Is it in my gene?

A Neuro-psychological perspective to evaluate & manage the cause of young depression

Abstract Book
19-26 October 2013
About the Society
Pakistan Society of Psychophysiology (PSPP) is an intellectual society; a hub for the assessment of psychological developments by expressions of their physiological effects. The innovative inspiration is to endorse the ways and dissemination of exploration in psychophysiology specifically in Pakistan. Our efforts are in the direction to improve networking among psychophysologists in the country. Pakistan Society of Psychophysiology (PSPP), led by Ms. Sadaf Ahmed, is trying to study the nature of human emotion in terms of its physiological manifestations, variations associated with pain, Stress & related pathological conditions. The society also trains undergraduates and graduates in health science professional courses. Psychophysiology is truly multidisciplinary, embracing members from psychology, psychiatry, neuroscience, biology, physiology, anatomy, neuroimaging, biophysics, and engineering, and relying on other disciplines such as mathematics and computer science. It is a challenging and exciting field which runs across the full gamut of neuroscience, and one which is rapidly evolving and growing.

Strategic initiatives
- To increase the number of Society members in an attempt to engage all major research teams in Pakistan in the activities of the Society
- Establish links with international bodies relevant to research in psychophysiology
- Establish research training tenable for three months for an honours student engaged in research in psychophysiology

Why become a Member?
We encourage all researchers in the Pakistan to join the Society for the following reasons:
- To maintain the high quality of the Annual meeting.
- To improve networking among psycho physiologists in Pakistan.
- To allow students to familiarize themselves with work from different laboratories
- To facilitate exchange programs for students and staff.
- For membership form visit www.aeirc-edu.com or Email pspp.pk@gmail.com ABRC marketing unit ,B.B Shopping Mall , upper 2nd Floor ,Gulistan-e-Jouhar Karachi –Pakistan

Membership of the Society offers a number of benefits. Current benefits include:
- Condensed registration fee for conference meeting.
- Student Members who present their work at the Annual Conference are eligible for prizes.
- Concession for the processing fees in article/paper publication in UEHSR.
- PSPP has always placed particular emphasis on student involvement at its projects/conference/activities as part of not only their career development but also this great aim will not be achieved without indulgent of young researchers.

To develop a strong and cohesive group for the purposes of maximizing research funding and infrastructure
AEIRC is a non-profit research institute which was established in the year 2008, conduct basic/clinical research to develop healthier Pakistan. The main focus of the institution is to identify the health status of Pakistani people by conducting research and to provide Pakistani researchers, both young and experienced, the opportunities for personal and professional development. This conference is yet another endeavor in order to provide the researchers, scientists and students a platform to interact and build opportunities. This conference intends to cover all the aspects of neurobiology from the biochemical basics to diagnostic approaches and the status of mental health in Pakistan. The conference track will follow two lecture sessions, each one of them consisting of presentations from notable scientists and followed by a question answer session. It is advised to note down all your queries and use the opportunity of the Q/A session.
MESSAGE

AEIRC has been involved in various research projects & events to evaluate and raise the awareness about the increasing neuro, psychosocial & physiological malfunctions in Pakistani population specifically youngsters and we find it necessary to create an awareness about the exaggerating psychosocial factors that can develop neurological disturbances. The team has been working on psychophysiology that includes experiencing life stressors and their neurobiological effects in young and adults. We target the need of Human behavioral genetic research aimed at characterizing the existence and nature of genetic and environmental influences on individual differences in cognitive ability, personality, interests, and psychopathology that can lead to neurological alterations. As Depression is an etiologically heterogeneous group of brain disorders characterized by a wide range of symptoms that reflect alterations in cognitive, psychomotor and emotional processes. Affected individuals differ remarkably regarding the profile of clinical features, severity and course of illness as well as their response to treatment and reintegration efforts. We are thankful to Speakers, participants & guests from SOCIO, PSYCHO & NEURO background who attended this conference and shared variety of perspectives in order to provide everyone with a significant perspective on the diagnosis, management and outcomes associated with depressive illness. We appreciate to become a forum for the interaction and exchange of ideas among a variety of professionals interested in neuropsychiatric issues where young neuroscientists, neuropsychiatrists and basic scientists ensured the future success of this particular goal.

ORGANIZING TEAM
Pakistan first peer reviewed open access Research magazine and newsletter

Escalating Research is a way to publish your, your views, your ideas, and your achievements in life science and research sector; make your publication more valuable one. Escalating Research is an attempt to provide a platform for such talents who are interested in research writing. A path that leads to open new horizons in all aspects of emerging Science and Technology. News updates of latest era with referenced sources is also a part of it. The aim is highly achieved and recognized by several contributors all over the world.

Send your article and news on escalating.research@gmail.com for quarterly issue.

Published by
Advance educational Institute and Research centre (AEIRC) & Pakistan Society of Psychophysiology (PSPP)

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Is it in my gene?

A Neuro-psychological perspective to evaluate & manage the cause of young depression

ORGANIZING TEAM

Dr. Kaiser Waheed
Patron (Advance Educational Institute & Research Centre)
CEO, Medisure Group of Companies
Chairman, Pakistan Pharmaceutical Manufacturing Association.
PhD (Pharmaceutical Sciences)

Ms. Sadaf Ahmed
She is the CEO of Advance Educational Institute & Research Centre (AEIRC); Assistant Professor, Department of Physiology, UoK; Clinical research certified professional from DUHS; and President, Pakistan Society of Psychophysiology. She has more than 50 publications in National and International research journals. She is recently working on Neuropathic pain in Pakistan, serving as chief Editor of International Journal of Endorsing Health Science Research & Escalating Research. She is PhD Scholar in Neuro-Science. Life time member of World Women Neuro-Science.

Mr. Shamoon Noushad
He is Managing Director at Advance Educational Institute & Research Centre (AEIRC): Masters in Applied & Clinical Physiology (UoK), Mphil/PhD Scholar (DUHS). Clinical research certified professional from DUHS; he is also serving as visiting faculty at Centre for Global Studies and Research, Institute of health sciences Pakistan, he has 24 publications in National and International research journals.

Mr. Syed Zain Azher
He is presently working as faculty member at Advance Educational Institute and Research Centre. He is Managing Editor of ER; Pakistan First open access peer review magazine and newsletter. He is the General secretary of PSPP and Clinical Research certified professional from Dimension Research.

Mr. Shiekh M Tahir
He is Graduate from Statistics Department, university of Karachi, working as Statistician at Advance Educational Institute and Research Centre. He is Professional Trainer of (Clinical Research Statistical Protocol)E9 & SPSS 20.0 IBM.

Ms. Asma Zaib
She is presently working as Coordinator at Advance Educational Institute and Research Centre, also serving as Lecturer Department of Physiology, Dow International Medical College, Dow University of Health Sciences.

Ms. Kanwal Tariq
She is presently working as Research Associate at Advance Educational Institute and Research Centre.

Ms. Rida Nasir Ali
Completed Masters in Biotechnology from the university of Karachi and working as Research Associate at Advance Education Institution and Research Centre.
GENERAL INFORMATION

Conference venue:
International Centre for Chemical and Biological Sciences, University of Karachi, Pakistan & AEIRC.

Dates:
19-26 October, 2013

Official language:
The official language is English.

Conference secretariat:
The conference Secretariat will be operating at the ICCBS Hall for registration and information.

Registration for participation includes:
Enterance to the Conference Hall
Program details and certificates (will be provided on the same day)
Refreshments

Tea and lunch breaks:
October 21, 2013- ICCBS Hall
Refreshments 04.30 pm

Scientific Session:
Please read the Program section to get detailed information of the Poster area, it is located adjacent to the Conference Hall. Please be punctual as the sessions will commence on time.

Certificate of attendance:
A certificate of attendance will be given to all the participants, at the Conference Secretariat on October 21st, 2013.

Cell phone and pagers:
Please turn off your cell phones and pagers during all the official sessions.

Children:
In order to preserve the educational atmosphere of the conference, children are not permitted.

Electricity:
Please note the electricity in Pakistan is 220V.

Insurance:
All participants are strongly advised to carry the proper travel and health insurance, as the AEIRC cannot accept liability for any accidents or injuries that may occur at the conference.

Smoking:
Conference premises are declared as strictly non-smoking zone.

Flash Photography:
No flash photography is allowed during scheduled scientific session.
**PRE & POST CONFERENCE PROGRAM DETAILS**

### Pre Conference course

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<tr>
<td><strong>9:00 am</strong></td>
<td><strong>1st session</strong></td>
<td><strong>HUMAN GENETICS &amp; HEALTH RESEARCH</strong></td>
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<td><strong>10:00 am</strong></td>
<td>HER3 expression in human breast carcinomas is associated with estrogen receptor status.</td>
<td>How Genes and the Social Environment Moderate Each Other.</td>
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<td><strong>01:00 pm</strong></td>
<td>Circular RNA and miR-7 in Cancer.</td>
<td>Non-Coding RNAs and Cancer.</td>
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<td><strong>CANCER GENETICS; EXPLORE THE INSIGHT</strong></td>
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<td><strong>11:00 am</strong></td>
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<tr>
<td><strong>12:00 pm</strong></td>
<td>2nd session</td>
<td>4th session</td>
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<tr>
<td><strong>01:00 pm</strong></td>
<td>Defining the Environment in Gene–Environment Research: Lessons From Social Epidemiology</td>
<td>Rethinking Our Public Health Genetics Research Paradigm.</td>
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*A Neuro-psychological perspective to evaluate & manage the cause of young depression*
## CONFERENCE PROGRAM DETAILS

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<td>Introduction to Conference</td>
<td>Ms. Kanwal Tariq</td>
<td>Advance Educational Institute &amp; Research Centre, Karachi Pakistan</td>
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<td>Dr. Kaiser Waheed</td>
<td>Medisure Group of Companies</td>
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<tr>
<td>1:45 PM</td>
<td>Diagnosis and Early Intervention for Depression in Young People</td>
<td>Dr. Raza-ur-Rahman</td>
<td>Dow University of Health sciences, Karachi Pakistan</td>
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<tr>
<td>2:05 PM</td>
<td>Genetics and Depression</td>
<td>Dr. Syed A. Aziz</td>
<td>University of Ottawa, Canada</td>
</tr>
<tr>
<td>2:25 PM</td>
<td>Biochemical Manifestations of Depression / Neurobiology of Depression</td>
<td>Dr. D.J. Haleem</td>
<td>PCMD, ICCBS</td>
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<tr>
<td>2:45 PM</td>
<td>Academic Stressor Of Child And Adolescent</td>
<td>Dr. Amna Tariq</td>
<td>King’s College London</td>
</tr>
<tr>
<td>3:05 PM</td>
<td>Mental Health &amp; Old Age; A Talk on Mental Health Week, 2013</td>
<td>Dr. Nilofar Sultana</td>
<td>SMBBMC, Karachi Pakistan</td>
</tr>
<tr>
<td>3:25 PM</td>
<td>Depression and Analysis of Neuro-psychological Factors Affecting Personality of Young adults</td>
<td>Dr. Sumbul Shamim</td>
<td>Dept. of Pharmacy, Dow University of Health sciences</td>
</tr>
<tr>
<td>3:45 PM</td>
<td>Sadness to Happiness; A Matter of Attitude!</td>
<td>Ms. Sadaf Ahmed</td>
<td>Advance Educational Institute &amp; Research Centre, Karachi Pakistan</td>
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<tr>
<td>4:05 PM</td>
<td>Question Answer Session/Closing Ceremony</td>
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<tr>
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Is it in my gene?

Keynote Speakers Profile

Dr. Raza-ur-Rehman
He is PhD, Professor and Chairperson Department of Psychiatry at Dow University of Health Sciences. He has earned his FCPS in Psychiatry (College of physician & surgeon Pakistan) in 2001. He has been associated with psychiatric illnesses & management on both grounds that is clinical practice and Bio-Medical Research. He has been supervising many researches in neuro-psychiatric area.

**Topic:** Diagnosis and Early Intervention for Depression in Young People.

Dr. Syed A. Aziz
He is a scientist at Health Canada and Adjunct Professor Department of Pathology, University of Ottawa. He has a MSc. and PhD in Human/Medical Genetics. He is a member of the external review committee for National Science and Engineering Research Council of Canada for the award of grants since 2007, member Editorial Board of PLoS ONE since 2008, member Editorial Board of International Journal of Molecular Sciences since 2010, member of the Experimental Pathology Group, Department of Pathology, University of Ottawa since 2010 and member Editorial Board of BMJ open since 2011.

**Topic:** Genetics and Depression.

Dr. Darakshan Jabeen Haleem
She is a Meritorious Professor (Neuro-science) at Dr Panjwani Center for Molecular Medicine & Drug Research. She earned her PhD. in Neurochemistry & Neuropharmacology from London University in 1989. She is also a former Dean of Faculty of Science, UoK and earned Laureate of the Presidential award (Eza-e-Fazeelat).

**Topic:** Biochemical Manifestations of Depression / Neurobiology of Depression.

Dr. Amna Tariq
She is a practicing psychologist with MSc. in Clinical Psychology obtained from Institute of Psychology, University of London. She serves as a consultant at South City Hospital [PVT] Ltd. and Medlink Consultant Clinics. Working as Psychometrician of Canada immigration, Karachi, Pakistan. She started her research career with Health services and population Research Department, IOP, KCL with Professor Jenkins Rachel.

**Topic:** Academic Stressor Of Child And Adolescent

Dr. Nilofer Sultana
She is a Neuro-Scientist and Chairperson Department of Physiology, Shahed Mohtarma Benazir Bhutto Govt. Lyari Medical College, Karachi, Vice President Pakistan Physiological Society, President Meraghar Welfare Organization, Vice President Innerwheel. She has been working on Alzheimer’s for last 10 years

**Topic:** Mental Health & Old Age; A Talk on Mental Health Week, 2013

Dr. Sumbul Shamim
She is the Principal and Professor, Dow College of Pharmacy, Dow University of Health Sciences with main research interests including Pre-Clinical and Clinical Pharmacology and Pharmacogenetics. She earned her PhD in Pharmacology from Faculty of Pharmacy, Hamdard University Karachi in 2011.

**Topic:** Depression and Analysis of Neuro-psychological Factors Affecting Personality of Young adults

Ms. Sadaf Ahmed
She is the CEO of Advance Educational Institute & Research Centre (AEIRC); Assistant Professor, Department of Physiology, UoK; clinical research certified professional from DUHS; and President, Pakistan Society of Psychophysiology. She has more than 50 publications in National and International research journals. She is recently working on Neuropathic pain in Pakistan, serving as chief editor of International Journal of Endorsing Health Science Research & Escalating Research.

**Topic:** Sadness to Happiness; A Matter of Attitude!
Call For Abstracts

SUBMISSION OF ABSTRACTS:
Abstracts not exceeding 250 words are invited for Oral / poster. Abstracts shall comprise of Purpose of Study, Introduction, Methodology, Result and Conclusion. Abstracts should be sent via e-mail to shamoon@aeirc-edu.com. Confidential peer-review will determine the selection of the Oral/posters. Acceptance will be communicated via e-mail. Please state the title, author(s), author’s affiliation and corresponding email.

SCIENTIFIC PROGRAM:
The official language of the conference will be English. The program will consist of Comprehensive Scientific Lectures and Poster Presentations. Detailed scientific program will be updated later on AEIRC website.

WHO SHOULD ATTEND ???
- Basic scientist
- Doctors/Pharmacist/Sociologist/Psychologist
- Students (Basic Science/ MBBS/ BDS/D-Pharm/ Nursing)
- Health science professionals

REGISTRATION FEES:
- Students 750 PKR
- Professional 1200 PKR
- AEIRC Member 500 PKR
- International 4500 PKR
- After 20TH October 500 PKR late fee will be charged.
(Covering lunch, refreshment, conference folder & certificate.)

Conference Secretariat
Advance Educational Institute & Research Center.
E-mail: shamoon@aeirc-edu.com
Contact: +92-33-33-549258
Web: www.aeirc-edu.com

Deadline for abstract submission 10 January 2014

Conference Theme
Judgment to Action
discover the Power of intellect wellbeing

Conference Track
Bio medical health sciences
Environmental health sciences
Bioengineering
Psychosocial health

2nd International Conference On
Endorsing Health Science Research
Human behavioral genetic research aimed at characterizing the existence and nature of genetic and environmental influences on individual differences in cognitive ability, personality interests and psychopathology is reviewed. Twin and adoption studies indicate that most behavioral characteristics are heritable. Nonetheless, efforts to identify the genes influencing behavior have produced a limited number of confirmed linkages or associations. Behavioral genetic research also documents the importance of environmental factors, but contrary to the expectations of many behavioral scientists, the relevant environmental factors appear to be those that are not shared by reared together relatives. The observation of genotype-environment correlation processes and the hypothesized existence of genotype-environment interaction effects serve to distinguish behavioral traits from the medical and physiological phenotypes studied by human geneticists. Behavioral genetic research supports the heritability, not the genetic determination, of behavior. Depression is an etiologically heterogeneous group of brain disorders characterized by a wide range of symptoms that reflect alterations in cognitive, psychomotor and emotional processes. Affected individuals differ remarkably regarding the profile of clinical features, severity and course of illness as well as their response to drug treatment and reintegration efforts. Genetic epidemiology has assembled convincing evidence that mood disorders including depression are substantially influenced by genetic factors and that the genetic component is highly complex, polygenic and epistatic. Because the mode of inheritance of depression is complex, it has been concluded that multiple genes of modest effect, in interaction with each other and in conjunction with environmental events, produce vulnerability to the disorder. Investigation of gene-environment interactions in humans and nonhuman primates, as well as gene inactivation studies in mice, have further advanced the identification of genes that are essential for the development and plasticity of brain systems related to depression.

There never was a single “depression gene”, a new meta-analysis establish the view that a variation of the serotonin transporter gene (5-HTTLPR) is not alone associated to an amplified hazard of depression but can contribute with amalgamation with traumatic life events. Evidence for any connection between the short promoter alternate and depression is full of loopholes. Although the 5-HT gene may not be directly allied with depression, it might restrained the serotonergic response to stress. To a large extent genetic research has been conducted by the postulation that genes cause ailment, but the expectation that direct paths will be found from gene to disease has not proven fruitful for complex psychiatric disorders. The expansion and pattern of several neural networks is reliant on the actions of serotonin (5-HT) with various receptor subtypes. All through early brain maturity 5-HT adapt morphogenetic behavior, such as neural differentiation, axon outgrowth, and synaptic sculpt. In the adult brain, midbrain raphe serotonergic neurons project to a variety of brain regions and adapt a wide range of physiological functions. Several lines of data point out that hereditarily determined variability in serotonergic gene appearance, as it has been accepted for the 5-HT transporter, influences moody qualities and may show the way to psychopathological circumstances with augmented fretfulness, misery, and violent behavior. Analysis of the directive role of serotonergic gene copying and its effect on neuronal development, synaptic agility, and neurogenesis urge interest to identify serotonergic gene-related molecular features primary to any illness and to expand treatment options. Gene targeting strategies have more and more been incorporated into exploration of neurophysiology along with the vanishing doctrine of an inadequate competence of neurons for renaissance and reproducibility, it is realized that gene transfer techniques using efficient viral vectors in concurrence with neuron-selective transcriptional power coordination may also be pertinent to multifaceted mess of the brain. Concluded that the 5-HT system keep on as vital target for therapeutic advancement with novel strategies intending toward the amendment of 5-HT role at the point of gene expression are likely to be oppressed by endeavor contributing dynamically in the prologue of options in therapeutic loom.
HER3 expression in human breast carcinomas is associated with estrogen receptor status.

The expression of HER3 in breast cancer has been proposed to have several consequences, from cancer genesis and progression to the development of resistance to different anti-HER treatments. Nevertheless, the prognostic value of HER3 has not been fully established. Accordingly, we decided to evaluate the expression of the HER3 receptor in a series of human breast cancer samples. Immunohistochemical examination of HER3 was performed in 147 breast carcinoma cases. Two different patterns of expression were observed by immunohistochemistry—membrane and cytoplasmic staining—and were evaluated separately. HER3 overexpression, as compared with that of normal breast tissue, was seen in 21% of the cases. A predominantly membrane expression correlated with a positive estrogen receptor (ER) status and tumor size, but not with the Ki-67 proliferation rate, whereas a small proportion of samples (4%), present a cytoplasmic expression of HER3 correlated with a low Ki-67 proliferation rate and with higher levels of hormone receptors. Overexpression of HER3 in different tumor cell lines confirmed the relationship between HER3 and ER expression, and also the different distributions of HER3 within cells. Our results provide strong evidence that HER3 expression in breast carcinomas is associated with ER status, and reveal two different patterns of HER3 expression that may have distinct roles in tumorigenesis.

Circular RNA and miR-7 in Cancer.

MicroRNAs (miRNA) play important roles in fine-tuning gene expression and are often deregulated in cancer. The identification of competing endogenous RNA and circular RNA (circRNA) as important regulators of miRNA activity underscores the increasing complexity of ncRNA-mediated regulatory networks. Particularly, the recently identified circular RNA, ciRS-7, which acts as a designated miR-7 inhibitor/sponge, has conceptually changed the mechanistic understanding of miRNA networks. As miR-7 modulates the expression of several oncogenes, disclosing the regulation of miR-7 activity will likely advance the understanding of various cancer etiologies. Here, we review the current knowledge about the ciRS-7/miR-7 axis in cancer related pathways and discuss possible models explaining the relevance of coexpressing miR-7 along with a circRNA inhibitor.

How Genes and the Social Environment Moderate Each Other.

Recent research has suggested that the social environment can moderate the expression of genetic influences on health and that genetic influences can shape an individual’s sensitivity to the social environment. Evidence supports 4 major mechanisms: genes can influence an individual’s response to environmental stress, genes may enhance an individual’s sensitivity to both favorable and adverse environments, inherited characteristics may better fit with some environments than with others, and inherited capabilities may only become manifest in challenging or responsive environments. Further progress depends on better recognition of patterns of gene–environment interaction, improved methods of assessing the environment and its impact on genetic mechanisms, the use of appropriately designed laboratory studies, identification of heritable differences in an individual before environmental moderation occurs, and clarification of the timing of the impact of social and genetic moderation.
Non-Coding RNAs and Cancer.

The discovery of the biological relevance of non-coding RNA (ncRNAs) molecules represents one of the most significant advances in contemporary molecular biology. Expression profiling of human tumors, based on the expression of miRNAs and other short or long ncRNAs, has identified signatures associated with diagnosis, staging, progression, prognosis, and response to treatment. In this review we will discuss the recent remarkable advancement in the understanding the biological functions of human ncRNAs in cancer, the mechanisms of expression and the therapeutic potential.

Variation in the telomere signals in benign and malignant lesions from a rat mammary gland cancer initiation – promotion model.

Breast cancer is an important public health issue in Canada. In 2012, more than 23,400 new cases have been diagnosed, and it may have killed more than 5,100 Canadian women. Several risk factors that are suspect in the etiology of breast cancer include the type of diet and various chemical food contaminants. In our laboratory, we use a mammary gland cancer initiation-promotion bioassay in female rats to determine the potential for tumour promoting effects of chemical food contaminants, followed by molecular characterization of mammary gland tumours. This study analysed the usefulness and significance of telomeres as a parameter to characterize malignant and benign mammary tumours from rats exposed to hormonal bovine growth promoter residues found in food. Formalin fixed paraffin embedded (FFPE) Sprague Dawley mammary tumours from a bovine growth promoter initiation promotion study were used in Telomere quantitative fluorescent in situ hybridization (TQ-FISH). Proliferating Cell Nuclear Antigen (PCNA) was performed by immunohistochemistry. Purified DNA from FFPE sections were used in flow cytometry (FCM) DNA ploidy analysis and for PCR-based telomere repeat amplification. DNA concentrations were calculated using a Nanodrop ND-1000 spectrophotometer. TQ-FISH analysis revealed a highly significant difference (p=0.001): papillary adenocarcinomas were found to express more signals per cell than cribriform adenocarcinoma, fibroadenoma and atypical hyperplastic tumours. FCM DNA ploidy analysis found a greater percentage of tetraploidy (4.11%) in papillary adenocarcinomas compared to cribriform adeno-carcinoma (2.6%); negligible tetraploidy was found in fibroadenomas (0.34%). The same FCM analysis showed that cribriform adenocarcinomas exhibited a greater S phase fraction (10.02%) than papillary adenocarcinomas (5.34%) and fibroadenomas (2.38%). PCNA analysis revealed that 47.10% of cribriform adenocarcinoma cells, 33.90% of papillary adenocarcinoma cells, and 16.30% of fibroadenoma cells were proliferative. There was no statistical significance (p=0.231) in the DNA concentration data obtained when we considered non-mammary tissues as controls to cribriform adenocarcinoma, papillary adenocarcinoma, fibroadenoma, and atypical hyperplastic tumours. According to our analysis, TQ-FISH was found to be a useful parameter for differentiating between various rat mammary glands malignant and benign lesions. The combination of TQ-FISH with other indicators like DNA ploidy and fairly established PCNA seemed to provide a better understanding of TQ-FISH findings.

The Role of Nuclear Bodies in Gene Expression and Disease

This presentation summarizes the current understanding of the role of nuclear bodies in regulating gene expression. The compartmentalization of cellular processes, such as ribosome biogenesis, RNA processing, cellular response to stress, transcription, modification and assembly of spliceosomal snRNP, histone gene synthesis and nuclear RNA retention, has significant implications for gene regulation. These functional nuclear domains include the nucleolus, nuclear speckle, nuclear stress body, transcription factory, Cajal body, Gemini of Cajal body, histone locus body and para speckle. We herein present the roles of nuclear bodies in regulating gene expression and their relation to human health and disease.
Pre & Post Conference Course Abstracts

Dr. Syed A Aziz
Toxicology Research Division, Bureau of Chemical Safety, Food Directorate, Health Canada Faculty of Medicine, Department of Pathology, University of Ottawa.

A High-Throughput Assay to Identify Modifiers of Premature Chromosome Condensation.

Premature chromosome condensation (PCC) is a consequence of early mitotic entry, where mitosis begins before completion of DNA replication. Previously we have identified mutations in MCPH1, a DNA damage response and potential tumor suppressor gene, as a cause of primary microcephaly and PCC. Here we describe a high-throughput assay to identify modifiers of PCC. Reverse transfection of control siRNA followed by a forward transfection of MCPH1 small interfering RNA (siRNA) was performed to induce PCC. Condensin II subunits CAPG2 and CAPH2 were validated as PCC modifiers and therefore positive controls. Cell nuclei were detected by DAPI staining using an Operetta imaging system. PCC and nuclei number were determined using Columbus analysis software. Two batches of nine plates were used to determine assay efficacy. Each plate contained four negative (nontargeting) and eight positive control siRNAs. Mean % PCC was 12.35% (n = 72) for negative controls and 4.25% (n = 144) for positive controls. Overall false-positive and false-negative rates were 0% (n = 72) and 2.1% (n = 144), respectively. This assay is currently being used to screen a human druggable genome siRNA library to identify novel therapeutic targets for cancer treatment. The assay can also be used to identify novel compounds and genes that induce PCC.

Sex, Gender, Genetics, and Health.

This presentation addresses 2 questions. First, to what extent are sex and gender incorporated into research on genetics and health? Second, how might social science understandings of sex and gender, and gender differences in health, become more integrated into scholarship in this area? We review articles on genetics and health published in selected peer-reviewed journals. Although sex is included frequently as a control or stratifying variable, few articles articulate a conceptual frame or methodological justification for conducting research in this way, and most are not motivated by sex or gender differences in health. Gender differences in health are persistent, unexplained, and shaped by multilevel social factors. Future scholarship on genetics and health needs to incorporate more systematic attention to sex and gender, gender as an environment, and the intertwining of social and biological variation over the life course. Such integration will advance understandings of gender differences in health, and may yield insight regarding the processes and circumstances that make genomic variation relevant for health and well-being.


In this article, we make the case that social epidemiology provides a useful framework to define the environment within gene–environment (GxE) research. We describe the environment in a multilevel, multidomain, longitudinal framework that accounts for upstream processes influencing health outcomes. We then illustrate the utility of this approach by describing how intermediate levels of social organization, such as neighborhoods or schools, are key environmental components of G·E research. We discuss different models of GxE research and encourage public health researchers to consider the value of including genetic information from their study participants. We also encourage researchers interested in G·E interplay to consider the merits of the social epidemiology model when defining the environment.
Gene–Environment Correlation: Difficulties and a Natural Experiment–Based Strategy.

We explored how gene–environment correlations can result in endogenous models, how natural experiments can protect against this threat, and if unbiased estimates from natural experiments are generalizable to other contexts. We compared a natural experiment, the College Roommate Study, which measured genes and behaviors of college students and their randomly assigned roommates in a southern public university, with observational data from the National Longitudinal Study of Adolescent Health in 2008. We predicted exposure to exercising peers using genetic markers and estimated environmental effects on alcohol consumption. A mixed-linear model estimated an alcohol consumption variance that was attributable to genetic markers and across peer environments. Peer exercise environment was associated with respondent genotype in observational data, but not in the natural experiment. The effects of peer drinking and presence of a general gene–environment interaction were similar between data sets. Natural experiments, like random roommate assignment, could protect against potential bias introduced by gene–environment correlations. When combined with representative observational data, unbiased and generalizable causal effects could be estimated.

Rethinking Our Public Health Genetics Research Paradigm.

Since the sequencing of the human genome, tremendous resources have been dedicated to understanding how genetic determinants may drive the production of disease. Despite some successes, the promise of genetics research in these areas remains largely unrealized. The focus on isolating individual (or clusters of) genes that may be associated with narrowly defined phenotypes in large part explains this discrepancy. In particular, efforts to identify genotypes associated with narrow phenotypes force the field to use study designs that capitalize on homogeneous samples to minimize the potential for competing influences or confounders, which imposes important limitations on understanding the role of genes in human health. We argue that a population health genetics that incorporates genetics into large, multiwave, multilevel cohorts has the best potential to clarify how genes, in combination and with the environment, jointly influence population health.


The integration of genetics and the social sciences will lead to a more complex understanding of the articulation between social and biological processes, although the empirical difficulties inherent in this integration are large. One key challenge is the implications of moving “outside the lab” and away from the experimental tools available for research with model organisms. Social science research methods used to examine human behavior in non-experimental, real-world settings to date have not been fully taken advantage of during this disciplinary integration, especially in the form of gene–environment interaction research. This article outlines and provides examples of several prominent research designs that should be used in gene–environment research and highlights a key benefit to geneticists of working with social scientists.
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Background: Prevalence of brain related diseases especially dementia has increased significantly being upto 1.9% in Asian countries such as Pakistan. Risk factors have been neglected in earlier studies. Disease curing drugs are not available and symptomatic medications have given minimal benefits. Until now no standard research based on dementia/AD has been carried out in Pakistani individuals. Aims and Objectives: Main idea was to explore the relationship of age with dementia/AD in Pakistani individuals. Material and Methods: 200 men and women aged 50-80 years were included in the study for duration of Nov 2008- April 2010. Patients were evaluated with medical history, MMSE test past history. Patients were divided into two groups on the basis of age. Group A patients consisted of individuals with age ranging between 50-70 years whereas group B patients had ages between 70-80 years. Results: It was observed that both the groups had an equal risk of developing dementia by AD. The dementia is more prevalent in male than female. The BMI > 25/m2, high education and middle SES were the major risk factors of AD in old age. Indicator of vascular and genetic risk factors would exert a synergetic negative influence on episodic memory. Conclusion: It is concluded that patients with age 60 years have an increased risk of developing cognitive decline. Increased BMI, higher education and middle SES as well as vascular and genetic risk factors may be supportive of this disorder. Severity of disease is a result of a set of underlying pathological processes atleast some of which may be preventable or modifiable.
Depressive disorders are among the most common psychiatric diseases, with prevalence estimates ranging from 5% to a maximum of 20%. Despite their high prevalence and socioeconomic impact, little is known about their etiology. Heritability estimates demonstrate up to a 50% genetic component based on family aggregation and contrasting monozygotic and dizygotic twin studies. The low relative risk to siblings ($k_{sib} \leq 1.5$) makes the search for their genetic determinants very tedious.

Gene-environment interaction has been recognized for a long time in the pathophysiology of depression, and its best biological substratum at present is represented by the serotonin transporter (5-HTT) gene, where several copies of its short allele culminate in depression and suicide in response to lifelong stress events. Many total genome scans have been performed with variable results, the most authoritative being the one of Utah pedigrees with a strong family history of major depression. It identified a locus on chromosome 12 encompassing a gene cluster and sex-specific predisposition. Nevertheless, recent genome scan meta-analysis yielded somewhat disappointing conclusions with a relatively low significance for quantitative trait loci on chromosomes 9, 10, 14, and 18. Studies on animal models have contributed to the chromosomal mapping of many behavioral traits, including anxiety, the stress response, and depression. Although F2 crosses constitute a classical approach, novel models of recombinant inbred strain and recombinant congenic strain animals allow for a rapid initial localization of any traits. This type of analysis has led us to uncover significant loci for the stress response and anxiety in rats and mice.
Pharmacological And Biochemical Manifestations Of Depression.

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Major depressive disorder is a psychiatric syndrome characterized by pervasive disturbances in mood, sleep, appetite, energy, motivation and thinking. Epidemiological studies have consistently shown that it is one of the most prevalent lifetime psychiatric disorders which by 2020 will be the second leading health disorder. Genetic, hormonal and environmental factors play an important role in the etiology of depression. The discovery of antidepressant drugs in the 1950s led to the first biochemical hypothesis of depression, which suggested that a functional deficiency of monoamines leads to depression, whereas mania is caused by functional excess of monoamines at critical synapses in the brain. Dysregulations of the hypothalamic pituitary adrenal axis are also implicated in the pathogenesis of depression. Basic research in neuroscience and the discovery of new antidepressant drugs have revolutionized our understanding of the mechanisms underlying depression and antidepressant action. There is no doubt that the monoaminergic system is one of the key stones of these mechanisms, but multiple interactions with other brain systems and the regulation of central nervous system function must also be taken into account. Understanding of depression also requires identification of the genes that make individuals vulnerable or resistant to depression. These advances will lead to a second revolution in our approach to depression and to the development of definitive treatments and eventually cures and preventive measures for the disease.
Depression and Analysis of Neuro-psychological Factors Affecting Personality of Young adults

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Depression, as a heterogeneous collection of disorders, is likely to include subgroups that are more genetic in origin. Depression is a serious and often under-diagnosed and undertreated mental health problem in young adults which may have fatal consequences.

In common with other neuropsychiatric disorders such as schizophrenia, Alzheimer’s disease and Huntington’s disease, earlier age at onset in depression is associated with higher genetic loading and poorer long-term outcome. Adolescents and young adults with depression are also at high risk of developing a bipolar illness. This article reviews depressive illnesses that occur for the first time in adolescence and young adulthood.

Affective illnesses may present at any age, but it is becoming clear that patients who suffer from recurrent and severe forms of mood disorder often experience their first episode of illness early in life. The clinical presentation of depression at this stage of life can be atypical and is often complicated by personality difficulties and substance misuse. A significant proportion of young people presenting with recurrent depression will go on to develop a bipolar disorder, with important implications for future pharmacological treatment choices.

Adolescents with sub-diagnostic levels of depressive symptoms show higher rates of early-adulthood depression, substance misuse and adverse psychological and social functioning. When symptom severity reaches the threshold for diagnosis, there is a likelihood that depression will continue into early adult life. Age at onset of depression and severity of depressive episodes are important factors in determining rates of ultimate progression to bipolar disorder. Pre-pubertal onset of depression is a strong marker for bipolar disorder, with some studies finding that at least one-third of depressed children will develop bipolar disorder in adult life.
Building Positive attitude and practicing encouraging behaviors can be effectual and great help for people surrounded by depression. To set free Happiness, is a matter of neuroscience in actual that has been studied and approached for treating depression. Positive bustles and intrusions have been proved an important view of psychosocial and physiological flourishing of individuals who are happy, optimistic and grateful. This has produced a lot of new information about the benefits of positive activity interventions on mood and well-being, effective in educate individuals about ways to increase their optimistic thinking, constructive change and encouraging behaviors. People often underestimate the long-term impact of practicing brief, positive activities but these have short bursts of happy molecules in brain. In this way, even momentary positive feelings can build long-term social, psychosomatic, cerebral, and bodily skills and reserves. Brain imaging studies also led to theorize that positive bustles may act to boost the dampened reward circuit mechanisms that do not usually arise from treatment with medicine only. As our brain is constantly changing in response to environmental factors and Modern neuroscience research leads to the foreseeable conclusion sense of mental and psychosocial well-being can be attained by exercising that persuade neuroplastic changes in the brain. However, the impact of practicing and retaining a more positive thinking pattern, especially on our wellbeing and happiness, can be overcome by negative impact of setbacks that has immense power in disturbing happy drive than positive progress.
Academic stressor on child and adolescent

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This paper focuses on Academic stressor on child and adolescent is associated with anxiety, emotional problem. It is presenting complaints that reflect a variety of problems in the child, family or school as a whole. Characteristics features are Somatic disguise; Bully-victim; Exam fear; Homework pressure/work load; Suicide and deliberate self harm; Failure fear. Associated features are Family factors; Intelligence and attainments and Institutional factor.
It highlights on Underlying psychiatric conditions in child and adolescents i.e. Depression; Separation-anxiety; Attention deficient hyper activity disorder; Autism and low self esteem.
It focuses on the treatment and management of children and adolescents how to cope with academic stressor.
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Neurological & Psychological perspective of Depression in young

Noureen Azmat
Institute of Clinical Psychology

The main objective of this case study was to treat depression symptoms in a 13 years old girl. Her depression symptoms included worrying most of the time, tearfulness, boredom, lack of concentration, disturb sleep and poor academic results. A series of tests including Psycho-Neurological, Achievement, IQ, and Projective tests were administered. Client achieved average IQ score. However, she was diagnosed with Dysthymia. Due to which problems in studies and daily functioning were faced. A treatment plan based on Cognitive Behavior Therapy considering client’s issues was organized. Client’s thinking errors were identified first, through which her dysfunctional beliefs were altered by comparatively more rational and functional one to develop logical thinking style. Different techniques of CBT i.e., ABC model, Downward arrow technique, Scaling Belief and “Big “I” & Small “i” technique” etc., were used. Client’s progress was measured through regular monthly record forms to analyze the progress of treatment on each level. Significant improvement was observed in client’s academic progress as well as her daily functioning before and after treatment. CBT was observed a very useful treatment method for depression. Further research is recommended.
Psycho-Social Depression, the Leading Cause of Hypertension in Hyderabad, Pakistan

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Hypertension is one of the major life threatening diseases in Pakistan. The causes of hypertension in Pakistan vary from province to province. Present study aims to find out the role of psycho-social depression & its relation with hypertension in city of Hyderabad-Pakistan. A cross-sectional study was conducted from November 2012 to February 2013, which involved a Performa based study and used multiple logistics to investigate the relationship between Depression & Hypertension. The Study included 174 subjects belonging to both genders aged between 18-25 years. Depression rating scale was used to evaluate type & cause of depression furthermore BMI and blood pressure of each subject were also noted. Our study observed that the intensity of stress is directly related especially with hypertension. Study also observed that with increase in age, the prevalence of all forms of depression was observed. It is therefore concluded that depression is the major risk factor that will increase the risk of hypertension in Pakistan; but along with other factors like obesity and aging, it can lead to CVS and related pathological conditions. Elevating crime & violence rate could be the major cause of depression in Hyderabad city.

Key Words: Hypertension, stress, BMI, depression.
Introduction: Depression is a psychological disorder that affects the mental state of an individual for a long or a short period of time. The mental disturbance sometimes occurs due to sadness. Depression is the feeling of past and present experiences in one's life which may stay for a long time.

Purpose: The purpose of this study is to present the vulnerability rate of general Karachi population to depression in relation to age and gender.

Method: The data was collected from general population in Karachi (n=228 subjects). The involvement of age and depression was investigated in different age groups of teenagers (12-19 years), young adults (20-30 years) and adults (> 30 years). The age and gender difference in relation to depression was studied through a 21-item BDI-II (Beck Depression Inventory-II) Scale.

Result: Results show that 19.74% females show moderate level of stress and 17.98% male show minimal level of stress. According to the age the young adults show 8.33% severe level of stress i.e. they are more prone to depression as compared to teenagers with 1.32% and adults with 0.44% level of stress.

Conclusion: Studies explore the relationship between gender and depression severity with female’s reporting increased depression. According to the age category, the young adults are at a higher risk of developing depression. However the depression rate decreases with the continuous increase in age.
Early marriage; a root of current physiological and psychosocial health burdens
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Early marriages and associated health problems have enormously questioned in developing countries, especially in uncivilized regions of Asia due to low academic profile, cultural and religious customs. Early marriages can be great health risks for young girls who lack knowledge of general health care and reproductive awareness. This may turn to be a cause of several physiological and psycho-social issues along with low relationship confidence that directly affects relationship harmony. In understanding links between depressive symptoms, mental distress, and behaviors of both married and unmarried girls, inappropriate following of religious and social norms, parental pressures may initiate negative patterns of life likely to be associated with behavior and environment, rough and unprotected sexual behavior and environment among couples result in early miscarriages and sexually transmitted diseases. The Observational study was done among female married and unmarried respondents to evaluate their perspectives of getting married early, and to highlight whether it is a positive approach according to them. Results showed that in relation to unmarried girls the married females were also not in favor of getting married early as they are equally invaded by health problems moreover we found that married females were keener to get married early. Mental distress and depressive symptoms are more common in married females. It has been suggested that responsibilities and fear of unmanageable early pregnancy issues lead towards denial to getting married early. Specific strategies are needed to help girls make the transition to marriage as safely as possible as well as Health and behavioral strategies are needed to delay the first birth, support first-time mothers, and prevent the occurrence of mental and physical health problems.
Background: Research suggests that co-morbid diabetes and depression is common; however, the implications for clinical practice remain unclear. This paper reviews the current epidemiological evidence on co-morbid diabetes and depression, in order to identify the key publications which could both inform practice and identify gaps in knowledge and research.

Methods: A systematic review was conducted to identify published literature on the epidemiology of diabetes and depression. In order to review evidence on up-to-date knowledge of recent research and innovations in care literature searches for the last five years (August 2006–August 2011) were conducted. To identify relevant literature, electronic databases MEDLINE, PsychINFO and EMBASE were searched for English language articles in peer-reviewed journals.

Results: High rates of co-morbidity of depression and diabetes have been reported. The prevalence rate of depression is more than three-times higher in people with type 1 diabetes (12%, range 5.8–43.3% vs. 3.2%, range 2.7–11.4%) and nearly twice as high in people with type 2 diabetes (19.1%, range 6.5–33% vs. 10.7%, range 3.8–19.4%) compared to those without. Women with diabetes and also women without diabetes experience a higher prevalence of depression than men. Reviewed studies provide support for a modest relationship between diabetes and depressive symptoms, but the exact direction of this relationship remains unclear. Limitations: Most studies reviewed were cross-sectional and this limits any conclusions about the causal nature and direction of the relationship between diabetes and depression. Variation in measurement methods, lack of longitudinal data and few studies outside Europe and America limit the generalizability of the findings of this review. Conclusions: Current research suggests that the risk of developing depression is increased in people with diabetes; however, further studies are required in order to establish the nature of the relationship between depression, glycaemic control and the development of diabetes complications, and make appropriate recommendations for treatment and to support self-management of diabetes.
Evaluation of Psychological Impact from Early Marriages
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Early marriages have always been a very big issue in developing countries especially in primitive uncivilized districts of Asian countries including India, Pakistan and Bangladesh because of less awareness and knowledge of health, physical growth and development. Women bearing children at early ages face higher risk of maternal health problems, disability and death, and also reinforces medical problems for their newborns. Moreover it’s a controversial fact that in traditional societies, instances of getting married in early ages are greatly increased because of our religious beliefs, norms and social impacts. Due to early marriages young girls don’t have the ability to deal with the problems related to early pregnancy and pregnancy-related mortality and morbidity, causing major physiological and psychological health issues in adolescent girls ultimately resulting in losing relationship confidence and ability to maintain a healthy relationship. We want to evaluate the aspects of psychological disturbances occurring in married young girls along with depression rate and educational withdrawal, with comparison of unmarried young girls of the same age. There is a strong correlation between a woman’s age at marriage and the education that she receives. Uniformly across the countries, early marriage is associated with lower educational attainment. We present an observational study conducted through questionnaire; data is collected from 100 girls in b/w age of 13 to 35. Married (before 20 years) girls are also included for comparison study while some extra questions are included for married girls to determine their depression levels, before and after marriage. Results show that depression rate in single girls is in the ratio of 15:10 i.e., 60% single girls are depressed. On the other hand 50% of married girls have depression which increases by 30% after marriage and is therefore around 80%. Additionally, only 10% of single girls believe that marriage is the solution of frustration and remaining 90% oppose it. On the basis of above study it is concluded that early marriage, multiple responsibilities and early pregnancies are risk factors of depression and it is further evaluated that married girls are at higher level risk when compared to unmarried ones.
Karachi is one of the biggest cities in Asia and since past 20 years terrorism in Karachi has increased frequently. Due to these terrorist activities people living here have developed several phobias and anxiety disorders. This study was conducted to record the occurrence of traumatic events and their relationship with symptoms of post-traumatic stress disorder in Karachites. Survey of residents of Karachi was conducted between January 12, 2011 and March 4, 2012. Symptoms of PTSD were assessed using questionnaire related to psycho social factors that relate to PTSD. Out of total 164 both male and females, 62% of respondents reported appetite changes due to these terrifying activities, 58% of respondents reported hostile personalities, depression & mood fluctuations, while remaining 30% reported insomnia. 76.82% reported depression According to their economical condition 79.87% Middle class was highly affected as compare to upper class and lower class. There was also a significant difference observed among the populations who are engaged both in education and also doing jobs for survivals. 88% of them were found frustrated & protesting against the situation of the city. The results of the current study suggest that the trauma incident by the resident population is significant. Stresses tend to be numerous and chronic. The trauma experienced correlated strongly with psycho social, somatic, PTSD symptoms and depression.
**Family History Intricate Migraine Related Headache**

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**Objective:** To investigate the pain intensity, frequency, incidence of episode and study their relation with the family history.

**Introduction:** Family history is considered one of the main causes of migraine. Higher head pain intensity has been previously associated with the family history. Increment in migraine episodes can also lead severe disabilities which may prove fatal.

**Method:** A cross-sectional Questionnaire based qualitative population data of 185 subjects both male and females of different ages from 16-60 years were interviewed. Our focus was on migraine and towards migraine subjects. The inclusion and exclusion criteria were based on the intensity of pain, duration, episode of incidence, causes; family history had also been taken for the study. The obtained data analyzed by International classification of Headache disorder, Second Edition criteria (ICHD-II criteria). We analyzed the data on SPSS version 15.0.

**Results:** Our results gave a clear view that migraine with family history showed higher pain intensity and frequency of headache than individuals with no family history while the ratio of episodes of occurrence was equal in both. On the other hand subjects towards migraine with family history reported increased pain intensity, frequency and episodes of headache than subjects towards migraine with no family history. Stress, depression and tension were the chief factors reported in all categories followed by sunlight exposure.

**Conclusion:** The relation between intensity, frequency and duration varies with and without family history in migraine and towards migraine category. The pain is higher in majority having family history.
Neuropsychological health and pain intensity

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The pain intensity has an impact on the quality of life in subjects suffering from chronic pain. The factors like irritation, anxiety, mood fluctuations, suicidal thoughts, hopelessness, sadness, helplessness and frustration are more frequently reported in these subjects in comparison with normal subjects with acute pain. The depressive symptoms and anxiety were investigated by using Becker inventory and pain intensity was scored by numeric pain rating scale. Patients of diagnosed neuropathy were classified on the basis of suffering from diabetic & peripheral neuropathic pain. The pain intensity was higher in patients with diabetes but the psychological symptoms vary with the duration of developing and experiencing pain. The effects were also related with hospital anxiety as patients were feeling annoyed of visiting doctor, taking medicine or any kind of therapy. However the subjects underwent physical exercise or electro simulation therapy reported much decline in pain intensity and improved psychological health by reporting relieve and relaxation with much ease in doing daily chores.
Nutrition can alter mood and neural sensitivity which turn can affect reaction to stressors and dietary pattern change sensitivity to stressors. Eating right is just as significant as managing stress because vulnerability to surge with poor diet however lack of vitamin cause increase or decrease the ability to cope out with nutritional stress. The purpose of the study is to find the prevalence of nutritional stress in Karachi residents and to find out the main reason and risk factors behind it, and designing preventive measures and treatments, and also make awareness regarding this underestimating issue. The qualitative data was gathered by the help of Sadaf Stress Scale (SSS) from 370 subjects from different localities of Karachi city representing different ethnic, socio-economic and educational groups and from the aged between 13 to 50 years. The result was analyzed by SPSS version 20.0 results demonstrate that fewer residents of Karachi shows nutritional stress in comparison with other types of stress therefore occurrence of nutritional stress in female are more but severity of nutritional stress is high in male. Every chronic state creates particular requirement for certain types of nutrients and antioxidants. The longer the deficiency of nutrients, the greater will be the damage that can be termed as nutritional stress. Eating a well balanced diet and supplementing creates a baseline of Health. Our Study concludes that prevalence of nutritional stress in residents of Karachi and demonstrates that female population is more defensive towards nutritional stress and responded competently at milder level than males.
Mental Stress decreases with older age in Karachi Pakistan.
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Mental Stress is a kind of mental arousal or pressure that can be evoked by a number of mental tasks—e.g., mental arithmetic, maze solving or a mentally troubled condition—is called mental stress. Major life events as changes in work, financial problems, studies load, children and family problems are few of these. Mental stress is seen to affect parts of the brain where memories, perception, thoughts and decision making are processed through and stored along with vital motor activities. Persistent exposure to mental stress hormones, whether it occurs during the upbringing, teenage years, old age, has an impact on brain structures involved in cognition and mental health. The WHO suggests that there can be “no health without mental health”. People in many countries are exposed to harmful stress that leads to an augment in mental stress. The purpose of this study is to evaluate the cause of mental stress in Karachi population through Sadaf stress scale (SSS); various stressors may contribute to these mental stresses. The hypothesis that mental stress responses are associated with age and gender was investigated. The data was collected from different areas of Karachi. Sadaf stress scale (SSS) was used as an instrument for evaluation of mental stress. The sample consists of 370 citizens of Karachi (Pakistan), the age group of 13-50 years. Data was analyzed on SPSS version 20.0. Results demonstrates that in age 20 and less shows 16.0% mild level of stress, in age 20 to 30 shows 24.0% mild level of stress, in age 30 to 40 shows 5.0% mild level of stress however 40 and greater age shows no stress levels. There is some indication that elderly is linked with an essential decline in susceptibility to mental stress. However, some studies revealed that aging is associated with mental stress. More attention needs to be given to understanding the mechanism behind any ageing-related reduction in risk for mental stress with age. Possible factors are decreased emotional responsiveness with age, increased emotional control and psychological immunization to stressful experiences.
Immunization of our population with psychosocial stress

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Experiencing pressure or demands that originate from any type of interaction with people, society or perceived requirement of social lives/belongings (real or even imagined) can challenge your social and psychological well being. This is combined known as psychosocial stress which is not caused by single event but by ongoing problem in personal and social interactions as a part of daily routine and behaviours. Basically it is of two types Positive and Negative. The purpose of the study is to evaluate the degree of impact of current psychosocial stressors on the overburden population of Karachi through Sadaf Stress Scale (SSS). The hypothesis that psychosocial stress responses are associated with age and gender was investigated. The data was collected from different areas of Karachi. Sadaf stress scale (SSS) was used as an instrument for evaluation of psychosocial stress. The sample consists of 370 citizens of Karachi (Pakistan), the age group of 13-50 years. Data was analyzed on SPSS version 20.0. Results demonstrates that there is no direct association between age and psychosocial stress. In gender 8.7% male shows mild stress, 1.7% shows moderate stress and 89.6% shows no stress. Where as in case of females 5.5% female shows mild stress, 1.6 % shows moderate stress, 1.2% shows severe stress and 91.8% shows no stress. There is some indication that females are most likely linked with the susceptibility of Psychosocial stress possible factors are decrease emotional control and increased sensitivity to the social behaviours of others. The alarming indication is that most of our population consider themselves mentally normal showing themselves nonresponsive to the stressors. Possible factors may be psychological immunization to the stressful experiences.
EMOTIONAL STRESS ESTIMATION IN GENERAL POPULATION

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PURPOSE OF STUDY: to access the level of emotional stress in general population

INTRODUCTION: despite of great deal of popular interest in development of numerous training programs in emotional stress some researchers have argued that there is little evidence that emotional stress is both useful and different from others. Stress is “a state of mental or emotional strain or suspense” and also as “a number of normal reactions of the body (mental, emotional, and physiological) designed for self preservation” (Princeton University, 2001). The potentially lethal consequences of emotional stress are deeply rooted in folk wisdom, as reflected by phrases such as “scared to death” and “a broken heart.” In the past decade, cardiac contractile abnormalities and heart failure have been reported after acute emotional stress, 1-6

METHODOLOGY: it was a cross sectional study, data were collected by means of structured questionnaire from 370 subjects of different organizations (age ranges between 20-50 years).

MEASURES: Stress was accessed by using sadaf stress scale (SSS) which comprises of 116 items divided into six subscales (emotional, mental, psychological, nutritional, physical and traumatic stress), data was analyzed by using spss 17.0

RESULTS: The main findings of this study are that emotional stress has a direct relation with age. Subjects ranging between 20 -30 years showed emotional stress.
INTRODUCTION: Medical education is inherently stressful and demanding. Overwhelming burden of information leaves a minimal opportunity to relax and recreate and sometimes leads to serious sleep deprivation (Lee & Graham, 2001; Firth-Cozens, 2001). Environmental and social circumstances play a major role in the onset of stress-related diseases. Developing countries share the heavy burden of social and economic challenges. A number of factors—including academic pressure, workload, financial concerns, sleep deprivation, exposure to patients’ suffering and deaths, student abuse, and a “hidden curriculum” of cynicism—have been hypothesized to contribute to this decline in students’ mental health. MEASURES: This study determines the rate of anxiety and depression, and the associated social and environmental factors in undergraduate medical students. This study was divided into two measures: theoretical problems and academic factors. METHODOLOGY: Randomly data was collected by means of a structured close-ended questionnaire of 150 students from Fatima Jinnah Dental College (38 boys, 112 girls). 22 students were living in hostel and 128 living with their parents. Data was analyzed using SPSS 17.0. RESULT: Factors causing stress in undergraduate medical students was a vast syllabus which makes it difficult for their time management, there was a direct and positive relationship for lack of time for assignments and fear of catching up after a leave.
WORKLOAD AND HEALTH PROBLEMS IN MEDICAL STUDENTS
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The inability to cope successfully with the enormous stress of medical education may lead to a cascade of consequences at both a personal and professional level. Although common, depression is associated with a high degree of disability and chronicity, with symptoms such as low mood, lack of energy, poor concentration, low self-esteem, and a lack of interest in the environment. However, stress has been shown to have deleterious effects on one’s physical and mental well-being. The extreme stress levels inherent in the medical profession put premedical and medical students at risk for both physical and psychological problems. The aim of this study is to determine the workload stress which leads to different health problems in medical and dental students during their undergraduate training. It was a self-administered questionnaire-based survey conducted on 150 medical and dental students (32 males and 118 females) who were randomly selected in Fatima Jinnah Dental College and DOW University of Health Sciences. The result of this study shows that undergraduate medical students are suffering with stress and anxiety due to their hectic schedule. From this study, we can evaluate that health problems such as muscular aches and pains especially in the neck, head, lower back, and shoulders have increased, which leads to sleep disorders. Data was analyzed using SPSS 17.0. This study suggests that a small percentage of medical students experience physical and mental distress throughout their medical undergraduate training.
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