25-26 September 2015

NATIONAL SEMINAR

ANTHROPOLOGY OF CARDIOMETABOLIC ADVERSITIES

Programme schedule and Book of Abstracts

Department of Anthropology
University of Delhi

SCIENTIFIC PROGRAMME

DAY I

Friday	**25 September 2015**	
8.30am - 9.30 am	Registration	
9.30am - 9.40 am	Welcoming the Guests	Dr. R.P. Mitra
9.40am - 9.50 am	Inaugural address by the Chairperson	Prof. V.K. Srivastava
9.50am - 10 am	Introductory note	Dr. K.N. Saraswathie
10am - 10.20 am	Address by the Guest of Honor	Prof. Vandana Roy
10.20am - 10.40 am	Address by the Chief Guest	Dr. Bindu Dey
10.50am - 11.20 am	Keynote Address **Dr. Shantanu Sengupta: Understanding Coronary Artery Disease in India: Need for a Systems Biology Approach**	
11.20am - 11.30 am	Vote of thanks	Dr. Benrithung Murry
11.30am - 12 noon	Tea	

Session I (12-1.15 pm) Biological and Social Considerations in Cardiometabolic Research

Chairperson	Prof. A.K. Kalla
Co-Chairperson	Dr. Avitoli Zhimo
Rapporteur	Suniti Yadav and Divya Mishra

Plenary Lecture

Prof. Sanjay Chaturvedi: Societal and Environmental Drivers of Childhood Obesity in India

Prof. V.R. Rao: Rare vs Common Alleles, Simple vs Complex Diseases and Next Generation Sequencing: Some of our Experiences in Hypertrophic Cardiomyopathy

Oral Presentation

Dr. Pulakes Purkait: Angiotensinogen Gene SNPs and Haplotypes: Risk Traits for Hypertension in Bengali Population of West Bengal

Flash Presentations

Shipra Joshi: Role of Genetics and Homocysteine Induced Effect on HTN: A Study among Lacto-Vegetarian North Indian Population

	Soumi Das: Demographic, Clinical and Genetic Profile of Indian Dilated Cardiomyopathy patients
	Mitali Kapoor: Clinical Genetic Aspects of Cardiomyopathies: A Review
1.15pm - 2pm	Lunch
Session II (2pm - 3.15pm) Psychological Aspect of Cardiometabolic Research and Adversities	
Chairperson	Prof. S.M. Patnaik
Co-Chairperson	Dr. Kennedy Singh
Rapporteur	Astha Bansal and Gangaina Kameih
Plenary Lecture	
	Prof. Manju Mehta: Stress as Risk Factor in Cardiovascular Disorders
	Prof. P.C. Joshi: Depression and Cardiovascular Disease
	Dr. Ravinder Singh: Stroke: Loss of *self* and New *neural* Identities: A Challenge to Urban Life Style
Oral Presentation	
	Dr. Meenal Dhall: Association of Stress and Life Style Disease among Adult Population of Delhi
	Dr. Mitashree Srivastava: From "'*Mornings*" to "*Mourning*": An Anthropological Case Study on the Role of "Monday's" in Manifestation of Cardio-Metabolic Adversities
Session III (3.15pm - 4pm) E-Poster Presentations	
Chairperson	Dr. Manoj Singh
Co-Chairperson	Dr. R.P. Mitra
	Jayashree Mazumder: MTHFR C677T Gene Polymorphism among the Rajputs of Rajasthan
	Rajeev: Tobacco use and Body Mass Index: A Study among the Bhils of Rajasthan
	Varsha: Morpho-Physiological Changes among Rajput Boys of Rajasthan
	Ekta Arya: Menopause and Cardiovascular Adversities: A Genetic Study among the Bhils of Rajasthan
	Ankur Krishnan: Ethical Issues in Biomedical Research
	Simi Saini: Angiotensin Converting Enzyme Gene Insertion/Deletion Polymorphism among the Tribal and Non-Tribal Populations of Rajasthan
	Urvashi Gupta: Status of MTHFR Gene Polymorphism among the Bhils of Rajasthan
4pm - 4.15pm	Tea

Session IV (4.15pm - 6pm) Ethical and Cultural Issues Related to Cardiometabolic Adversities

Chairperson	Prof. I.S. Marwah
Co-Chairperson	Dr. Benrithung Murry
Rapporteur	Shipra Joshi and Ekta Arya

Plenary Lecture

Prof. Soumendra M. Patnaik: Ethical Issues in Anthropological Research in India

Dr. R.P. Mitra: Towards a Cultural Theory of Cardiometabolic Adversities

Oral Presentations

Dr. Sanjenbam Yaiphaba Meitei: Hypertension in the Young Ages: A New Paradigm

Dr. Shivani Chandel: Reducing Cardio Metabolic Risk Factors through Participatory Workplace Interventions

Flash Presentations

Gagandeep Singh: Environmental Factors affecting Cardiovascular Diseases: A Review

Bhumika Tiwari: Low Birth Weight among Children's of Backward Community, Chhattisgarh

Astha Bansal: Assessment of Metabolic Syndrome using Modified ATP III and IDF Criteria among Sunni Muslims of Delhi

Masan: Bioethical Issues in Medical Anthropology

Rupalika: Homocysteine and MTHFR (C677T) Gene Polymorphism: Among the Bhils of Rajasthan.

Special Lecture by Prof. V.K. Srivastava

Cultural program from 6.30pm onwards

Dinner at 8pm

DAY II

Saturday **26 September 2015**

Session V (9am – 10.45am) Genetics and Genomics of Cardiovascular Adversities

Chairperson Prof. V.R. Rao

Co-Chairperson Dr. Shivani Chandel

Rapporteur Ketaki Chandiok and Mamta Thakur

Plenary Lecture

Prof. K.N. Saraswathie: Gene, Environment and Disease: An Anthropological Overview

Dr. M. Abdul Kareem: Inhibition of iNOS Expression could be a Potential Therapeutic Target for CVDs

Oral Presentations

Dr. Priyanka Rani Garg: Emerging Non-Traditional Risk Factors and Abnormal Cardiovascular Phenotypes: An Anthropological Study among the Jats of Haryana

Flash Presentations

Suchita Rawat: Tobacco Smoking and Cardiovascular Adversities: A Study among the Jats of Haryana

Nidhi Sharma: Angiotensinogen M235T Polymorphism in Metabolic Syndrome: A Study among the Brahmins of Delhi and NCR

Varhlunchhungi: Genetics of Hyperhomocysteinemia: A case-control study among the Meiteis of Manipur

Somorjit Singh: FTO (Fat Mass and Obesity Associated) Gene Polymorphism among the Tribal Population of Manipur

Gangaina Kameih: ACE Gene Polymorphism among the Panika and Baiga of Madhya Pradesh.

Motilal Yadav: ACE I/D, AGT M235T, AND MTHFR C677T Polymorphisms among the Yadav Population of Bihar

Sukriti Sharma: A Bibliometric Investigation of Recent Trends in Cardiometabolic Syndrome Research

Divya Mishra: Prevalence of Traditional and Non-Traditional Cardiovascular Risk Factors among the Bhils of Rajasthan

10.45am – 11am Tea

Session VI (11am – 1pm)	**Social, Epidemiological and Genetic Aspects of Cardiovascular Disorders**
Chairperson	Prof. R. Dhameja / Prof. A.K.Kalla
Co-Chairperson	Dr. Mitashree Srivastava
Rapporteur	Dr. Jaya Sanyal and Suchita Rawat

Plenary Lecture

Dr. Tussar Roy: Cardiovascular Disease in India - Rising Incidence, Risk Factors and Prevention

Dr. P.R. Mondal: A Study on Cardiovascular Risk Factor among a Mendelian Population of North India

Oral Presentations

Dr. Sonali Walia: A Comparative Study of Childhood and Adolescent Obesity between South and West Delhi using Waist-Hip Ratio: A Rising Health Problem Leading to Cardiovascular Diseases

Dr. Meenu Anand: Anthropology of Cardiometabolic adversities.

Flash Presentations

Shobha Yadav: Angiotensin Converting Enzyme Levels and Gene Polymorphism among the North Indian Population.

Suniti Yadav: Global DNA Methylation and Adverse Cardiovascular Variable: An Epigenetic Study from a Vegetarian Mendelian Population

Tabitha Panmei: Angiotensin Converting Enzyme Insertion/Deletion Polymorphism in Tribal Population of Manipur, Northeast India

Mamta Thakur: Epigenetics and Burden of Cardiovascular Disease

Simi Khan: Low HDL-C as an Independent Risk Factor for the Prediction of Metabolic Syndrome: A North Indian Population Study

Ketaki Chandiok: Effect of Menopause on Cardiovascular Adversities: A Cross Sectional Study among Rural Women from North India

Gurjinder Kaur Brar: Cardiovascular Risk Factors and Cognitive Impairment: A Review

Jyoti Mishra: Preterm Birth and Future Risk of Cardiovascular Diseases: A Review

1pm - 2pm Lunch

Session VII (2pm - 3pm) Gene and Environmental aspects of Cardiometabolic Disorders

Chairperson	Prof. P.C. Joshi
Co-Chairperson	Dr. Meenal Dhall
Rapporteur	Ketaki Chandiok and Jyoti Mishra

Plenary Lecture

Dr. Benrithung Murry: Gene-environment Interaction: Some Observations from Tribal Populations of Nagaland

Prof. Satwanti Kapoor: Cardiometabolic Markers and Reproductive Health of Women

Dr. Mithun Sikdar: Ethical Issues for the Research on Cardiometabolic Adversities: An Anthropological Perspective

Dr. Kumkum Srivastava: Cultural Construction of Heart in Bollywood Movies

Oral Presentations

Dr. Seerat Talwar: Epigenetic Factors Contributing to the Adversities in the Uterine Environment Leading to the Future CVD Risk

3pm - 3.45pm	**Panel Discussion:**
	Coordinator: Prof. V.R. Rao
	Prof. V.K. Srivastava, Prof. P.C. Joshi, Dr. Kumkum Srivastava, Dr. P.R. Mondal,
	Dr. K.N. Saraswathie, Dr. R.P. Mitra, Dr. B. Murry.
4pm - 5pm	**Valedictory Session**
5pm onwards	**High Tea**

KEYNOTE ADDRESS

Understanding Coronary Artery Disease in India: Need for a Systems Biology Approach

Shantanu Sengupta
Scientist, IGIB, New Delhi

Cardiovascular Diseases (CVD) is the largest causes of mortality worldwide. Of the CVDs, coronary artery disease accounts for most of the deaths. Although originally CVDs were associated with affluent society, it is increasingly being observed that the incidences of CVD are much higher in developing countries. In fact it is believed that almost 60% of deaths due to CAD will be in India by 2030. The incidences of CAD in India are reaching epidemic proportions. Most importantly, CAD occurs at a much younger age in our population. Changing lifestyles and dietary habits could be a major player in the rapid progression of complex disorders. Since the progression of this disease depends upon genetic and environmental risk factors, we looked at both these aspects in Indian population in an attempt to identify the risk factors for CAD in Indian population. A genome wide analysis revealed several single nucleotide polymorphisms that were found to be associated with CAD in our population. However, these SNPs could not account for more than 10-15% of the cases. Interestingly, our studies show that low vitamin B12 levels are associated with CAD in our population. Low vitamin B12 levels could be due to low intake since this vitamin is not present in any plants and hence is limiting in vegetarians. Poor absorption of this vitamin also could be a major cause of deficiency of vitamin B12 since it is believed that a significant proportion of Indian population suffer from *h. pylori* infection which reduces the secretion of intrinsic factor necessary for the absorption of vitamin B12. We also have shown that holoTranscobalamin, the active form of vitamin B12 is also associated with CAD. Most importantly, we found that low holoTC levels are also significantly associated with low HDL, one of the major risk factors for CAD in India. Recently, we have also shown using a rat model that maternal vitamin B12 deficiency led to dyslipidemia via differential regulation of PPAR alpha and gamma expression. This could be due to epigenetic phenomenon, since supplementation of vitamin B12 at conception to rat mothers fed with vitamin B12 deficient diet reversed the effect. We thus looked at the whole genome DNA methylation profile of the liver of pups born to mothers with vitamin B12 deficiency and found several differentially methylated regions some of which were involved in fatty acid metabolism. We thus believe that these trans-generational effects might be due to epigenetic reprogramming.

To identify proteins or metabolites that may be altered in CAD, we resorted to proteomics and metabolomics approaches and identified several potential biomarkers. From our proteomics study we identified four proteins which along with hypertension and diabetes could account for about 88% of CAD cases. All these proteins were involved in the reverse cholesterol pathway. Further, we used an untargeted LC-MS based metabolomics approach for the identification of metabolic markers in CAD. Using this approach we have identified 32 differentially regulated metabolites some of which have been previously reported to be associated with cardiovascular events. These findings from completely different layer of information i,e the epigenome, proteome and metabolome provides a holistic understanding of the disease progression and complexities associated with it. This will eventually help in developing a robust, more accurate and precise biomarker panel for screening the population having a higher risk of CAD.

Societal and Environmental Drivers of Childhood Obesity in India

Sanjay Chaturvedi
Professor and Head, Dept of Community Medicine
University College of Medical Sciences and GTB Hospital, Delhi

To understand the complex interplay between factors causing childhood obesity, and to draw a suitably informed framework of its biomedical and socio-environmental determinants, we would need a better evidence-base generated through India specific research. Evidence that is available from studies conducted on Indian subjects or the analyses done with respect to Indian context are barely able to draw an outline of further research needs, especially in the area of societal and environmental determinants. This becomes clearer when we include underexplored areas of social capital, media, and market. In such a discourse, the boundaries between ***determinants*** and ***risk drivers*** would always be blurred. If we take advantage of conceptual developments in qualitative risk analysis, equally applicable to diverse problems ranging from obesity to infectious diseases,it would be safer to restrict our inferences to ***risk drivers*** instead of going for ***determinants***. The presentation would cover some major socio-environmental risk drivers and/or determinants of childhood obesity supported by India specific evidence or analyses.

Rare vs Common allele, Simple vs Complex Disease and Next Generation Sequencing: Some of our experiences in Hypertrophic Cardiomyopathy

V. R. Rao
Professor, Department of Anthropology, University of Delhi

Hypertrophic Cardiomyopathy (HCM) is a serious disease of heart muscle caused mostly by abnormal sarcomeric protein and occurs 1 in 500 of the general population worldwide, though estimates are not available in our country. Mortality includes sudden death due to cardiac failure. Until recently it is considered to follow simple Mendelian, autosomal dominant inheritance, but complexity arises in terms more than 200 variants observed in about 46 candidate genes with variable penetrance, which are private and specific to different populations. Some of these variants are polymorphic, which led to the proposition that HCM is complex disease with several genes playing a role, a sort of common allele –common disease model. However, as these common variants do not explain complete heritability, it is being increasingly felt that there must be a rare variant sitting somewhere in the genome with maximum effect. Next generation sequencing technologies with the possibility of high density coverage of whole exome, made it possible to detect these rare variants. HCM in view of its Mendelian pattern of inheritance, low penetrance, population specific mutations and with the interaction of several candidate gene polymorphisms, is considered to be the most appropriate case for whole exome analyses. This approach in Indian populations is all the more important in view of diversity and stratification of Indian population.

The present presentation, while discussing our experiences with Next Generation Sequencing technology, highlights the importance of Anthropological approaches for holistic understanding of disease process, compared to laboratory oriented approaches in the guise of high technology.

Angiotensinogen gene SNPs and Haplotypes: Risk Traits for Hypertension in Indian Bengali Population of West Bengal

Pulakes Purkait[1]; J. M. Naidu[2]; B.N. Sarkar[3]*

[1] *Anthropological Survey of India, Western Regional Centre, Pratapnagar, Udaipur - 313001, Rajasthan, India. *Email ID: pulakes.purkait28@gmail.com*
[2] *Department of Anthropology, Andhra University, Visakhapatnam- 530003, Andhra Pradesh, India.*
[3] *Anthropological Survey of India, 27 Jawaharlal Nehru Road, Kolkata-700016, India*

Introduction: Cardiovascular diseases are the major causes of mortality in persons with diabetes, and many factors, including hypertension. In various association studies have explored the importance of AGT gene polymorphisms for a variety of cardiovascular and non-cardiovascular phenotypes. Other than hypertension, there has also been a large diversity in the cardiovascular phenotypes putatively associated with AGT variants.

Objective: To evaluate the relationship of nine single nucleotide polymorphisms(SNPs) and their haplotypes of angiotensinogen(AGT) gene to hypertension in Indian ethnic Bengali population of Kolkata city and surrounding area, West Bengal.

Methods: This study consisted of 256 hypertensive patients and 158 controls and the genotype were determined by the method of DNA sequencing and samples were analyzed on ABI 3730 genetic analyzer.

Results: In our study we have found nine SNPs across the *AGT* gene promoter, exon and intron region at position -532 (C / T) : rs5046; -217(G/A): rs5049 ; -152(G/A): rs11568020 ; -20(A/C): rs5050 and -6(G/A): rs5051 in the promoter region, +68 (T/C) : rs2148582; +172 (C/T) : rs3789679 in intronic region and T174M : rs4762; M235T : rs699 in exon 2 and created 13 haplotype, which shows that haplotypes can provide more strong association with *AGT* and hypertension than individual SNPs. The distribution of AGT genotypes and alleles frequencies showed significant difference between the hypertensive group and group of controls for the 3 SNPs i.e. rs11568020 (p= 0.003285), rs5050 (p=5.81E-08) and rs4762 (p= 0.03429). However, haplotype analysis revealed that H4 haplotype frequency (p= 0.0072), which included rs 5050 and rs4762; H8 haplotype (p=0.0184) include rs11568020, whereas the Haplotype H7 (p=6.00E-04) includes with another two SNPs i.e. rs2148582 and rs699, was significantly increased in the hypertensive group.

Conclusion: The most important observation of this study is that the primary 9-mer haplotypes (H4 and H8) displaying characteristics differ at the third and fourth nucleotide position, involving the rs11568020 G > A and rs5050 A > C, although, the shorter haplotypes down to the 2-mers e. g. Block 2, indicates clearly that A allele of rs11568020 and C allele of rs5050 were consistently associated with causative effects, while its complementary rs11568020G allele and rs5050A allele consistently mediates protective actions and both the SNPs are situated at the core promoter region of the AGT gene. The rs11568020: G-152A, rs5050: A-20C, rs4762: T174M and rs699: M235T polymorphisms of AGT gene might play an important role in the occurrence of Hypertension in Indian Bengali population, which may lead risk factor for cardiovascular complication of the patients' population.

Role of Genetics and Homocysteine Induced Effect on Hypertension: A Study among Lacto-Vegetarian North Indian Population

Shipra Joshi[1], K.N. Saraswathie[2]
[1]Research Scholar, Department of Anthropology, University of Delhi
[2] Assistant Professor, Department of Anthropology, University of Delhi

Background: Cardio-vascular disease is an athero-thrombotic disease initiated at sites of endothelial cell and is caused by several metabolic defects suggesting the role of homocysteine in it (McDowell & Lang, 2000). The association of hypertension and cardiovascular outcomes has been reported in several studies. As the etiology of hypertension has not been elucidated fully, many interventions are being carried out in controlling and preventing hypertension. Recent studies showed that hyper-homocysteinemia is associated with hypertension and so nutritional deficiencies (B vitamins) and genetic variations (MTHFR) affecting homocysteine metabolism have been recently considered important in the hypertension intervention programme (Wang et al, 2014). Mechanism by which homocysteine could promote hypertension include increased arterial stiffness, impaired endothelial integrity, reduced vasodilator capacity, reduced NO availability and insulin resistance (Sundstrom et al, 2003). Ethnicity and geographical location plays an important role in understanding the complexity of a disease, giving information about community specific dietary pattern, ancestral gene pool etc.

Objective: To determine the association of hyper-homocysteinemia and the related MTHFR genotypes (C677T) with hypertension among lacto-vegetarian population residing in rural and urban Haryana.

Design: The study recruited 1607 individuals from Jat community between age 30-75 years, unrelated upto first cousins from rural and urban Haryana, north India. Rural and urban areas were selected based on Census of India 2001 criteria. Biochemical analysis such as homocysteine, folate and Vitamin B-12 were done by chemi-luminescence competitive immunoassay using Immulite 1000. Screening for MTHFR C677T gene polymorphism was done by RFLP method using *Hinf I*.

Results: Hyper-homocysteinemia was not found to be associated with hypertension in the studied population. No association was found between MTHFR C677T polymorphism and hypertension indicating that other genetic/environmental factors may be important in causing hypertension. Hence, the result gives a hint that hyper-homocysteinemia always may not lead to hypertension.

Conclusion: Hyper-homocysteinemia and MTHFR C677T polymorphism was not found to be associated with hypertension in the studied lacto-vegetarian north Indian population.
Acknowledgement: We are thankful to the funding agency Department of Biotechnology (DBT).

Demographic, Clinical and Genetic Profile of Indian Dilated Cardiomyopathy Patients

Soumi Das, Amitabh Biswas, Mitali Kapoor, Sandeep Seth[1], Balram Bhargava[1], V. R. Rao
Department of Anthropology, University of Delhi,
[1]Department of Cardiology, AIIMS, New Delhi, India

Background: Dilated Cardiomyopathy (DCM) is a genetic disorder where a heterogeneous group of cardiac-muscles are involved and is characterized by ventricular dilatation, impaired systolic function, reduced myocardial contractility with left ventricular ejection fraction (LVEF) less than 40%. Our study aims to report the Demographic, Clinical and Genetic profile of Indian Dilated Cardiomyopathy patients.

Methodology: All patients were recruited with prior written informed consent and are of Indian origin.

Results: In a total of 80 DCM patients, the prevalence was higher among males. In males, mean age of onset was comparatively less than females. In this cohort, 40% had familial inheritance. Sixty two percent of DCM patients belong to NYHA functional class II with ejection fraction (EF) ranging between 21-30% and, around one third of the patients had atrial fibrillation (AF). Genetic screening revealed a novel splice site mutation LMNA (c.639+ G>C) and a rare variant MYH7 (c.2769 C>T) in a patient and insilico analysis of both variants suggested functional changes that were considered pathogenic. We report 3% and 4% occurance of variants, each in LMNA and MYH7, where as reported frequencies of these genes are 6% LMNA and 4% MYH7.

Conclusions: DCM is often familial and all possible candidate genes should be screened to identify mutations. Such type of exercise may help in the identification of mechanistic pathways. Next generation sequencing platforms may play an important role in this respect in future.

Clinical Genetic Aspects of Cardiomyopathies- A Review

Mitali Kapoor[1], Sandeep Seth[2], V. R. Rao[1]*
[1]Department of Anthropology, University of Delhi, Delhi
[2]Deptt. of Cardiology, AIIMS, New Delhi

Cardiomyopathies are a major cause of heart disease, not only the patients but also their families are severely burdened by these illnesses. In the past decade, studies revealed heterogeneity of these diseases in terms of clinical as well as genetic aspects. The family screening has contributed to improved evaluation which allowed the identification of the predisposed family members with early onset of disease. Studies done in the last few decades revealed a shift in trend from Mendelian inheritance of disease to a new concept of complex appearance of cardiomyopathies. Several possible candidate genes involved in the pathogenesis of cardiomyopathies have been identified. Genetic heterogeneity is found in cardiomyopathies as a vast number of candidate genes are identified till date, such as sarcomeric protein gene, intermediate filaments, and dystrophin associated glycoprotein, intercalated and Z-disc. Family analysis has exposed different heterogeneity levels, penetration, and the inheritance patterns. This has shown a great degree of incomplete penetrance. Variable expressivity among patients is consistent with age of onset, degree of severity and NYHA classification. These features have emerged as a different story of the appearance of disease. Despite the widespread studies done on genetics no particular mutation has any specific clinical manifestation. Thus, the same mutation causing different diseases phenotypes explain the role of modifier genes or environmental risk factors. Thus, it explains the role of other factors (such as driver mutation, modifiers and environmental factors) in the final expression of the incomplete penetrance, genetic heterogeneity, variable expressivity in cardiomyopathies and paradoxically raises hopes that the development of novel disease-modifying therapies may be achievable.

Stress as Risk Factor in Cardiovascular Disorders

Manju Mehta
Former Professor, Clinical Psychology, AIIMS, New Delhi

Stress is a state of mental tension and worry caused by problems in one`s life, relationship, education, and work. Every one experiences some stress, if this is within manageable limits it is called eustress. Negative life events, daily hassles and faulty appraisal have harmful effect on physical and mental health. Stress causes strong feelings of worry or anxiety

The current life style in metro cities in India has become very stressful due to this there are often reports of youngpersonsmore likely to have heart disease, high blood pressure, chest pain, or irregular heartbeats How one handles stress is also important. If one respond to it in unhealthy ways -- such as smoking, drinking, overeating, or not exercising then the risk increases manifold.

Research studies have shown high correlation between personality, stress and risk for cardiovascular disorders. An expert group in Australia, concluded that there is strong and consistent link between depression, social isolation and lack of quality social support and heart disease. These factors were as risky to heart health as abnormal blood lipid levels, smoking and high blood pressure.Studies have also shown that acute stress triggers reduced blood flow to the heart, promotes your heart to beat irregularly and increases the likelihood of your blood clotting. All of these can trigger the development of cardiovascular disease.

Stress management, regular practice of yoga and exercises can be helpful in reducing negative impact of stress.

Depression and Cardiovascular Disease

P.C. Joshi[1] and Astha Bansal[2]
[1]Professor, Department of Anthropology, University of Delhi
[2]Research Scholar, Department of Anthropology, University of Delhi

For every affection of the mind that is attended with
either pain or pleasure, hope or fear, is the cause of an
agitation whose influence extends to the heart.
– William Harvey

Cardiovascular Disease is a leading cause of death around the globe, number of death increases from 12.3 million to 17.3 million due to cardiovascular disease between the period 1993 and 2013. India also shows the increment in death rate as 1.8 million people died between the period 1990 and 2013 due to cardiovascular disease which shows an increment of 97%. Depression is very closely associated with cardiovascular diseases. Numerous studies have reported that depression can cause abnormalities in hypothalamic–pituitary–adrenal axis (HPA) function, increase inflammation which can further alter the sympathetic and parasympathetic activity leading to increase clotting and traditional(e.g. blood pressure) risk factors increasing the chances of atherosclerosis development. There is bidirectional relationship between depression and cardiovascular disease. Several studies have reported the fact that the individuals diagnosed with depression have higher mortality, especially cardiovascular related mortality. Similarly those individuals who are diagnosed with cardiovascular disease often have an increased incidence of depression. Therefore understanding of the relationships between depression, and cardiovascular risk variables can be considered for the prevention of cardiovascular disease

In the present paper, an attempt has been made to investigate the association between depression and cardiovascular risk factors among Sunni Muslims of the walled city of Delhi. The study was done among 406 Sunni Muslim adults (125 males 281 females). Depression was assessed using PHQ 9 and cardiovascular risk variables included lipid, hypertension and obesity parameters. Further analysis show that the mean value of lipid, blood pressure and central and generalized obesity variables are higher among the individuals with depression as compared to individuals without depression. Binary Logistic analysis show that lower and upper lower socioeconomic status has 4.733 and 3.088 fold risk for depression.

Acknowledgement: Financial assistance to Astha Bansal from University Grant Commission (UGC), National Fellowship and Prof. P. C. Joshi to University of Delhi, R & D Grant (Dean(R)/R&D/2012/917) is gratefully acknowledged.

Stroke: Loss of *self* and new *neural* Identities: A Challenge to Urban Lifestyle

Ravinder Singh
Associate Professor & Head, Department of Medical Anthropology,
Institute of Human Behavior and Allied Sciences, Faculty of Medical Sciences,
University of Delhi, Dilshad Garden, Delhi-110095

Stroke is one of the leading causes of death and disability in India. The prevalence rate of stroke ranges 84-262/100,000 in rural and 334-424/100,000 in urban areas of our country. The incidence rate is 119-145/100,000 based on the recent population based studies. After Stroke rehabilitation plans are not well developed in India due to lack of trained staff. Such rehabilitation services are not available to common patients but they are mainly limited to private hospitals of metro cities. As far as Even though our country is a leading generic drugs producer still many people can't afford the commonly used secondary prevention drugs. There has been an increase in the epidemiology data on stroke in our country. Stroke care services-Stroke unit is a multidisciplinary team comprising of medical, nursing, physiotherapy, occupational therapy, speech therapy, and social-work staff who coordinate their work through regular meetings in the bigger hospital. This paper explores stroke patients' treatment trajectory of care in the hospital as well as in the family besides their *after* life in the family, burden of stroke and the availability of rehabilitation health services for such patients. Specially, illuminating the loss of *self* and new *neural* identities with which such patients are now learning to live is of special focus of the present study.

Keywords: Stroke, family burden, care and after life

Association of Stress and Life Style Disease among Adult Population of Delhi

Meenal Dhall
Assistant Professor, Department of Anthropology, University of Delhi, Delhi

Lifestyle diseases refer to diseases that result because of choices people make in their life. They are mostly common in developed nations where people are inclined towards eating unhealthy foods, living a sedentary lifestyle and unhealthy habits like smoking and drinking alcohol. Common lifestyle diseases include obesity, high blood pressure, heart disease, cancer, Alzheimer's disease, asthma, chronic liver disease, diabetes, stroke and osteoporosis. The risk of developing these diseases depends on a lot of factors including the type of work, work environment, physical activity and susceptibility to stress. Other contributing factors include poor posture, kind of foods and poor sleeping habits. The aim of the present study was be to find the effect of stress level and its association with life style disease among adult population of Delhi.

Aim: To find the association of stress level with life style disease among adult population of Delhi.

Methodology: 215 subjects (105 females and 100 males) were enrolled for the present study. It include various anthropometric and physiological measurements along with standardized stress questionnaire and self administered proforma which includes questions related to socio economic, dietary pattern, activity level, etc.

Results: It was found that higher percentage of females have higher stress level when compared with males. Strong association of blood pressure was found with adiposity markers among those who had higher level of stress.

Conclusion: The present study assessed on the components of life style diseases markers in association with stress level among adults of Delhi, India. This study would be helpful in understanding the impact of symptoms of stress on life style disease markers. The lifestyle diseases can be prevented by making simple changes in daily routine and following a healthier way of living.

From "*Mornings*" to "*Mournings*": Anthropological Perspectives on the Role of "Monday's" in Manifestation of Cardio-metabolic Adversities

Mitashree Srivastava
Assistant Professor, Department of Anthropology, University of Delhi, Delhi

Throughout the world there perhaps exists a notion which seems to sanction the 'stereotypical way' in which individuals are supposed to work in public or private workplaces as the week begins. This 'stereotypical way' is backed by the assumption that an individual should begin the week with a rejuvenated mind and body to start afresh new assignments and projects especially in workplaces. My experience as an employee in public sector organization for a year, however does not confirm to this belief. I have witnessed Monday mornings changing to Monday "mournings"! As the week begins, the employees often get struck with what is known as the "Monday Morning Syndrome (MMS) which is usually characterised by a set of symptoms like fatigue, dizziness, chest tightening, chest pain, heart palpitations, distension of abdomen etc. The MMS may have life threatening effects on individuals who are already suffering from cardio-metabolic disorders which are associated with high risk factors of stress, alcohol consumption, obesity and etc . It is not uncommon that people suffering from cardiovascular problems have greater chances of getting cardiac problems on Mondays due to an overburdened metabolism . The present study aims to investigate if "Monday's" actually play a determining role in the life of individuals exposed to the threats of cardio-metabolic adversities ? If yes, what are the few precautions individuals can take before joining their office duties on Mondays. and what are the ways in which a healthy work place culture can developed so as to ensure the safety of their employees against cardio-metabolic adversities. The methodology of the study would include collection of both primary data and secondary data as it is important to collect significant case studies of individuals facing such traumatic events in past and to know how much impetus the world of Medical Science gives to this belief that Mondays are risky days for cardiac patients, respectively. Findings reveal "Mondays", if not always but often tend to act as a "catalyst" for the recurring manifestations of cardio-metabolic problems at offices which can be avoided by nurturing a healthier work place culture.

***Keywords*:** Metabolism, syndrome, disorder, 'workplace' culture, adversities.

MTHFR C677T Gene Polymorphism among the Rajputs of Rajasthan

Jayashree Mazumder, N. Kiranmala Devi, K. N. Saraswathie
Department of Anthropology, University of Delhi, Delhi

The MTHFR gene provides instructions for making an enzyme called methylenetetrahydrofolate reductase, which is important for a chemical reaction involving forms of the vitamin folate (also called vitamin B9). Specifically, this enzyme converts a molecule called 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate. This reaction is required for the multistep process that converts the amino acid homocysteine to another amino acid, methionine. MTHFR gene mutation is a genetic change that disrupts the production of an enzyme that plays an important role in breaking down the amino acid homocysteine. People with two copies of C677T or one copy of C677T and one copy of A1298C may have an increased risk for cardiovascular conditions such as coronary artery disease, blood clots, and stroke. About 85% of the general population carries a variant of the MTHFR gene associated with higher blood homocysteine, a risk factor for cardiovascular disease. Hence the present study is conducted to understand the frequency of Methylene tetrahydrofolate reductase (MTHFR C677T) gene polymorphism among the Rajputs of Rajasthan. A total of 102(both male and female) samples were collected, from individuals between 9 to 70 years of age.In the present study MTHFR gene is found to be polymorphic among the Rajputs of Rajasthan with maximum number of CC (67.64 %) followed by CT (30.39%) and least by TT(1.96%). The population followed the Hardy Weinberg Equilibrium with respect to the MTHFR polymorphism and as expected, the frequency of C allele was higher (0.8267) than T allele (0.1733). The mutant (T) allele frequency was found to be 17%. Dietary pattern and endogamous nature of the population could possibly be attributed for such high frequency of mutant T allele. This population resides presently in rural areas, with such high frequency when exposed to change in life style are prone to various cardio vascular adversities.

Tobacco use and Body Mass Index: A Study among Bhil's of Rajasthan

Rajeev, Rupalika, Divya Mishra, M.P. Sachdeva
Department of Anthropology, University of Delhi.

Background: Tobacco consumption is one of the most harmful health hazards and is associated with numerous co-morbidities. It is a risk factor for obesity, cancer, cardiovascular diseases, etc. There has been a paradigm shift towards the fact that the prevalence of obesity is being increasing observed even among tribal population where lifestyle variables were not considered to be affecting the health of individuals earlier. Body mass index [BMI, weight (kg)/height (m^2)], is a good overall indicator of nutritional status and predictor of individual health. As in many developing countries, the high prevalence of very low BMIs in India represents an important public health risk. Tobacco, smoked in the form of cigarettes or bidis or chewed, is another important determinant of health. Tobacco use also may exert a strong influence on BMI. Thus present study is aimed to see the association of tobacco use and individual's Body Mass Index (BMI).

Methodology: A total of 197 individual of either sex in the age group 21-80 yrs and unrelated up to first cousins belonging to Bhil's tribe were recruited for the present study. Data on demographic (age, sex), anthropometric (height and weight) and lifestyle variables (tobacco usage) was collected from the recruited subjects.

Result: It was observed that the tobacco consumption was more common among men (49.2%) as compared to women (20.9%) in the presently studied cohort. An increasing trend was observed in tobacco consumption till the age group 41-50 years and thereafter it followed a declining trend. Tobacco consumption was found to be highest in the age group 41-50 years (40.7%). Both underweight and obesity was found to be higher among tobacco users (37.3% and 23.7% respectively) as compared to Non users (P-Value=0.027).

Conclusion: The results of present study suggest that tobacco was found to affect BMI both in terms of underweight and obese individuals.

Acknowledgement: I am thankful to DU-DST Purse Grant project and SAP for the financial support for the present study and I am also thankful to Professor P.C. Joshi and Dr. K.N.Saraswathie for their kind support.

Morpho-Physiological Changes in Rajputs of Rajasthan

Varsha
Department of Anthropology, University of Delhi, Delhi

The present study is based on cross-sectional investigation on 224 boys ages between 10- 18 years with a view to study the age changes and differences at various age-sets in anthropometric somatotype and its three components, viz., endomorphy, mesomorphy, ectomorphy. Through interview schedule, the data was collected from places of residence and schools. The data for somatotype were estimated through Internationally accepted method of Heath and Carter Anthropometric Somatotyping. Data were analyzed through standard statistical tools. Study of physique reveals that that among Rajput boys ectomorphic component is dominant, which indicate their linear physique. In accordance with the ICAMR task force BMI cut-offs majority of boys falls under underweight category which is a reflective of their overall poor conditions and undernutrition prevailing in the area. Distribution of somatotypes somatochart indicate that value plotted in all age-groups lies in mesomrphic-ectomorph, thus show a greater linearity among Rajputs.

Menopause and Cardiovascular Adversities: A Genetic Study among Bhils of Rajasthan

Ekta Arya, Rupalika, K.N. Saraswathie
Department of Anthropology, University of Delhi

Objective: The present study aimed to determine the effect of menopause on cardiovascular risk factors among the postmenopausal women.

Methodology: A total of 194 females (25-75 yrs) were enrolled in the present study. Data pertaining to demographic, reproductive, physiological variables were collected using interview schedules. Anthropometric measurements of general obesity (BMI and total body fat percentage) and central obesity (waist-hip-ratio) were measured. Fasting blood samples were collected for lipid profiling.The exclusion criteria were perimenopausal and surgical (hysterectomized and ovariectomized) menopausal women. Finally 187 women were accepted for further analysis. Analysis and tabulation of the results were done using microsoft excel, SPSS 20 version, Quantpsy: Interactive chi-Square test, Medcalc: Odds ratio calculator.

Result: All the traditional and non-traditional risk factors were found to be higher in premenopausal women except hypertension, prehypertension and metabolic syndrome as compared to postmenopausal women where it found to be significantly higher.

Conclusion: Postmenopausal women had an abnormal cardiovascular risk profile as compared to premenopausal women. Hypertension and prehypertension are the significant factors for the cardiovascular adversities in the Bhil women of Rajasthan. This highlights the increasing epidemic of cardiovascular adversities following menopause. It can now be concluded that cardiovascular disease in females should not be taken casually. The present study serves as a template for public health policy makers, in identifying women at risk for cardiovascular adversities.

Acknowledgement: I am thankful to DU-DST Purse Grant project and SAP for the financial support for the present study and I am also thankful to Professor P.C. Joshi for their kind support.

Ethical Issues in Biomedical Research on Human Participants

Ankur Krishnan
Department of Anthropology, University of Delhi, Delhi

Ethics are an important part of any research. They are not just a research criteria that needs to be upheld but also a moral responsibility of each researcher as a human being. Ethical guidelines ensure that research is directed towards the betterment of human beings in a social and natural environment. Ambition, hubris, apathy, desperation and a certain lack of awareness can lead to selective blindness when it comes to ethical standards that need to be maintained while conducting any biomedical research on human participants.

By establishing and hopefully maintaining a basic understanding of the need of following the universal Ethical guidelines and at the same time inculcating the nuances of a multi-cultural world, we can aim for an ethically sound, research-oriented progress.

In the present paper an attempt has been made to critically review the ethical issues practiced in biomedical research under the 'Ethical Guidelines for Biomedical Research on Human Participants, ICMR'.

Angiotensin Converting Enzyme Gene Insertion/Deletion Polymorphism among the Tribal and Non-tribal Populations of Rajasthan

Simmi Saini, Sunanda Rajkumari, K.N. Saraswathie
Department of Anthropology, University of Delhi, Delhi

Angiotensin-converting enzyme (*ACE*) gene plays an essential role in two physiological systems, one leading to the production of angiotensin *II (*Renin-angiotensin system) and the other to the degradation of bradykinin (Kinin- Kallikrein system). The wide distribution and multifunctional properties of these peptides suggest that *ACE* could be involved in various pathophysiological conditions. The renin- angiotensin system (RAS) is one of the oldest known hormone systems, related to the cardiovascular disease. RAS plays a major role in the expansion and betterment of cardiovascular diseases by promoting vasoconstriction, sodium reabsorption, cardiac remodeling, nor-epinephrine release and other potentially detrimental effects in which *ACE* plays a pivotal role. The distribution of *ACE I/D* polymorphism is worldwide, but its frequency in different populations varies extensively. The range of I allele in different world population is 0.25-0.97 and that of *D* allele is 0.03-0.75. When it comes to Indian population the range of *I* allele is 0.34-0.77 and that of *D* allele is 0.32-0.66. In the present study, an attempt is made to estimate the genotypic and allelic frequency of *ACE* gene *I/D* polymorphism among tribe (Bhil=93) and non-tribal (Rajput=97) population. Both the population groups are found to be polymorphic with respect to *ACE I/D* polymorphism and not following Hardy Weinberg equilibrium with respect to the selected polymorphism. The difference between the two population groups is statistically significant with respect to genotype distribution (Chi-square value-4.328, p-value 0.11486474, df = 2). The trend of distribution of genotype among males and females was found to be different, as the difference was borderline significant among Bhils (*p value*-0.068) while it is statistically not significant among Rajputs (*p value*-0.090). *ID* genotype is found to be overrepresented in both the population groups. The frequency of allele *D* is relatively higher among the Bhils (0.62) as compared to that of the Rajputs (0.54). In *ACE* gene, *D* allele is known to be the ancestral form while *I* allele is the most recent variant of the gene, which may be the reason behind the high distribution of *II* genotype in the younger age group as compared to older age group. The *DD* genotype in older age groups is more as compared to the *II* and *ID* genotype. The presently studied tribal (Bhils) and non-tribal (Rajputs) populations of North West India belongs to the Dravidian and Indo-Aryan ancestry respectively. The non-tribal population can thought to be more recently derived as compared to the tribal population (with more older ancestry) of the same region where the *D* allele is found to be higher (0.62). Overall, the present study reveals a high genetic heterogeneity of the Bhils and Rajputs population of Rajasthan with respect to *ACE I/D* polymorphism.

Status of MTHFR Gene Polymorphism among Bhils of Rajasthan

Urvashi Gupta, Jayashree Mazumder, Naorem Kiranmala Devi, K. N. Saraswathie
Department of Anthropology, University of Delhi, Delhi

Methylenetetrahydrofolate reductase (MTHFR) plays a vital role in folate metabolism by catalyzing the irreversible conversion of 5,10-methylenetetrahydrofolate to 5-methylenetetrahydrofolate leading to the remethylation of homocysteine to methionine. However, a point mutation in the MTHFR gene, present on the short arm of chromosome 1, may prevent the production and circulation of normal folate and methionine levels and this may lead to the elevated levels of homocysteine in the blood. This hampers the normal functioning of the body as the situation is found to be associated with several disorders primarily cardiovascular disease, apart from neural tube defects, colon cancer, thrombosis, hypertension, stroke, myocardial infarction, pregnancy related complications, etc. Although several SNPs in the MTHFR gene have been reported, this report focuses on the C677T polymorphism among Bhils(n=98) of Rajasthan. The population seemed to be maintained in Hardy Weinberg equilibrium, with respect to MTHFR C677T polymorphism and the frequency of T allele was found to be 0.06 (p value= <0.001). The C677T allele frequencies show a wide range of variation around the world, with the least among the Africans and the highest among the Europeans. However, with respect to the Indian sub continent, MTHFR C777T polymorphism is found to be comparatively higher among the north Indian populations where the frequency of the T allele reaches up to 23%, mostly among the caste groups. In the present study, the frequency of T allele was comparatively lower (6%). This could be attributed to lower economic status of tribal groups, resulting in low nutritional quality of food as compared to nontribal population. Apart from this, the frequency of T allele was found to be almost similar with the South Indian Tribal population and this could be due to the ethnic similarities between them. Their geographical isolation or endogamous practices has possibly led them to maintain their unique gene pools over several generations.

Ethical Issues in Anthropological Research in India

S.M. Patnaik
Professor, Department of Anthropology, University of Delhi.

Anthropologists' engagement with ethics has been long but intermittent. In comparison to other social sciences, anthropology has been trying hard to prove its ethical face since World War II. However, until second world war, anthropologists were concerned with the philosophical and academic dimensions of ethical debate. This was grounded on the very nature of the discipline and the associated methodology where the researcher remained intrinsically detached from the phenomenon of study. Ethics is about a relation of self to others. But because it is impossible to know either oneself or another completely, it must be one that is premised on difference. According to Derrida (1974), there is no ethics without the presence of other, but also and consequently, without absence, dissimulation, detour and difference. Distinguishing between 'ethics of the body' (with a person attached) and an 'ethics of the person' (with a body attached), the paper reflects on the conventional practice of 'human subject research' in the domain of biological and molecular anthropological research carried out in different anthropology laboratories using sophisticated and rigorous scientific techniques. The implications of such research are also connected to 'social subject research' situating both of them on an ethical discourse.

Keywords: Ethics, methodology, subject research, biological anthropology, molecular anthropology.

Towards a Cultural Theory of Cardiometabolic Adversities

R.P. Mitra
Assistant Professor, Department of Anthropology, University of Delhi, Delhi

The paper attempts to formulate a cultural theory of cardiometabolic adversities. It will examine the relationship between culture and cardiac disorders. It is now well recognized that culture closely interact with biology in the causation, progress, cure and prevention of many of the health problems of human beings. Further, it has been proposed that there is an evolutionary mismatch between the human body and the contemporary environment. The human biology has evolved primarily in response to the environmental conditions prevailing during the Paleolithic period also known as the environment of evolutionary adaptation. With the Cultural Revolution that commenced with the onset of agriculture, humans have gradually come to rely more upon their cultural apparatus rather than their biology in coping with evolutionary pressures. The cultural screen has come to intervene in the biology-environment interaction. But in this process a hiatus has been created between biology, culture and environment, threatening the fine survival equilibrium. One of evidences of this imbalance has been the shift in mortality towards culturally generated and perpetuated diseases category called as life-style diseases, and among them the cardiovascular diseases rank among the top causes of mortality and morbidity. The paper will attempt a cultural theory towards understanding of cardiac related health issue and how social anthropology can contribute towards the amelioration of the problem.

Hypertension in the Young Ages: A New Paradigm

Sanjenbam Yaiphaba Meitei
Assistant Professor, Department of Anthropology, Manipur University, Manipur

Hypertension being an important risk factor for most of the complex disorders, its understanding has become part of the disease management strategies in the present days. It is well accepted that hypertension is adult's health problem, though its prevalence in the young ages is on the increase. Several studies claim that childhood adversities are related to cardiovascular disease of the adults. Recent advancement on this insight proposes the importance of early diagnosis in the adolescents to control the problems in the adult. In this aspect, understanding the hypertension at the young ages especially in the late childhood and adolescents has become the concerns of the health researchers. With this viewpoint, a preliminary study was conducted to provide an insight on the issue among the adolescents of Manipur. In the present study, the trend of adolescent hypertension in Indian context will be discussed with reference to the preliminary findings.

Reducing Cardio Metabolic Risk Factors through Participatory Workplace Interventions

Shivani Chandel
Assistant Professor, Department of Anthropology, University of Delhi, Delhi

Epidemiological studies have found increased cardio metabolic risk factors with increased overall sedentary time, fewer breaks and reduced light activity. There is a growing perceptive that high levels of total inactive time and sustained inactive time (or lack of breaks in sedentary time) and low levels of light intensity physical activity are associated with poor health independent of moderate/vigorous activity . The workplace has been used to conveniently implement health promotion interventions. The present paper explored novel ways to modify work practices to reduce occupational sedentary behaviour. Participatory workplace interventions can reduce sedentary time, increase the frequency of breaks and improve light activity of office workers by using a variety of interventions.

Environmental Factors Affecting Cardiovascular Diseases: A Review

Gagandeep Singh, Sakshi Sharma, Madhuri S Rishi
Department of Environment Studies, Panjab University, Chandigarh

Today, non-communicable diseases, mainly cardiovascular diseases represent a leading threat to human health and development. Cardiovascular disease (CVD) is a class of diseases that involve the heart or blood vessels and also includes coronary artery diseases (CAD) such as angina and myocardial infarction (commonly known as a heart attack). Other CVDs are stroke, hypertensive heart disease, rheumatic heart disease, cardio-myopathy, atrial fibrillation, congenital heart disease, endocarditis, aortic aneurysms, peripheral artery disease and venous thrombosis. The cardiovascular system is a stress-strain organ and this stress may be caused due to environmental factors and our heart reacts to different factors at different levels by showing acute and chronic signs and symptoms. Literature survey indicates that the environmental factors affecting the cardiovascular system may be classified as chemical, physical, biological and psycho-social. Air pollution including exposure to smoke and suspended particulate matter, tobacco smoke, carbon monoxide hydrocarbons, lead, mercury and other heavy metals alongwith organo-phosphorus insecticides are mainly responsible for cardiovascular diseases. Long-term exposure to fine particulate matter, known as $PM_{2.5}$, can have strong impact on heart. Particulates and gases are emitted year-round from anthropogenic sources like automobile exhausts and flue gases power plants, industries and natural sources like forest fires and volcanic eruptions. PM also develops from photo-chemical reactions in sunlight from vapor and gaseous pollutants leading to the formation of pollutants like peroxy acyl nitrate (PAN).The combination of pollutants have a greater health impact than individual pollutants. CVCs are the leading cause of death globally. Together they resulted in 17.3 million deaths (31.5%) in 2013 up from 12.3 million (25.8%) in 1990. People who reside in urban environment are more prone to these diseases than the people residing by countryside.

Keywords: Cardiovascular disease, environmental factors, pollutants, particulate matter and peroxy acyl nitrate.

Low Birth Weight among Children's of Backward Community, Chhattisgarh

Bhumika
Department of Anthropology and Tribal Development, GGV, Bilaspur, C.G.

Background and Objectives: Birth weight is very important for children's future health as well as a good determinant of perinatal, neonatal and postnatal outcome. Many researches shows that low birth weight has strong association with future cardiometabolic diseases, and it may further leads to various cardiovascular adversities such as diabetes, hypertension, obesity, and coronary heart disease. Thus, the low birth weight infants are 'at risk' for future cardiometabolic diseases. Therefore, in present study an attempt was made to understand the cause of low birth weight and malnutrition of childrens living in backward community and its associated risk factors if any.

Material and Methods: In the present study, a total of 70 women (pregnant=25, lactating mother=45), aged ranging from 17 to 45 yrs, were collected from the backward community living in Nagadarha Panchayat, Raigarh district of Chhattisgarh (India). Data pertaining to birth weight, nutritional status, mortality and morbidity, and socio-demographic profile were collected using both primary and secondary sources. Birth weight of 45 children (boys=24, girls=21), aged ranges from 2 days to 12 months were recorded from the data available in Anganwadi centers. Appropriate statistical analysis was performed using MS-Excel and SPSS software.

Result: In the present study, more than thirty percent (35.56%) of the children are found to be born with low birth weight (less than 2500g). Of which, 19.69% children are still under severe malnourish state. Mother's of malnourished children, who had low birth weight, are found to have very low socio-educational status, poor economic and occupational status. On the other side, 71.43% mothers consumed gudakhu, tobacco and mahuaras during pregnancy as well as 57.14% of mother practice occasional fasting. Interestingly, mothers of malnourished children and mothers of normal children showed statistically significant difference with respect to lower occupational status and fasting during pregnancy ($p<0.05$)

Conclusion: Findings of the present study suggests that, low birth weight is very common among the backward community, particularly among mothers with lower educational and poor socio-economic status. This could be one of the major factors responsible for rise in cardiovascular diseases in developing countries like India. However, present study has major limitations such as smaller sample size, lack of biochemical and physiological variables. Further studies are required in order to understand the problems of low birth weight and its association with future cardiovascular risk among homogenous population with large sample size.

Assessment of Metabolic Syndrome using Modified ATP III and IDF Criteria among Sunni Muslim of Delhi, India

Astha Bansal and P.C. Joshi
Department of Anthropology, University of Delhi, Delhi

Aim: Metabolic syndrome refers to a cluster of various interrelated cardiometabolic risk factors that promote the development of atherosclerotic cardiovascular disease (CVD). It is now well known that metabolic syndrome increase the risk for cardiovascular mortality and morbidity. Considering the above present study was used to assess and compare the presence of metabolic syndrome using IDF and Modified NCEP ATP III criteria among Sunni Muslim of Delhi.

Material and Method: A total of, 406 individuals (125 men, 281women) aged 35-65 years were recruited. In the present study Anthropometric, physiological and laboratory investigation were performed following standard protocols.

Result: The overall metabolic syndrome assessed through Modified NCEP ATP III was 75.12% while through IDF criterion it was 75.36%. Both the methods were found to be equally applicable in assessment of metabolic syndrome among the Sunni Muslim of Delhi. The metabolic syndrome was higher in females as compare to males using both the criteria.

Conclusion: Metabolic syndrome is a significant public health problem among Sunni Muslim of Delhi and that needs to be tackled with proven strategies. Its assessment can be done using any of the two methods namely, Modified NCEP ATP III and IDF criteria.

Acknowledgement: Financial assistance to Astha Bansal from University Grant Commission (UGC), National Fellowship (No.F.15-9 June 2010/2010(NET)) and P. C. Joshi to University of Delhi, R & D Grant (Dean(R)/R&D/2012/917) is gratefully acknowledged.

Keywords: Sunni Muslims, metabolic syndrome, NCEP ATP III and IDF criteria.

Bio-Ethical Issues in Medical Anthropology

Masan Kambo Nemmei and P.R. Mondal
Department of Anthropology, University of Delhi, Delhi

Bioethics has been used in the last twenty years to describe the investigation and a study of ways in which decisions in medicine and science touch upon our society and environment. Bioethics is concerned with questions about basic human values such as the rights to life and health, and the rightness or wrongness of certain developments in healthcare institutions, life technology, medicine, and the health professions and about society's responsibility for the life and health of its members. The issues and problems faced by Anthropologists in the field are many and inevitable, one of them being the Moral Philosophy. Every field is unique with unique culture and socially acceptable norms, in order to approach a particular community for a field work requires an extensive preliminary work, especially in Medical Anthropology. A community with established health care and NGO do not invite any other health improvement input from a research point of view as it questions the integrity of their work. In a tribal community identifying a particular illness becomes a stigmatization for that family and at the same time keeping it under the rug would not do any good. The question of ethics also rises when the participant is asked off personal and intimate question, which might not be socially acceptable to answer. At the same time, anthropologists are not detectives and we are trained to hold anthropologist relative as sacred trust. But surely this does not mean that one has to be a bystander to crime against vulnerable population. Hence understanding the sensitivity and hostility of a particular population needs to be taken into account before any field work is initiated. Thus the present manuscript discusses the moral and ethical issues involved the Anthropological field work especially in light of Complex diseases.

Homocystein and MTHFR(C677T) Gene Polymorphism: Among Bhils of Rajasthan, India

Rupalika, Jyoti Mishra and N. Kiranmala
Department of Anthropology, University of Delhi, Delhi

Objective: The present study aimed to understand the prevalence of hyperhomocysteinemia and MTHFR gene polymorphism in the causation of cardiovascular disease among Bhils.

Methodology: Present study is cross-sectional study conducted in the Udaipur and Mount-abu district of Rajastha,India.Data on demography,anthropometry,physiological and biochemical variables were collected from 180 individuals of either sex unrelated up-to first cousins.

Result: Prevalence of hyperhomocysteinemia in present studied cohort was high (90.79%) (Males 98.14%, females 9.20%) was found, in which males were showing higher (98.14%) prevalence of hyperhomocysteinemia than the females(87.15%) and this difference was found statistically non-significant. .In the present population distribution of CC, CT and TT genotype of MTHFR (C677T) gene was found to be85.88%, 13.49 and TT0.61% respectively. Frequency of CT and TT genotype was found to be higher among hyperhomocysteinemic individuals as compared to the individual with normal homocysteine, though it is statistically not significant.

Conclusion: In the present population T allele of MTHFR (C677T) polymorphism was not found to be posing risk (OR=0.6250) for hyperhomocysteinemia**.** This could be because of small sample size or higher prevalence of hyperhomocystinemia (90.79%) in the population.It needs to be validated on large sample size.

Acknowledgement: The authors are thankful to DU-DST Purse Grant project and UGC-SAP for the financial support for the present study and also thankful to Prof. P.C. Joshi and Dr. K.N. Saraswathie for their kind support.

Genes, Environment and Disease: An Anthropological Overview

K.N. Saraswathie
Assistant Professor, Department of Anthropology, University of Delhi, Delhi

Anthropology basically deals with human evolution at both biological and cultural levels. Human evolution is majorly contributed by Darwinian fitness of populations, which in turn is related to disease profiles. Prenatal and Neonatal mortalities are most studied in terms of Darwinian fitness. However, with increasing burden of complex diseases along with their decreasing age of onset, Darwinian fitness is also affected by these diseases. One such disease condition is cardio-metabolic disease, where the conditions are as simple as overweight to a severe condition such as cardiac arrest, that can be broadly categorized under cardio-metabolic adversities. Thus cardio-metabolic adversities do become an important subject matter for anthropologists. Of the many reported reasons for cardio-metabolic adversities, genetic reason is one and the other is the environmental reason, especially nutrition. The present paper discusses the role of a candidate gene, MTHFRC677T in one carbon metabolism pathway, on the advent of hypertension in two different population groups, residing in different geographical location, with different ethnicity, nutritional practices, and linguistics. The gene was found to be associated with HTN in Meitei population but not in Jat population. The paper also discusses the reasons for such variable associations in terms of dietary patterns. Further the study extends to gene-gene and gene-environment interaction in terms of epigenetics to understand the reason for HTN.

Acknowledgements: Department of Biotechnology (DBT) and UGC for the financial support.

Keywords: HTN-hypertension, CVD-cardiovascular diseases.

Inhibition of iNOS Expression could be a Potential Therapeutic Target for CVDs

M. Abdul Kareem

..Deptt. of Biochemistry, Indira Gandhi National Open University, New Delhi

Nitric oxide (NO) is a short-life molecule produced by the enzyme known as the ***nitric oxide synthase*** (NOS). The isoforms of NOS are neuronal NOS (nNOS), endothelial NOS (eNOS) and inducible NOS (iNOS). However, iNOS activity is independent of the level of calcium in the cell. These enzymes are also relaxes smooth muscle cells, inhibits platelet aggregation, promotes angiogenesis, recruits endothelial progenitor cells, and decreases inflammation. Owing to the controversial thoughts with reference to NO expression, action, ***atherosclerotic plaque*** rupture and damage leading to life threatening conditions could be prevented if a clear mechanism of NO associated signaling is established. Hence, in the present study we have modeled Rat iNOS using I-TASSER server, in order to carry out docking studies with phytochemical ligands. The quality analysis of the model was done using RAMACHANDRAN plot on PROCHECK server. Docking studies were performed using Glide Docking software of Schrodinger evaluation version, 2014. The results showed that active residues of iNOS protein Asn-89, Glu-91, Ile-198, Arg-200, Ile-201, Trp-203 Met-444, Asn-446, Glu-447 and Val-472 are conserved in the domain and may be important for structural integrity or maintaining the hydrophobicity of the inhibitor-binding pocket (active site). Ellagic acid forms bonds with the iNOS and the total Gscore is -6.85 when compared to other ligands. Further docking studies carried out with Ellagic acid analogues (198) showed better docking scores than Ellagic acid. Among those top 75 analogues CID: 11669392 found to be the best one with a higher docking Gscore of -8.77. However iNOS plays key role in several vital reactions like anti-platelet aggregation and relaxation of smooth muscle cells. In this context it may be concluded that this ligand could be a potential lead molecule and supports further experimental studies against iNOS as therapeutic agent.

Keywords: Nitric oxide, nitric oxide synthase, therapeutic, modeling, docking and CVDs.

Emerging Non-Traditional Risk Factors and Abnormal Cardiovascular Phenotypes: An Anthropological Study among Jats of Haryana

Priyanka Rani Garg and KN Saraswathie
Department of Anthropology, University of Delhi, Delhi-110007, India

Background: Studies have till now looked into the most common traditional risk factors for cardiovascular diseases. But the evidence now suggests some important emerging non traditional risk factors that play very important role in the pathogenesis of CVDs. Present study aims to unravel such non traditional risk factors and shed light on their association (if any) with abnormal cardiovascular phenotypes such as hypertension and metabolic syndrome.

Materials and Methods: Unrelated individuals upto 1st cousin between 30-70 years of age (both males and females; n=1387) of Jat community, Haryana were screened for the study. Demographic (age, gender, lifestyle, disease profile), anthropometric (height, weight, waist and hip circumferences, skinfolds), physiologic (blood pressure) parameters were measured. 5 ml intravenous blood was drawn from every individual for biochemical assessment.

Results: Median levels of majority of the parameters fell in normal range. Traditional (WC+WHR) and non traditional (BF%, FM, FFM) measures of obesity were above the normal range being significantly higher among females than males. However, biochemical and physiological factors were higher among males than the females. Prevalence of traditional factors was in the order: abdominal obesity (WC & WHR)> hypertension>generalized obesity (BMI)>dyslipidemia>hypercholestrolemia>high HDL>hypertriglyceridemia>low HDL>high blood glucose. Prevalence of non traditional risk factors was in the order: hyperhomocysteinemia>low vitamin B12>high body fat>high non HDL>pre-hypertension>low lean mass>high fat mass>MS>low folate>high ETEW (HTGW). More than 10% of the individuals have some or other risk factor. Men have majority of the risk factors abnormal as compared to women except for measures of obesity that are higher among women 34% of the underweight and 47% of the normal weight individuals had high body fat. In addition to traditional characters of MS, the study finds some emerging cardiovascular factors (non HDL, vitamin B12, BF% and HTGW) that might be involved in the development of MS.

Conclusion: The study shows that in addition to the traditional risk factors, there are certain other non traditional risk factors for cardiovascular diseases that should be paid heed to. Further research should be carried out to validate their role in the etiology of CVDs for better therapeutic strategies.

Tobacco Smoking and Cardiovascular Adversities: A Study among Jats of Haryana, India

Suchita Rawat and KN Saraswathie
Department of Anthropology, University of Delhi, Delhi

Introduction: The impact of premature cardiovascular mortality and morbidity caused by smoking is enormous in rural India, where the populations are undergoing epidemiological transition and lifestyle change and an early diagnosis of the cardiovascular adversities still remains a challenge. Hence the present study attempts to understand the prevalence of tobacco usage and its adverse effects on cardiovascular variables in Jat population group of Haryana, India .

Methodology: The present study is a population based household survey conducted in 15 villages of Haryana. Information pertaining to personal identification and smoking status was captured for 1247 unrelated individuals through pre-tested and modified interview schedules. Anthropometric measurements and physiological parameter were measured using appropriate Instruments and measuring device .All the Cardiovascular adversities were defined using standard guideline. For the current study all the statistical analysis was performed using SPSS version 16.

Results: Tobacco smoking was found to be prevalent in 52.1% of the population, (70% males; 40% females). Tobacco smokers had abnormal lipid profile (except HDL) and decreased BMI than compared to non smokers. Odds ratio analysis revealed that smokers had increased risk for Dyslipidemia, Impaired Fasting glucose and Hypertriglyceridemic Waist (though non significant). Further a significantly decreased risk of obesity (generalized and central) and hypertension was also observed.

Conclusion: This study suggests that tobacco smoking is rampant in the present selected population group which affects the cardiovascular Variables specially lipid parameters . Hence awareness about detrimental health effects of Tobacco products and smoking cessation programs should be initiated and strengthened in such population groups.

Acknowledgements: We are indebted to DBT for financial support .We are thankful to Prof P.K. Ghosh and Prof. V.R. Rao, Department of Anthropology for their valuable suggestions. We are also extremely thankful to the study participants for their cooperation throughout the course of the study.

Keywords: Tobacco smoking, dyslipidemia, hypertension, metabolic syndrome, obesity, hypertriglyceridemic waist

Angiotensinogen M235T Polymorphism in Metabolic Syndrome: A Study among the Brahmins of Delhi and NCR

Nidhi Sharma, Shobha Kumari, KN Saraswathie, PR Mondal
Department of Anthropology, University of Delhi, Delhi

Background: The angiotensinogen (AGT) gene is an important polymorphism has been associated with cardiovascular adversities.

Introduction: The renin-angiotensin system (RAS) plays an important role in the regulation of blood pressure which is one of the components of metabolic syndrome. Metabolic syndrome is considered to be both as a diseased state and risk factor for CVDs. The present study of this gene reported the association with metabolic syndrome. The present study tries to understand the prevalence of metabolic syndrome and also the prevalence of AGT M235T gene polymorphism among Brahmins of Delhi and NCR. The study also tries to understand the role of this polymorphism in causation of metabolic syndrome.

Materials and Methods: The present study was conducted among the Brahmins of Delhi and NCR. A total of 386 individuals (166 males and 220 females) unrelated up to first cousins were recruited for the present study. A pretested interview schedule was administered to all the subjects for collecting data on demographic characteristics. Blood pressure, somatometric measurements of general obesity (BMI and total body fat percentage) and central obesity (waist-hip-ratio) were measured on all these individuals. 5ml fasting intravenous blood was drawn from all the subjects subjected to DNA extraction, lipid profiling and estimation of blood glucose levels. AGT M235T gene polymorphism was analyzed using PCR-RFLP method.

Results: Metabolic syndrome was found to be prevalent in 41.97% of the population on the basis of modified NCEP-ATP III criteria. The frequency of MM, MT and TT genotype of AGT M235T gene polymorphism were found to be 23.46%, 59.26% and 17.28% among individuals with metabolic syndrome.

Conclusion: AGT T allele was found posing risk for metabolic syndrome as compared to individuals with non- metabolic syndrome.

Acknowledgments: Authors are very thankful to the Department of Anthropology, University of Delhi, Delhi for providing necessary requirements and to the UGC for providing financial assistance. The participants voluntarily supported and provided data for this study.

Keywords: AGT; cardiovascular adversities; metabolic syndrome.

Genetics of Hyperhomocysteinemia: A Case-Control Study among the Meiteis of Manipur

Varhlunchhungi and N. Kiranmala Devi
Department of Anthropology, University of Delhi, Delhi

Background: Hyperhomocysteinemia is reported to be one of the non-traditional risk factors for cardiovascular diseases. Both environment and gene equally plays an important role in the causation of hyperhomocysteinemia. In terms of environment, nutrition with respect to vitamin B12 and folate deficiency and abnormal range of lipid variables are linked to elevation of homocysteine levels. As for genetics factors, mutation of genes in the one-carbon metabolism cycle like MTHFR, MTR and CBS has be associated in causing hyperhomocysteinemia. In Indian context various studies have reported the prevalence of hyperhomocysteinemia ranging from 52-84%. No studies are available neither on the causes and consequences of hyperhomocysteinemia in any of the north eastern population.

Objective of the Study: The present study attempts to understand the prevalence of Hyperhomocysteinemia and also the genetic and environmental causation of hyperhomocysteinemia among the Meitei's of Manipur.

Methodology: 200 samples were randomly selected from Manipur among the Meitei population of which 98 were males and 102 were females, aged between 35yrs to 75yrs. CBS 844ins68 gene polymorphism, MTR A2756G gene polymorphism and homocysteine levels were analysed.Analysis and tabulation of the results were done using Microsoft excel, SPSS 16 version, Quantpsy: Interactive chi-square test, GraphPad Quickcalcs: t-test calculators, Medcalc: Odds ratio calculator and Michael Court: HWE calculator.

Results: Prevalence of hyperhomocysteinemia was found to as high as 66% among the Meitei's of Manipur. CBS 844ins68 and MTR A2756G gene polymorphism were found to be polymorphic in both hyperhomocysteinemia cases and controls. Mutant homozygote II of CBS and GG of MTR were found to be absent. No significant risk were found for the selected genes individually for hyperhomocysteinemia while relative risk of combined heterozygote NI of CBS and AG of MTR showed a 13 fold increased risk for hyperhomocysteinemia. This could be one of the reasons for the absence of mutant homozygote of the selected gene polymorphism.

Acknowledgement: Dr. K.N. Saraswathie, Principal Investigator for her guidance and UGC for financing the project.

FTO (Fat Mass and Obesity Associated) Gene Polymorphism among the Tribal Population of Manipur

Ningombam Somorjit Singh, Masan Kambo Newmei and Prakash Ranjan Mondal
Department of Anthropology, University of Delhi, Delhi

Obesity has become a worldwide epidemic in the modern society, that has been considered as one of the important risk factors for many chronic diseases like cardiovascular diseases. Of the various genes reported to be associated with obesity FTO is the one. Mutation in this gene is reported to be associated with increased appetite and decreased satiety.

According to the latest report of National Family Health Survey-3, Manipur is considered as the second highest ranking state for obesity among the North-eastern states of India. No study has been conducted till date with respect to FTO rs9939609 and obesity specifically among the tribal populations of Manipur.

Thus the present study aims to investigate the relationship between the FTO gene (rs9939609) and obesity in a tribal population of Manipur, 91 individuals aged between 20-60 years belong to both sexes were recruited for the present study. BMI was calculated from the data collected in the height and weight. Intravenous blood was collected from all the subject and FTO (rs9939609) polymorphism was analysed from the extracted DNA sample. Individuals with TA genotype were higher among overweight and obese (25%) as compared to those with normal BMI (5.4%). Further TA genotype showed 5-fold (OR-5.83, 95% CI; 1.16-29, p=0.03) increased risk for overweight and obese. However, the limitation of the present study was small sample size and the results need to be validated in large sample size.

ACE Gene Polymorphism among Panikas and Baigas of Madhya Pradesh, India

Gangaina Kameih
Department of Anthropology, University of Delhi, Delhi

The present study was carried out to study the ACE gene polymorphism among the Panika and Baiga of Madhya Pradesh. A total number of 120 individuals (age group 12 to 50) i.e. 60 samples each from both the populations constitute the samples for the present study. The highest genotype frequency of ID i.e. 60% is found in both the populations. 20% each of II and DD homozygous genotype were found in Panika whereas 28.33% and 11.66% for II and DD homozygous genotype were found respectively in Baiga. However, both the populations show non-significant difference from each other having p-value of 0.33 (χ^2 =2.18) at 95% confidence interval. Hence, it follows Hardy Weinberg Law.

ACE I/D, AGT M235T, AND MTHFR C677T Polymorphisms among Yadav Population of Bihar

Moti Lal[1] and [2] M.P. Sachdeva
[1]Research Scholar, Department of Anthropology, University of Delhi
[2] Professor, Department of Anthropology, University of Delhi

Genetic marker is a particular gene or DNA base sequence associated with identifiable chromosome. Increasingly, specific genetic markers are being associated with particular genes or traits. Genetic marker can be used to determine the risk of developing a disease attributed to a gene or genes associated with the marker. Genetic markers are basic and powerful tools of modern genetics. Because of speed and cost effectiveness, genetic markers continue to be used as effective method of screening organism to be used as efficient method of screening organism and producing initial maps of the genetic material of organism, even when many more precise tools are available. Various studies have compared coronary artery disease (CAD) or Cardio vascular disease (CVD) disease patient with control in order to determine which polymorphisms are associated with higher risk of disease. In various studies it has been shown that ACE AGT and MTHFR genetic marker are associated with CVD. Particularly the human ACE gene contain a number of variable polymorphic regions that can be use in genetic analysis of populations (Rieder et al 1999), the I/D (insertion/delition) polymorphism present in intron 16, has been extensively investigated. The D allele in ACE gene, D allele (Danser et al 1995; Zee et al 1999; Pontremoli et al 2000) and in AGT gene, T (Burt et al., 1995; Fukamizu et al.,1990; Kannel, 2000; Mosterd et al.,1999) allele is associated with hypertension, myocardial infarction, heart failure vascular disease, stroke, renal failure and various organ disorder. MTHFR (Methylene tetrahydrofolate reductase) plays a significant role in methonin metabolism. MTHFR deficiency is inherited as an autosomal recessive trait. There are several mutation have been identified in MTHFR gene in which C677T is one of important SNPs that has been reported to change the enzyme activity. It replaces the nucleotide cytosine with the nucleotide thymine at important position 677 in exon 4 of the gene which further leads to the substitution of alanine to valine (Frosst et al., 1995). MTHFR gene play an important role in Cardio vascular disease (CVD) and disease runs in families. Researchers have identified more than 250 gene are responsible for CVD which play a very significant role in develop to cardiovascular disease. As we know that first-degree relative of people who develop CVD at an early age at much higher risk for developing CVD than the general population. In addition these studies evaluated polymorphisms in isolation and not in association, which is the way they occur in nature. The present paper tries to attempt to estimate the mutant allele frequency of three important genes that ACE, AGT and MTHFR which are candidate for cardio metabolic disorders.

A Bibliometric Investigation of Recent Trends in Cardiometabolic Syndrome Research

Sukriti Sharma[1] and Vinayak Bhatia[2]
[1]Madurai Kamaraj University, Madurai, Tamil Nadu
[2]ICARE Eye Hospital and Post Graduate Institute, Noida, U.P., India

Cardiometabolic syndrome is a group of metabolic dysfunction characterized by insulin resistance and impaired glucose tolerance, atherogenic dyslipidemia, hypertension and intra-abdominal adiposity (IAA). It is also identified by names like cardiometabolic syndrome are insulin resistance syndrome, syndrome X, Reavan's syndrome, Beer belly syndrome, etc. Intense scientific interest has arisen in the area of cardiometabolic adversities owing to a broad spectrum its effect on human body. In the present study, we used bibliometrics and data mining to understand the pattern of research in the area of cardiometabolic syndrome based on three criterions 1) Chronological growth 2) Country-wise distribution 3) Journal-wise distribution. The data for this study has been obtained from Scopus multidisciplinary database for a period during 1978-2014. All this was analysed statistically. We have comprehensively resorted to tabulating and network mapping. Some very interesting patterns have arisen in this research. The most important point is the rise in number of publications in this area in the last 20 years. That can be attributed to the connection between lifestyle changes and increase in cardiometabolic syndrome that has led to more awareness about this area and hence more research.

Prevalence of Traditional and Non Traditional Cardiovascular Risk Factors among Bhils of Rajasthan

Divya Mishra, Rupalika, N. Kiranmala Devi
Department of Anthropology, University of Delhi, Delhi

Background: CVDs are one of the major diseases which are affecting human population all over the world. There are plethora of factors which cause or increase the risk of CVDs. Some of them are classified under traditional and non-traditional risk factors risk factors. CVDs are having enormous burden or the health care system and economy. In view of this understanding the extent of the various Cardiovascular risk factors among various population groups in India becomes important. Thus the present study is conducted among Bhils of Rajasthan with the aim to estimate the burden of cardiovascular adversities in terms of traditional and non-traditional risk factors of CVD's.

Method: A total of 198 individuals (unrelated up to first Cousin) were recruited as subjects for the present study within age group 25-75 years (132 are females and 66 were males). An interview schedule was used to collect data on socio-economic, demographic, lifestyle variables (alcohol and smoking). Anthropometric measurements of weight, height, Body circumferences, Skin folds and blood pressure measurements were taken using the standard methodology. Fasting blood samples was collected for lipid profiling.

Result: The mean age of the population was found to be 41.72 years, 60% of the individuals were found to be non literate while 40% were literates. The prevalence of smoking and alcohol consumption was found to be significantly higher among males as compared to females (p value- 0.00). In the studied population, only 4.7% individuals were found to be obese, out of which 4.1% were females and 0.5% were males. Abnormal Central obesity (WC) and waist hip ratio was also found to be higher among females but only WC showed significant results (P value-0.003). The prevalence of pre-hypertension and hypertension as per the Seventh Joint National Committee (JNC-VII) criteria in the population was 32.4 % and 7.4% respectively while metabolic syndrome was found to be present in 28.79% of the individuals. The prevalence of homocystein was found to be significantly higher among females as compared to males (P value-0.02). The prevalence of dyslipidemia was distributed as: Total Cholesterol (TC) 4.04%, Triglyceride (TG) 46.97%, VLDL 46.97%, LDL 2.02%, Low HDL 41.42% ,TC/HDL 14.65%, Non HDL 17.68%. Low HDL was found to be significantly higher among females as compared to males (p-value-0.01) while there was no significant difference with respect to other lipid parameters between males and females.

Conclusion: Waist Circumference, Prehypertention, Homocystein and few indices of the dyslipidemia were found to be high among females than in males in the present population. Thus the study demonstrates the higher prevalence of CVD risk factors among females as compared to males.

Acknowledgements: DU-DST Purse grant Project, SAP, Prof. P.C.Joshi, Dr. K.N. Saraswathie

***Keywords*:** CVD, prevalence, risk factors.

Cardiovascular Disease in India – Rising Incidence, Risk Factors and it's Control

Dr. Tushar Roy
MD (Medicine), DM (Cardiology), MRCP(UK), MRCP (Edin), FISC, FIACM, FIMSA, LL.B
Senior Consultant Cardiologist
National Heart Institute, New Delhi

Cardiovascular disease is the number one cause of death the world over. It is also creeping up to the number one spot in India. While the incidence of cardiovascular disease is declining in the West, it is increasing rapidly in India. There are many causes for this - change in demographic profile, easier access to high salt, high fatty food, ever increasing amenities resulting in a lack of exercise, increasing stress in our lives or simply a genetic predisposition (lipoprotein (a), small dense LDL or homocysteine). We are also shortly about to achieve the dubious distinction of being the diabetes and perhaps the hypertension capital of the world having the largest number of persons affected by these disease in any one country. Not only is the incidence of cardiovascular disease higher in India, but also occurs a decade earlier, affecting people in the prime of their lives. The disease is more severe compared to the West and women in India are also not spared.

The good news is that cardiovascular disease is to a large extent preventable. In a very large study (INTERHEART), nine risk factors have been identified as being responsible for about 90% of the disease incidence. Mitigating these risks will reduce the disease substantially. Doing this is by no means an easy task. Dissemination of information about healthy food choices, cultivating a regular exercise habit and avoidance of smoking, is of paramount importance. Availability of such food and areas to exercise, as well as regulation of smoking is by no means an easy task. Also necessary is an extensive surveillance system that will identify early, persons with diabetes, hypertension and hyperlipidemia, so that they can also be treated early. Many (33-50%) in India are often not even aware that they have these problems until quite late in the disease. Social strategies, designing better living areas with parks and recreation facilities will go a long way in encouraging exercise and reducing stress, factors that have now been identified as major causes of cardiovascular disease. All – including the medical fraternity, social workers, Government agencies – must work in tandem, if we are to reduce this scourge of cardiovascular disease that is looming large.

A Study on Cardiovascular Risk Factor among a Mendelian Population of North India

PR Mondal, KN Saraswathie, Shobha Kumari, Nidhi Sharma
Department of Anthropology, University of Delhi, Delhi

Lifestyles of populations across the world have changed dramatically in the last part of the 20th centuries. These changes have been brought about by a number of developments in science and technology that now affect every facet of human existence. Most human societies have moved from agrarian diets and active lives to fast foods and sedentary habits. Combined with increasing tobacco use, these changes have fuelled the epidemic of obesity, diabetes, hypertension, dyslipidaemia and cardiovascular diseases. The rapidly increasing burden of Non communicable diseases is a key determinant of deterioting global public health. Cardiovascular disease is the most common contributor of morbidity and mortality worldwide. In India, Cardiovascular diseases are projected to be the largest cause of death and disability by 2020 of these 2.6 million Indians are predicted to die due to coronary heart disease, which constitute 54.1% of all Cardiovascular diseases. Nearly half of these deaths are likely to occur among young and middle-aged individuals (30-69 yrs). The substantially higher levels of CVD risk factors in urban population groups compared with rural population groups in India provide evidence that prevalence of higher coronary heart disease in urban population was associated with higher levels of body mass index, blood pressure, fasting glucose profile, fasting blood lipids profile (total cholesterol, ratio of cholesterol to HDL cholesterol, triglycerides), and diabetes. The increasing use of tobacco in a number of developing countries will also translate into higher mortality rates of CVD, lung cancer and other tobacco- related diseases. For the present study, 386 subjects were considered in which 166 were males and 220 were females, and unrelated up to first cousin, aged between 25-70 years. The aim of the present study is to understand the distribution of dietary pattern and life style among Brahmin's of NCR, North India with respect to age and sex ratio distribution. The distribution of lipid that is total cholesterol increasing toward higher side as well as triglyceride which further leads to CVD in present population. The limitation of the present study is a small sample size, however the merit of the present study is the subjects belonged to a Mendelian population with a common gene pool.

Acknowledgements: Authors are very thankful to the Department of Anthropology, University of Delhi, Delhi for providing necessary requirements and to the UGC for providing financial assistance. The participants voluntarily supported and provided data for this study.

A Comparative Study of Childhood and Adolescent Obesity between South and West Delhi using Waist- Hip Ratio: A Rising Health Problem leading to Cardiovascular Diseases

Sonali Walia[1], P.R.Mondal[1] and M.M.A. Faridi[2]
[1]Department of Anthropology, University of Delhi, Delhi
[2]GTB Hospital and University College of Medical Sciences, Delhi

Obesity specifically refers to an excess of body fat. It is now regarded as a chronic disease caused by a complex set of factors. It is also a leading cause of cardiovascular diseases. Obesity occurs when a person consumes more calories than he burns through his daily activities. Obesity is the result of the interaction of both genetic and environmental determinants. There are various factors that contribute in obesity i.e. age, gender, dietary preferences, activity level, medications, ethnicity, genes, smoking, pregnancy and psychological factors. Obesity among children has been on the rise in India especially in urban areas for the past few years. Childhood and adolescent obesity which is the cause of cardiovascular diseases later in life is attributed largely to sedentary lives and the poor eating habits of children. More and more children prefer watching TV and playing computer games to outdoor games.

Waist circumference (WC) is an indicator of deep adipose tissue and it is related to fat mass. The waist circumference is a convenient and simple measurement that is unrelated to height, correlates closely with BMI and WHR and is an approximate index of intra abdominal fat mass and total body fat (Lean et al., 1996).Waist hip ratio > 0.95 in men and > 0.85 in women indicates abdominal fat.

The objective of the present study is to examine the prevalence of childhood and adolescent obesity in south Delhi and West Delhi its relation to waist hip ratio. In the present study data of 500 children and adolescents (6-15 years) have been collected from South and West Delhi Public Schools To study the prevalence of obesity in these parts of Delhi, to study how high waist hip ratio indicates central obesity, to study the health consequences of central obesity leading to cardiovascular diseases.

The results show that in South Delhi, the waist hip ratio of 12% males of 13 years fall in the 95^{th} — 100^{th} percentile while 12% of females of 12 years, 14 years and 15 years fall in the 95^{th} — 100^{th} percentile. Whereas in West Delhi, the waist hip ratio of 12% of males 10 yrs and 13 yrs males fall above the 95^{th} percentile and 12% of 8 yrs and 14 yrs females fall above the 95^{th} percentile. The excessive accumulation of intra-abdominal fat, but not subcutaneous fat is known to be associated with cardiovascular risk factors, in the pediatric population.

Acknowledgements: Authors are very thankful to the Department of Anthropology, University of Delhi, Delhi for providing necessary requirements and to the UGC for providing financial assistance. The participants voluntarily supported and provided data for this study.

Psycho-Social Determinants of CMA- A Social Work Perspective

Meenu Anand
Assistant Professor, Department of Social Work, University of Delhi

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. It is a state of well-being in which every individual realizes his/ her potential, can cope with normal stresses of life, can work productively and fruitfully and is able to make a contribution to his/ her community (WHO, 2007).

The current paper begins by outlining the multifaceted issues faced by the persons facing Cardio Metabolic Adversities (CMA) as well as their families. It also presents various models to deal with the challenges faced by them viz. the biological model, the psycho-social model and the bio-psycho-social model. The paper attempts to present the need for having a holistic perspective to deal with such challenges in relation to the social work practice model. It tries to bring into light the *eclectic* approach followed by social work practitioners and how it can be effectively used to deal on the subject. Committed to congruency with the values and ethics of professional social work, the model promotes partnerships across multidisciplinary teams for case management-medication, social support, counselling and advocacy. The paper concludes by citing how social workers can bring their unique knowledge and practice skills to CMA by working with a strengths-based, person-in-environment perspective, and by drawing linkages between the physical, social, emotional and economic aspects of health with individuals, families and communities.

Angiotensin Converting Enzyme Levels and Gene Polymorphism among North Indian Population

Shobha Kumari, Nidhi Sharma, KN Saraswathie, PR Mondal
Department of Anthropology, University of Delhi, Delhi

India being a country with huge diversity is expected to have different dietary and life style pattern which in turn may lead to population specific environmental risk factors. Further the interaction of these risk factors with the genetic makeup of population makes them either susceptible or resistant to cardiovascular disease. One such candidate gene is Angiotensin converting enzyme for various cardiovascular mechanisms. Angiotensin-converting enzyme (ACE) is the key enzyme of the Renin Angiotensin system (RAS) which maintains the blood pressure homeostasis in our body and variation in the levels of this enzyme is reported to be associated with various complex diseases. The DD genotype is found to increase ACE levels, which further leads to the development of cardiovascular adversities and decrease of ACE levels is associated to kidney diseases. The aim of the present study is to understand the distribution of ACE I/D polymorphism and ACE levels among Brahmin's of NCR, North India with respect to age and sex ratio distribution. For the present study, 136 subjects in which 50 males and 86 females, unrelated up to first cousin, aged 25-70 years were considered. ACE gene was found to be polymorphic with higher frequency of heterozygote (ID) followed by II and DD genotypes. The studied population was found to be in Hardy Weinberg Equilibrium with respect to ACE I / D polymorphism. I allele frequency was found to be higher (0.560) than the D allele frequency (0.44). ACE levels were found to be increased among individual having either of the homozygotes that is II or DD and higher frequency of heterozygote (ID) is indicative of advantage in the population by maintaining lower ACE levels which is protective from cardiovascular diseases. The limitation of the present study is very small sample size, however the merit of the present study is the subjects belonged to a Mendelian population with a common gene pool.

Differential Global DNA Methylation Levels and Adverse Cardiovascular Variables: A Study from Rural Population of North India

Suniti Yadav[1] and K.N. Saraswathie[2]
[1]Research Scholar, Department of Anthropology, University of Delhi
[2] Professor, Department of Anthropology, University of Delhi

One carbon metabolic pathway is one of the major pathways in the biological system that governs the flux of dietary micronutrients including folate and vitamin-B12. The deficiency of these dietary supplements causes hyperhomocysteinemia, which in turn mediates the epigenetic mechanisms by affecting the availability of free methyl groups for DNA methylation. Epigenetic mechanisms are flexible non-genomic factors that not only can change genome function under such exogenous influence, but also can that can cause phenotypic variations in the disease expression. Epigenetic modifications may contribute to subclinical and clinical cardiovascular disease. Epigenomics is inherently interconnected with genetics because epigenetic modifications can alter the expression of genetic variations, and genetic variation is one of the determinants of DNA methylation. Global methylation measures provide average estimates of methylation across the entire genome or in wide portions of the DNA. These levels keep on changing across an individual's lifetime and depend on several genetic and environmental factors. Thus, the present study attempts to understand the status of global DNA methylation with respect to hyperhomocysteinemia and hypertension among the individuals of Jat community residing in low and high polluted areas (different environmental settings) of rural Haryana. Global DNA methylation (5mC%), homocysteine (Hcy) and blood pressure was measured on a total of 572 individuals residing in low and high polluted areas of Haryana. Median levels of 5mC% were found to be slightly higher in high polluted areas (0.83) compared to the low polluted areas (0.77). Overall, 5mC% in hyperhomocysteinemic (HHcy) individuals was found to be relatively lower compared to individuals with normal Hcy. In low polluted areas, no such difference was observed. However, in high polluted areas, global hypomethylation was observed in HHcy individuals (0.71) compared to normal Hcy individuals (1.08) ($p=0.06$). With respect to hypertension, 5mC% was found to be significantly high in prehypertensive individuals in both low and high polluted areas as compared to normotensive and hypertensive individuals. Global methylation was found to be relatively higher in prehypertensive individuals in low polluted areas as compared to high polluted areas but this difference was not found to be statistically significant; whereas it was found to be relatively higher in hypertensive individuals in high polluted areas as compared to low polluted areas. Thus, results of the present study indicate the differential global DNA methylation expression in different environmental settings even in similar sub-clinical phenotype i.e. hyperhomocysteinemia and hypertension. Similarly, within the same environment, this expression varies with respect to the phenotype. This suggests, that the interplay between genes, environment and epigenome needs to be considered in understanding the disease phenotypes.

Acknowledgements: The authors are thankful to Department of Biotechnology, Government of India for financial support.

Angiotensin Converting Enzyme Insertion/Deletion Polymorphism in Tribal Population of Manipur, Northeast India

Tabitha Panmei
Department of Anthropology, University of Delhi, Delhi

This study investigates the prevalence of clinically important polymorphism in Tribal population of Manipur. A total of 272 unrelated healthy volunteers (Rongmei=101, Inpui=100, and Liangmai=71) between the age of 18 to 70 constitute the samples for the present study. The highest frequency (47%) of ID genotype is found among Inpui, followed by Rongmei (45%) and Liangmai (28%). The frequency of II is similar (28%) for both Rongmei and Inpui whereas 18% of II homozygous genotype frequency is found among the Liangmai. The genotype frequency of DD homozygous is found highest among Inpui (28%), followed by Rongmei (27%) and Liangmai (25%). All the population follows Hardy Weinberg Law when calculating Chi-square test for Hardy Weinberg equilibrium having p-value 0.294, 0.349, and 0.076 for Rongmei, Inpui and Liangmai respectively.

Epigenetics and the Burden of Cardiovascular Diseases: A Review of Research in India

Mamta Kumari Thakur, N Kiranmala Devi
Department of Anthropology, University of Delhi, Delhi

The emergence of CVDs as a major public health problem during the 1940s initiated research to understand the factors associated with this disease. Despite advances in the prevention and management of cardiovascular disease (CVD), this group of multifactorial disorders remains a leading cause of mortality worldwide. These are associated with multiple genetic and modifiable risk factors; however, known environmental and genetic influences can only explain a small part of the variability in CVD risk, which is a major obstacle for its prevention and treatment. A more thorough understanding of the factors that contribute to CVD is, therefore, needed to develop more efficacious and cost-effective therapy. Epigenomics has emerged as one of the most promising areas that will address some of the gaps in our current knowledge of the interaction between nature and nurture in the development of CVDs.

This paper reviews the principles governing epigenetic regulation, discusses their presently-understood importance in cardiovascular disease. Also considers the growing significance of the kind of research we are likely to attribute to the identification and understanding of epigenetic factors which will reduce longstanding gaps in our current knowledge of CVDs. External influences and inherited traits that lead to epigenetic modifications are discussed, as well as their role in CVD risk.

Low HDL-C as an Independent Risk Factor for the Prediction of Metabolic Syndrome: A North Indian Population Study

Simi Khan, Sunil K Thakur, K N Saraswathie, M P Sachdeva, V R Rao, P K Ghosh
Department of Anthropology, University of Delhi, Delhi

Background: Parity and gravidity are established to be associated with the risk for cardio vascular adversities. One of the major risk factors of CVDs is MetS which is a bunch up of cardio vascular risk factors including abdominal obesity, high blood pressure, dyslipedemia, triglyceridemic waist. The aim of the present study is to find the association of parity/gravidity with the occurrence of metabolic syndrome and further understanding the component of MetS which poses a risk on increased gravidity/parity .

Methods: This study is cross sectional household based study including 317 ever married Gaddi women aged 25-70 years from higher altitude Himachal Pradesh's two districts viz. Chamba and Kangra. MetS and its components were identified by NCEP ATPIII criteria. Binary logistic statistics was used to see the risk of Parity and Gravidity on MetS, its components and other cardiovascular variables. All these analysis were done using SPSS version 16.0.

Results: The population showed significant differences amongst MetS cases and controls with respect to the present age and education, which is indicative of the fact that increasing age and lack of education aggravates its occurence. An increased risk of MetS was observed with increasing gravidity/ parity**.** DBP (p= 0.048) and abdominal obesity (p= 0.053) showed a significant increase with increasing gravidity while, only HDL-C showed a borderline increase with increasing parity. Amongst all the MetS components only HDL-C showed a significantly higher risk with both increasing gravidity (OR=5.422; 95% CI= 1.541-19.070) and parity (OR=3.272 ; 95% CI= 1.256-8.520). A consistently increasing risk was observed among pre menopausal women (OR= 3.143; 95% CI= 0.351- 28.154) though not statistically significant.

Conclusions: Though there was no significant association of gravidity/ parity with MetS but when seen for the components of MetS, only low HDL was observed to show a significantly increased risk. Although, the present study is limited by small sample size, the results are quite striking for a higher altitude population and needs to be validated on a large sample size. Further epidemiological studies on a large sample size will give a better understanding of the variation in etiology of metabolic syndrome among different ethnic groups to further characterize the risk of such cardio vascular adversities on different ethnic groups.

Effect of Menopause on Cardiovascular Adversities: A Cross Sectional Study among Rural Women from North India

Ketaki Chandiok, Shipra Joshi and Prakash Ranjan Mondal
Department of Anthropology, University of Delhi, Delhi

Objectives: The present study aimed to determine the effect of menopause on cardiovascular disease risk factors among the post menopausal women. (Natural and hysterectomy)

Methods: A cross sectional study design was formulated in which data pertaining to demographic, reproductive, anthropometric, physiological and biochemical variables from 1014 women was assessed. The difference in the cardiovascular disease risk factors was ascertained according to the defined criteria. Binary logistic regression analysis was used to evaluate the association between menopausal status and cardiovascular adversities in unadjusted and age adjusted models.

Results: Post menopausal women (natural and hysterectomy) had increased risk for central obesity, dyslipidemia and non HDL cholesterol after adjusting for age. Increased risk of hypertension and hypertrigyceradem ic waist was observed only among women with natural menopause.

Conclusion: Postmenopausal women had an abnormal cardiovascular risk profile as compared to premenopausal women specifically younger women with hysterectomy are equally at risk for cardiovascular adversities. This highlights the increasing epidemic of cardiovascular adversities following menopause. The present study serves as a template for public health policy makers, in identifying women at risk for cardiovascular adversities.

Acknowledgements: We would like to thank the Department of Biotechnology, Government of India for providing the funding for the present study.

Cardiovascular Risk Factors and Cognitive Impairment: A Review

Gurjinder Kaur Brar[1], K.N. Sarswathy[2], Rajan Gaur[1]
[1]Department of Anthropology, Panjab University, Chandigarh
[2]Department of Anthropology, University of Delhi, Delhi

Background: The prevalence of cognitive impairment is increasing rapidly along the globe. Until recently, it was widely assumed that cognitive impairment was an inevitable part of aging and that nothing could be done about it. But the realization has been growing that most cases of cognitive impairment are not only the consequence of age-related disease processes, but are also seen in younger generations. Recent behavioural and biomedical research has suggested that psychophysiologic responsiveness (reactivity) to emotional stress may be a marker of processes involved in the development of cardiovascular disorders, which further results in cognitive impairment. It is now becoming clearer that actual risk factors for CVDs, such as high blood pressure, diabetes, and obesity are also associated with alterations to brain structure and cognition. Numerous genetic markers have been reported till date which are associated with an increased risk for cardiovascular disease as well as cognitive impairment. One such very important gene is apolipoprotein its allele epsilon 4(APOE) is known to be associated with Alzheimer disease, CVDs and Cerebrovascular diseases. In the central nervous system, APOE is mainly produced by astrocytes, and transports cholesterol to neurons via APOE receptors, which are members of the low density lipoprotein receptor gene family. This protein is involved in Alzheimer's disease and cardiovascular disease. Also the prevalence of risk factors associated with CVDs tend to increase exponentially with age and are often overlooked as a source of cognitive changes that are otherwise thought to be part of the 'normal' aging process. More importantly, if not controlled, CVD risk can lead to further impairment in cerebrovascular disease and dementia.

Objectives: The objective of the present study is to explore the association between cardiovascular risk and cognitive impairment .

Methods: A review of around 25 papers published after year 2000 was done to identify and then summarize psychophysiologic studies which shows the relationship between cardiovascular risk factors and cognition impairment. Search was performed using key words "CVDs and cognitive impairment" in various search tools like Google, Google Scholar, pubmed, Science direct.

Conclusion: It is concluded that both CVD's and associated risk factors along with cognition impairment increase with age but it is critically important to consider both environmental and genetic risk factors. Patients who had other vascular diseases, such as peripheral artery disease, or who had undergone invasive procedures, including coronary bypass surgery, were at higher risk for cognitive decline. Genetic factors such as mutations in the genes like APOE should also be considered in the understanding the interaction between CVDs risk factors and cognition impairment. So adoption of cognitive screenings should be done for general populations when CVD risk factors are involved.

Keywords: Cognition; CVDs; Apolipoprotein epsilon 4

Preterm Birth and Future Risk of Cardiovascular Diseases: A Review

Jyoti Mishra[1], Manju Puri[2] and K. N. Saraswathie[1]
[1]Department of Anthropology, University of Delhi, Delhi, India.
[2]Department of Obstetrics & Gynecology, Lady Hardinge Medical College & Smt. Sucheta kriplani hospital

Background: Increasing evidence suggests a relation between preterm birth and risk for developing Cardio-vascular diseases later in life. The present review is written focussing on the detrimental effects of preterm births on future risk and onset of Cardio-vascular diseases (CVDs).

Methods: Research papers were searched in search engines like google scholar and pubmed with different keywords such as preterm birth and cardiovascular diseases; and preterm birth and future risk for cardiovascular diseases. The research articles are selected as per the demand of this review paper focussing on preterm birth during pregnancy and its impact on future risk for developing cardiovascular diseases.

Results: Preterm birth is associated with increased risk for future development of maternal as well as adult cardiovascular diseases. Prematurely born babies lack the process of developmental maturity which increases the risk of perinatal mortality and morbidity. Researches with different study designs i.e. prospective follow up, Case-control cross sectional and cohort studies evidenced causal relationship of preterm birth with increased risk of vascular disease in later adult life. Studies till date revealed that as a result of preterm birth, there are some changes induced in vascular structure and function as well as in blood pressure. Epidemiological data suggested that women with a history of preeclampsia are more likely to develop cardiovascular disease (CVD) later in life.

Conclusions: A strong association of preterm birth and development of cardiovascular diseases in future demands policies which can come-up with solutions to reduce the incidences of preterm birth. The prime area to reduce onset of cardiovascular diseases is to target the pregnant women and focus on their antenatal and postnatal care. Follow-up and counselling of women with previous preterm births may offer a window of opportunity for prevention of future diseases.

Keywords: Preterm birth; cardiovascular diseases; pregnancy; endothelial dysfunctioning; antenatal care.

Gene-Environment Interaction: Some Observations from Tribal Populations of Nagaland

Benrithung Murry
Assiastant Professor, Department of Anthropology, University of Delhi, Delhi

Based on the occupational history and investigations of some clinically important common polymorphisms among the Angamis and Lothas of Nagaland, it is sought in this paper, to explain how genetic and environmental factors jointly may influence the risk of developing a human disease. Occupational histories were drawn from census data, while a total of 112 unrelated healthy volunteers from the Angami and Lotha tribes participated in the screening of APOE, ACE, MTHFR and LDLR gene polymorphisms. These genes have been associated in the pathogenesis of complex diseases in many earlier studies, and in these populations too, all the genes were found to be polymorphic. The Lothas have shown higher mutant allele frequencies than the Angamis although no statistically significant population differences by genotypes is observed. The relatively high mutant allele frequencies in both populations indicates a high risk of developing various cardiovascular diseases as among them, there is a visible shift from rigorous lifestyle to a more sedentary one.

Cardio Metabolic Markers and Reproductive Health of Women

Satwanti Kapoor
Professor, Department of Anthropology, University of Delhi, Delhi

Introduction: The basic elements of reproductive health include "responsible reproductive/sexual behavior, widely available family planning services, effective maternal care and safe motherhood, effective control of reproductive tract infection (including sexually transmitted diseases), prevention and management of infertility, elimination of unsafe abortion and treatment of malignancies of reproductive organs" (WHO, 1978). Ironically, in India despite the international commitment, women from the poorer classes and marginalized sections experience differential access to health care facilities. Reproductive health effects, and is affected by other aspects of health, especially HIV infection/Acquired Immune Deficiency Syndrome (AIDS), nutrition, infant and child health, adolescent health and sexuality, life style and environmental factors including social and cultural factors (WHO, 1978).Women have specific health needs related to the sexual and reproductive function.

Aim: To study the association of cardio metabolic markers with different variables of reproductive health variables among the women of Delhi

Methodology: The data was collected on 200 women of Delhi aged 18-35 years. General information, household composition (for assessing socio-economic status), reproductive health parameters, Health status, demographic data were collected along with physiological and anthropometric variables.

Results: The present study showed strong positive association of blood pressure and adiposity markers with reproductive markers among adult women of Delhi.

Conclusion: The study suggests to scrutinize a number of issues, which need immediate attention for improvement in the effectiveness of overall reproductive health programme.

Ethical Issues for the Research on Cardiometabolic Adversities: An Anthropological Perspective

Mithun Sikdar
Anthropological Survey of India, Western Regional Center, Udaipur

In Anthropological research one may come across different people from different background each with its own moral values or codes of ethics. The researcher might have professional as well as social obligation. Furthermore, they may develop close relationships with their subjects producing an additional level of ethical considerations. Research based on genetic information of an individual or community becomes far more complex in true sense of the term. The paper will illustrate the use of ethical considerations during genetic research on human subjects. It then emphasizes on the ethical issues that may arise during the research on the genetics of cardiometabolic adversities. The genetic information thus obtained and its ownership may raise several concerns that may sometime jeopardize the situation. The paper also includes the issues that may arise while tackling the subjects with such adversities. It further discusses the ethical codes since the inception of the scientific projects until publishing policies.

Cultural Construction of the Heart: An Introspection into Bollywood Songs

Kumkum Srivastava
Associate Professor, Department of History, Jankidevi Memorial College
University of Delhi

The lecture will focus on the cultural and social construction of the body organ known as the Heart. Although it is widely known that heart as a symbol and as the seat of life is universal to almost all cultures on which information is available, However a cursory glance at Hindi and Urdu poetry and songs composed for various Hindi films (Bollywood) for over 80 years clearly shows that heart is the ‘ heart of matter’ of poetry used interchangeably with several other words, some abstract some concrete, the heart is the pivot of emotions sentiments feelings, poetry and songs, Almost coming to define the concept of humanness, even being raised to the level of animated humans distinct and separate from the body in which it resides. The heart becomes the human and the human becomes the heart. Opposed to these are the flint hearted a trait reducing humans to non human strata. An interesting question for anthropologist would be - whether animals are also intellectually constructed as ‘ beings with heart’. My suspicion is that the qualities of the heart are denied to the animals an almost totally bounded to human beings. When animals have heart they become humanised, as stories of Panchatantra exemplify. This is not the issue in this paper. This paper is concerned with the idea of the heart in Bollywood songs and Urdu Poetry.

Epigenetic Factors Contributing to the Adversities in the Uterine Environment Leading to the Future CVD Risk

Seerat Talwar[1], KN Saraswathie[2]
[1]Research Scholar, Department of Anthropology, University of Delhi
[2] Professor, Department of Anthropology, University of Delhi

Background: Cardiovascular disease (CVD) is the leading cause of death worldwide and originates in early life. The exact mechanisms of this early-life origin are unclear, but a likely mediator at the molecular level is epigenetic dysregulation of gene expression. Preeclampsia (PE) and gestational diabetes are the pregnancy complications affecting 5-8% of the pregnancies worldwide. They are one of the major causes of maternal and fetal mortality. Further, emerging research has shown that environmental factors influence the epigenetic marks which are equally responsible in making the disease susceptible. The environmental stress factors during pregnancy may bring about epigenetic alterations in the fetal genome without changing nucleotide sequences. Developmental programming resulting from in utero or early postnatal exposure to specific risk factors is increasingly recognized to determine CVD in later life. A number of CVD risk factors, such as nutrition, smoking, pollution, stress, and the circadian rhythm, have been associated with modification of epigenetic marks. Further examination of these mechanisms may lead to earlier prevention and novel therapy for CVD. Prenatal epigenetic contributions to adult CVD risk in humans are often inferred, but are difficult to confirm in observational studies as reported in a study. Epigenetic programming could be transmitted to subsequent generations in a sex-specific manner and lead to transgenerational effects. Prenatal exposure to tobacco smoke increases the risk of disease later in the child's life; these effects could in part be mediated by epigenetic changes. Breton et al. studied DNA methylation patterns in children exposed prenatally to tobacco smoke. The objective of the present paper is to review the role of epigenetic alterations during pregnancy which may increase the risk of CVDs in fetus in future.

Acknowledgment: Department of Anthropology, University of Delhi.