio vascular disease among senior civil servants in Ekiti-State and implications for health education. Ekiti State otherwise called fountain of knowledge is known for academic attainment where majority of the populace are educated but the poor level of economic development made civil service the widely accepted job option for the populace. Civil Service includes secondary schools, ministries and parastatals. The study design used was descriptive survey. Ado Local Government was purposefully selected while Ado-Ekiti the only major town in Ado Local Government Area was used for the study because all the ministries headquarters are located in Ado-Ekiti the state capital. Data for this study were collected from primary sources using a total number of three hundred senior civil servants with salary scale within 14 and 16, who were randomly selected using simple random and stratified sampling technique from the ministries, parastatals and secondary schools. Two hundred and eighty copies of the administered instrument which were duly completed and returned, giving 93 percent returned rate were analyzed. A standardized Arizona Heart Institute cardiovascular Risk factor analysis questionnaire was adopted. The data collected were analyzed using frequency and percentages. The study revealed that 168 (60%) respondents were male while 112 (40%) were female. Using the scoring method provided by the risk factor analysis, it was revealed that men had high risk factors while women had low risk factors. The body mass index calculated also showed that male senior civil servants are overweight than their female counterparts. It was therefore recommended that, conducting enlightenment campaign would create awareness on the risk factors to cardiovascular diseases which would reduce the vulnerability rate. Regular medical checkup in work place would help in early identification of the non-modifiable risk factors and prompt treatment of such condition. Finally, keep fit exercise should be organized regularly for senior civil servants by the state government.

Key words: Cardiovascular Diseases; Civil Servants; Vulnerability; Implication and Health Education

Resumé Cette étude a examiné la vulnérabilité des maladies cardiovasculaires chez les hauts fonctionnaires de l'état d'Ekiti, et les implications pour l'éducation sanitaire. L'état d'Ekiti, autrement appelé la fontaine de la connaissance, est connu pour les résultats scolaires où la majorité de la

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population sont scolarisé, mais le niveau de développement économique faible a rendu la fonction publique l'option d'emploi largement acceptée par la population. La fonction publique comprend les écoles secondaires, les ministères et les organismes parapublics. Le modèle d'étude utilisé est l'enquête descriptive. Le gouvernement local d'Ado a été délibérément choisi alors que Ado-Ekiti, la seule ville importante dans la région du gouvernement local d'Ado a été choisie comme l'objet d'étude parce que tous les sièges des ministères sont situés à Ado-Ekiti, la capitale de l'Etat. Les données de cette étude ont été recueillies à partir des sources primaires en utilisant un nombre total de trois cents hauts fonctionnaires avec un barème de salaire entre 14 et 16, sélectionnés de manière aléatoire en utilisant la technique d'échantillonnage aléatoire simple et stratifié dans les ministères, organismes parapublics et écoles secondaires. Deux cent quatre-vingts copies d'enquête ont été dûment remplies et retournées, et 93 pour cent des copies retournées ont été analysées. Un questionnaire standardisé d'analyse des facteurs de risque cardiovasculaire de l'Institut de cardiologie d'Arizona a été adopté. Les données recueillies ont été analysées en utilisant la fréquence et les pourcentages. L'étude a révélé que 168 (60%) des répondants étaient de sexe masculin alors que 112 (40%) étaient de sexe féminin. En utilisant la méthode de notation fournie par l'analyse des facteurs de risque, on a découvert que les hommes avaient des facteurs de risque élevés alors que les femmes avaient des facteurs de risque faible. L'indice de masse corporelle a également montré que les hauts fonctionnaires masculins ont plus de problème de surpoids que leurs homologues féminins. La campagne d'illumination pourrait donc créer de la sensibilisation sur les facteurs de risque des maladies cardio-vasculaires qui permettrait de réduire le taux de vulnérabilité. L'examen médical régulier en milieu de travail aiderait à l'identification précoce des facteurs de risque non modifiables et au traitement rapide en cas de risque. Enfin, l'exercice de fitness devrait être organisé régulièrement pour les hauts fonctionnaires par le gouvernement de l'état.

Mots-clés: Maladies Cardiovasculaires; Fonctionnaires Civils; Vulnérabilité Implication Et Éducation Sanitaire

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INTRODUCTION

Cardiovascular disease (CVD) is a major health problem in both the industrialized world and developing world. The enormous burden of CVD appears to be on the increase on daily basis. According to Beagle and Yach (2003), CVD is felt more in developing countries as a result of ignorance, poor medical infrastructure and poor health behaviours such as unhealthy life style or poor health seeking behavior. Alteration in the normal functioning of either the heart or blood vessels or both is referred to as cardiovascular disease. Brannon and Feist, (2007) opined that CVD is the leading cause of death worldwide, while, WHO (2002) has it on record that 29 percent of death worldwide was due to CVD and 78 percent of morbidity from cardiovascular diseases occurs in developing countries and projected that by year 2020, CVD will be the leading cause of global health problem. Beagle and Yach, (2003) linked the high rate of CVD in developing nations to being ill-equipped to handle the burden of CVD coupled with poor literacy rates and lack of awareness of the disease symptoms and the risk factors. Richard and Forgoros, (2009) explained that chest pain or discomfort such as squeezing, choking, numbness or pain in the jaw or arms which can last from some seconds to days is a major symptom of CVD. The disease may manifest through heart palpitation, in form of "skips" in the heartbeats or rapid or irregular heartbeats. Lightheadedness or dizziness and syncope can result from the episode CVD.

Hales, (2007) believed that CVD does not strike out of the blue as 90 percent of those who develop heart disease and 95 percent of those who suffer a fatal heart attack have at least one or more major risk factors. Thus recognizing these risk factors would help in preventing the occurrence of CVD. Although, the exact cause of CVD is unknown but some modifiable and non modifiable factors have been identified to predispose to the occurrence of CVD. The non modifiable risk factors are factors associated with CVD that an individual cannot alter. Williams and Davies, (2008) described the modifiable factors as smoking, high cholesterol level, hypertension, diabetes, obesity, physical inactivity and stress. Brannon and Feist, (2007) explained that the non modifiable factors otherwise known as inherent risk factors for CVD are advancing age, family history, gender, ethnic background or race.

AGE

Risk of developing CVD is assumed to increase linearly with age. Yao, Bin, Jie and Jang, (2006) in a study conducted in China, discovered that rapid economic growth coupled with changes in lifestyles have resulted into ageing of the population reduce to longer life expectancy. The aftermath is that the country now experiences increased burden of CVD and other chronic diseases. This discovery points to the fact that CVD increases with increasing age.

GENDER

The prevalence of CVD is greater among men than women (Hockey, 1996; Atta, 2010). Donatelle, (2002) discovered that women under 35 years have a fairly low risk of CVD unless such woman has high blood pressure or kidney disease or diabetes. The reason for the low prevalence among young women according to Donatelle (2002) was attributed to the tendency of the monthly hormonal release to reduce the risk but at menopause, when estrogen level decreases, women Low Density Lipids (LDL) level goes up increasing the chances of developing CVD.

FAMILY HISTORY

Also, family history of CVD can increase the chances of developing the disease. This according to Donatelle, (2002) can be linked to genetic factor or environmental circumstances that children from parents with heart diseases are more likely to develop the disease than those whose parent do not have the disease. Atta, (2010) submitted that people with a strong family history of heart disease and also has one or more of other risk factors are more prone to CVD than those with no family history.

RACE

Blacks are at greater risk of developing CVD than white (Donatelle, 2002). Cooper, Rohmi and Attaman, (1997) in a study conducted in UK and USA discovered that the prevalence of hypertension and the standardized mortality rates from stroke is higher for people of African origin than for whites.

SMOKING

The modifiable risk factors of cigarette smoking according to Hockey, (1996) is the single most preventable cause of premature death associated with CVD in USA as smoking is responsible for 21 percent of coronary heart disease. Addo, Smeeth and Leon, (2009) recorded that more than one of every ten CVD in the world in year 2000 was attributable to smoking which demonstrate that preventing smoking will reduce mortality from CVD. The health condition of a smoker who has coronary heart disease is worsened by the act of smoking.

OBESITY

The accumulation of body fats may predispose the individual to CVD. The reason was that excess weight places additional stress on the heart which in turn forces the heart to work harder in performing simple task (Hockey, 1996). Studies discovered the increased incidence of CVD including coronary artery disease and hypertension in obese people (Hales 2007; Hockey, 1996). A reported increase in the prevalence of obesity in children in USA has been attributed to predispose the children to the premature CVD (Creapeau, Cohn and Boyt-Shell, 2003). National Heart, lung and blood institute suggested that losing weight at any age can help reduce the risk of heart symptoms. While Hales (2007) believed that weight loss will significantly reduce high blood pressure. That mild to moderately obese women are more likely to suffer from chest pain than thi

HIGH BLOOD PRESSURE

Blood pressure is the contraction of the heart muscle which pumping blood into the blood vessels and the resistance of the blood vessels through which the blood flows. Reading of the blood pressure consists of systolic and diastolic measurement recorded in millimeters. A situation known as hypertension arises when there is constriction of the artery walls resulting into the need for greater force to be exerted on the wall to allow blood flows through them. On the other hand, CVD is the major cause of death and morbidity in people with diabetes (Schundorf, et al, 2010). A study conducted

by the European Association for the study of diabetes confirmed that almost one third of clients attending cardiology care unit for coronary angiography suffered from impaired glucose regulation.

STRESS

Stress is a mental and physical response of the body to the changes and challenges of life. Donatelle, (2001) opined that excessive thinking and worrying about one self can predispose to stress. Many factors can predispose senior civil servants to stress; one of such is the year of retirement which is considered as a major problem facing most senior civil servants. In Nigeria, mandatory retirement age for civil servants is 60 or on attainment of maximum allowable length of 35 years in service. Daily Trust, (2009) has it on record that 40 percent of global work force are scared of retirement because the prospect of losing the status that comes with a lofty status career position coupled with financial security as regard to the poor state of the nation economy are daunting and this can compound stress. Stress could be prevented by loosening up, worry less and gaining greater control of one's mind and one's body. Brannon and Feist, (2007) discovered that high blood pressure worsen during stressful times. Likewise, heart problems including attacks of pains and heart rate and rhythm disturbances are linked to stress. Though, stress can be positive or negative. Hockey, (1996) explained that negative stress has been associated with increased risk of coronary heart disease, hypertension and many other physical ailments.

PHYSICAL INACTIVITY

Physical fitness is the ability to carry out everyday task with vigour and alertness without fatigue and with ample energy to enjoy leisure and meet unforeseen emergencies according to Edelman and Mandle, (2002) can prevent the development of CVD in diverse ways. The identified ways include modulating effects on fat storage; helping to improve insulin sensitivity and glucose tolerance, and directly affect glucose metabolism and the effect of exercise can lower plasma glucose level. Blair, (1996) described physical activity as a major independent predictor of CVD and can also modify the negative effects of other risk factors (Hockey, Price Tucker, griffin and Halman, 2003; Hales, 2007). Thus higher level of physical exercise is associated with prevention of CVD while sedentary life style can predispose to the development of CVD (Blair, 96; Manson, 1999).

Business Dictionary Country Studies, (2008) explained that civil service is organized around Government departments, ministries and extra ministerial parastatals headed by commissioners who were appointed by the state governor. Civil service according to Owojori, (2010) is purely government work which is different from private enterprise. At the dawn of independence, civil service was a beehives of activities because it created a platform for civil servants to prove their worth as pioneer of emerging indigenous administration Olaniyi, T., (2007, Sept. 9); Civil servants and the unknown future, Daily Sun .)The people who are employed to work for government are called civil servants. This group of people works in government establishments such as ministries, secondary schools and government offices.

PREVENTION

Preventive medicine is the key to reducing the chances of CVD. Considering the fact that what one eats and one's lifestyles largely determines ones vulnerability to heart disease to avoid the disease, it is imperative to live a healthy lifestyle, eating of nutritious food, avoid smoking, maintaining healthy weight and exercising regularly will improve one's health better than what doctors or medicine could do. Developing countries continue to be ill-equipped to handle the burden of CVD coupled with poor literacy rates and lack of awareness of disease symptoms. Prevention is the most effective way of combating the CVD occurrence in the poor or developing countries.

HEALTH CARE IN NIGERIA

Providing health care service in Nigeria is the joint responsibility of the three tiers of government. Access to quality healthcare is either limited in Nigeria or non-existent with staggering financial burden to families and the nation. While the prevalence of fake drugs and substandard products are compounding the problems, unhealthy lifestyles of many individuals are making the matter worse. Ogunbekun (1991) is of the opinion that excessive bureaucracy and a dearth of skilled management have crippled health services in Nigeria, while over-dependence on tax-based funding has further threatened the survival of these services. These findings therefore points to the fact that Nigeria health care delivery system is ill equipped to manage the rising prevalence of CVD.

AIM AND OBJECTIVES OF THE STUDY

The general aim of this study was to examine the level of vulnerability of senior civil servants to Cardiovascular Disease in Ekiti State.

The specific objectives of this study were to:

- 1) identify the predisposing factors to cardiovascular disease among senior civil servants in Ekiti State;
- 2) determine if the prevalence is higher in men than women.
- 3) recommend possible control measures to cardiovascular disease among senior civil servants in Ekiti State.

THE STUDY AREA

Ekiti State is located between latitude 7° 30' and 8° 15' North of the Equator and longitude 4° 47' and 5° 40' of the Greenwich meridian. Ekiti State was created on the 1st of October, 1996 and its capital city Ado-Ekiti has witnessed rapid population growth and urbanization (Awosusi and Jegede, 2010).

Ekiti state is divided into three senatorial districts namely; Ekiti South District (which has six (6) Local Government Areas), Ekiti Central Senatorial District (which has 5 Local Government Areas), and Ekiti North Senatorial District (which has five (5) Local Government Areas). The estimated population figure of Ekiti State according to the National Population Commission stood at 2,353,082 (National Population Commission, July, 2006).

The relief of Ekiti State consists of undulating plains. The highest contour line of 540 m above sea level is found around the North Eastern limit of the state. Ekiti State has a total annual rainfall of about 1400 mm with a low co-efficient variation of about 30% during the rainfall peak months, and with an average of about 112 rainy days per annum (Adebayo, 1993).

The development of Ekiti State spread towards the routes of communication. Put differently, the settlement evolutionary structure and growth is a replica of Homer Hoyt's Sector Theory of 1939, which posits the sprawl of physical development in the direction of transportation routes.

CONCEPT OF CARDIOVASCULAR DISEASE

Cardiovascular disease (CVD) is viewed as an abnormal condition characterized by dysfunction of the heart and blood vessels (a disease that affects the heart and blood vessels). Cardiovascular disease covers a spectrum of disorder which includes high blood pressure or hypertension, cerebro vascular accidents (CVA), Coronary heart disease (CHD), rheumatic heart disease, heart failure, Dysarrhythmias, pericarditis, atherosclerosis and arteriosclerosis. The concept of cardiovascular disease further explained that life or existence is dependent on the efficient functioning of the heart because the heart is the organ that pumps blood carrying oxygen and nutrients to all tissues and organs of the body. If the pumping action of the heart becomes inefficient due to damage, vital organs like the brain, kidneys, the coronary blood vessels or other blood vessels and the heart suffer. Thus, CVD is not a single disorder, but it comprises of several specific diseases (Hockey, 1996).

Civil Service according to Owojori (2010) is purely government work, different from private enterprises or those that are self employed. While the government employed group are called civil servants and they work in government establishment such as ministries, schools and offices.

Business Dictionary (2010), noted that the civil service is a body of government employees entrusted with the administration of the country and mandated to carry out the policy of the government of the day.

Ukamaka (2008), observed that despite the significant role played by civil servants various activities of the government can predispose civil servant to stress such as poor remuneration, delay in payment of salary, delay in promotion and down-sizing and rank sizing of civil servants and retirement policy.

Wikipedia (2010) opined that most employees are career civil servants in the Nigerian ministries, progressing based on qualifications and seniority. The Nigerian Civil Service has its origins in organizations established by the British in colonial times.

METHODOLOGY

A total of 300 senior civil servants on grade level within 14 and 16 were selected for the study. The senior civil servants in Ekiti State, who are Level fourteen (14) and above, were the subjects of this study. Thus, the senior civil servants in Ekiti State were randomly selected from among principals of secondary schools and senior civil servants in the ministries in Ekiti State.

For this study, Ado-Ekiti the state capital was purposefully selected because it houses all the ministries where the senior civil servants could be reached. Aside this, most of the senior civil servants working in the other local governments reside in Ado-Ekiti. A total of 300 respondents were randomly selected from the state ministries, parastatals and secondary schools.

A 12-item questionnaire was adopted from Arizona Heart institute cardiovascular Risk factor analysis to elicit information from the senior civil servants within the study area. A total number of three hundred (300) questionnaires were administered in this study. The respondents were selected using random sampling techniques. Descriptive method of data analyses was done using frequency table and simple percentiles to analyze the data. A total number of 280 questionnaires were retrieved from the respondents.

FINDINGS AND DISCUSSIONS

Table 1: Gender Group of Respondents

Gender	Frequency	Percentage
Male	160	57.14
Female	120	42.86
Total	280	100

Source: Author's Fieldwork Report (2010)

The results on the gender group of respondents revealed that 160 (57.14%) of the Senior Civil Servants in Ekiti State were males, while 120 (42.86%) of the Senior Civil Servants were females. Thus, the risk of cardiovascular disease among senior civil servants in Ekiti State is high, since males are more vulnerable to cardiovascular disease than the females (Hockey, 1996 & Atta, 2010).

Table 2: Age Group of Respondents

Age Group	Frequency	Percentage
Above 56 years	150	53.57
Below 56 years	130	46.43
Total	280	100

Source: Author's Fieldwork Report (2010)

The findings on the age categories of senior civil servants in the study area showed that 150 (53.57%) of the respondents were above 56 years of age, while 130 (46.43%) of the respondents were below 56 years of age. This suggests that majority of the senior civil servants in the study area are more vulnerable to cardiovascular disease, due to their advancement in age (Yao et al., 2006).

Table 3: Blood Relatives Who Have Had Heart Attack or Stroke

Issues	Frequency	Percentage
Heart attack/stroke before age of 60	10	3.57
Heart attack/stroke after age of 60	40	14.28
No blood relative, who have had heart attack/stroke	230	82.15
Total	280	100

Source: Author's Fieldwork Report (2010)

The findings on whether or not respondents has relatives who have had heart attack/stroke before age of 60 or after age of 60, or no blood relatives revealed that 10 (3.57%) of the respondents noted that they have had blood relatives who have had heart attack/stroke before age of 60, 40 (14.28%) of the respondents observed that they have had blood relatives with heart attack/stroke after age of 60, and 230 (82.15%) of the respondent stated that they have had no blood relative, who have had heart attack/stroke. Considering the submission of Donatalle (2002) one can conclude that only few members of the senior civil servants in the study area were vulnerable to cardiovascular disease through hereditary.

Table 4: Smoking of Respondents

Smoking of Respondents	Frequency	Percentage
One pack per day	0	0
Two – Six cigarettes per day	0	0
Quit smoking sometimes ago	40	14.29
Never smoked	240	85.71
Total	280	100

Source: Author’s Fieldwork Report (2010)

The findings on whether or not respondents smoke cigarette or not revealed that none of the respondents smoke one pack of cigarette per day, none smoke two-six cigarettes per day, while 40 (14.29% of the respondents noted that they had stopped smoking years ago, and 240 (85.71%) of the respondents never smoked. This suggests that the senior civil servants in the study area were not at risk of vulnerability to cardiovascular disease through smoking.

Table 5: Blood Pressure

Blood Pressure	Frequency	Percentage
Blood pressure above 160	0	0
Blood pressure below 160 but not lower than 100	50	17.86
Blood pressure less than 100	230	82.14
Total	280	100

Source: Author’s Fieldwork Report (2010)

The findings on the level of blood pressure among senior civil servants in Ekiti State showed that none of the respondents had blood pressure above 160, 50 (17.86%) of the respondents had blood pressure below 160 but higher than 100, while 230 (82.14%) of the respondents had blood pressure less than 100. This implied that senior civil servants in the study area are not vulnerable to cardiovascular disease originating from high blood pressure.

Table 6: Aerobic Exercise

Engagement in Aerobic Exercise	Frequency	Percentage
Exercise about 15 minutes daily	80	28.58
Three or more times a week	20	7.14
Twice a week	40	14.28
Once a week	140	50.0
Total	280	100

Source: Author’s Fieldwork Report (2010)

The findings on the engagement of senior civil servants in Ekiti State in Aerobic exercise revealed that 80 (28.58%) of the respondents engage in aerobic exercise about 15 minutes daily, 20 (7.14%) of the respondents three or more times a week, 40 (14.28%) of the respondents twice a week while, 140 (50.0%) of the respondents engage in aerobic exercise only once in a week. This implies that senior civil servants in the study area, try to avert reduce the risk of their vulnerability to cardiovascular diseases by burning away fats from their body system during aerobic exercise.

Table 7: Frustration when Waiting in Line, often in a Hurry to Complete Work/Appointment

Issues	Frequency	Percentage
Patient	140	50.0
Impatient	60	21.48
Unsure	80	28.42
Total	280	100

Source: Author’s Fieldwork Report (2010)

The findings on whether or not respondents were often frustrated when waiting in line or often in a hurry to complete work or meet up with appointments showed that 140 (50.0%) of the respondents noted that they were often patient, 60 (21.48%) observed been impatient, while 80 (28.42%) of the respondents were not sure, whether or not they are patient/impatient, when trying to catch up with an appointment. The implication of this is that a reasonable number of the senior civil servants in the study area were often impatient in catching up with an appointment or to complete work due to their busy work study. Brannon and First (2007) discovered that high blood pressure is worsened during stressful times and linked heart problems to stress, thus, been impatient or anxious could increase the level of vulnerability to cardiovascular disease among civil servants in the area.

Table 8: Gender and Level of Risk Factors

Issues	Male	Female
High Risk	5	0
Moderate Risk	23	18
Low Risk	132	102
Total	160	120

Source: Author's Fieldwork Report (2010).

Using the Arizona Heart Institute Cardiovascular Risk Factor Analysis Scoring (1996) the result on gender and risk factor of respondents revealed that out of the 280 respondents, five (5) of the males were within the high risk group, twenty three (23) males were within moderate risk range, while one hundred and thirty two (132) of the males were in low risk range. On the other hand, none of the females was in high risk range, eighteen (18) of the females were within the moderate risk range, while one hundred and two of the female respondents were in the low risk range. This revealed that male civil servants are more predisposed to CVD than the females. This finding corroborates the findings of Hockey (1996) and Atta (2010) that the prevalence of CVD is higher in men than women.

Table 9: Gender and Weight

Issues	Male	Female
Obese	27	47
Over weight	81	46
Normal weight	48	25
Under weight	04	02
Total	160	120

Source: Author's Fieldwork Report (2010)

The results on gender and weight of respondents in the study area showed that out of the 160 male respondents, 27 (16.8%) were obese, 81 (50.6%) were overweight, 48 (30%) had normal weight and 4 (2.5%) were under weight. While, out of the 120 female respondents, 47 (39%) were obese, 46 (38%) were overweight, 25 (20.8%) had normal weight while only 2(1.7%) were underweight. This revealed that one in every three women in the study is obese compared to less than one in five men. But more men are overweight than women.

RECOMMENDATIONS

In view of the findings in this study, there is need for reduction in the work load of senior civil servants in the area, to reduce their risk to cardiovascular disease.

Modern medical facilities should be provided to check and possibly control cardiovascular disease in the area. Senior Civil Servants in the area should be mandated to engage in routine check in the government hospitals to ascertain their health status and to possibly avert CVD.

Conducive working environment should be provided to ensure comfortable working environment of senior civil servants and possibly ease their stress in the study area.

CONCLUSION

Cardiovascular disease is a killer disease in the world, and as such all hands must be on deck to reduce or possibly control the rate of vulnerability of senior civil servants in the study area. Thus, this study will be of immeasurable value to government at all levels, medical practitioners, researchers, civil servants and public servants in their search to avert cardiovascular diseases the world over.

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