"2ⁿᵈ INTERNATIONAL CONFERENCE ON PUBLIC MENTAL HEALTH & NEUROSCIENCES"

ICPMN-2015

Date: **9-10, December, 2015**

Theme: "Innovations in Mental Health & Health Research".

Venue: **Jyoti Nivas College Autonomous, Bengaluru, India.**

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Dr.Sr.Elizabeth,C.S. Principal, Jyoti Nivas College Autonomous, Bengaluru.

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Cultural Programme	: Mrs.Padmashree Murthy
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Sarvasumanâ Association

Reg. No.: JNRS79-2014-15

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Bengaluru-560069,
Karnataka, India.

Mrs. PADMASHREE MURTHY,
President
Sarvasumana Association,
Bengaluru.

WELCOME

It is indeed a proud moment for us to organize 2nd International conference on Public Mental Health & Neurosciences (ICPMN-2015). It is heartening to note that Jyoti Nivas College Autonomous provided us the venue to host the conference. The event is co-organized by Azyme Biosciences Pvt. Ltd., Subharati Niriksha Foundation in collaboration IEEE EMB Bangalore Chapter and IEEE MSRIT Student Chapter with the approval of IEEE. Indian Academy of Neurosciences too extended their support towards our conference.

This conference is an annual inter-disciplinary event wherein scholars, students working on various aspects of public health, mental health, health sciences, biotechnology, neurosciences and bioinformatics come together to present, discuss, exchange ideas and foster collaborative projects. We welcome researchers, students and industry delegates to establish a network and spread the awareness of public mental health awareness in India.

The two day programme brings together of nine reputed speakers in different disciplines from all over India and delegates from all parts of the globe to exchange individual knowledge. A session of creative article presentation tries to bridge the gap of philosophy with science.

We hope that you have an enjoyable and memorable stay during the entire two days.

With best wishes.

Padmashree murthy
Mrs. Padmashree Murthy

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JYOTI NIVAS COLLEGE AUTONOMOUS

Affiliated to Bangalore University

Reaccredited by NAAC with 'A' grade. Recognised by UGC under section 2(f) and 12(b) of UGC act 1956

Message

It is indeed heartening to note that Sarvasumana Association in collaboration with Jyoti Nivas College Autonomous is organizing 2nd International Conference on "Public Mental Health and Neurosciences" (ICPMN-2015) on the 9th and 10thDecember 2015.

With a unique theme "Innovations in Mental Health and Health Research" this conference is an amalgamation of delegates from various countries with diverse background such as psychology, public health, medicine, biotechnology, bioinformatics and neurosciences with ample inputs from Indian system of medicine.

The magnitude of mental illness in the community is substantial. Proportionately, the numbers of mental health professionals and related infrastructure is minimal. Hence there is a growing demand of mental health staff in India. Again, clearly, there is a need to increase the awareness of mental health in public. This conference provides an excellent platform in this regard.

Neuroscience is a growing field of research with exciting opportunities. It is the cross-disciplinary science of the present age. Conferences of this magnitude will provide an ideal platform for the exchange and interaction of ideas in the pertinent field. I am grateful to Sarvasumana Association for collaborating with Jyoti Nivas College Autonomous in organizing this unique conference.

May this joint effort open up new avenues dealing with mental health and facilitate healing and growth among people. On this occasion, I send my best wishes to the organizers of the event for a meaningful Conference and fruitful outcome.

May God Bless our every effort!
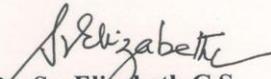
Dr. Sr. Elizabeth C S
Principal

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Dr.R.SOMASHEKAR
Chairman
ICPMN-2015

From the Chairman's Desk

It gives me immense pleasure to invite all Physicians, Doctors, Postgraduate residents, Counsellors, Biomedical scientists, Psychotherapists, Research personnel and alike minded colleagues to join the deliberations of ICPMN-2015 being held from 09th-10th December 2015 at the Garden City, Silicon Valley of India - Bengaluru. "Innovations in Mental Health and Health Research" is the overarching theme of the conference, a contemporary context necessitating the need of the hour. It just takes another view of the main association to unite mental health sciences with all fraternity to serve mankind.

The organising committee are working overtime to make the conference to execute the well planned event. The practicing mental health faculty is necessitated to keep the latest trends abreast to their successful career that is imperative in evolving complex phenomenon's every day. ICPMN-2015 focuses on bridging this gap and delivers a satisfactory purport.

Best wishes to the organising and scientific committee for the conference. I am sure the delegates would be having a lot to take with them.

Chairman, ICPMN-2015
Azyme Biosciences Pvt. Ltd.,

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Dr.MAHESH.M.
Director
Azyme Biosciences Pvt.Lt.

MESSAGE

Organising the 2nd International Conference on Public Mental Health & Neurosciences jointly with Sarvasumana Association and Jyoti Nivas College Autonomous is indeed a great moment for us. This event unites the Biotechnology students and researchers with the medicine, pharma and social health workers and giving the students as strong exposure to the industrial research.

This is an annual interdisciplinary event wherein researcher from various backgrounds like pharma, biotechnology, bioinformatics, neuroscience, microbiology come in contact with medicine and ethnomedicine branches like homeopathy, ayurveda, siddha and unani system of medicine practiced in India.

The two day event brings reputed speakers from all parts of India. Hope you will have a memorable and enjoyable stay during the entire event.

With best wishes!

Mahesh.M

NATIONAL HEALTH MISSION
Department of Health & Family Welfare Services,
Anand rao Circle, Bangalore – 560 009

Dr. H.C.RAMESH   Mob: 9449843005
                   MS (ENT).,DLO   9845393010
Project Director (RCH) (Retd)   Fax: 080-22870224

It is indeed heartening to note that M/S. Sarvasumana Association and Azyme Biosciences Pvt. Ltd. in collaboration with Jyoti Nivas College Autonomous are organizing 2nd International Conference on Public Mental Health and Neurosciences ICPMN-2015 at Jyoti Nivas College Auditorium. This conference provides a common platform for a productive interaction between academia and industry.

With a unique theme "Innovations in Mental Health and Health Research" this conference is an amalgamation of delegates from varies countries with diverse background such as psychology, public health, medicine, biotechnology, bioinformatics and neurosciences with ample inputs from Indian system of medicine.

On this occasion, I send my best wishes to the organizers of the event for a grand success.

Dr.H.C.RAMESH

GOVERNMENT OF KARNATAKA
Directorate of Health & Family Welfare Services,
Anandrao Circle, Bangalore-09.

No.HET/MH/ /2015-16   Date: 02.12.2015

I am very happy to know that Sarvasumana Association and Subharati Niriksha Foundation in collaboration with Azyme Biosciences Pvt. Ltd. and Jyoti Nivas College Autonomous is organizing 2nd International Conference on Public Mental Health and Neurosciences -2015 on December 9th and 10th 2015.

Neuroscience is a growing field of research with exciting opportunities. It is the cross-disciplinary science of the present age. The public mental health in specific needs needs to pay more attention in the developing country like India. Events of such kind will prove and ideal platform for the exchange and interaction of ideas in the pertinent field.

The magnitude of mental illness in the community is substantial. Proportionately, the numbers of mental health professionals are related infrastructure is minimal. Hence there is a growing demand of mental health staffs in India. Clearly, there is a need to increase the awareness of mental health in public and this conference provides an excellent platform for the same. This conference is very timely in this regard and I wish the organizers all the best for the success of the event.

Deputy Director (Mental Health)
Directorate of Health & Family Welfare Services,
Anandrao Circle, Bangalore-09.

राष्ट्रीय मस्तिष्क अनुसंधान केंद्र

(जैव एवं प्रौद्योगिकी विभाग का स्वायत् संस्था,
विज्ञान एवं तकनीकी मंत्रालय, भारत सरकार)
एन0 एच0-08, नैनवाल मोड़, मानेसर – 122 050 (हरियाणा)

National Brain Research Centre

(An Autonomous Institute of Deptt. of Biotechnology,
Ministry of Science & Technology, Govt. of India)
NH-08, Nainwal Mode, Manesar - 122 050 (Haryana)

November 16, 2015

I am very happy to learn that the International Conference on Public Mental Health and Neurosciences is being organized on December 9-10, 2015 at Jyoti Nivas College, Bangalore.

At times when the burden of Brain disorders is on the rise in India and globally, this conference is very timely and would bring in deliberations on the subject of Public mental health and current research advances in the field of neurosciences. I congratulate you and your organization for drawing up this interesting scientific program for the two day event.

I wish grand success for the International Conference on Public Health and Neurosciences (ICPMN 2015) and appreciate the efforts that would have gone into organizing such a meeting.

Warm wishes,

Pankaj Seth, Ph.D
General Secretary – Indian Academy of Neurosciences (IAN)
&
Professor and Scientist VI
Molecular and Cellular Neuroscience
National Brain Research Centre
Manesar-122051, INDIA
Email: pseth@nbrc.ac.in
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DATE: 09/11/2015

MESSAGE

I am delighted to know that SARVASUMANA ASSOCIATION is going to organize an International Conference titled on Public Mental Health and Neurosciences during 9th – 10th December, 2015.

I would like to extend my good wishes to the organizer of the said conference and I wish the programme a grand success

ANGSHUMAN BAGCHI

Coordinator
Bioinformatics Infrastructure Facility
Department of Biochemistry & Biophysics
University of Kalyani

Bharatiya Vidya Bhavan

Phone : 22265746 / 22267303
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[Founded in 1938 by Kulapati Dr. K.M. Munshi with the blessings of Mahatma Gandhi]

Chairman N. Ramanuja   Director H.N. Suresh

3-12-2015

MESSAGE

It is indeed heartening to note that Sarvasumana Association and Azyme Biosciences Pvt. Ltd. in collaboration with Jyoti Nivas College are organizing **2ⁿᵈ International Conference on Public Mental Health and Neurosciences -2015 on 9ᵗʰ & 10ᵗʰ Dec. at Jyoti Nivas College Auditorium.**

The mental illness or brain disorders is not a personal failure. The magnitude of mental illness in our country is substantial. It does not happen only to a particular segment of the society. While we should try and embrace such people and provide succor, we should never exclude people with mental illness or brain disorders from the mainstream. There is room for everyone. Yet many of us still shy away from or feign ignorance of the issue. I do hope this Conference will certainly try and bridge the gap.

I am sure, this conference would indubitably provide a common platform for a constructive interaction for both academia and industry. This would also provide an opportunity to exchange their qualified wisdom with other practitioners from the medical as well as industrial fraternity. Thus, the organizers are doing a yeomen service to the deprived community by organizing regular annual conference under one umbrella and by updating the medical fraternity with their latest accomplish-ments in providing holistic cure.

I also understand that this conference is an assemblage of delegates from varies countries with diverse background such as psychology, public health, medicine, biotechnology, bioinformatics and neurosciences with ample inputs from Indian medical fraternity. The purpose of this Conference is laudable and its outcome will be a godsend to the mankind.

This Conference, I immensely hope, will offer new avenues of treatment and make the lives of such afflicted people more likeable and meaningful.

On this propitious occasion, I send my best wishes to the organizers of the event for a grand success.

(H.N.Suresh)
Director

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E-mail : contactus@bhavankarnataka.com   Website : http://www.bhavankarnataka.com

DR. K. A. ASHOK PAI
Consultant Psychiatrist

It gives me immense pleasure to learn of 2nd International Conference on Public Mental Health and Neurosciences (ICPMN 2015) and that it proposes to bring out a souvenir to commemorate this occasion.

I have been a member, past president and observer of the many meaningful activities of IPS KC for more than three decades, and am more than convinced that the members are not just medical professionals but messengers of goodwill and ambassadors of modern medical science.

It is therefore great to know that alumni of MSCP a course which MEFFMH has conceptualized are also carrying forward this tradition of improving the standards of mental health.

It is believed that the destiny of the nation is moulded in a consulting room and professional bodies are the center for social changes and help making lives healthy and the community happy.

Presently, as the Chairman of Karnataka Mental Health Task force, I have the satisfaction of successfully implementing two of my dream projects Manasadhara and Manochaitanya – thanks to the sincere efforts of the Karnataka government, which has taken the initiative to provide mental health care free of cost.

I hope that professionals from different fields come together to achieve our lofty goal of providing holistic mental health care that will make clients effective instruments of social change and interdisciplinary harmony.

I congratulate the organizing committee for its commitment and connectivity to the growing medical need. I wish the conference all success.
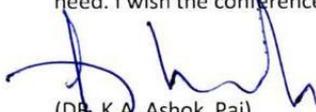
(Dr. K.A. Ashok Pai)
Director –MEFFMH,
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Greetings from PEOPLE TREE Hospitals!

I am very pleased to know that Sarvasumana is conducting their second International Conference at Jyoti Nivas College, Bangalore on 9th and 10th December 2015. The theme of the conference "Innovations in Mental Health and Research" is aptly contrived with very well designed programme content, which includes renowned speakers.

Positive Health is not just the absence of disease, but presence of physical, mental, emotional and spiritual well-being. Around 70% of population is known to experience clinically significant mental health symptoms at some point in their life and 1 in 4 suffer from mental disorder significantly affecting their personal, occupational or social life. However, mental health and its care, unfortunately poses lots of challenges due to lack of awareness and still carries stigma and discrimination.

When it comes to providing quality healthcare to 1.2+ Billion population, we in India have a unique problem. 70% of them being in rural India, poses additional problems. To achieve positive mental health we certainly need awareness, training and education, I am sure this conference will exactly be doing that. In my opinion, Educated, Healthy and Empowered people have a huge role to play in this regard. We need more and more such conferences, workshops and training sessions to achieve the same.

I wish the conference the very best, let's come together and learn from each other, so that we can create a positive vibrant India!

"Sarve Janah Sukhino Bhavanthu"

Best Regards

Dr.Chandrasekar Chikkamuniyappa

MS, DNB {Ortho}, ROC Fellow {HSS, NY}

CEO & Senior Joint Replacement Surgeon PEOPLE TREE Hospitals

ORGANISING COMMITTEE DESK

Dear Delegates / Friends,

Warm Greetings from the Organising Committee of ICPMN-2015.

It gives us immense pleasure to welcome you and your family to the picturesque IT hub of India, aptly called as the **Garden City – Bengaluru**, for the 2nd International Conference on Public mental health and neurosciences - 2015 jointly organized by Sarvasumanā association, Azyme Biosciences Ltd, Subharati Niriksha, Jyoti Nivas College Autonomous and Technically sponsored by IEEE EMBS, Bengaluru and IEEE MSRIT – Student chapter.

We are certainly sure to deliver to you an enjoyable experience all along with the heritage, culture, fusion and fashion during your stay at Bengaluru while you widen your horizon of knowledge from the Evidence based updates at the conference. Bengaluru has witnessed world citizens aspiring to be a part of it and with its magnificent charm and magnetization, has attracted potential global leaders to explore, invest and expand from here. It has emerged globally ever since it was reckoned as the silicon valley of India due to rapid growth in IT, ITES, serving highest number of IT professionals with an impeccable record of contributing to the maximum number of scientists considered for Nobel prize nominations, largest fashion industry, only city in the world to have commercial and defense airport operating from the same strip until recently and gained the largest name in successfully delivering modern healthcare amenities and surgical costs at the lowest across India. The hospitals here are successful in medical tourism way beyond the benchmark giving best results to the patients from all over the world with utmost humanity. With its friendly gesture and warm hospitality, it surprises all its visitors providing them what they want with attractive options and varieties. With the theme of the conference "Innovations in Mental Health & Health Research" we are making our entire bit to update the current trends and modalities emerging to provide most resourceful delivery to suit your practice for serving your clients with a happy smile.

We are sincerely indebted to Dr.Sr.Elizabeth.C.S. Principal, Jyoti Nivas College Autonomous for providing us the auditorium which is in the heart of Bengaluru.

We are thankful to Dr.N.Sriraam, Professor and HOD, Dept. of Medical Electronics, MSRIT, Bengaluru to coordinate, advice and extend technical support from IEEE EMBS, Bengaluru and IEEE MSRIT – Student chapter.

We wish you a happy and a safe journey, welcoming you and your family to the conference. We shall be delighted to serve you every opportunity and make the participation a comfortable one.

CONTENTS

KEYNOTE & PLENARY TALKS

PUBLIC MENTAL HEALTH ISSUES IN INDIA - CHALLENGES AND REMEDIES

Dr.C.R.CHANDRASHEKAR

Former Professor of Psychiatry, NIMHANS, Bengaluru, Karnataka, India.

Mental disorders are Universal and cause significant disability. The mental disability is caused by Schizophrenia, Organic Psychosis, Obsessive Compulsive Disorder, Mental Retardation, Bipolar Disorder, Anxiety Disorder, Depression and Somatoform Disorders. Probably 10% of them may get the help of mental health professionals. The remaining ones do not reach the professionals because of poverty, ignorance, stigma, wrong attributions. The mental health care services in the mental hospitals, psychiatric units, and private psychiatric centres are not approachable, affordable and acceptable to people. The drop rate in these institutions is very high. Almost 50% of the patients are reported to drop out of treatment after the first consultation. Good mental health therefore has become the TOP need of every person in the community. Mental health of different groups in the society has to be attended to:

1. Children and adolescents.
2. Students from Primary schools to Post Graduate courses.
3. Women during pregnancy and child birth.
4. Working women
5. Victims of domestic violence, rape and sexual assaults.
6. Senior citizens with or without family's support.
7. Victims of disasters.
8. Victims of HIV infection or any chronic infections.
9. Victims of Terrorism.
10. People with substance abuse.
11. "Uprooted" population.
12. High risk groups like inmates of jails, beggar's home, and destitute.
13. People below the poverty line.
14. Individuals who live alone with little social support.
15. People with life companion diseases like diabetes, blood pressure, thyroid and cancer.
16. Suicides.
17. Urbanization.

To enhance the mental health care to the public the Indian Government formulated the National Health Programme (NMHP) in 1982. The Government of India also introduced the scheme of District Mental Health Programme (DMHP) in the year 1996 which has been implemented in more than 100 districts in the country. Mental health legislation needs to be modified and properly implemented in all the states in India. Yet there seems to be a greater need to focus on the Mental Health need and care delivery systems in India. It is therefore very important to strengthen the mental health component of training in all medical and nonmedical courses.

PAST, PRESENT AND FUTURE OF PUBLIC MENTAL HEALTH

Dr. SHARMITHA KRISHNAMURTHY
Founder & Director, Augmenta Health Pvt. Ltd, Bengaluru, Karnataka, India.
Email ID: drsharmitha@augmentahealth.com

Mental health is a public health issue. Good mental health enables individuals to work, learn, engage with other people and participate in society constructively. Conversely, mental disorders cause significant suffering and are destructive for individuals, their families and society at large. Mental disorders arise early in life's course, may last long or be relapse prone; thereby contributing to substantial burden of disease worldwide. There is a significant co-morbidity between physical and mental illness. Persons suffering from mental disorders, have a considerably reduced life expectancy. Mental health is the foundation for a broad range of functional, economic and social outcomes and remains crucial determinant of overall health. Despite the facts, mental health does not prominently feature across public health actions and policies. Public health strategies concentrate on physical health and overlook the importance of both mental illness and mental well-being. From a public health perspective, there is much to be accomplished in reducing the burden of mental disorders. Public mental health aims to improve the mental health of the population by providing information about levels of mental disorders across populations and also by preventing mental disorders and promoting mental health. The essential links between biological, psychological and social factors in the development and progression of mental and behavioural disorders instills hope for millions.

While there is much yet to be learned, the emerging scientific evidence is clear. We have at our disposal the knowledge and power to significantly reduce the burden of mental and behavioural disorders worldwide. Given the sheer magnitude of the problem, its multifaceted etiology and widespread stigma and discrimination, a public health approach is an appropriate method of response including formulating policies designed to improve the mental health of populations, assuring universal access to appropriate and cost-effective facilities, together with mental health promotion and prevention services. Working on mental health determinants early on will reduce inequalities, improve physical health, reduce health-risk behaviour and increase life expectancy, economic productivity, social functioning and quality of life. The benefits of protecting and promoting mental health are felt across generations and accrue over many years. Positioning mental health at the heart of public health policy is essential for the health and well-being of the nation. An evolving and effective public mental health approach is the key to future mental health & wellbeing of the community.

ADDRESSING THE MYTHS AND FACTS ABOUT MODERN AGRICULTURAL BIOTECHNOLOGY

Prof. C. KAMESWARA RAO

Foundation for Biotechnology Awareness and Education, Bengaluru, Karnataka, India.
Email ID: pbtkrao@gmail.com

Biotech crops developed using genetic engineering (GE) technologies have performed exceedingly well over the past 20 years. Planted on 1.75 mill ha in 1996, they were commercially grown on 181.5 mill ha in 2014. More than 10 GE food and fibre crops with diverse traits were grown in 20 developing countries and eight developed countries by 18 mill farmers in 2014. They have reduced pesticide usage by 37 per cent, enhanced crop yield by 22 per cent and increased farmer profits by 68 per cent. In India, the 4th largest country in biotech crop acreage, *Bt* cotton was grown on 11.6 mill ha in 2014, starting with 0.5 mill ha in 2002. Ninety per cent of cotton grown in India is now *Bt* cotton.

Over 30 years of research on biosecurity evaluation of GE crops and 20 years of commercialization and consumption have demonstrated both the efficacy and adequacy of the regulatory protocols and the safety and benefits of biotech crops *per se* to the farmer, consumer and the environment. Nevertheless, over one and half decades of persistent and vehement opposition to GE crops in some countries, more particularly the developing countries, has prevented a wider adoption of the new technology. Heavily funded by some foreign countries to promote their own agenda, anti-tech activism in India has severely hampered R & D of GE crops. Activism has targeted agricultural biotechnology leaving out the medical and environmental streams. Highly vocal demonstrations, vandalizing field trials, petitions in courts, political interference with the functioning of the statutory regulatory bodies, a politically motivated moratorium on the commercialization of *Bt* brinjal which has passed through all mandatory regulatory protocols had negatively impacted GE crop development, affecting the public sector more.

The activists have trashed the combined global and national scientific opinion on the benefits and safety of GE crops and the need to adopt them to enhance food production to meet with the future demands. They have spread a lot of misinformation and disinformation with the help of the media. A very successful anti-tech campaign has branded well established facts about the safety and benefits of GE crops as myths. One of the reasons for the success of anti-tech activism is the failure of the product developers, regulators and the governments in conducting effective public awareness programmes to educate the public and counter the onslaught of technology by the activist groups. The complexity of the technology and diversity of stakeholder groups who should be addressed in different languages, have made the task harder.

This talk would address the myths and facts about modern agricultural biotechnology, with a focus on the Indian scenario.

NEUROBIOLOGY OF DEPRESSION

Dr.LOKESH BABU.
Sneha Manovikaasa Kendra, Tumakuru, Karnataka, India.
Email ID: samvaada74@gmail.com

Major depression is a highly prevalent and frequently debilitating psychiatric disorder. It is the most disabling medical condition, in terms of years lost to disability, and it is projected that by 2030 depression will be the foremost contributor to the worldwide burden of disease (WHO, 2008). The problem of depression comprises three sub-problems: first episodes in people with low vulnerability ('simple' depressions), which are strongly stress-dependent; an increase in vulnerability and autonomy from stress that develops over episodes of depression (kindling); and factors that confer vulnerability to a first episode (a depressive diathesis). Depressed people are particularly vulnerable to negative psychological feedback, which has a disproportionately disruptive effect on subsequent performance (Elliott et al., 1996). In addition to an increased response to aversive events, depression is also characterized by a decreased response to anticipated (McFarland and Klein, 2008) or actual (Pizzagalli et al., 2008 and Chase et al., 2010) rewards, and this provides a cognitive explanation of the core symptom of depression, anhedonia. These two complementary biases, increased negativity and decreased positivity, are central to much of the recent neurobiological literature on depression, because they play directly into two of the major experimental methodologies, functional neuroimaging and animal models of depression.

The first hypothesis of Monoamine dysfunction has provided the major neurobiological account of depression. Indeed, until recently, it was the only significant hypothesis, and while its predominance has been to some extent eclipsed by newer concepts over the past decade, it remains the case that the monoamine hypothesis has provided the only significant theoretical framework for antidepressant drug development. Apart from the neurotransmitter pathway, the breakthrough understanding of neurobiology of depression is the major physiological response to stress is an activation of neuroendocrine systems, most notably, the hypothalamus-pituitary-adrenal (HPA) axis. In this system, corticotrophin releasing factor (or hormone: CRF/CRH) is released from the paraventricular nucleus of the hypothalamus to stimulate the pituitary gland to produce adrenocorticotrophic hormone (ACTH), which in turn stimulates the release of glucocorticoids (cortisol in humans or corticosterone in rodents) from the adrenal cortex into the blood circulation, which inter alia exert negative feedback effects on the pituitary and hypothalamus that limit the degree of activation of the HPA axis (de Kloet et al., 2005 and Holsboer and Ising, 2010). The cellular effects of stress have visible morphological consequences. Despite some inconsistencies in the literature, meta-analyses of structural brain imaging studies have reported that there is a reliable decrease in hippocampal volume in patients suffering from major depression (Campbell et al., 2004 and Videbech and Ravnkilde,

2004), and in rats exposed to CMS (Delgado et al., 2011), comparable to the effect seen in Cushing's disease (Sapolsky, 2000).
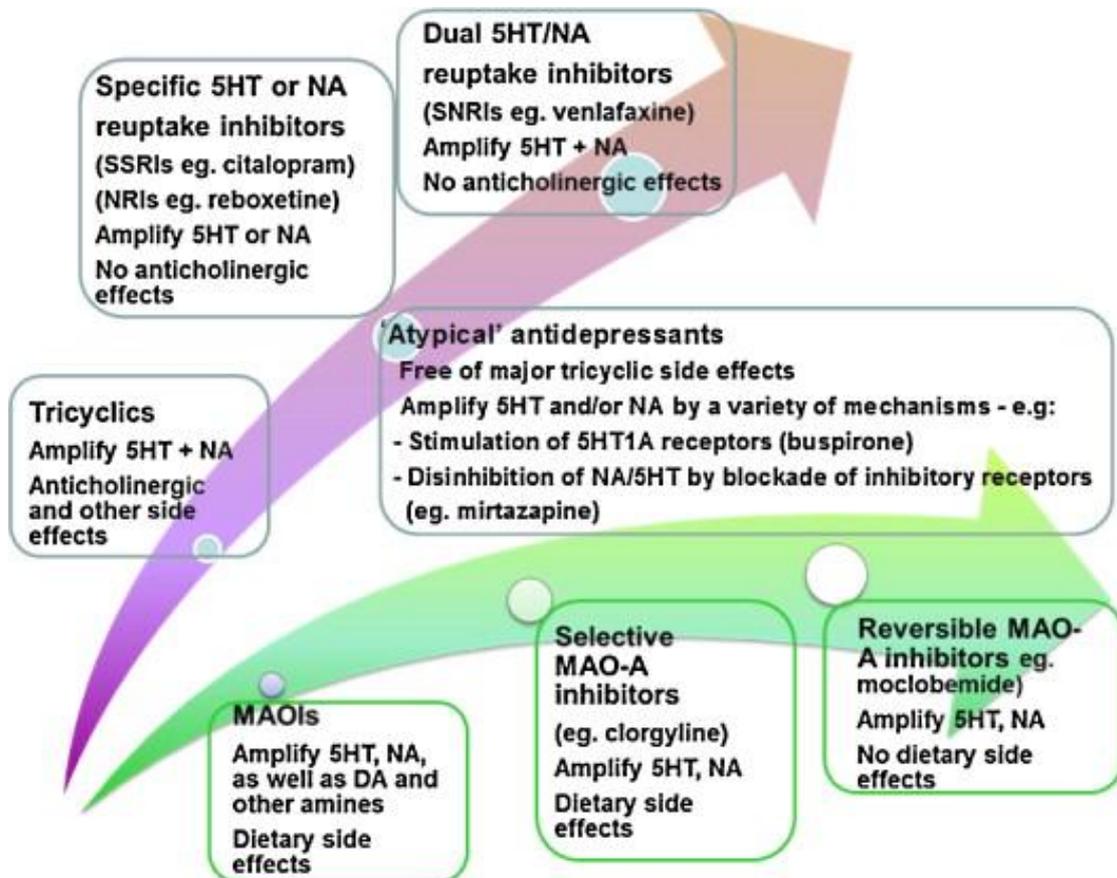
The effects vary in severity across hippocampal subregions (Cole et al., 2010 and Malykhin et al., 2010) and increase across episodes of depression (Cole et al., 2010). In patients with late-onset depression, the decrease in hippocampal volume was correlated with memory loss (Ballmaier et al., 2008). While the hippocampus is the brain area that is most sensitive to the neurotoxic effects of stress, prolonged exposure to high levels of glucocorticoids can also cause damage in many other brain regions, particularly the prefrontal cortex (PFC), where neurodegenerative changes include microglial activation (Hinwood et al., 2011), atrophy of pyramidal neurons (Liu and Aghajanian, 2008), dendritic retraction (Shansky et al., 2009, McEwen, 2010 and Dias-Ferreira et al., 2009), and reduction of synaptic proteins such as PSD95, and synapsin I (Li et al., 2010). Parallel effects are observed in animal studies. Learned helplessness could reasonably be viewed as an animal model of a specific appraisal process. In the learned helplessness procedure, animals display a range of behavioural impairments after being subjected to uncontrollable aversive events that are not seen after exposure to controllable events (Seligman, 1975 and Maier and Seligman, 1976).

COMMON CAUSES OF EMOTIONAL DISTRESS IN OUR SOCIETY THAT ARE DIFFICULT TO DEAL.

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Some cultural practices smoothen life; while some can become the cause of intense suffering. Being aware of the common causes of emotional distress in our society would help us in avoiding them in our lives; as well as in contributing towards changing the cultural beliefs that lead to them. A culture which stagnates stinks; while one which keeps evolving emits a fragrance! Common causes of emotional distress were identified by looking at the common causes of persistent somatoform disorder in our society. Women of people with alcohol dependence find themselves trapped into a hell; because their husbands are often not willing to stop drinking and divorce is not an option. We can refer them to the support group Al Anon, guide them to stop enabling behaviours & to become self-reliant and reassure that they are not responsible for their husband's drinking, though such allegations are often made. Also, preventing more youngsters from falling prey to the aggressive marketing done by alcohol industry is the need of the hour.

Dhat syndrome is a culture bound syndrome, seen only in cultures like ours where masturbation is regarded to be very harmful. Youngsters are obviously not able to resist this natural urge and end up feeling guilty, inferior, weak and extremely stressed. Sexuality is one of the most beautiful gifts of God to mankind; but has become a curse as we have chosen to regard it to be a sin. Embracing this aspect to our physiology and helping youngsters form a more balanced attitude towards it, is a cultural shift we need to consider. Since remarriage of women is not accepted, widowed and divorced women remain deprived of all the positives of having a partner in life. Encouraging family members of such women to let go of old customs and remarry them; can revive the spark in their lives. With the education and work environments becoming cosmopolitan, youth from different communities are bound to fall in love. However, as inter-caste marriages continue to be staunchly opposed in many communities, many Indian parents continue to oppose them. The deadlock which ensues leaves emotional scars in the lives of parents as well as children. We need to openly appreciate inter-caste marriages; and take opportunities in our social interactions to discuss the desirability of giving an individual the right to choose a partner of his choice. Due to irregular rains and a market structure which rewards traders of farm goods more than the farmer who toils; many farmers are under huge loans and are preferring death rather than continuing with their hopeless existence. Supporting them through initiatives like farmer markets, soft loans, etc. and campaigning for policy changes that reward their hard work appropriately is urgently required, if we don't wish to continue to betray the people who provide us with our food.

SLEEP DISORDERS AND RECENT ADVANCES IN TREATMENT

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Sleep Disorders are commoner than we think and can cause enormous impact on individuals and families. It is known that 30-40 % of people experience some form sleep problems in their lifetime. Sleep problems can result in decline in day time functioning, cognitive deficits, low mood, anxiety, irritability, headache, cardiovascular / metabolic problems, weaker immune systems including problems in relationships, occupational and social functioning. It can also result in dangerous consequences in the context of accidents whilst driving and working with machines. Problems related to sleep include inadequate sleep, excessive sleep and abnormal behavioural / experiential problems during sleep. Some of the sleep disorders are insomnia, hypersomnia, sleep related breathing disorders, parasomnia, circadian rhythm disorders, movement disorders etc.

Given the complex psycho-physiological nature of sleep problems, the range of difficulties and the magnitude of impact, a comprehensive bio-psycho-social evaluation is warranted which may include psychological assessment, filling some questionnaire, neurological examination and sleep studies. Following that, a tailor-made treatment packages are offered which may include medication, cognitive behavioural therapy and treatment of specific underlying causes like use of CPAP in patients with OSA, phototherapy for circadian rhythm disorders etc. Several recent studies have proven the importance of treating co-morbid conditions like physical / neurological disorders, psychiatric conditions like depression and alcohol / substance misuse etc. Sleep hygiene, lifestyle modification and psychoeducation are offered to all patients to improve the sleep and quality of life.

HUMAN NEURAL STEM CELLS AS A WINDOW IN TO HEALTHY AND DISEASED BRAIN.

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Human central nervous system (CNS) is susceptible to infections, trauma and age related disease. Although difficult, neurotropic pathogens may sometimes cause devastating consequences that culminates into significant mortality and morbidity in humans. Presence of Human immunodeficiency virus (HIV-1) in brain cells, including neural stem cells, is reported in HIV/AIDS patients, though consequences of their presence in neural stem cells were not clear until recently. Our laboratory established a human fetal brain derived neural stem cell model system that is a well characterized *in vitro* system that allows investigation of HIV-1 induced dementia and several neurodegenerative diseases.

One of the major challenges in neuroAIDS is the lack of animal models apart from scarcity of brain autopsy samples at various stages of HIV-1 neuropathogenesis, which is often the case with other neurodegenerative disorders as well. At NBRC, we employ primary cultures of human fetal brain derived neural stem/precursor cells that can investigate effects of HIV and its proteins on human neural stem cells, differentiating neural stem cells as well as primary cultures of astrocytes and neurons. Using this unique primary cell culture resource in the country, we have made several novel research findings, some of which will be discussed in detail.

HIV-1 Transactivator of transcription (Tat) protein perturbs the proliferative and differentiation ability of human neural stem cells by altering genes important for stemness and neurogenesis. Furthermore, we have unravelled molecular and cellular basis of co-morbid effects of morphine and HIV-1 Tat on cell cycle regulators and key proteins in proliferation and differentiation. More recently, we have made significant discoveries in glia mediated neuronal damage and demonstrated role of astrocyte mediated neuronal damage in neuroAIDS. Our observations have immense clinical importance for AIDS patients suffering from neurocognitive deficits.

PREDICTION OF PROTEIN-PROTEIN INTERACTIONS BY MACHINE LEARNING.

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Protein-Protein-Interactions (PPIs) play pivotal roles in many biological processes, such as hormone–receptor binding, signal transduction, chaperone activity and antigenantibody interactions. Their disruption, therefore, can play an important role in the development of human inherited diseases. There exist different expensive and time consuming analytical techniques to identify amino acid residues in protein interfaces. Here, we have developed machine learning tools to discriminate between interface and non-interface amino acid residues of proteins using sequence- and structure-based features derived from a set of protein hetero-complexes from the Protein Data Bank (PDB). We have built supervised predictors using random forests (RF) and support vector machines (SVMs) and evaluated them with 10-fold cross-validations. Our RF based predictor outperforms SVMs. Our sequence-based RF predictor has been able to discriminate between interfaces versus all other types of amino acid residues with 76.7% accuracy, while the corresponding accuracy for the SVM predictor is just 60.5%. When structure-based features are included, the RF predictor again bests the SVM method, with 70.7% accuracy in discriminating between interface and non-interface surface amino acid residues. The most predictive sequence- and structure-based features are attributes measuring sequence conservations at a given residue, such as a position specific scoring matrix (PSSM) score derived from PSI-BLAST and various measurements of the residue's neighbouring charge distributions respectively. Further validations of our sequence- and structure-based RF classifiers have been performed by evaluating them against protein complexes with experimentally proven interaction sites and our predictors are found to detect the protein interface residues in practice.

THE OTHER SIDE OF THE COIN
: MICROGLIA AS MEDIATOR OF NEURODEGENERATION?

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Microglia is the macrophages residing in the brain that protect the neural tissue from invading pathogens and other molecules. They represent around 10% of the cells in the nervous system and considered as soldiers in the brain. Microglia detects any change in their close microenvironment and actively contributes to maintain the neuronal structure and circuit function. In spite of the beneficial role of microglia in immune surveillance, they provoke neurodegeneration by inflammatory processes. Several studies have demonstrated a close relationship between microglia and neuroinflammation particularly in Alzheimer'sDisease pathology. Alzheimer's disease is a progressive neurodegenerative disorder characterized by the deposition of amyloid plaques extracellularly and neurofibrillary tangles intracellularly. Several recent publications highlighted the role of neuroinflammation in Alzheimer's disease. During pathological conditions, microglia are hyper activated and release cytokines and carry out phagocytosis. In addition, they generate inflammatory mediators like cytokines, chemokines, prostaglandins, inducible nitric oxide synthase (iNOS), cyclooxygenase-2 (COX-2), free radicals, and stimulating an adaptive immune response. The aim of such reactions is the repair and restoration of the neural tissue. However, the chronic activation of microglia results in detrimental effects. The hyper activation of microglia is due to the age-induced cerebrovascular dysfunction that induces deregulation of tight junction protein expression, which compromises the integrity of the blood–brain barrier. This leads to the entry of blood-borne molecules within the perivascular space and the neural tissue activating proinflammatory mediators. It is very well documented that microglia exhibit significant changes during normal aging. Microglial activation is a double-edged sword: on one side, it is neuroprotective, forming the first line of defense in the CNS and on the other side, it is a neurodegenerative force, for developing age-associated neurodegenerative diseases. Study of anti-inflammatory and pro-inflammatory role of microglia and age related alterations in their functioning will be a new strategy to treat the neurodegenerative diseases in recent future.

THEME - 1

MEDICINE &

PUBLIC HEALTH

THE CHALLENGES OF PUBLIC MENTAL HEALTH SERVICES IN INDIA : A CASE STUDY OF CHAMARAJNAGAR DISTRICT, KARNATAKA

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Background: In India, there is a lack of understanding of challenges of Public Mental Health Services (PMHSs). The present study aims to enhance knowledge and understand the challenges of Public Mental Health Services in India from a service providers' point of view and public health perspective.

Objectives:

1. To study Public Mental Health Services in India with special reference to Chamarajnagar district in Karnataka.
2. To understand the providers' experiences, perception and attitude related to PMHSs.
3. To document perceived challenges of PMHSs by mental health service providers in India.

Design & Methodology: Semi-structured in-depth interviews were conducted and participant observation method was used with the purposefully selected mental health service providers by quota sampling method. The data from participant observations, documents, and in-depth interviews were subjected to both qualitative and quantitative analysis by adapting the thematic analysis and triangulation method.

Results: The research study found that, 90 per cent of the professionals were not adequately trained and inadequate manpower to handle even ten per cent of the mental illness cases properly. The drug supply was not on time and regular as the present study reveals. The paramedical staffs like ANMs, ASHAs, AWWs had positive attitude towards psychiatric patients, whereas, trained medical staff have slightly negative attitude towards psychiatric patients. Therefore, it is clear that the training was not effective to change the negative attitude of the medical mental health service providers into positive attitude towards the psychiatric patients. Appointing a well-trained, young and enthusiastic and leadership oriented mental health professional, as a programme officer was one of the major perceived and experienced challenges in the district in particular and in general in India.

Conclusion: This study highlights the significant contribution to enhance knowledge and understand the challenges of PMHSs in India. The study illustrated the factors influencing the PMHSs and its implementation. The findings of this study have important implications for practice, education and policymaking.

Keywords: Challenges of Public Mental Health Services, Perception, Attitude.

THERMAL SENSITIVITY MAPING OF DIABETIC FOOT

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Background: Diabetic Neuropathy is a complication arising from Diabetes which refers to the damage of nerve fibers resulting in the loss of sensation. This results in a heightened pain threshold making patients' immune to physical pain. This may cause a patient to be unaware of injuries. These injuries can lead to the formation of ulcers which in turn when left untreated can cause severe infection. This often results in amputation of the limbs. Untreated Diabetic Neuropathy accounts for 50-75% non-traumatic amputation. Diabetes Mellitus is a condition which is the result of high glucose levels in the blood stream, commonly found in the South Asian region. With symptoms such as fatigue, dehydration it can lead to a critical state where patients experience adverse effects such as loss of sight and/or sensation in their feet.

Objective: The traditional methods for diagnosing diabetic neuropathy have so far been based on the principle of pressure. The negligence in using thermal principle to satisfactorily diagnose diabetic neuropathy is addressed in the proposed work. The proposed system uses thermal probe to test the temperature sensitivity of a region. By determining the sensitivity of several specific regions a diagnostician can determine the progression of the condition as well as the extent of damage caused by the formation of ulcers.

Design and methodology: An in depth analysis is proposed where the foot of the patient is divided into separate 32 regions. We determine the sensitivity threshold of each specific region and hence, determine the extent of the damage which has occurred. This is different from the pressure threshold diagnostic methods which only note the pressure sensitivity in a few specific regions. Pre-existing pressure sensor based models also rely on subjectivity of the patients. The feedback given by the patients are often subjective and only based on answers given by them in a "yes or no" format. The proposed model will instead have objective analysis being conducted, where the temperature of sensitivity is recorded for each specific region. Thus, the doctors are able to come to a scientific conclusion. This also enables a doctor to determine the progression of the neuropathy. This is because, the doctor is able to compare the temperature values from each test that is being conducted and can determine the rate at which the severity is increasing and can then take suitable and appropriate action.

Results and Conclusions: The sensitivity mapping test was successfully carried out on a Healthy Subjects. Clinical evaluation of the prototype is yet to be carried out as future work.

Keywords: Diabetes, Diabetic Neuropathy, Diabetic Foot Diagnosis, Thermal Probe, Thermal Sensitivity Testing.

EFFECTIVENESS OF BRIEF INTERVENTION IN ALCOHOL USE AMONG POLICE PERSONNEL IN BHUBANESWAR.

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Background: Police personnel have the responsibility of providing safe and secure environment for the society. Police personnel have tensed personal and social life. They often use alcohol to cope up with occupational stress. Police personnel consume alcohol during festivities and celebrations like promotions, retirements, holiday etc. Occupational stress, peer pressure, tensed personal and social lives are other cause of alcohol use which become habit and leads to harmful use of alcohol which is unnoticed and untreated.

Objectives: Assess the extent of alcohol use among police personnel. Find the effectiveness of brief intervention in reduction of alcohol use among police personnel.

Design and Methodology: The study was conducted in Police Barrack, Jaydev Vihar, Bhubaneswar, Odisha and evaluative research design is used. A Quasi experimental study was conducted among police personnel, using Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) and socio demographic questionnaires.

Statistical Analysis: The collected data was analysed by using descriptive and inferential statistics. The hypothesis was tested at the 0.05 level of significance. The distribution of subjects according to alcohol risk of level was done by frequency and percentage. 't' test is used to find significant difference between the pre-test and post test score of both experimental and control group.

Results: This study found that, 16.6% are at low risk and 83.3% are at moderate risk in control group. In experimental group 20% are at low risk and 80% are at moderate risk of level. After 3 months follow up in post test score, 26.6% are at low risk and 73.3% are at moderate risk level in control group. In experimental group 50% are at low risk and 50% are at moderate risk level after giving brief intervention.

Conclusions: The study provides evidence that screening and brief intervention delivered by researcher is effective to reduce the alcohol use among police personnel.

Key-words: Brief intervention; FRAMES; Alcohol use; Police

RELATIONSHIP AMONG ADHERENCE, PERCEIVED SOCIAL SUPPORT AND SELF-ESTEEM IN ADOLESCENTS WITH TYPE 1 DIABETES - AN EXPLORATORY STUDY

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Objective: The purpose of the study is two-fold, first is to assess the relationship among regimen adherence, perceived social support and self-esteem in the management of type 1 diabetes mellitus in adolescents and second is to evaluate gender difference in regimen adherence, self-esteem and the three dimensions of perceived social support namely family, friends and significant others.

Design & Methodology: Exploratory Quantitative approach was engaged with administration of objective standardised questionnaires to 45 adolescents who were clinically diagnosed with Type 1 diabetes for a minimum of one year through purposive sampling. The age of the sample was 10-19 years and the sample included 14 boys and 31 girls.

Results: Correlation analysis revealed that the regimen adherence has a positive correlation with self- esteem at 0.05 level (p=0.31); and significant positive relationship was recognised between self-esteem and family dimension of perceived social support at 0.05 level (p=0.30), whereas the other two dimensions of perceived social support – friends and significant others were not correlated. No association was established between regimen adherence and the three dimensions of perceived social support. Independent sample t-test revealed significant gender differences in the factors of self-esteem (t= 0.62) and significant others dimension of perceived social support (t= 0.16). Compared to boys, girls showed higher self- esteem and perceived greater support from significant others.

Conclusion: It is concluded that, internal factor self-esteem has a noteworthy consequence in management of health as adolescents with high self-esteem display more adherence to their regimen contrasting to the three dimensions of perceived social support, especially friends, family and significant others. External factors are inconsequential in controlling and adhering the demands of disorder. Thus, in a stressful situation, if the adolescent sustains high self-esteem, health management will not be adversely affected. However, internal factors, specifically self-esteem, can facilitate the adolescents to strive through the stressful situation without negotiating on the management of their health condition.

Keywords: Adolescence, Type 1 Diabetes, Adherence, Perceived social support, self-esteem.

DEPRESSION IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Objective: To study the prevalence of depression in chronic kidney disease.

Design and Methodology: We examined 50 patients diagnosed with CKD admitted in the Father muller hospital. Depression was diagnosed according to the Hamilton Depression Rating Scale of depressive episode.

Results: In the dialysis group, 80% were depression positive, while in the pre-dialysis group only 55% of patients were given the same diagnosis ($P < 0.05$). A significant association was moreover found between depression and education status ($P < 0.05$), but not for income status.

Conclusions: Considering the high incidence of depression in CKD patients, screenings should be routinely performed in order to identify and treat depression in its early stages for these patients.

A STUDY OF DEPRESSION AND ANXIETY AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS AT A TERTIARY CARE CENTRE IN MANGALORE

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Objective: This study is aimed to evaluate the occurrence of anxiety and depression symptoms in patients with Type 2 Diabetes Mellitus at a tertiary care centre in Mangalore.

Design: It is a cross sectional study conducted on 200 Type 2 Diabetes Mellitus patients attending Father Muller Medical College Hospital Mangalore.

Methodology: The study was cross sectional in design and was carried out on Type 2 Diabetes Mellitus patients attending outpatient clinic(100) and also on inpatients(100).A total of 200 eligible consenting respondents participated in the study. Anxiety and depression were measured by using the Hospital Anxiety and Depression Scale (HADS). The instruments used included a semi-structured questionnaire, HbA1c levels, fasting blood glucose, Brief Patient Health Questionnaire, and Hospital Anxiety and Depression Scale (HADS).Inclusion criteria were those patients having Type 2 Diabetes Mellitus without any premorbid psychiatric illness, chronic kidney disease, cerebrovascular disease and ischemic heart disease.

Results: A total of 57% of the participants were women while men percentage was 43%. Percentages of anxiety symptoms in women were three times higher in comparison to men. 60% of women presented with HADS-A>8 in contrast to 23% of men. Of the total 200 patients surveyed, anxiety and depression were found in 65 and 86respectively.When the relation between sex, age and Body Mass Index (BMI) and depression-anxiety symptoms was examined, it was shown that high BMI favours the occurrence of modest or severe symptomatology.

Conclusions: Our findings demonstrate that a large proportion of diabetic patients present depression and/or anxiety. Interventions are necessary to hinder the appearance of complications in diabetes and in consequence prevent depression and anxiety. Screening of high risk Type-2 diabetics for depression and anxiety in the primary care setting is recommended at regular intervals. Diabetes, anxiety, and depression are frequent pathologies and each constitutes a public health problem in India. Whereas diabetes is easy to detect and diagnose, this is not always the case with anxiety and mood disorders. According to recent estimates, more than three quarters of these psychiatric pathologies might not be detected. Several factors might explain this: the frequent expression of depression through somatic symptoms in the elderly, the tendency to attribute psychical suffering in the elderly to physical symptoms only the fear of being stigmatized as a psychiatric patient.

Keywords: Anxiety, Depression, Type-2 Diabetes Mellitus.

ASSESSMENT OF DEPRESSION, ANXIETY AND STRESS AMONG POSTNATAL MOTHERS

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Background & Objectives: Depression often exists co-morbidly with other conditions like anxiety, irritability and stress. Objectives are to assess the levels of depression, anxiety and stress among postnatal mothers and to find the correlation between depression, anxiety and stress.

Methods: A descriptive survey approach was selected for the study and non-probability convenient sampling technique was used to select 100 postnatal mothers at M.S.Ramaiah Medical Teaching Hospital, Bangalore, India.

Results: From the total subject, 16% of the subjects as mild Depression, 13% as moderate depression, 5% as extremely severe Depression and only 1% as in severe Depression. Likewise, 29% as moderate anxiety, 11% of mothers as severe anxiety, 10% as extremely severe anxiety and only 3% as mild anxiety. Considering into the levels of stress, 11% as mild stress, 6% as moderate stress 4% as severe stress and about 2% as extremely stress. The mean percentage of anxiety and stress was higher than depression. The correlation between depression and anxiety showed highly significant with "r"= 0.643 at $p<0.01$. Likewise the correlation between anxiety and stress showed a satisfactory significant with "r"= 0.719 at $p<0.01$. Also the correlation between depression and stress was highly significant with "r"= 0.824 at $p<0.01$.

Conclusion: Recently delivered mothers are vulnerable to the whole spectrum of general psychiatric disorders, as well as those resulting from the physical and psychological changes of childbirth. Midwives, and public health nurses need to screen for depression, anxiety and stress at every opportunity early in the postpartum period.

Keywords: Anxiety, Depression, Stress.

PREVALENCE AND PREDICTORS OF GERIATRIC DEPRESSION IN SELECTED SLUMS OF BHUBANESWAR, ODISHA

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Aging is a normal physiological process of growing old and mature. Nevertheless, everyone see usually aging is a process of decline rather than the process of growth, maturation and alteration. Unfortunately aging is accompanied with various types of pathological conditions which leads to morbidity and mortality. Depression is quiet common among elderly and approximately 25% older people are living with it.

Aims and Objectives: The study aims to explore the predictor and prevalence of depression of geriatric population. Therefore, the objectives of the study were:-

1) To determine the prevalence of depression among elderly.

2) To determine the predictors of depression among geriatric

3) To identify the relationship between depressive mood and physical and socio-environmental variables of community-dwelling elderly.

Design and Methodology: A cross-sectional descriptive research design was under taken to conduct the study. The data were collected from 100 samples from the residence of various slums of Bhubaneswar. A structured questionnaire was used to collect the socio-demographic data and depression and muscle gripth was assessed by the standardized questionnaire of geriatric depression scale (GDS).

Data analysis: Data were collected, coded and entered to SPSS version 17.0, subjected for statistical analysis.

Results: The findings of the study shows that 20% were perceived themselves healthy, 57% were fairly healthy & 23% were not at all perceived themselves, samples according to activities of daily living depicts that 97% were independent & 3% were dependent and according to level of depression shows that 9% were having no sign depression, 40% were suggestive sign of depression & 51% were having the sign of indicative depression. The findings of the study depict that 34% of male are more satisfied with their life compare to female and mostly female are dropped out the interest from activities, more prone to feeling of emptiness and feel worthless than man. Further it was observed that through analysis that occupation, financial independency and chronic co-morbidity are positively correlated with depression as the Pearson's correlation Coefficient. Further there is no Correlation between living style, muscle gripth with depression.

Conclusion: Depression is a true and treatable medical condition, not a normal part of aging. However older adults are at an increased risk for experiencing depression. There is a significant increase in depression among elderly as the world aging and females are more dissatisfied with life compare to male. As the internet addiction increases the health status of the participants decreases.

Keywords: Prevalence, predictors, geriatric depression, muscle gripth, life satisfaction.

ANXIETY, DEPRESSION AND STRESS AMONG FIRST YEAR MEDICAL STUDENTS IN GOVERNMENT MEDICAL COLLEGE, SHIVAMOGGA

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Background: The goal of medical education is to train knowledgeable, competent and professional physicians to care for the nation's sick, advance the science of medicine and promote public health. Medical school can impose significant psychological stress on medical students mainly through time pressure, large amount of new information, excessive working hours and knowing that at the end of their training they will be directly responsible for the health and welfare of others.

Aims and Objectives: To determine the prevalence of anxiety, depression and stress in first year medical students in Shivamogga Institute of Medical Sciences, Shivamogga .

Materials and Methods: A cross-sectional , questionnaire based survey was conducted among 100 First Year MBBS students aged between 18-20 years at Shivamogga Institute Of Medical Sciences, Shivamogga using DASS-42 Scale.

Results: Out of 100 students, about 65% had anxiety, 42% had depression and around 58% were found to be under stress.

Conclusion: The challenges to all medical colleges are to promote student well-being and provide students with the coping tools to deal with stress throughout their medical education. They should incorporate more leisure activities in their curriculum, promote better interaction between the students and the faculty, have advisory services and peer group counselling at the campus and instigate rehabilitation programs for victims of anxiety and depression.

Keywords: Anxiety; Depression; Stress; First year medical students.

A CROSS SECTIONAL STUDY TO DETERMINE PREVALENCE AND SEVERITY OF DEPRESSION AND ANXIETY IN TRANSFUSION DEPENDENT BETA THALASSEMIA MAJOR PATIENTS ATTENDING A TERTIARY CARE HOSPITAL.

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Objective: Estimation of prevalence of severity of depression and anxiety in transfusion dependent Beta thalassemia major patients attending a tertiary care hospital

Design and Methodology: This cross-sectional study was done on known diagnosed transfusion dependent Beta thalassemia major patients attending a tertiary care hospital. Clinical assessment of each child was done and psychiatric illness was diagnosed using ICD-10 DCR. Hamilton Anxiety rating scale (HAM-A) and Hamilton Depression rating scale (HAMD) rating scale were used to assess the severity of anxiety and depression among all the study participants. Prevalence and severity of anxiety and depression among these patients was estimated. Statistical analysis done by using WHO Epi Info 7 software and results tabulated.

Results: Of 31 patients, 25 were males and 6 were females. Age range was 10 -18 years with mean age of 12.45 ± 2.41 years. There were 20(64.5%) patients not taking chelation. Hematological assessment was also done in all patients. In this study, 31 patients with Beta thalassemia major were evaluated using the HAM-A and HAMD rating scale and prevalence was calculated. Among the patients, 40% males and 33.33 % females had anxiety. It was found that 32 % males and 83.33 % females had depression. The cumulative prevalence of psychiatric illness revealed that depression was present in 41.94 % and anxiety was present in 38.71 % patients. Hence, prevalence of depression was high as compared to anxiety in our study group.

Conclusion: Every year approximately 100,000 children with β Thalassemia major are born world over of which 10,000 are born in India. Beta thalassemia major has a great negative impact on the wellbeing of the patients. Affected children face many stresses in their whole life, including frequent blood samplings for laboratory tests, multiple transfusions and frequent subcutaneous injections and oral therapy of iron chelator drugs, which altogether make the patient susceptible to psychiatric burden namely depression and anxiety. Moreover, restrictions in social activities, fear, pain and worries about diagnostic procedures and transfusion every 2-4 weeks, which always induce stress leads to sickness absenteeism and poor academic school performance. This data may help to understand the underling psychiatry illness among these patients and relevant treatment initiated at appropriate time. We conclude by suggesting that psychiatric assessment needs to be part of comprehensive thalassemia care in India.

Keywords: Beta thalassemia major, anxiety, depression, HAM-A, HAMD.

PREVALENCE OF ANAEMIA AND ITS CORRELATION TO
BODY MASS INDEX AMONG MEDICAL STUDENTS, SIMS, SHIVAMOGGA.

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Background: The medical students may also suffer from anaemia because of busy schedule in college and extra-curricular activities. Their living in the hostel or as day scholars away from parents and families was reflected upon their diet habits and had a significant reflection upon the prevalence of anaemia.

Objective: To determine haemoglobin status and body mass index (BMI) in adolescents and to study the correlation between them.

Methodology: The present study was conducted on 100 1st year MBBS students studying at Shivamogga Institute of Medical Sciences, Shivamogga (Karnataka) belonging to both sex during 2014-15. They were studied for anthropometric parameters using standard protocol. BMI of </=18.5 kg/m2 was used to define under nutrition status. Haemoglobin level was estimated. Grading of Anaemia according to WHO guidelines was done. Peripheral smears were studied. Statistical analysis was carried out using proportions, means, standard deviations and SPSS software.

Results: Anaemia prevalence was 32% among medical students. Out of total 62 male students, 15(24.19%) students were found anaemic and out of 38 female students, 17(44.73%) were found anaemic. Out of 62 male students, 17 were underweight and 6 were overweight. Out of 38 females, 10 were underweight and 6 were overweight. There was negative correlation between BMI and Hb levels.

Conclusion: In this study, girl students showed poor nutritional profile and higher prevalence of anemia as compared to the boys. Nutritional anaemia was found to be prevalent even in medical students who were literate and had access to the nutritive diet in a good, healthy environment. The need for regular blood tests, especially haemoglobin levels, is emphasized and nutrition component needs to be included in the college curriculum.

Keywords: Anaemia, haemoglobin, nutrition, overweight, underweight,

A PILOT STUDY ON: EXPLORING THE INTERIOR ENVIRONMENT OF CANCER HOSPITAL FOR BUILDING HEALING SPACES.

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Objective: Determining Quality of life of cancer patient undergoing treatment in cancer hospital and exploring the variable of psychological stress and perception of stakeholders at cancer hospital about healing environment.

Methodology: A mixed quantitative and qualitative study design with structured questionnaires for patient and relatives, a combination of in-depth interviews or unstructured dialogues and focus group discussions for stakeholders was done.

Results: The study was done in one institute with 20 patients. Average age was 47 years (range 32-70), there were 11 females and 9 male. A mean of 11.3 patients showed significant anxiety and mean of 11.1 showed depressions among cancer patient on HADS scale. Under ERTC QLQ C30 version 3 scores constipation shows highest (worst) mean score of 91.6. One of the patient complained of seeing insects, which makes them feel sad, but Gods photos or pictures on the walls will make them feel more comfortable. All the stakeholders admitted that hindrance factor is the smell and insects at the work area.

Conclusion: It is found that very less attention is given towards the spaces around the patient, which demotivates them. Healthcare worker finds it difficult to work when the environment is not favourable.

Keywords: Cancer, Environment, Healing spaces, Hospital,

INVESTIGATION OF STRONGYLOIDIASIS - LEARNING EXPERIENCE FROM AN EPIDEMIOLOGICAL SURVEY

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Background: Strongyloides stercoralis is one of the most overlooked soil – transmitted nematode. It causes a neglected disease called strongyloidiasis mainly in tropical and subtropical regions with contributing factors as warm moist temperatures, lower socioeconomic status and poor sanitation leading to fecal contamination of soil. Infected individuals are mostly asymptomatic or present intermittent symptoms, mostly affecting intestine, lungs, and skin, weight loss but become potentially fatal among malnourished and immune-compromised persons. Although there have been many case reports on Strongyloides stercoralis infection in India, few studies have identified the predisposing risk factors for Strongyloides. As a part of post graduate curriculum, learning of epidemiological investigation plays a vital role. During school survey, a case of strongyloidiasis was reported. Keeping that as an index case, we conducted an epidemiological investigation in Athingappattu village, Puducherry.

Methodology: An epidemiological survey conducted between November 2013 and February 2014 among the family in Athingappattu village which falls under the Rural Field Practice Area of MGMCRI, Puducherry.

Results: Totally 123 individuals were investigated. Major symptoms were skin rashes, chronic cough and diarrhea. Disposal of human and animal wastes were not proper in these places, bare foot walking was common among people residing here and presence of livestock near to houses. Microbiological examination shows no Strongyloides worms in any of the stool sample instead other helminthic infestations were found (6%). Also, all the blood samples were found to relatively eosinophilic and lymphocytosis.

Conclusion: Though Strongyloides infestations were not found in this surveyed area, other helminthic infestations were commonly present which may be due to Lack of proper personal hygiene and waste disposal. Mass Drug Administration with T. albandazole and Health Education were given to the participants at the end of the survey. Periodical examination and follow-up is needed for the control of helminthic infestation.

Keywords: Strongyloidiasis in Children, Stool Sampling, Epidemiological Survey

A STUDY OF GENDER DIFFERENCE IN TIME PERCEPTION IN URBAN POPULATION OF TELANAGANA

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Objective: To calculate the time perception in male and female population separately and compare the two groups to find any significant difference in time perception

Background: It is well known fact that individual perception time is different from normal physical time. Time perception is a field of study within psychology and neuroscience that refers to the subjective experience of time, which is measured by someone's own perception of the duration of the indefinite and continuous unfolding of events. With the advancing age perception of time varies significantly. There are very few studies were done regarding gender differences in time perception

Methodology: 50 healthy males and 50 healthy female individuals within the age group of 20 to 25 years from the surrounding areas of Hyderabad were recruited for study. Individuals were asked to count seconds without seeing the clock, with closed eyes for a period of one minute physical time. Group A includes male individuals and Group B includes female individuals. The means of perceived times of Group A and Group B are compared using student't' test to find out any significance.

RESULTS: Still study is going on and results will be presented at conference.

Keywords: Time perception, Physical time,

EXCESSIVE DAY TIME SLEEPINESS AND ITS ASSOCIATION AMONG ADULT POPULATION IN URBAN PUDUCHERRY- A CROSS SECTIONAL STUDY

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Background: Sleep-related disorders (SRDs) have been considered an unmet public health problem. Sleep disturbances are common among adult populations. Limited population based studies have been conducted in India.

Objectives: To estimate the prevalence of excessive day time sleepiness and associated factors among participants.

Methodology: Acommunity based cross- sectional study was conducted among 409 adults of 20-60 years age group in urban field practice area of department of Community Medicine of Mahatma Gandhi Medical College and Research Institute (MGMCRI), Puducherry from Jan 2014 to April 2015. Multistage sampling was used to select the subjects. Socio-demographic details were obtained using a semi structured questionnaire. By using Epworth Sleepiness Scale, assessment of excessive daytime sleepiness was done.

Results: In present study mean age of the participants was 40.8±11.3 years. Considering a ESS score of 10 or more, excessive day time sleepiness was observed in 60.2% subjects. Excessive day time sleepiness was associated with age, gender, milk consumption, mobile use. No significant association was found between excessive day time sleepiness and central obesity, body mass index, marital status, literacy, occupation, exercise, smoking, alcohol and chronic illness like Diabetes Mellitus, hypertension and heart diseases.

Conclusion: In our study, the prevalence of excessive day time sleepiness was high. Therefore, the priorities should be the early identification of sleep disorders and strengthening of intervention that address the various determinants of the sleep disorders.

Keywords: Epworth Sleepiness Scale, Excessive day time sleepiness, Sleep disorders,

EXPLORING THE BENEFITS OF COMMUNITY DIAGNOSIS POSTING FOR MEDICAL UNDERGRADUATES

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Background: Sensitizing medical undergraduates about rural health through village health survey during their posting in Community Medicine has the potential to trigger active learning by medical students. In this context the present study was conducted to document the community diagnosis posting of medical undergraduates in a teaching medical institution and understand the process of learning of medical undergraduates.

Methodology: Present series of community diagnosis postings were organized in nearby villages of a tertiary care teaching hospital in Puducherry during Jan-June 2014. The students carried out village transect walk, undertook village health survey under predefined Sub topics, carried out facilitated focus group discussion on specific themes followed by organization of a health camp.

Results: Students were able to appreciate the intricate role of socio-demographic factors in health and disease. They were able to empathize with the felt-needs of the rural community. The students gained much through active-learning - about different qualitative research tools, various computer and statistical software, gained better communication skills, even learnt the local language. The students' organizing skills, leadership qualities and documentations skills improved drastically followed the postings. As an added benefit, their attendance also increased in subsequent classes.

Conclusion: It is possible to sensitize medical students to rural health issues through community diagnosis postings. Involving students to community health program is the need of the hour as it encourages the students to become life-long self-learners, in addition to enhancing their leadership and organizing qualities.

Key words: Community based learning, Community Diagnosis, Medical students, Village health survey,

ASSESSMENT OF ORAL ANTI-DIABETIC MEDICATION ADHERENCE AMONG TYPE II DIABETES MELLITUS PATIENTS ATTENDING URBAN HEALTH TRAINING CENTRE OF A MEDICAL COLLEGE, BANGALORE

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BACKGROUND: Diabetes Mellitus is a chronic progressive metabolic disorder characterised by hyperglycaemia mainly due to absolute or relative deficiency of insulin hormone associated with high morbidity and mortality among patients. According to WHO, 347 million people worldwide have diabetes. In 2012, an estimated 1.5 million death were directly caused by diabetes. More than 80% of diabetes deaths occur in low and middle income countries. In 2013 according to International Diabetes Federation, India had 65.1million diabetics between 20-79 years. By 2030 this figure is estimated to go up to 101.1 million. Medication non-adherence is particularly common among patients with Type-II Diabetes Mellitus and inadequate adherence compromises safety and treatment effectiveness, leading to increased morbidity and mortality with considerable direct and indirect cost to the healthcare system.

OBJECTIVES:

1. To describe the socio-demographic profile of study subjects.

2. To assess the oral anti-diabetic medication adherence in study subjects.

Methodology: The study was conducted at Urban Health Training Centre, Bangalore from March 2015 to September 2015. Samples of 70 Type II Diabetes Mellitus patients only on oral anti-diabetic drugs were included. A pre-tested semi structured proforma was administered and information about socio-demographic profile was obtained. Morisky Medication Adherence Scale-8 (MMAS) was used to assess medication adherence. Blood sugar level estimation was done for all subjects.

Results: Most of the subjects were female 56(80%) in the age group of 35-45yrs 24(34%). Of which 28(40%) were illiterate, 47(67%) were unemployed with socio-economic status Class IV 53 (78%) of Modified Kuppuswamy Classification. A total of 30(43%) had medium adherence (MMAS-8 score 1-2), 27(38%) poor adherence (MMAS-8 score of >2) and 13(19%) high adherence (MMAS-8 score 0). The reasons for poor adherence as reflected in the present study are - 42(60%) felt hassled about sticking to treatment plan, 31(44%) quoted as forgetfulness, 22(31%) had difficulty in remembering to take all medications, 16(23%) forgot to bring along when travelling, 14(20%) had financial problem and stopped when blood sugar levels controlled. 7(10%) had stopped taking the medication because they felt worse and 5(7%) forgot to take the medication previous day.

Conclusion: An improvement with adherence can be achieved through motivation, continuing patient education about diabetes.

Keywords: Type II Diabetes Mellitus, Adherence, Oral anti-diabetic drugs,

FREQUENCY OF OCCURANCE OF SEXUAL DYSFUNCTION IN PATIENTS PRESCRIBED WITH SSRIs

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Background: Selective serotonin reuptake inhibitors are the mainstay of treatment for many psychiatric disorders including MDD, anxiety disorders and OCD. One of the most important reasons for poor drug compliance with SSRIs is the side effect profile, particularly sexual impairment. Sexual dysfunction adversely affects the quality of life of the individual, which further affects the prognosis. The prevalence of SSRI induced sexual dysfunction is observed to be varying from 30-70%. This study intends to assess the frequency of occurrence of sexual dysfunction in patients prescribed on selective serotonin reuptake inhibitors.

Objective: To assess the frequency of occurrence of sexual dysfunction in patients on selective serotonin reuptake inhibitors.

Methodology: The present study was conducted at Father Muller Medical College, Mangalore amongst a sample size of 62 patients, recruited from the IP and OP departments under the department of Psychiatry. The period of study was three months. Participants who satisfied inclusion criteria were administered with Arisona Sexual Experience scale to assess for sexual dysfunction and MINI plus, to confirm their diagnosis. Present study was an observational, cross sectional clinical study. Institution ethical clearance was obtained.

Results: 24% of the assessed population reported significant sexual dysfunction after the use of SSRIs, out of which 83.3% were males and 16.6% females.75% of the subjects reported sexual dysfunction were on escitalopram, 16.6% on paroxetine and 8.3% on sertraline. Among the sexual dysfunction reported, 37.5% was of decreased desire, 33% reported orgasmic difficulties, 12.4% premature ejaculation and 12.4% erectile dysfunction.

Conclusion: We intend to present this study so as to emphasize the importance of sexual dysfunction as an important side effect of SSRI s, which can affect the quality of life and drug adherence in these patients. Hence the present study emphasizes the need for evaluation of sexual side effects in those prescribed with SSRIs on a routine basis.

Keywords: Arisona Sexual Experience, ejaculation, erect, orgasm, sexual dysfunction,

ANTI-CRAVING EFFICACY OF RIGHT PREFRONTAL HIGH FREQUENCY RTMS IN PATIENTS WITH OPIOID DEPENDENCE

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Objective: Opioid abuse is a worldwide problem causing serious physical, psychological, social and economic consequences. Opioid craving presents as an irresistible urge to take or as intense thoughts about opioid. Craving is associated with the "brain reward centre" situated in medial forebrain bundle comprising the meso-cortico limbic dopamine pathway. Transcranial magnetic stimulation (TMS) is a noninvasive and relatively painless tool which was introduced into neurosciences by Barker *et al* in 1985.rTMS has been shown to be efficacious in depression. Moreover, it has also shown some anti-craving effect in cases of tobacco, alcohol and cocaine dependence. To the best of our knowledge, there are no studies on the anticraving efficacy of rTMS in opioid dependence. Neuroimaging studies have demonstrated DLPFC to be a major component of the neural substrate for craving associated with opioid and other psychoactive substances. This study intended to examine the anti-craving efficacy of right prefrontal high frequency rTMS in patients with opioid dependence.

Design & Methodology: This study was conducted at K.S. Mani Centre for Cognitive Neurosciences, Central Institute of Psychiatry, Ranchi.45 patients with opioid dependence were included in this study, with no other comorbid psychiatric or major physical illness out of which 5 had to be dropped out. The selected 40 patients were divided into active (n=30) and sham group (n=10) by purposive sampling. Patients were rated on Objective Opioid withdrawal scale (OOWS) to assess the withdrawal status, Addiction severity Index (ASI), and Obsessive Compulsive Drug Use Scale (OCDUS) to assess the level of severity. Patients were taken up for rTMS session when the OOWS score reached ≤3. The motor threshold (MT) of the patients was determined according to Rossini-Rothwell algorithm. Ten sessions of 10 Hz right prefrontal active rTMS. The sham group received stimulation with the same parameters but with 'sham coil'. OCDUS rating was repeated after the last rTMS session. OCDUS rating was again repeated after 2 weeks of the last rTMS session.

Results: There was significant reduction in craving scores (OCDUS) after the rTMS sessions in the patients receiving active rTMS as compared to sham controls. The difference in craving scores (OCDUS) after the last rTMS session between both the groups was not sustained in the subsequent 2 weeks post rTMS. Nevertheless, a trend towards lower craving scores (OCDUS) was observed in the patients receiving active rTMS.

Conclusion: High frequency right prefrontal rTMS was found to have short-term anti-craving effects and trend towards sustaining the effects in opioid dependent patients.

Keywords: Opioids, craving, rTMS,

SEEKING HELP IN AN ONLINE SUPPORT GROUP: AN ANALYSIS

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Background: The aim of the study is to gain qualitative insight into an online support group. In support groups, which is a form of online community members provide each other with various types of help, usually non-material and non-professional for a particular, shared, usually burdensome issue.

Objective: The objective was to understand how conversations flow in an online support group, to explore how identities are accomplished in an online community through use of nicknames and to examine the efficacy of the online support group.

Design & Methodology: The support group chosen for the purpose of this study is on Alcoholics in recovery. Alcoholism is a disease characterized by craving to drink, loss of control, physical dependence, withdrawal symptoms and tolerance. For the first objective, conversation analysis was adopted which has three underlying assumptions under its purview i.e. sequential positioning is considered as a resource for the production and understanding of utterances, checking for projection of relevance and lastly, for noticeable absence. For the second objective, sociological analysis was adopted and an effort was made to analyse nicknames that members use on the forum. This analysis was carried put keeping in mind Agha's (2007) concepts of emblem which involves three elements- a diacritic, a social persona and someone for whom it is an emblem. For the third objective thematic analysis was carried out for identifying, analysing and reporting patterns (themes) within the data. Through these themes we aimed to generate in-depth information of the support group and how its contents helped the members share their experiences & develop new identities for themselves.

Results: Results of the thematic analysis generated a variety of themes ranging from positive recovery, dear of relapse, seeking validation to empowering as well as negative thoughts to sharing of information and knowledge. Lastly, with the use of sociological analysis it was found that members had made use of various kinds of nicknames which could be categorized under novel formations, adjectives (acting as symbols representing the person or aspect of one's identity), verb forms, group specific names (member's identity was tied to the group) and exclamations. This gave us insight into how various nicknames explore parts of these individual's identities & act as self-esteem enhancers & coping mechanisms in itself.

Conclusion: Overall analysis showed that online support groups are beneficial, helpful and necessary for sufferers. They provide anonymity, emotional support, decrease chances of relapse, foster formation of better equipped and adaptive identities, positive emotionality & help members quit.

Keywords: alcoholism, conversation analysis, online support group, sociological analysis, thematic analysis,

PSYCHOSOCIAL PROBLEMS BETWEEN MALE AND FEMALE HIV POSITIVE PATIENTS: A COMPARATIVE STUDY

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Objective: HIV has become a long-term condition, which not only affects physical health, but also causes psychological and social problems because of stigma and discrimination. The impact of HIV/AIDS is not only biological but psychosocial in nature such as anxiety, depression, social isolation etc. There are very few studies have been conducted to assess the psychosocial problems between and male and female HIV positive Patients. Present study aims at studying the psychosocial problems between male and female HIV positive patients.

Design and Methodology: The study is a cross sectional study with between group research design. The sample consists of 25 male and 25 female 'HIV positive patients. Purposive sampling method is used for select the participants. And the tool used for data collection is general health questionnaire.

Results: Results of the study indicate that there is no significant difference in the psychosomatic, depression, and social dysfunction domains, in the dimension of anxiety/ insomnia more mean difference was found between male and female HIV patients.

Conclusion: It is very important to emphasize on the contributing factors of these problem to formulate the intervention strategies.

Keywords: HIV/AIDS, psycho-social problems, anxiety, depression, isolation and social stigma.

ASSESSMENT OF DEPRESSION AMONG AGED POPULATION IN A RURAL COMMUNITY: A CROSS-SECTIONAL STUDY

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Background: Depression in aged population is a serious, emerging public health concern all over the globe leading to unnecessary suffering, impaired functional status, excessive use of health care resources and increased mortality. However, epidemiological studies on depression in aged population from rural India by involving valid and reliable screening tool remain scant. In this context, the present research is being undertaken.

Objectives: To assess the prevalence of depression among aged persons using Geriatric Depression Scale – 15 (Kannada version).

Methodology: A community based cross sectional study was conducted in the rural field practice area of Kempegowda Institute Medical Sciences, Bangalore with a sample size of 1000 aged people by employing cluster sampling technique. By house to house visit, the house hold having elderly above 60 years was identified and enrolled into the study after following inclusion and exclusion criteria. After getting informed consent, the aged person was screened for cognitive impairment using translated Kannada version of Brief Community Screening Instrument for Dementia (CSI-D). From the aged person having normal cognitive functions, information on socio-demographic characteristics was collected and depression was assessed by using validated Geriatric Depression Scale – 15 Kannada version.

Results (out of 30 clusters, results from 15 clusters (n=510) are presented): The prevalence of depression among aged population was found to be 42%, of which prevalence of mild depression was 58.4% and severe depression was 41.6%. It was found that 49.3% of females and 31.4% of males were depressed. Mean age ± SD of elderly males with depression is 69.9 ± 7.6 years. Mean age ± SD of elderly females with depression is 68.7 ± 7.7 years.

Conclusion: In the present study, the prevalence of depression was found to be 42%.

Keywords: Depression, Elderly, Cognitive impairment, Prevalence.

THEME - 2

BIOTECHNOLOGY,

ETHNOMEDICINE &

BIO-MEDICAL SCIENCE

EVALUATING SOME SELECTIVE INDIAN MEDICINAL PLANT EXTRACTS FOR THE ANTICANCER ACTIVITY BY MTT ASSAY.

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Objective: To study the anticancer activity of methanolic extract of leaves of *Abutilon indicum, Adathodavisca, Datura stramonium, Lantana camara* and *Tridax procumbens* by MTT assay method on HCT 116 human colorectal carcinoma cell line.

Design and Methodology: Anticancer activity of Methanolic extracts obtained from the leaves extract of five selected plants, were evaluated in vitro on HCT 116 human colorectal carcinoma cell line by MTT assay method.

Results: *Datura stramonium* and *Lantana camara showed* significant anticancer activity on HCT 116 human colorectal cancer cell line but *Abutilon indicum*, *Adathodavisca and Tridax procumbens* are not active. Cell line were grown in McCoy's 5a Growth Medium containing 10% fetal bovine serum and 100 units/ml penicillin + 100 µg/ml streptomycin (GIBCO # 15140-122). With the help of MTT assay measure the Absorbance at 590 nm.

Conclusion: *Datura stramonium* and *Lantana camara* has been showed anticancer activity individually but when they are given in combination of both plants extract on HCT 116 human colorectal carcinoma cell line *Lantana camara* has been showed potent anticancer activity compared to the *Datura stramonium*.

Key words: Medicinal plants, HCT 116 cell line; MTT assay.

EVALUATION OF IRRADIATION INDUCED OXIDATIVE INJURY OF SWISS ALBINO MICE USING *Garcinia indica* OF ETHANOL EXTRACT

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Objective: The current research is to investigate the antioxidant activity of different doses of *Garcina Indica* against gamma irradiation caused oxidative damage in the liver tissue with single dose of 5Gy.

Design and methodology: The Malondialdehyde (MDA), Cu, Zn-superoxide dismutase (Cu, Zn-SOD) and selenium-dependent glutathione peroxidase (GSPHx) are currently considered to be basic markers of oxidative stress. MDA is one of the end-products of the peroxidation of membrane lipids, whereas enzymes Cu,Zn-SOD and GSHPx belong to the natural antioxidants. The mice were divided into five group with twenty mice each, the group one was with 7mg/kg and group two with 14mg/kg of *Garcina Indica* extract, and the third group was injected with an isotonic Nacl solution, the fourth group was injected only with *Garcina Indica* and the fifth was observed as control. Following with a time span of 45 minutes, 5Gy total body irradiation was given to groups one to three in a single dose.

Results: The activities were measured in all groups for MDA, SOD and GSPHx, total body irradiation results in increase in the liver tissue MDA levels and a decrease of SOD and GSH-Px activities and it shows that liver tissue MDA levels in irradiated mice that were pre-treated with *Garcina Indica* were decreased significantly, where SOD and GSH-Px activities were significantly increased.

Conclusions: Thus the reported result suggests that *Garcina Indica* administration prior to irradiation may prevent liver damage by irradiation.

ASSOCIATION OF ENVIRONMENTAL VARIABLES WITH COMMUNICABLE AND NON-COMMUNICABLE DISEASES - REVISITED

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Objective: Environment is the base of life of the organisms. The surrounding and everything that affect an organism during its lifetime is collectively known as its environment. In community health the "health triangle" shows the interrelationship among the three major concepts such as environment, agent and host, host (human body) and agent (microorganisms like bacteria, fungi and virus). Whenever a misbalance will be happening, it affects the healthy body. Environmental disruptions have impact on human health.

Method: The present study aims at revisit the studies conducted in the area of diseases with reference to environment. The researcher reviewed Google scholar, science direct, pub med etc, to collect the articles.

Results: The researchers found that there are four major diseases influenced by poor environments are diarrhea, lower respiratory infections, various forms of unintentional injuries, and malaria. The main reason for diarrhea is the lack of pure drinking water. Air pollution is the other major reason for the respiratory diseases. Usage of fossil fuels, burning of plastics, and pollution from industries are the some of the sources for air pollution. Lack of proper drainage system, water management and deforestation causes malaria. Studies were showing that environmental pollutants are the important factors for developing heart diseases. Most of these environmental factors are modified by the people.

Conclusion: If the future research is focusing on how to bring the awareness in people to modify environment from causing diseases, educating the people, it will help whole society and people from preventing environmental diseases.

Keywords: Environment, Malaria, Microorganisms, No communicable diseases,

ELECTROMAGNETIC INDUCTION PLAYING A KEY ROLE IN THE HORMONAL AND FLUID LEVELS OF THE PITUITARY AND PINEAL GLANDS INSTEAD OF RETINAL MAGNOSENSITIVITY UNDER APPLIED MAGNETIC FIELD

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Objective: The electromagnetic fields emitted from cell phones may be harmful to a certain part of the human brain, as we have theorized a concept on the consequences to the pituitary and pineal gland.

Design: The current produced through the optic tract of intact male rats produces a magnetic field around these tracts which varies with an applied magnetic field, ultimately, forming a field of electromagnetic induction around the optic tracts. Our theory states that this field might be the cause to the decrease in the levels of pineal fluids since the retina is connected indirectly to it through the retino hypothalamic tract, in contrast to the theory earlier set where retinal disturbances were the cause to reduction in pineal NAT and melatonin levels under applied magnetic field.

Methodology: It will be tested through 16 intact and exposed male rats, followed by extraction of the pituitary. Later, we will measure the amount of Growth hormone (GH) for the anterior pituitary, and the oxytocin and vasopressin for the posterior pituitary gland by the process of radio immuno assaying.

Results: This experiment would prove whether this electromotive force from the EM induction has an ability to induce alterations to the levels of hormones of the posterior pituitary gland since it contains the current-conducting hypothalamo-hypophyseal nerves from the supraoptic and paraventricular nuclei, but not the anterior pituitary as it contains only hypothalamic-hypophyseal portal vessels, not nerves.

Conclusion: If the above conception is to be proven, it could reveal the detrimental effects of cell phone radiation on different glands in the delicate human brain.

Keywords: Electromagnetic induction, pituitary gland, pineal gland, retina, supraoptic nuclei, paraventricular nuclei, growth hormones, oxytocin, vasopressin

EVALUATION OF THE BIO-ELECTRIC DEVICES ON CONVULSION IN WISTAR RATS

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Background: Epilepsy is perhaps one of the oldest recorded medical illnesses in history. During the last two decades, several new antiepileptic drugs, improved formulations and epileptic device (VNS) have been licensed for the treatment of epilepsy. Despite these advances, the cellular basis of epilepsy is still a mystery and around 30 % of epileptic patients are pharmacoresistant. The seizures and its medications are still major reasons of morbidity and mortality. Thus, novel therapeutic options for refractory epilepsy are needed.

Objective: The main purpose of this pilot study is to evaluate the bio-electrical devices on convulsion in Wistar rats.

Design and Methodology: The devices used were earthing system, capacitor & circuit. Convulsion was induced by MES and PTZ model. The surgery was done using stereotactic instrument (assembled) & inserted two electrodes on skull region (Near bregma and lambda). The electrode implanted rats were used (n=6 in each group) and all three devices were evaluated at 15 days interval. For the assessment of anticonvulsant activity, the seizure onset time and duration of action in PTZ induced seizure and Flexor, Extensor, Tonus-Clonus and Stupor phase time was assessed in MES induced seizure. Comparison of all data was carried out by the one way ANOVA followed by Dunnett's test.

Results: In MES induced seizure, it was observed that the earthing system has suppressed all the phases (flexor, extensor, tonu-clonus & stupor phase) significantly and stupor phase significantly decreased in circuit as well as in capacitor. In PTZ induced seizure, onset of seizure significantly ($p<0.001$) decreased in all devices and duration of convulsion significantly decreased in earthing and capacitor. Additionally actophotometer data revealed that earthing attached rats were relaxed and showed normal behaviour but significant difference was observed in locomotor activity compared to control rats.

Conclusion: On result we conclude that excessive current generated in the brain during convulsion is transmitted through the electrodes (surgically implanted in to the skull) to the electrical devices and hence earthing abolished the various phases of the convulsion in MES induced seizure. All three systems i.e. Earthing, Capacitor and circuit are effective to delay the onset of duration of convulsion and also able to reduce the duration in PTZ induced seizure Wistar rats.

Keywords: Epilepsy, Seizure, Earthing

COMPARATIVE STUDY ON THE OCCURRENCE OF HYDROCARBON DEGRADING *Pseudomonas aeruginosa* IN MAJOR OIL POLLUTED SITES OF COCHIN

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Background: Hydrocarbons are the simplest organic compounds. Containing only carbon and hydrogen, they can be straight chain, branched chain, or cyclic molecules. Polycyclic aromatic hydrocarbons (PAHs) are prevalent contaminants in the environment as a result of fossil fuel combustion and by product waste from industrial activities (Banat, 1995).

Objectives: Enumeration of heterotrophic bacterial colonies for study variations in the distribution of total degraders on the major oil polluted sites.

Methodology: Isolation of heterotrophic flora from oil contaminated soil samples. Microbial enumeration using most probable number procedure and more oil degraded bacteria was identified by 16 S rRNA sequencing.

Result: In the present study variations in the distribution of total degraders on the major oil polluted sites of Cochin, Ernakulam district, Kerala was compared by making two sample collections on an interval of 7years. Selected areas were Ambalamugal (P1), Fort Cochin (P2), Marine Jetty (P3), Vypin (P4), Container Terminal (P5), Vallarpadam (P6), Cherai (P7) and Cochin port (P19). The first sample collection was made in January 2005 and second sample collection in November 2012. Total heterotrophic count and modified MPN method showed an increase in the number of isolates in the second sample collection. More number of hydrocarbon degrading isolates was present in Ambalamugal and Cochin port samples in both collections. The isolates were identified as *Pseudomonas aeruginosa* using by 16S rRNA sequencing using the BLASTN 2.0.5 program through the National Centre for Biotechnology Information (NCBI) server by using the retrieved nucleotide sequence (or translated amino acid sequence).

Conclusion: The results of the total Heterotrophic flora of the water sample were varied in different samples in the post and pre monsoon periods

Keywords: Ambalamugal, Cochin, Hydrocarbon, *Pseudomonas,* Sediment

LIMNOLOGICAL PROFILE OF MAAVINAHALLI WETLAND OF TUMAKURU DISTRICT, KARNATAKA

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Background: Wetlands are the areas which provide shelter for diverse group of flora and fauna. Maavinahalli wetland spread over an area of 1.09 square kilometres is under immense stress like draining of water for irrigation purposes, domestic activities, encroachment and dumping of agricultural wastes.

Objective: To study the phytoplankton species composition, density and seasonal dynamics with respect to physico chemical characteristics.

Methodology: Surface water samples were collected on monthly intervals using standard procedures for the evaluation of limnological profile of the wetland. Cameralucida technique was adopted for the identification of phytoplankton.

Results: A total of 114 species under 41 genera belonging to four different taxonomic groups were identified. Chlorophyceae formed the bulk of the phytoplankton population with 18 genera and 37 species comprising 32.46 % followed by Cyanophyceae with 35 species under 12 genera (30.70 %), Bacillariophyceae with 7 genera and 28 species (24.56 %) and Euglenophyceae recorded 14 species under 4 genera comprising of 12.28 %. Seasonally, Bacillariophyceae and Cyanophyceae were abundant during pre-monsoon. Euglenophyceae and Cyanophyceae recorded their minimum values during post monsoon. Similarly, Chlorophyceae and Euglenophyceae reached their peak during post monsoon and monsoon respectively. Statistical significance of different physico chemical characteristics on various phytoplankton groups is discussed.

Conclusion: Nygaard trophic state index for Euglenophyceae is 0.13 indicating that the wetland is oligotrophic. By considering the species diversity and dynamics of phytoplankton groups it is concluded that the wetland is productive.

Keywords: Dynamics, phytoplankton, physico chemical, wetland,

SECONDARY METABOLITES AND BIOLOGICAL ACTIVITIES IN SEED EXTRACT OF *Memecylon umbellatum* N. Burm.- A MEDICINAL PLANT.

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Background: *Memecylon umbellatum* is small evergreen shrub grow in Western Ghats of south India and it is called as Anjani in Sanskrit and in English Iron wood. Plant has lot of medicinal values like antioxidant activity, antidiabetic activity and anti-microbial activities.

Objectives: To evaluate the secondary metabolites and medicinal use of *Memecylon umbellatum*.

Methodology: Seeds of *Memecylon umbellatum* were collected from Agumbe forest, Karnataka were used in the present study. Phytochemical extraction was done by successive method by soxhlet apparatus using solvents like petroleum ether, ethyl acetate, chloroform, methanol and water. Antimicrobial activity was measured using well diffusion agar plates. Antioxidant activity was estimated by DPPH, ABTS and Super Oxidase Dismutase methods. Antidiabetic activity was analysed by Amylase Inhibition method.

Results: Xanthoprotiecs, flavonoids. terpenoids, phenols, cardiac glycosides, alkaloids and sterols were found as secondary metabolites. Antimicrobial activity was found significantly high against the gram negative organisms such as *E. coli, Pseudomonas auregenosa and Staphylococcus aureus.* Antioxidant activity was more in methanol extract by DPPH method and significant antioxidant activity was found in ethyl extract and water extract. Antidiabetic activity was found in methanol and water extracts.

Conclusions: *Memecylon umbellatum* plant seeds secondary metabolites has significant antioxidant, antimicrobial and antidiabetic activities.

Keywords: Antioxidant, antimicrobial, antidiabetic, DPPH, ABTS, Super Oxidase Dismutase.

EVALUATION OF PHYTOCHEMICAL, ANTI-MICROBIAL AND ANTI-OXIDANT ACTIVITIES OF MEDICINAL PLANT *Cissus repens*

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Background: Natural compounds in plants such as tannins, terpenoids, alkaloids and flavonoids have been found to have antimicrobial properties and antioxidants are type of molecules that neutralize harmful free radicals, produced through a chain of reactions that damage living cells, spoil foods. For this reason we made an attempt to evaluate the medicinal properties of *Cissus repens*

Objectives: The present study was intended to examine the phytochemical, anti-microbial, anti-oxidant activities of *Cissus repen* Lam as well as qualitative and quantitative analysis of phytochemicals.

Methodology: Root parts of *Cissus repens* were collected from Sikkim, Daramdin at the flowering stages and used in the present study. Phytochemical extraction was done by successive method by soxhlet apparatus using solvents like ethyl acetate, acetone, ethanol and water. Antimicrobial activity was measured using well diffusion agar plates. Antioxidant activity was estimated by DPPH, ABTS and Reducing power methods. Phenols and flavonoids were analysed by HPLC.

Results: Phytochemicals such as phenoloids, flavonoids, tannins, diterpenes, saponins, alkaloids, terpenoids, steroids, glycosides and aldehydes present in all the plant extracts. Antibacterial activity revealed that *Staphylococcus* inhibited maximum growth by all the extracts and *Bacillus*, *Pseudomonas* and *E coli* was not inhibited by water extracts. Antifungal activity showed except the water extract other extracts inhibited the *Aspergillus niger*, *Aspergillus flavus* and *Candida albicans.* Ethanol extracts showed highest antioxidant activity by DPPH, ABTS and Reducing power method andt water extract showed very less antioxidants activity. Phenol were analysed HPLC in ethyl acetate (0.36 mg/gm.), acetone (2.2 mg/gm.), ethanol (1.28 mg/gm.), water extracts (0.39 mg/gm.) and Gallic acid as standard. Flavonoids were present in Ethyl acetate (7.76 mg/gm.), acetone (11.22 mg/gm.), ethanol (6.38 mg/gm.), water extract (6.44 mg/gm.) and Quercetin as standard.

Conclusion: Ethanol is the best solvent for the extraction of secondary metabolites from the plant *Cissus repens* because it showed more antimicrobial and antioxidants activities

Key words: Antioxidants, antimicrobial, HPLC, phytochemicals,

SCREENING OF PHYTOCHEMICAL, ANTI-MICROBIAL AND ANTI-OXIDANT PROPERTIES OF MEDICINAL PLANT *Bergenia ciliata*

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Background: Medicinal plants and their formulations are used enormously for treating a range of illness in ethnic medical practices as well as traditional system of medicine in India. The plant *Bergenia ciliata* is chief botanical source of "Pashanbheda" drug in indigenous system of medicine. Already this plant has been recognized for its role in dissolving kidney stone and also effective in fever, eye ailments, dysentery and diarrhea, piles, inflammation, chronic ulcers etc.

Objectives: To evaluate phytochemicals, antimicrobial and antioxidants activities of *Bergenia ciliate.*

Methodology: Secondary metabolites were extracted by soxhlet apparatus using solvents such as petroleum ether, ethyl acetate, chloroform, methanol and water. Antimicrobial activity was analysed by well diffusion agar method and antioxidant activity was estimated by DPPH, ABTS and Reducing Power methods. Qualitative and quantitative estimation of phytochemicals compounds by HPLC.

Results: Secondary metabolites such as alkaloids, cardiac glycosides, flavonoids, phlobatannins, quinones and tannins were present in plant extracts. Antimicrobial activity shows that methanolic extracts inhibit the growth of *E. coli*, *Bacillus subtilis* and *Staphylococcus aureus* at 50 mg/ml, the antibacterial effect was most significant. Based on IC 50 value, antioxidant activity was more in methanol extract by DPPH method and water extract, methanol extract showed antioxidant activity in ABTS and reducing power methods. Phenols were analysed by HPLC observed in petroleum ether (0.11 mg/gm.) ethyl acetate (0.28 mg/gm.), Chloroform (0.032 mg/gm.), methanol (0.58 mg/gm.), water extracts (0.26 mg/gm.) and Gallic acid used as standard. Flavonoids present in petroleum ether (0.14 mg/gm.), ethyl acetate (0.53 mg/gm.), Chloroform (0.032 mg/gm.), methanol (0.8 mg/gm.) and water extracts (0.33 mg/gm.) and Quercetin used as standard.

Conclusion: Based on the results it can be concluded that an antimicrobial and antioxidant activities were significant.

Keywords: Secondary metabolites, DPPH, ABTS, HPLC, Quercetin

OPTIMISATION FOR THE DEGRADATION OF MONOCROTOPHOS PESTICIDE FROM *Bacillus species*.

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Background: Pesticide use raises a number of environmental concerns. Over 98% of insecticides and 95% of herbicides reach a destination other than their target species, including non-target species. Pesticide exposure can cause a variety of adverse health effects, ranging from simple irritation of the skin and eyes to more severe effects such as affecting the nervous system, mimicking hormones causing reproductive problems and also causing cancer. For this reason we made an attempt for biodegradation of Monocrotophos.

Objective: To find out bacteria and optimise the condition for the degradation of Monocrotophos.

Methodology: Eighteen soil samples were collected from different localities of agriculture lands from Bengaluru and Tumakuru. Organisms were isolated by serial dilution using M9 media with Monocrotophos. Degradation was analysed by spectrophotometric method and HPLC, highest degrading microbes were identified by morphological and biochemical characters. Optimised the condition for degradation, purification and characterise the biodegradable enzyme.

Results: From eighteen soil samples, two microorganisms were isolated based on the growth curve with maximum degradation were selected and identified through biochemical tests as *Bacillus sp*. Degradation was enhanced from 10% to 22% by the optimization of pH, temperature, concentration of magnesium sulphate and concentration of Ammonium Chloride in the media. The enzyme isolated and purified was found to be 30-40kDa molecular weight compared with Novex sharp pre-stained standard.

Conclusion: Present work help in the degradation of pesticide Monocrotophos regularly used in agricultural fields, which is harmful to the environment, animals and human beings.

Keywords: Degradation, environment, HPLC, microbes, monocrotophos, spectrophotometric,

EVALUATION OF MICRO-ORGANISMS FOR THE PRODUCTION OF KERATINASE ENZYME

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Background: Keratins are the largest and most complex family of cytoskeletal intermediate filament proteins of animal cells. Keratins are mechanically stable and difficult to be degraded by common proteases. Keratinous wastes are increasingly accumulating in the environment generated from various industries. Keratinases are enzymes that can hydrolyses both native and denatured keratin, which is an insoluble protein found in found in chicken feathers, human hair, animal horns and wool.

Objective: Evaluation of microorganisms for the production of keratinase. Purification and characterisation of keratinase enzyme.

Methodology: Twenty soil samples were collected from near to poultry form waste and isolated using serial dilution**.** Production of enzyme by using specific media Keratin broth and keratinase activity was found out by colorimetric method keratin azure used as substrate. Three steps purification such as Ammonium sulphate precipitation, dialysis, Ion exchange and gel filtration chromatography followed by molecular weight was determined by SDS-PAGE. Purified enzyme was subjected for enzyme kinetics.

Results: From twenty soil samples, twelve microorganisms were isolated based on the casein hydrolysis. Among the twelve microorganisms one of the microorganism's highest activities was confirmed by colorimetric method and identified as *Bacillus megaterium* by 16S rRNA sequencing. After purification, fold purification was increased up to 12.3 and yield 29%. Optimum activity of the enzyme was maximum at pH 8, temperature at 37 °C and best suitable substrate is keratin azure. Keratinase was a monomer unit confirmed by Native PAGE and 66 kDa molecular weight was confirmed by SDS-PAGE.

Conclusion: From the present study it is concluded that, *Bacillus megaterium* was produced maximum amount of keratinase and it can be used in large scale production.

Keywords: Purification, keratinase, 16S rRNA, soil, SDS-PAGE.

BIOACTIVE COMPOUNDS OF *Amomum maximum* LEAF EXTRACT - A STUDY BY GCMS

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Background: Plants are considered to have a rich source of naturally occurring bioactive compounds with high medicinal properties against various diseases. Plant based drugs contain a mixture of multiple components which serve the effective control of disease. The use of medicinal plants for local remedies is a traditional custom, as we know medicinal plants have the potency to combat all most all diseases. *Amomum maximum* roxb commonly called as Java Cardamom belongs to the family Zingiberaceae and many species of *Amomum* are used as medicine, spice, condiment and vegetable.

Objective: To evaluate phytochemicals, antimicrobial, antioxidants and antitumor activities of *Amomum maximum* plant leaf extract.

Methodology: The methanolic extract of *A. maximum* leaf was analyzed using Gas Chromatography Mass Spectrometry. The compounds found were matched with National Institute of Standards and Technology Library.

Results: The phytochemicals screened were steroids, glucose, fatty acids, alkaloid and terpenoid. GCMS analysis revealed the presence of 10 bioactive compounds. Presence of various bioactive compounds in *A. maximum* justifies the use of plant for various ailments by traditional practitioners. However, isolation of individual phytochemical constituents and subjecting it to the biological activity such as antimicrobial, antioxidant, antitumor etc will definitely give effective results.

Conclusion: From the results, it could be concluded that *A. maximum* contains various bioactive compounds may determine the best application as a promising natural medicine to prevent various diseases and can be used for different pharmacological applications

Keywords: *Amomum maximum,* GCMS, phytochemical, Zingiberaceae.

CHROMOSOMES AND MICRO MORPHOLOGICAL CHARACTERS OF THREE MULBERRY (*Moraceae*) VARIETIES

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Background: Mulberry plant belongs to the family *Moraceae.* It is a multipurpose, predominantly dioecious, heterozygous and out breeding tree. It is an economically important tree and its leaf is the sole food for the silkworm *Bombyx mori* L. Although different mulberry genotypes are available in nature, all are not utilized for silkworm rearing due to lack of one or the other important morphological trait. Most of the cultivated varieties of mulberry are diploids with 2n=28 chromosomes, but few are polyploids.

Objective: To examine the cytomorphological and anatomical studies and improve the morpho-economic traits with higher yield and nutritionally superior leaves of different mulberry genotypes.

Methodology: Three different mulberry varieties, viz., S_{30}, S_{41} and *Morus cathyana* were selected for cytomorphological studies. Stomatal frequency, somatic chromosome number, ploidy level and meiotic behaviours were studied for these varieties.

Results: In the present investigation in the genus *Morus* analyses the chromosome number, ploidy level, meiotic behaviour and stomatal frequency in three different mulberry genotypes. Among these, S_{30} is diploid with 2n=28, S_{41} is triploid with 2n=42 and *Morus cathyana* is tetraploid with 2n=56 chromosomes. Meiosis was irregular. Various anomalies like univalents, bivalents, trivalents, quadrivalents and unequal separation of chromosomes were observed in some pollen mother cells (PMCs) studied. Stomatal frequency was found to be lesser in triploid when compared to diploid and tetraploid mulberry varieties.

Conclusion: It is concluded that, the present findings will be of much use in establishing a phylogenetic relationship and evolution of mulberry varieties based on chromosome numbers, stomatal size and frequency as well as ploidy level.

Keywords: Chromosomes, cytomorphology, mulberry*,* ploidy, silkworm,

IN VITRO REGENERATION OF *Cissampelos pareira* L. – AN IMPORTANT MEDICINAL PLANT

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Background: An efficient protocol developed for regenerative capacity from explants of *Cissampelos pareira.* It is a pantropical, woody, herbaceous climber commonly known as the midwives herb belongs to the family Menispermaceae. The main active principle which is therapeutically known as curare alkaloids belongs to the Bisbenzylisoquinoline.

Objective: The present study designed to regenerate *C. pareira* using leaves and nodal explants through callus cultures and direct organogenesis.

Methods: The surface sterilized explants were inoculated on Murashige and Skoog's (MS) medium supplemented with different concentration of auxins and cytokinins to raise the callus and direct organogenesis of *C. pareira* were carried out.

Results: Callus was induced on MS medium supplemented with various concentration and combination of auxins and cytokinins. Maximum percentage of callusing was observed on media supplemented with 2, 4-D 2-4 mg/L, NAA 2 mg/L and combination of NAA 2mg/L and Kinetin 0.5mg/L from leaf and nodal explants. Whereas direct organogenesis was observed in the nodal explants inoculated on MS + BAP 0.5- 2mg/L + IBA 2 mg/L. The shoots were transferred to the rooting medium containing MS + IBA (2mg/l). The well rooted plantlets were successfully hardened in hardening mixture - manure, soil and sand (1:1:1) and were maintained in the green house condition.

Conclusion: The present investigation examines the *in vitro* technique can be effectively used for rapid propagation as well as for conservation of the taxon. Further, the study can be utilized for the extraction of alkaloids which is much demand in the pharmaceutical industry.

Keywords: Callus, *Cissampelos pareira,* explants, MS medium, organogenesis,

TRADITIONAL ETHNO - VETERINARY PRACTICES IN KAIMARA OF CHIKMAGLUR TALUK-KARNATAKA

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Background: The animal and plant relationship has been continuing since time immemorial. Ancient man had discovered natural products to satisfy his needs including relief from his personal ailments as well as fellow domestic animals. In recent years, ethno botanical studies are recognized as the most fruitful methods for identifying new sources of drugs. It is interesting to note that most of the recent popular drugs have been originally isolated from the plants of ethno botanical interest.

Objective: The present study was aimed to investigate the Ethno veterinary practices of Kaimara of Chikmagalur Taluk, Karnataka.

Methodology: The study was conducted during 2014 and 2015 using open ended questionnaires, frequent field visits and interviews with tribal practitioners for Ethnomedicinal information. Kaimara is situated along the mountain ranges of Western Ghats having moderate and congenial environment for the growth of medicinal plants. The area is covered by wet deciduous forest and mountain ranges viz. Mullaingiri, Dattapeeta and Seethalyanagiri.

Results: Ethno veterinary survey in this area revealed more than 36 angiospermic plants belonging to 27 families employed by tribes and traditional healers used to treat animals. Due to poor availability of modern health care facilities and poverty of farmers, they fully or partially depend on local ethnic medicinal plants for the health care of domestic animals. Diseases like Anthrax, Foot and mouth disease, Endometritus, Cataract, Uterine vaginal Prolapse, Maggot infestation, Mastitis can be cured by using *Azima tetracantha, Tagetus erecta, Sesbania grandiflora, Rubia cordifolia, Ficus tinctoria, Diospyrous Montana, Annona squamosa,* and *Citrus aurantifolia* etc.

Conclusion: Present study concluded that for acute life threatening infections and epidemics, modern medicine such as antibiotics will remain the first choice but for common and chronic conditions like skin disease, worms, wounds, diarrhoea etc. Ethno veterinary medicines remain choicest treatment. Although local knowledge has its limitations, there is a tremendous scope for its use in interventions. During the investigation, a well-developed system of ethno veterinary practices was found in the tribal's of Kaimara. Further studies are needed for phytochemical and pharmaceutical analysis of drugs and to conserve medicinal plants for future use.

Keywords: Ethno veterinary, traditional knowledge, medicinal plants, Kaimara

YOGA AND ITS EFFECT ON THE PSYCHOLOGICAL DISTRESS OF CARDIOVASCULAR PATIENTS: AN ANALYITICAL STUDY

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Objective: Alternative therapies are budding as a hopeful method to lessen psychological distress and lifestyle patterns recognized to contribute to cardiovascular disease. In the current study, the investigator focused on the effect of yoga on the level of psychological distress of cardiovascular patients.

Design and methodology: An experimental group design was used. Sample consisted of 45 cardiac patients selected from hospitals in Kerala using purposive sampling method. Depression Anxiety Stress Scale (DASS 21) was used to assess the psychological distress variables. The yoga intervention was done with the help of an expert yoga instructor. The yoga sessions included Surya Namaskar, Vakrasana, Trigonasana, Marjarasana, Uttanpadasana, Sankatasana, Pavanmuktasana, Tadasana and Pranayama. Wilcoxon Paired Signed Rank Test was done to interpret the data.

Results: The results proved that yoga has a significant effect in reducing the psychological distress of cardiovascular patients. The findings showed that it will be beneficial for cardiac patients if they use yoga as an alternative therapy along with the mainstream medicine.

Conclusion: The findings can be enormous significance for cardiologists, psychologists, and yoga therapists. When the implication of the study is considered, it can be understood that all the findings of the present investigation can be of much help for cardiovascular disease patients and others directly or indirectly linked to the welfare of cardiac patients.

Keywords: Cardiac disease, psychological distress, yoga.

EFFECT OF DIFFERENT GENRES OF MUSIC LISTENING ON SIMPLE REACTION TIME IN YOUNG ADULTS

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Background: Music is loved by everyone. We in our fast paced lives, still make time to listen to music while we commute to and from work. Documentary evidence exists to support the effect of music listening on the mental processes. Reaction time is the time duration between the presentation of a sensory stimulus to the elicitation of an appropriate response.

Objectives:

1. To determine the effect of music listening on visual reaction time.
2. To compare the effects of different genres of music on visual reaction time

Design and Methodology: Source of the data - Thirty five healthy students from Rajarajeswari Medical College was taken aged between 17-25 years, based on the study criteria. PC-1000 reaction time apparatus connected to a laptop with Audacity software was used to collect data. The ethical clearance was obtained from the institutional ethical committee. Study was conducted in department of Physiology during morning hours. Procedure was explained to the subjects and informed consent taken. They were advised to have adequate sleep prior to the night of recording. A trial run was carried out to familiarize the subjects with procedure. Simple reaction time was recorded on the subjects initially without listening to music, then with classical music followed by rock music with 15 minute time intervals between each recording. Inclusion criteria - Young healthy adults between the age group of 17-25 years. Exclusion criteria - Alcoholics, smokers, psychological disorders or on treatment, thyroid disorders, uncorrected visual or auditory impairments, musculoskeletal injuries or disorders, persons skipped breakfast on recording day, persons received inadequate sleep in previous night (< 7 hours)

Statistical Analysis: Paired "t"-test was employed to evaluate the difference in reaction time before and during listening to music. P-value of <0.05 was taken as significant.

Results: The mean visual reaction time without listening to music was found to be 181.60 ± 31.73 ms. The mean visual reaction time in subjects listening to classical music was 187.71 ± 27.68 ms and in subjects listening to rock music it was 191.20 ± 22.89 ms. Significant prolongation of visual reaction time on listening to rock music was noted when compared the scenario without any music (p-value=0.041). The prolongation of visual reaction time while listening to classic music on statistical analysis was insignificant.

Conclusion: Listening to music was found to prolong reaction time while it was significant with rock music which wasn't the case with classical music perhaps making it safer to listen to while performing tasks like driving.

Keywords: Music, visual, thyroid, disorders,

HOMEOPATHIC TREATMENT AS AN ADJUNCT TO NEUROPSYCHOLOGICAL THERAPIES IN CHILDREN WITH AUTISM SPECTRUM DISORDERS

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Background: Autism Spectrum disorders have become major issues affecting children all over the world in recent years. Since autism involves a triad of speech, language and communication difficulties, social skill deficits and behavioural issues affect all areas of development, there is a need of holistic approach. Neuropsychological management of autism spectrum disorders could encompass cognitive behaviour therapy, sensory integration therapy, ABA (Applied Behaviour Analysis), special education, etc. In many children, certain behaviour issues such as head banging, temper tantrums, stimming and sensory issues difficult to deal in spite of continued efforts. Homeopathy is a system of medicine that is based on holistic and individualized treatment of disorders. If there is a behavioural issue, then homeopath will look at the behavioural circumstances. For example, if child has mouthing, it may be due to oral sensory issue and addressing this with homeopathic treatment help to reduce the behaviour and help the child respond better to behaviour therapy.

Objectives:

1. To illustrate efficiency of homeopathic treatment as an aide to neuropsychological therapy.
2. To develop an integrative multimodal and holistic approach in handling children with autism.

Design and Methodology: A qualitative method with observational studies was used. The study is a retrospective study of children with autism who were on homeopathic treatment while they were undergoing different therapies such as occupational therapy, behaviour therapy, applied behaviour analysis and other therapies. Children with Autism Spectrum Disorders who were going to either special schools or integrated schools who were referred to the clinic were administered constitutional homeopathic remedies. The remedies were selected after a detailed case history and observation of the child.

Results: Parents reported positive changes in child and some parents reported a reduction in temper tantrums and aggressive behaviours. Children reportedly became calmer and less hyperactive. Parents and therapists reported reduction in anxiety states and self-injurious behaviour. It was seen that, time frame for these positive changes in behaviour was considerably reduced in children who were on homeopathic treatment as compared to other children. Parents also reported reduction in sensory issues as well.

Conclusion: Individualized homeopathic treatment that treats the child as a whole can be an effective adjunct to help neuropsychological management in children with autism. Homeopathic treatment can accelerate and complement the response to conventional therapies.

Keywords: Autism, conventional therapies, homeopathic, neuropsychological,

CONCEPT OF DEPRESSION IN UNANI SYSTEM OF MEDICINE: A REVIEW

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Objective: Depression represents a major medical as well as social problem worldwide. According to WHO report, approximately 450 million people are suffering from a mental or behavioral disorder and within the next 20 years, depression is predicted to become one of the leading causes of disability—second only to ischemic heart disease in terms of the total cost to society. Though a number of researches have been carried but till date it has not been possible to resolve the problem due to side effects, drug interactions, and contraindication in pregnancy, lactation etc of the antidepressant drugs. The objective of this article is to give systematic and best evidence based information about the ancient concept of depression, its causes, safe and effective management of depressive disorders in Unani System of Medicine.

Design and Methodology: Thorough literature research was done to understand the concept of depression, its different types with etiology, sign and symptoms basic principle of treatment and holistic approach described in Unani literature by the renowned Unani physicians like Buqrat (Hippocrates) Jalinoos (Galen), Zakariya Razi (Rhazes), Ibne Sina (Avicenna), Roofas, Rabban Tabri, Akbar Arzani, etc. Literature was also searched on Pub Med/ Google scholar in order to achieve high quality evidences along with scientifically proved Unani drugs.

Results: On the basis of comprehensive literature research it was ascertained that the present day depression has been very well explained centuries ago by Unani physicians under the heading "*Malikholia*", which is an Arabicized version of Greek word "Melancholia". This term is ascribed to the causative factor of the disease that is disproportionate accumulation of black bile or some deterioration in its quality. Unani System of Medicine has enumerated the concept of *Malikholia,* and a well-organized treatment plan for its management along with holistic approach. Many single and compound drugs of Unani medicine have been scientifically validated for the treatment of depression without any observable side effects.

Conclusion: The symptoms of Melancholia described in Unani literature have similarity with the symptoms of depression described in DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*). Therefore use and development of Unani herbal antidepressant as an alternative to chemical antidepressant will be a valuable contribution to health care system.

Keywords: Depression, *Malikholia,* black bile, Unani system of medicine,

ADVANCED ICT SKILLS ADAPTION OF IN E-HEALTH AND SOLUTION OF SECURED MEDICAL SOLUTION: STRUCTURAL EQUATION MODELING

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Background: The use of Information and Communication Technology-ICT in health can make a different world of in all levels the transformation of the health system is narrowly paying attention on curing diseases in hospitals by health professionals, to a system alert on keeping citizens healthy by providing them with information to take care of their health when we need to arising and where we may be. Hospitals need to be aware of ICT, e-health skill which will make them more efficient, Improve quality and strengthen processes of Public health service. The paper discusses the challenges and opportunities in ICT implementation in health care specific to the Indian scenario.

Objectives: This study analyzed the ICT skills in health sector and challenges of health care system in India where the important of ICT shills and its implementation is in e-health care system.

Methodology: The quantitative method was analyzed using structural equation modeling and analysis of theoretical models, testing for hypothesizes and drawing inferences about the nature of causal relationships. In total 328 public participated in the study, following data screening, a final sample of 300 was achieved.

Result: Of the 300 responses, there were 108 females (36%) and 192 males (64%). Age Group in years are below 25 30.3%, between 26-35 years 30.3%, between 36-45 years 20.0% and above 45 years 19.3%. Educational Qualifications are Up to HSc-24.7%, UG-25.7%, PG-33.3% and Professional-16.3%. Marital Status is Married-60.3 and Unmarried-39.7. Occupations are in Government Sector-45%, Private Sector-25.7%, Self Employed-20.7% and Others-20.3%.

Conclusion: ICT support improvements increase the quality of health services, so the health professionals need to gain an understanding of how to evaluate, interpret, and apply this information on their specific practice. ICT can also be instrumental in helping the public how to be healthy, though until a greater percentage of the population are on-line and technologically literate more effective solutions. Finally, Information and Communication Technologies can play a powerful role in improving the efficiency of health services, through computer-based records and other technological infrastructure-building, health care institutions can better manage and share information, thereby improving the efficiency of the health system as a whole. This study has proved in Structural equation model with model fit and nonparametric regression pair analysis.

Keywords: Information and Communication Technology (ICT), e-Health, public sector.

THEME - 3

MENTAL HEALTH

BUILDING RESILIENCE IN PRE-ADOLESCENT UNDER PRIVILEGED GIRLS

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Background: Resilience is a person's ability to cope with living in spite of stress. Resilience is about 'bouncing back' from what life throws at us. Being resilient help children cope with problems and difficulties in their day to day life. All children face challenging situations irrespective of their background. Studies show that resilient children lead happier, healthier lives and achieve their goals in spite of their obstacles. Resilience can be taught to help children face problems and challenges in life. Therefore this work was taken up to find out resilience level in underprivileged pre-adolescent girls and conduct activities to build resilience in them.

Objective: To estimate the level of resilience in pre-adolescent under privileged girls and to suggest activities to enhance resilience in pre-adolescent under privileged girls

Design & Methodology: Purposive sampling technique was used to collect data. It consisted of 79 pre-adolescent girls from grade VII. To estimate level of resilience, self-made resilience scale was used. It is a 14 item 7 point scales from strongly disagree to strongly agree. Purpose of study was made clear to the participants and tools were administered. Help was provided to the participants in case they found any of the items difficult to comprehend. Results were obtained and percentages were calculated for analysis.

Results: Results show that 28.10 % of the subjects had very high resilience scores, indicates that girls have strong resilient personality. 40.37 % subjects had high resilience scores indicate they are doing well but could do better. It also indicates that they have been able to cope with difficulties in life and deal effectively with the day to day problems. 20.2 % subjects had average resilience scores indicate that they need help to cope with their situation. 11.33 % of the subjects had low resilience scores indicate that they are unable to cope with the crisis in their life and therefore need urgent intervention to be able to cope with life situations and develop skills to build resilience. None of the girls included in the study got very low scores.

Conclusion: Important finding of this study was under privileged pre-adolescents girls having very high levels of resilience show better coping skills and under privileged pre-adolescents girls having average and low levels of resilience have to be taught to cope better with the situation. We can help children to develop resilience by helping them focus on individual strengths, empower them to make decisions, have belief in her own abilities to build confidence. This work discusses the following activities that were taken up to help pre-adolescents under privileged girls develop skills for resilience: T-Shirt activity, the truth is known, Represent feelings with colour, finding hidden treasures, the silver lining activity and a collection of hope.

Keywords: Pre-adolescent, resilience, under privileged girls.

THE STUDY OF PSYCHOLOGICAL COUNSELLING NEEDS AND MENTA HEALTH AMONG INSTITUTION REARED AND FAMILY REARED CHILDREN

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Objectives:

1. To study the psychological counseling needs and mental health among institution reared and family reared children.

2. To assess the relationship between the psychological counselling needs and mental health of institution reared children and family reared children.

3. To assess and compare the psychological counselling needs and mental health of institution reared children and family reared children.

Design and Methodology: The present study is designed to determine the relationship between psychological counselling needs and mental health among institution reared children and family reared children. It was aimed at assessing psychological counselling needs and mental health among institution reared (N=50) and family reared (N=50) children. Selected children were subjected to the assessment of the psychological counselling needs scale (PCNS) mental health battery (MHB). Data obtained from the response of the sample (N=100) on the scales were statistically analysed to compare their differences in terms of rearing style of children using   't' test. The interrelationship between psychological needs and mental health were also examined using persons product movement statistical analysis.

Results: The findings revealed that there were highly significant differences between the institution reared and family reared children (at 0.01 level) on dimensions assessed such as emotional stability, adjustment, autonomy dimensions of mental health and over all mental health. And the findings revealed that there were highly significant differences between the institution reared and family reared children (at 0.01 level) on psychological counselling needs. Further, the findings revealed that there were no significant differences found between institution reared and family reared children on dimensions such as security – insecurity and self – concept dimensions of mental health. It was also found that psychological counselling needs has negative relationship with mental health.

Conclusion: A significant difference was found between the institution reared and family reared children on overall mental health and its dimensions viz., emotional stability over all adjustment and autonomy. A Significant difference was found between the institution reared and family reared children on Psychological counselling needs. Psychological counselling needs showed negative relationship with total mental health.

Keywords: Psychological counselling, mental health, institution reared children, family reared children,

OCCUPATIONAL STRESS AND MENTAL HEALTH
OF PRIMARY SCHOOL TEACHERS

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Objective: The main purpose of this research was to find out the mean difference between occupational stress and mental health.

Design and Methodology: The total 100 sample were taken, out of which 50 male primary school teachers and 50 female primary school teachers were selected in Rajkot city (Gujarat). The research tool the Occupational Stress Index developed by A.K.Srivastava and A.P.Singh (1984) and mental health was measured by Dr.D.J.Bhatt and Gita R.Geeda (1992) for translated in Gujarati and the t-test was applied to check the difference of occupational stress and mental health. The Karl-person 'r' method used to check the correlation.

Results: Result reveals that significant difference in occupational stress and mental health with respect to both male and female primary teachers.

Conclusion: While co-relation between occupational stress and mental health reveals 0.69 positive correlation.

Keywords: Occupational stress, mental health.

MENTAL HEALTH AND PSYCHOLOGICAL WELL-BEING IN ADOLESCENCE BOYS AND GIRLS

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Objective: The aim of the present study was investigated to mental health and psychology well-being in Adolescence boys and girls.

Design and Methodology: The random sampling Method was used in this study. The total sample consisted of 80 Adolescent. 40 boys and 40 girls of 10th standard students selected from the Junagadh city. The research tool for mental health was measured by Dr.D.J.Bhatt and Gita R. Geeda (1992) and psychological well-being scale developed by sudha boggle (1995). Translated in Gujarati and the t-test was applied to check the difference of mental health and psychological well-being and the Karl-person 'r' method used to check the correlation.

Results: Result reveals that significant difference in mental health and psychological well-being with respect to both adolescence boys and girls.

Conclusion: While co-relation between mental health and psychological well-being reveals 0.82 positive correlation.

Keywords: mental health, psychology well–being.

UNDERSTANDING ISSUES IN CROSS CULTURAL SUPERVISION USING HEURISTIC MODEL OF NON-OPPRESSIVE INTERPERSONAL DEVELOPMENT.

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Objective: Study focuses on understanding different issues in cross cultural supervision, especially faced by an ethnic minority supervisor in counselling supervision. Heuristic Model of No oppressive Interpersonal Development provides one of the most comprehensive model by integrating Racial Identity Development Model and cultural identity development model (race, ethnicity, sexual orientation, gender, disability and socioeconomic status). In HMNID model, the pivotal role of supervisor is to facilitate the awareness and supervisee growth in order to help supervisee become more aware and go to next level of advanced cultural identity development. The model is framed to understand the supervisor's patterns of thoughts, feelings, and behaviours about themselves, their supervisee, and clients across specific demographic variables. There are three additional assumptions to the model. The first assumption is the belief that people can be more advanced in terms of their Means of Interpersonal Functioning (MIF) for a demographic variable (e.g., gender) than for another (e.g. Race). Secondly, this model applies to inhabitants of the United States as the social context of the model is derived in this country. The last assumption of this model is that the processes and outcomes in supervision and counselling can be characterized and predicted by the knowledge of each dyadic member's MIF for each demographic variable. It is assumed that people have the ability to developmentally progress through four phases or stages of MIF (i.e., adaptation, incongruence, exploration and integration).

Design: Extensive interview of the ethnic minority supervisors will be done by researcher. Twenty ethnic minority supervisors in counselling profession will be chosen from three different universities in Florida state. Total number of participants (ethnic minority supervisors) will be 60. Interviews with supervisors will be video recorded with consent from the supervisors. Later, the interviews will be transcribed and coded accordingly.

Methodology: Qualitative research, namely phenomenological method of interviewing supervisee will be used in this research study.

Results: The lived experience of ethnic minority supervisees is transcribed and a theme is identified. Thoughts, feelings and attitudes about the communication process, theoretical orientation and different challenges faced by ethnic minority supervisors in counselling supervision will be discussed in details.

Conclusion: The presentation will focus on discussing about the issues in cross cultural supervision, explaining the HMNID model and four different stages will emphasize a supervisee's cases in each stage.

Keywords: Counselling, cross cultural, ethnic minority,

THE EFFECTIVENESS OF A PROPOSED PSYCHOLOGICAL COUNSELING PROGRAM TO REDUCE THE FUTURE ANXIETY AND ITS IMPACT ON ACHIEVEMENT, MOTIVATION AND LEVEL OF AMBITION AMONG THE COMMUNITY COLLEGE STUDENTS AT JAZAN UNIVERSITY (SAUDI ARABIA)

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Objectives: Current study aims at identifying the effectiveness of a proposed psychological counselling program to reduce the future anxiety and its impact on achievement motivation and level of ambition among the Community college students at Jazan Universty.

Design and Methodology: The quasi-experimental method was used with random sampling. Ore-test was applied on both the experimental and control group. A counselling program was applied on the experimental group, after that a post-test was applied on experimental and control group. Population of the study consisted all community college students enrolling in preparatory year in Jazan University during the academic year 2013/2015. Additionally, the study sample was applied on (40) students, (20) for the experimental group and (20) for the control group. Future anxiety scale (FAS) used by researcher as one instrument of the current study. This scale was consisted of (38) items and distributed into four areas (pessimism, about the future, thinking anxiety about the future and fear about the futuristic life problems and fear of disease). Scale of achievement motivation (SAM) was applicable and suits Saudi environment. In addition, (SAM) was consisted of 9550 items distributed into (11) sub-scales which were (eternal sanctions, adventure, perseverance, diversity of interest, fear of future, lack of confidence in ability, anxiety of getting started, self-confidence, competition, concern of future and independence). The scale of level of ambition (SLA) was consisted of (36) items distributed into four areas like (optimism, ability, acceptance the new, bearing frustration) as well as proposed psychological counselling program consisted of (10) sessions.

Results & Conclusion

1. There are no significant differences in the means of pre-test between experimental and control groups on the scales of concern of future, achievement motivation and level of ambition.

2. There are significant differences in the means of post-test between experimental and control groups on the scale of concern about the future.

3. There are significant differences in the means of post-test between experimental and control groups on the scale of achievement motivation.

4. There are significant differences in the means of post-test between the experimental and control groups on the scale of level of ambition.

5. There are significant differences in the means of pre and post-test of experimental group on the scale of concern about the future.

6. There are significant differences in the means of pre and post-test of experimental group on the scale of achievement motivation.

7. There are significant differences in the means of pre and post-test of experimental group on the scale of level of ambition.

8. There are no significant differences in the means of post and tracking-test of experimental group on the scales of concern of future, achievement motivation and level of ambition.

THE BURDEN OF THE BURNT: AN EXPERIENTIAL JOURNEY

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Objectives: This paper will focus on the opportunities, constraints and rehabilitation along with the impact of social work expertise at burns ward at Kilpauk Medical College, Chennai. There are tremendous opportunities for a medical social worker or psychiatric social worker where she/he can chiefly exhibit their professional learning into practice. The areas to be addressed are vast in nature like discrimination and stereotypes, the psychological distress faced by the victim and families, problems with long term hospitalization, dietary substances, physiotherapy, financial constraints, and assisting care givers.

Methodology: This paper is based on the field work internship experience in the Burns ward at Kilpauk Medical College, Chennai.

Results and Conclusion: The emergence on the need to sensitize society on the effects and aftermath of burns is important. Predominantly people resort to burning themselves as the easiest and quick means of homicide and suicide due to various reasons like domestic violence, dowry and its related forms. The inability to cope to various situations gives rise to such a scenario. In developing nations like India where people are culturally and socially intertwined with the society and its norms there are still increase in the burns rate in the country. There are less statistics that are available on the rate of suicide and homicide among women as most of them disappear unreported. The prevalence among the rural and urban population is significantly high irrespective of the platform one hails from. Though according to National Crime Records Bureau, there is a decline in the past one decade, as the authenticity of the available data is questionable as the data collected are registered cases from the police station.

Keywords: Burn victims, domestic violence, gender, mental health,

DETECTING PSYCHIATRIC MORBIDITY IN THE MEDICALLY ILL.

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Background: There are very few objective assessment tools available for identifying mental health problems in patients with medical illnesses. The available tools are suitable for western population, expensive, and we hardly have any tool to screen psychiatric morbidity in general hospital setting in India.

Objective: To develop a screening measure to detect psychiatric morbidity in people with medical illnesses.

Design and Methodology: Screening scales for psychiatric morbidity in general population cannot be used for those with medical illnesses, as these have items which are common features of medical illnesses, like bodily symptoms, fatigue, loss of concentration and disturbance in biological functions. The scale for screening psychiatric morbidity should not have such items, as these would lead to false enhanced scores. There are four stages of developing this screening instrument and this scale is under validation process. A newly developed screening instrument for psychiatric morbidity in general population is being modified for use in medically ill persons. It consists of 7 items focussing on various mental health dimensions. Each item is scored from 0 to 3 and score of more than 3 is suspected to be a mental health concern. The mental health issues in medically ill were discussed with physicians from diabetes centre and those dealing with chest diseases and psychiatry consultants. Ten items were identified which the physicians noted often in their medically ill patients. These changes were evaluated by a consultant clinical psychologist to see appropriateness of the screening measure.

Results: A final screening scale for detecting psychiatric morbidity in medically ill has been evolved. This scale will be applied to population suffering from respiratory, endocrinological, cardiovascular diseases and cancer population from Rajiv Gandhi Institute of Chest and Tuberculosis, Samatvam clinic and Kidwai Memorial Institute of Oncology respectively. At the end of the study the sensitivity and specificity of the instrument will be determined.

Conclusion: Implication of the study is that we shall be able to screen the patients attending general hospital setting for psychiatric morbidity and would be able to provide appropriate level of care through medications or psychotherapy or complementary and alternative medicine.

Keywords: Cardiovascular, endocrinological, population, psychiatric morbidity.

THE FATAL EPIDEMIC ANXIETY

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Background: Anxiety disorder is a feeling and emotion of excessive and prolonged worry, a sense of dread and generalized tension. Generalized Anxiety disorder, panic disorder, obsessive compulsive disorder, phobias and social anxiety disorder are the anxiety types. It can be treated by having socio and psychological remedies. Moreover, family and friendly support as well as yoga activities can lessen anxiety. According to the national institute of mental health, fear and anxiety occur due to an anxiety disorder are markedly different than brief episodes of these feelings that are commonly related to normal events. Anxiety causes due to emotional symptoms of anxiety and anxiety attacks, physical symptoms of anxiety and anxiety attacks, increased heart rate, shaking and inability to breathe deeply.

Type of Anxiety:

1. Generalized Anxiety Disorder (GAD): In this, you may feel constantly worried for no real reason to worry anything. In most cases, this type of anxiety disorder starts when you are in your teens and its symptoms get worse as you progress through adulthood.

2. Panic Disorder (Characterized by Anxiety or Panic Attacks): In this condition, which is often marked by extreme anxiety, may cause you to feel panicked about small things and these feeling may escalate during time of stress.

3. Obsessive Compulsive Disorder (OCD): In this disorder a person with OCD Struggles with ending their Compulsive desires to repeat the same actions over and over again.

4. Phobias: If you or someone you love has intense and irrational fears of things that are really not that dangerous, a phobia may be in play.

5. Social Anxiety Disorder: If people feel afraid of being judged by others so he may suffering from Social Anxiety Disorder and your symptoms may be so devastating that they may disrupt your relationship or your daily life.

Results: Anxiety is quite normal in modern time. It is the mother of many diseases like B.P, sugar, hypertension, mental unrest, digestion, loss of sleep and insufficiency of working power. Anxiety can be easily controlled by medication. Cognitive behavioural therapy helps how you think about danger and teaches techniques for re-evaluation the degree of that threat. Massage therapy slows the release of stress hormones like cortical linked to anxiety. Herbs, sleep, yoga helps us to away from this anxiety disorder.

Conclusion: Anxiety is mental and physical rust it corroder mind as well as physique. It requires the early cure to avoid disastrous implications on life.

Keywords: Anxiety, hypertension, mental unrest, digestion, herbs, sleep, yoga.

MINDFULNESS BASED CBT IN MANAGING PERSISTENT PAIN

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Background: Mindfulness is the skill of being aware of the present and from moment to moment. Such skill has shown to have profound positive outcomes in as diverse fields as learning chronic pain management and mental health. The techniques and practices have been derived from ancient Indian spiritual and philosophical traditions of yoga and meditation. Mindfulness based therapies have a mounting evidence base and are now being widely offered in several hospitals in USA and Europe. Cognitive behaviour therapy (CBT) is effective adjuvant psychotherapeutic intervention complements medical treatment. When mindfulness is combined with CBT, it becomes more effective intervention in empowering patient with persistent pain. Mindfulness based cognitive behaviour therapy (MBCBT) has shown to be an effective intervention in persistent pain conditions in West.

Objectives:

1. To demonstrate clinical effectiveness of brief mindfulness based CBT (MBCBT) in patients with persistent pain conditions.

2. To demonstrate feasibility of a short term training program in mindfulness based CBT (MBCBT) to healthcare professionals managing patients with persistent pain conditions.

Design and Methodology: A mixed quantitative and qualitative method was used with an open study design. Brief Mindfulness Based CBT (MBCBT) was administered to patients referred with persistent pain due to Work Related Musculoskeletal Disorders (WRMDs). Pre and post-therapy pain intensity and distress were recorded with visual analog scales. A small group of healthcare professionals treating patients with WRMDs were given a4-day training in Mindfulness Based CBT. Pre and post-training assessments were done.

Results: All patients treated with MBCBT receiving as few as a two sessions of MBCBT showed improvements in their report of pain intensity and distress. All healthcare professionals who completed the full course showed improved cognitive skills in their use of MBCBT. They also reported a change in their own personal attitude to persistent pain and themselves felt empowered as individuals.

Conclusion: Mindfulness based cognitive behaviour therapy (MBCBT) is a simple and yet effective therapeutic tool in the management of persistent pain. MBCBT can be taught as a short term training course to healthcare professionals giving them the cognitive skills to incorporate MBCBT in their treatment and also personally empower them as well.

Keywords: Mindfulness based cognitive behaviour therapy, persistent pain, healthcare

ENHANCING LEADERSHIP SKILLS OF PREADOLESCENT GIRLS WITH EMOTIONAL INTELLIGENCE

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Background: Emotional Intelligence has been defined as "the ability to monitor one's own and others' emotions, to discriminate among them and to use the information to guide one's own thinking and actions" (Salovey& Mayer, 1980). Successful social relationships and leadership require a set of skills and abilities in the emotional and social realm. These capacities include self-awareness, accurate perception of others' emotions, the ability to respond appropriately to emotions, ability to regulate emotions in a healthy and productive way, flexible coping skills and effective interpersonal problem solving and optimism in the face of adversity (Bar On, Tranel, Denberg & Bechara, 2003).This study is a part of an ongoing long term project on leadership skills. One of the important components of developing leadership skills is Emotional Intelligence.85-95% of the difference between a "good leader" and "excellent leader" is due to differences in EI (Daniel Goleman, 1998). Therefore it was important to find out the Emotional Intelligence in preadolescents girls to develop leadership skills.

Objectives:

1) To identify levels of Interpersonal Skills in preadolescent girls

2) To determine the level of Intrapersonal Skills in preadolescents girls

3) To explore the ability of Stress Management in preadolescent girls

4) To interpret levels of adaptability amongst preadolescent girls

Design & Methodology: Sample size - 87 preadolescent girls in the eighth grade (Gujarathi Medium) from the lower socio- economic strata. Purposive Sampling design was used. Tool - Bar On EQ-i YV(S) Standardized Tool (Reuven Bar On & James Parker, 2000). Analysis - Data was analysed with the help of T-test to compare the results.

Results: There is significant difference found in the Interpersonal and intrapersonal skills of the subjects. Results indicate that girls need to develop adaptability and stress management skills.

Conclusion: It is important to develop skills of emotional intelligence in order to inculcate leadership skills in young girls. This paper discusses the modules designed to enhance stress management skills, adaptability, and interpersonal and intrapersonal skills and various activities to nurture EI skills in preadolescent girls.

Keywords: preadolescent, stress management, socio- economic strata,

EFFECT OF CENTRAL EXECUTIVE WORKING MEMORY INTERVENTION ON WORKING MEMORY CAPACITY, FLUID INTELLIGENCE AND MATHEMATIC SKILLS AMONG MIDDLE SCHOOL STUDENTS.

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Background: The central executive working memory is responsible for the overall control of the working memory system via focusing, dividing and switching attention in a flexible manner.

Objective: The present research investigated whether Central executive working memory intervention would enhance Working Memory capacity, Fluild Intelligence (Gf) and mathematic skills among middle school students.

Research Design: The present research adheres to True Experimental Research Design (pretest - posttest - control group). Based on two criteria, 44 students were selected as samples (Non probability – purposive sampling) among the research population of 315 middle school students. 1) 50 % to 60 % in maths in previous year's annual exam. 2) No psychological abnormalities, neurological pathologies, cognition deformities or learning disabilities.

Methodology: Pre-tests were administered and scored. 22 Students who scored high were in the control group and 22 students who scored less were assigned to the treatment group. Treatment group was subjected to 5 weeks intense Central executive working memory Intervention. The intervention had 6 components, namely, backward digit span, backward word span, computation, trial making, n-back and random generation. Then post tests were administered and scored.

Results: Data analysis revealed three facts. 1) Central executive working memory Intervention significantly enhanced WM capacity, Gf and mathematic skills of the treatment group. 2) Control group did not produce improvement at the post test measures of WM, Gf and maths. 3) There produced a highly significant enhancement in the post tests measures of WM, Gf and maths of treatment group when compared to the control group.

Conclusion: Hence, it is evidently proved that the Central executive working memory Intervention strongly improved the WM capacity, Gf and mathematic skills of middle school students.

Key words: Central executive working memory, fluid intelligence, mathematic skills.

INCLINATION TOWARDS SOCIAL NETWORKING SITES AND ITS EFFECT ON SELF-ESTEEM, ATTACHMENT STYLE AND VARIOUS PERSONALITY FACETS: A COMPARATIVE STUDY BETWEEN MALE AND FEMALE UNDERGRADUATE STUDENTS OF KOLKATA.

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Background: Social networking sites such as Facebook, Twitter, etc have attracted millions of users, many have integrated these sites into their daily practices. To study the inclination towards Social Networking Sites and the reasons thereof among male and female Undergraduate students, along with its effect on their self-esteem, attachment style and various personality facets.

Objectives:

▪ To study the inclination towards Social Networking Sites and the reasons thereof among both male and female students.

▪ To study the self-esteem & attachment style of both male and female students.

▪ To study the Personality patterns of both male and female students.

Design & Methodology: An attempt was made to study 50 male and 50 female Undergraduate students from various colleges of Kolkata following simple random sampling. For this purpose, a semi-structured questionnaire along with Rosenberg's Self-esteem scale (1965), Attachment Style Questionnaire (ASQ) by Feeney, Noller and Hanrahan (1994) and NEO Five-Factor Inventory (NEO-FFI) by Costa and McCrae (1985) was administered. Qualitative analysis as well as frequency with percentage was calculated for the 20 questions of the semi-structured questionnaire. T-test and Correlation was done for the scores obtained from self-esteem and attachment style questionnaires and NEO-FFI.

Results: It has been found that Facebook is the most frequently visited Social Networking Site and female students visit more. A difference exists in the self-esteem scores between male and female Undergraduate students, but no difference in their attachment style; maximum of the male and female Undergraduate students love to spend time with their family, prefer their family more than friends. Female students have more friends both in the Social Networking Sites as well as in reality. Also, a significant difference does exist in the level of extraversion between male and female students. 2 % of both male and female students do not visit any Social Networking Site.

Conclusion: Social networking sites have become a significant aspect of a persons' life. The membership to it and the popularity an individual possesses is assessed by the number of contacts or friends someone has and it is also a determinant of his or her self-image. Crises can arise due to wrong utilization of the social networking sites which can have a serious damage on the mental health of the students. This can be an issue of concern regarding the risk behaviours associated with adolescence and early adulthood. The results of this study can be applied to reduce the adverse effects of spending hours on Social Networking Sites for both male and female students.

Keywords: Attachment style, gender, personality, self-esteem, social networking sites.

PERSONALITY PROFILE AND PERSONAL HAPPINESS – A COMPARATIVE ANALYSIS OF MENTAL HEALTH OF MIDDLE AGED PERSON BELONGING TO URBAN AND RURAL COMMUNITY OF WEST BENGAL.

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Background: Middle age is a crucial time in one's life span and the psychological stress play an important role in adjustment. In this period challenger is develop as genuine concern for the welfare of future generations and contribute to the world through family and work. Thus midlife psychological crisis occur and it hampers the subjective wellbeing of a person. But radical adjustment to change roles and pattern of life depends on his/her personality profile.

Objectives:
i)   to study the relation between personality profile & personal happiness in terms of subjective wellbeing.
ii) to study if there is any different between persons living in a particular place.
iii) to study, if there is any difference between male and female with respect to happiness.
iv) to study, if there is any difference between male and female with respect to personality dimension.

Methodology: Personality profile and personal happiness-a comparative analysis of mental health of middle aged person belonging to urban and rural community of West Bengal. Operational definitions of the selected variables are: *Mental Health*-Mental health is the ability to adjust satisfactorily to the various strains of the environment we meet in life and mental hygiene as the means we take to assure this adjustment. *Happiness*-Happiness is a term that conveys several different meaning including momentary joy, satisfaction with life, long term enjoyment. He term is also used as a popular and short hand way of speaking about subjective wellbeing. *Personality Dimension*-"Personality is the dynamic organization within the individual of those psychophysical systems that determine the individual unique adjustment to the environment".

Result: Significant mean difference between urban and rural people regarding happiness variable and personality dimension was found out by applying 't' test. Results showed a positive and high correlation between personality pattern and happiness for maintaining a good healthy life, irrespective of gender and territory. But insignificant gender difference showed women and men are more concern about their subjective wellbeing because of their specific personality pattern and their counter active living. Qualitative analysis also showed that city dwellers are more prevalent about the happiness related to social desirability to maintain a positive mental health. This personality pattern or traits support their urges to cope or adjust in such an environment that are full of positive emotional and social factors.

Conclusion: With the results, it can be concluded that persons happiness is positively related to personality dimension, living in a specific environment.

Keywords: Personality profile, happiness, subjective well beings.

MORAL REASONING DEVELOPMENT AND ITS RELATIONSHIP TO AGGRESSIVE BEHAVIOR AMONG FOUNDLING AND NORMAL ADOLESCENTS IN JEDDAH (SAUDI ARABIA)

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Objectives: The current study aims at investigating moral reasoning and aggressive behaviour among orphans, foundlings and normal adolescents in intermediate and secondary schools in Jeddah, Saudi Arabia. The study also aims at studying the nature of the relationship between the two variables, and to show the differences between foundlings in their custody home and the normal adolescents who live in their normal families.

Design and Methodology: To achieve these objectives, the subjects of about 36 foundlings and 80 students completed the Socio-moral Reflection Objective Measure(SROM) which was developed by Gibbs according to Kohlberg's theory and was used by many researchers in Arab World and in Saudi Arabia as well (Al-Ghamdi,2000). They also, completed Aggressive Behavior Scale (ABS) which was developed originally by Buss and Berry, and used in Saudi Arabia by Abo-Abaah and Abdauulh,1995).

Results: Results as were expected show a negative relationship between moral reasoning development and aggressive behaviour, however, no differences were found between the two samples. This results was unexpected by the researcher according to the results from previous literatures as well as the practical experience.

Conclusions: Foundlings as known and reported by their guardians show more negative behaviours than others of the same ages. This seems to be a result of their social background, and particularly, the loss of their family root identity as well as the nature of the provided care in these governmental homes. However, for unknown reason, the current study failed to prove that, and therefore, other studies in the same field are very highly recommended.

Keywords: Aggressive behaviour scale, behaviour, relationship, orphans,

AN ANALYSIS OF THE EFFECT OF DEPRESSION ON RESILIENCE IN COLLEGE STUDENTS.

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Objective: To study the effect of depression on resilience in college going students-College is one of the most exciting and rewarding times in an individual's life. It is an open door for acquiring new knowledge, preparing for future career and experiencing life in a new way. It can also be a challenging time for students, especially those who may be vulnerable to development of mental illness or who have been diagnosed with a mental illness. The challenges of college – leaving home for the first time, living independently, forming new relationships, disturbance in sleeping pattern, and getting access to alcohol and drugs – can be overwhelming and in some cases lead to depression. Here resilient behaviour provides protection from experience of depression.

Design and Methodology: The present study comprised of 120 college going Graduate students out of which, there were 59 females and 61 males. The study was conducted on college students of 18-22 years. It was a two staged stratified random sampling. The sample was asked to fill a questionnaire through google forms which was divided into two parts. Part 1 comprised of Connor-Davidsons' resilience scale to measure resilience and part 2 consisted of Lovibond and Lovibond's Depression Anxiety Stress Scale which was used to measure depression. The findings of the research revealed that there is an inverse negative relation between depression and resilience. Also it showed that females are slightly more depressed than males though it wasn't significant.

Results: The researcher found correlation between the two variables depression and resilience. A significant negative inverse correlation was found between depression and resilience stating that if depression is high in an individual his/her resilience would be low. Though the correlation is not very significant but we can safely conclude that whenever depression is high resilience tends to go even lower. Generally also it has been observed that when people are highly depressed they get into bouts of depression and fail to implement, as a result of which the capability to execute dwindles down and people give up.

Conclusion: We can conclude that college students have different coping techniques so that they fall in the traps of depression- in India students have a high family support in all aspects of their life. They are guided with everything thoroughly. But in some cases when a young adult is not able to share, he/she always has peers to help. And it is seen that when a family is not there, friends are there through thick and thin to help. In spite of India developing/advancing, females in India are still marginalised-due to family pressure, and some under-developed region, females are found to be more depressed than males.

Keywords: depression, resilience, under-developed,

A STUDY ON PREVALENCE OF STRESS, ANXIETY AND DEPRESSION DURING INITIAL MONTHS OF MEDICAL EDUCATION AMONG FIRST YEAR MEDICAL STUDENTS IN TWO MEDICAL COLLEGES IN THE CITY OF CHENNAI.

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Background: Change from adolescents to late adolescents or young adults; change from one type of educational system to another complex type of educational system can be very complex and unsettling. There is overwhelming burden of information, intense pressures and demands in medical education. This phenomenon can lead to intense stress, especially so, during early months of medical school. Often this kind of stress is harmful which, if not coped well, can lead to anxiety and depression and general deterioration in the mental health of students.

Objectives: To estimate the prevalence of stress, anxiety and depression among first year medical students in two medical colleges (after 3 months of academic training)

Design: Cross-sectional

Methodology: Based on the postal code nine medical colleges were contacted, two of them gave permission. All first year medical students who have completed 3 months of academic training were included; sample size was 390.The data was collected in the month of October and November 2012. The first year medical students were explained about the need and purpose of the study. Data was collected on background information and study variables of depression, anxiety and stress using Depression, anxiety stress scale (DASS)-42.

Results: Mean age of students was 17.6 years (SD: 0.7, range: 16-23). Students under the age of 18 years were 92.6%. The proportion of female students was greater (54.9%) than males (45.1%). Overall prevalence of depression was 42.1% (95% CI: 37.3%–46.9%). When depression was graded, 15.4% of them had severe to extremely severe depression. The difference between different grades of depression is found to be statistically significant ($p<0.05$). The prevalence of anxiety was found to be 55.6% (95% CI: 50.7%–60.5%). Anxiety was graded and students who had severe to extremely severe anxiety were 23.3%. The difference in prevalence of different grades of anxiety was found to be statistically significant ($p<0.05$). The overall prevalence of stress was 40.5% (95% CI of 35.6%–45.4%). A total of 10.5% were severe to extremely severely stress. The difference in different grades of stress was found to be statistically significant ($p<0.05$). The prevalence of depression, anxiety and stress all together was 29.5%, ie 115 out of 390 students had all the three conditions (95% CI = 25% -34%).

Conclusions: The prevalence of depression, anxiety and stress among first year medical students during initial months of medical education in these two medical colleges is significantly higher. Of great concern are those who are found to be severe to extremely severe depressed, anxious and stressed as that can lead to significant deterioration of their general mental health and ability to cope with the milieu of medical education.

Keywords: Medical students, depression, anxiety, stress, DASS-42, medical education

A STUDY ON SOURCES OF STRESS (STRESSORS) AMONG FIRST YEAR MEDICAL STUDENTS IN TWO MEDICAL COLLEGES OF CHENNAI.

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Background: Adolescence and young adulthood is generally viewed as a stage where overall development takes place including physical, mental and social development. This is a transitional period and classified as a period of storm and stress. College students, especially freshers are more prone to stress as they have to attend university education, move away from home for the first time, leave behind their comfort zone and develop new social contacts. All these can be potential sources of stress.

Objectives: To study the stressors (sources of stress and their severity) among first year medical students after 3 months of academic training in two medical colleges in Chennai.

Design & Methodology: Cross sectional. From 2 Medical colleges, all first year medical students after 3 months of academic training were included, sample size was 390. Data collected during October and November 2012. Students were explained about the need and purpose of the study. Data collected on background information and study variables of sources of stress and their severity, using MSSQ (Medical student stressor questionnaire). A stressor is defined as a personal or environmental event that causes stress. Stressors of medical students were grouped into six categories; academic related stressors (ARS), intrapersonal and interpersonal related stressors (IRS), teaching and learning related stressors (TLRS), social related stressors (SRS), drive and desire related stressors (DRS) and group activities related stressors (GARS).

Results: Grading of stressors was as mild, moderate, high and severe. Academic related stressors grading showed 3.3% are severely stressed, 35.6% highly stressed. Similarly intrapersonal and interpersonal related stressors caused severe stress in 2.8% of students, it highly stressed 10.5% of them. Teaching and learning related stressors severely stressed 1.3% of students and it highly stressed 8.7% of them. Those severely stressed were 1% and highly stressed were 18.9% because of social related stressors. For drive and desire related stressors, 3.3% severely stressed, 8.7% highly stressed. Grading of group activities related stressors showed that 3.6% were severely stressed, 17.4% highly stressed. Grading of domains showed that students were milder to moderately stress than high to severely stressed except for academic related stressors where 35.6% were highly stressed, 43.5% were moderately stressed and only 17.4% were mildly stressed.

Conclusions: All the major types of stressors are present in medical students in variable proportions. Academic related stressors were more compared to other types, especially so in high and moderately stressed categories. Group activities related stressors, social related stressors were stands second. Teaching and learning related stressors, intrapersonal and interpersonal related stressors, drive and desire related stressors although not found in significant proportion also contributed to the overall stress.

Keywords: Academic stress, first year medical students, MSSQ, sources of stress, stressors.

BURN PAIN AND DEPRESSION: AN EMPIRICAL AND CLINICAL INVESTIGATION

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Background: Burn injuries are devastating, sudden and unpredictable forms of trauma affect the victims both physically and psychologically. The growing number of individuals surviving such devastating injuries has prompted an increased focus on problems of psychosocial adjustment, independence and rehabilitation. The biopsychosocial impact on individual hospitalized for severe burn wounds begins at the moment of injury and extends throughout the person's life. Burns occur when some or all of the cells in the skin or other tissues are destroyed by heat, cold, electricity, radiation or caustic chemicals. Burns are acute wounds caused by an isolated, non-recurring insult and progress rapidly through an orderly series of healing steps. Burn pain is one the most intense and prolonged types of pain in clinical practice. From the first moments of a burn injury, as well as throughout the entire period of treatment, pain affects the patient not only as a symptom but also as a difficult medical problem. It is essential to deal aggressively with the problem of burn pain. The biopsychosocial paradigm is essential to follow in dealing with patients with burn pain as it caters the patients' need of holistic treatment focusing on biological, emotional, cognitive and behavioral aspects of treatment.

Objectives: i) To examine Burn Pain in patients who suffered injuries due to Burn, ii) To examine Depression in patients with Burn Pain, iii) To examine the relationship between Burn Pain and Depression in patients with Burn Pain

Methodology: Before taking the sample, permission was sought from the hospital administration and the confidentiality and ethical issues were discussed both with the administration and the patients and their families. The purpose of the study was explained to them clearly. A sample consisted of 60 burn patients (30 males and 30 females). Sample was selected from the burn ward of one of the government hospitals in Jaipur City.

Results: In the current study, clinically patients having 15 % or above burn were considered as having severe burn injuries. Results indicated that the mean score for depression in the patients group having burn less than 15 % was 16.8 with standard deviation of 3.4 indicating moderate depression and patients having burn 15 % and above was 21.0 with standard deviation 3.3 indicating severe depression in this group. Results indicated that as burn intensity increases, intensity of depression also increases. Results indicated that correlation between percentage of burn and depression is positive and significant at 0.05 % level and r value being 0.59.

Conclusions: The study highlights the importance of incorporating psychological interventions in patients with burn pain to treat their psychological issues like depression which will not only fasten their recovery from burn pain and depression but also improve their well-being and quality of life.

Key words: Burn pain, depression,

EFFICACY OF HYPNOTHERAPY ON REDUCING PSYCHOSOMATIC DISORDERS

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Objective: The present study has as main objective to evaluate the efficiency of a psychotherapy program based on hypnosis techniques of reducing pain and symptoms in psychosomatic disorders. This programme has been used in the purpose of reducing and ameliorating pain and symptomatology met on patients suffering from migraines and asthma.

Design and Methodology: Hypnotic techniques play an important role in treating psychosomatic disorders. Hypnosis is a therapeutic method based on the idea that all people have their own resources and the abilities necessary for solving their problems. As a treatment in psychosomatic Disorders, Hypnosis addresses the patient's wholeness, taking into account his personality, his past and present life in his environment. Psychosomatic disorders are characterized by the existence of emotional psychological factors that play an important role in the emergence of the symptoms. The hypnotherapist explores systems of beliefs and representations belonging to the patient, so that the patient himself can be able to resonate with them. The main disorders that have been treated by hypnotic techniques are migraines and asthma. The initial study sample included patients diagnosed with psychosomatic disorders, of whom 50% suffering from migraines and 50% asthmatics respectively.

Results: The results have shown a significant decrease of pain level and symptom relief for these patients.

Conclusion: Overall, results indicated the fact that patients diagnosed with psychosomatic disorders (migraines, asthma) assess as high levels scores of global pain, for the one referring to the relation between pain and high levels score for emotion and bodily pain before the applying of hypnosis. As my analysis has shown, these high pain levels decrease significantly after applying the program that includes hypnosis techniques.

Keywords: Asthma, hypnotic techniques, migraines, psychosomatic disorders, psychotherapy

PREVALENCE AND NATURE OF PSYCHIATRY PROBLEMS AMONG THE POOR ACADEMIC PERFORMING SCHOOL CHILDREN PRESENTING WITH SOMATIC COMPLAINTS.

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Objectives:

1. Prevalence of somatic complaints among poor academic performing school children
2. Psychiatry problems among poor academic performing school children presenting with somatic complaints

Design and Methodology: Children who score in their final examination with grade C and below are considered as poor academic performers, recruited these children in the study. Assessed each child Intelligence quotient by Raven's coloured progressive matrices then diagnosed the child by interviewing with MINIKID Questionnaire and using ICD-10 diagnostic guidelines.

Results: Prevalence of somatic complaints among poor academic performing 115 children is 29.57%. Nature of psychiatry problems in poor academic performing children presenting with somatic complaints are emotional disorders (anxiety disorders), mood disorders, sleep disorders, conduct disorders, specific learning disorders, borderline intellectual disabilities and substance abuse.

Conclusions: Children complain lot of somatic complaints like head ache, abdominal pain or discomforts as major, and also complaining like body pain, weakness, back pain, eye pain and giddiness. Most of the time underlined psychiatry problems with these complaints. Which are necessary to find out and to start early treatment. Also to decrease the severity of further suffering from the problem by intervention of Psychiatrist and to do well in the academics. Very less literature in the above mentioned area from India, This data may help to understand the underling psychiatry problems with somatic complaints by children

Keywords: Poor academic performers, children, somatic complaints, psychiatric disorders.

COMPARISON OF MENTAL WELLBEING AMONG THE PROFESSIONAL AND NON PROFESSIONAL SCIENCE STUDENTS

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Objectives:

1. Prevalence of stress among students

2. Levels and types of stress

3. Reasons of stress

4. Occurrence of stress related health discomforts

5. Comparison of stress levels and its prevalence between professional and nonprofessional science students

Methodology: Random sampling was done among the students of medical, engineering and degree colleges. Data was collected by designing a partially structured questionnaire and conducting interactions.

Results: The study on the comparison of mental wellbeing state of medical, engineering and degree (science) college students, led the team of researchers to come to following main outcomes:

1. The prevalence of stress among the students is universal

2. There is gradation of levels of stress among technical and non-technical students

3. Academic stress in ubiquitous, with varying reasons

4. Other stressors are pertaining to their personal, family, socio-cultural etc.

5. Alarming state of mental wellbeing is a great matter of concern for the institutional and society

6. Stress coping strategies by the subjects are variable, but a good fraction of them becomes victim of stress

Conclusion: The study enabled the team to conclude that an immediate and intensive remedial measure, like reshuffling of curriculum, employable and skill oriented curricula, regular motivational and counseling sessions etc., are to be taken by the educational institutional authorities, educators, parents and society at large to relieve the youngsters from these self-imposed, system induced and societal generated, un-significant stressors so that these youngsters of today can become healthy and happy citizens of tomorrow.

Keywords: Professional, non-professional science graduates, health distress, health discomfort, socio- cultural, academic stress, anxiety

STRESS, STRESSORS AND DE-STRESSORS AMONG COLLEGE (SCIENCE) STUDENTS- A CASE STUDY OF DAV COLLEGE, PUNJAB UNIVERSITY, CHANDIGARH

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Objectives:

1. Prevalence of stress amongst the young students of science stream of the college
2. Levels of stress
3. Types of stresses
4. Nature of stressors
5. Ways and means of coping different types of stress
6. Possible corrective measures

Methodology: Random sampling was done among the students of various science subjects from under graduate and post graduate studies. Data was collected by designing a partially structured questionnaire and conducting interactions.

Results: Study revealed following observations:

1. Majority of the science students are stressed due to one or another factor
2. Stressors are mainly academic, employability, socio- cultural, financial, peer group related factors, unidentified reasons
3. Initial year graduates and final year post graduate students show higher level of stresses
4. Stress is found to be gender biased
5. De-stressing factors are found to be sharing and discussing with parents and peers, recreation, visiting religious places etc

Conclusion: The prevalence and degree of stresses made the study to reach to a conclusion, that there is a dire need for the regular counselling sessions for the students, induction of recreational and co-curricular activities in academic calendars, setting up of counselling cell along with better and cordial relationship of students and teachers, to minimise the stress amongst these students to enable them to lead a happy and healthy life.

Keywords: stressors, de-stressor, psychological, physiological, counsellor

PSYCHOSOCIAL FACTORS AFFECTING QUALITY OF LIFE AMONG POST-MENOPAUSAL WOMEN.

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Background: Menopause is a physiological change of aging. But, the accompanying signs and effects that occur during the menopause can significantly disrupt women's daily activities and sense of well-being. Menopausal symptoms such as headache, disturbed sleep, mood swings; vasomotor symptoms includes hot flashes and night sweats; somatic symptoms such as vaginal dryness or atrophy and dyspareunia, psychological symptoms such as anxiety, irritable mood, worrying on minor issues, forgetfulness etc., affect all dimensions of life. The risk of developing psychological distress especially anxiety & depression increases during the menopause. Mental health is commonly misdiagnosed and undertreated because of lack of awareness and misconceptions, especially among females leading to significant clinical and social implications.

Objectives:

1. To describe the socio-demographic characteristics of post-menopausal women.
2. To assess the Quality of Life among the post-menopausal women
3. To assess the levels of anxiety and depression among post-menopausal women.

Methodology: Study setting: Rural field practice area of KIMS, Bangalore. Study duration: 3 months. Study design: Cross sectional. Sample design: Probability proportional to sample size. Sample size: 200 Post-menopausal women (Interim analysis). Tool used: Menopause Quality of life questionnaire (MEN QOL); Hamilton Anxiety and Depression (HAM-A & HAM-D) scale.

Results: The mean age of participants was 52.5± SD 5.4 years. Women who were married, living with spouse & children were 70% & the rest were single/never married, divorced/separated or widowed (30%). Majority were illiterates (67%) and home makers (65%). Most of them were Hindus (95%) belonging to high socio economic status (73%). In the study mean age of attaining menopause was found to be 45.96 ± SD 4.7yrs. 85% of them had attained menopause naturally & 15% surgically. Vasomotor symptoms such as sweating (60.5%); psychological symptoms like depression(61%), poor memory(56%); physical symptoms such as muscle and joint pain(84%) ,decreased physical strength(82%) were the most common complaints. 18.5% were found to have mild and 4.5% with moderate degree of depression. 6.5% of the women experienced mild anxiety. 2.5% had moderate and 0.5% were found to have severe anxiety when assessed using HAM-A & HAM-D scale for anxiety and depression respectively.

Conclusion: The increasing trends in depression & anxiety and their negative effects on the QOL among post-menopausal women are a cause for concern. Early intervention should be provided for good mental health.

Key words: Anxiety, depression, HAM-A & HAM-D, post-menopause, quality of life,

THEME - 4

NEUROSCIENCE

EVALUATION OF ACUTE, CHRONIC TOXICITY AND COGNITION IN ADULT ZEBRAFISH, WITH VASICINE, A PROSPECTIVE COGNITION ENHANCER IN NEUROLOGICAL DISORDERS.

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Background: Vasicine isolated from traditional medicinal herb *Justicia adhatoda* has proven therapeutic activity as an antimicrobial, bronchodilator, hepatoprotective, antioxidant, cytoprotective against toxins, and antidiabetic properties. Traditional the herb has been used widely as antitussives, antispasmodic, and abortifacient. But quantitative neurotoxicity studies of Vasicine are scarcely explored. Hence in this present study histopathological neurotoxicity has been assessed and moreover neurobehavioral studies have also been conducted. Therefore establishing a toxicity dosage would enable safe therapeutic prescription. A number of studies have used plant extracts and pure Vasicine for screening in mammals and in vitro studies

Objective: Zebrafish is an ideal animal model due to the depth of research performed on the animal is well documented, established protocols, ease of housing and efficient screening platform. Also genetic homology and reproducibility of experimental set up in mammals has favored the animal widely. Available of public repositories has established the animal to be a gold standard in efficient whole animal screening system. We proposed to establish an acute and chronic toxicity dosage and impact of Vasicine on cognitionin zebrafish.

Design and Methodology: Adult zebrafish were treated with different concentrations of vasicine orally and were periodically accessed for a 14 day acute period and 30 day chronic period. Both organ pathology and cognitive studies (dive tank test etc.) showed no toxicity on oral administration of a total 18.5 nanograms for 30 days. However administration of higher amounts of vasicine through dissolution in housing water induced toxicity.

Results: I propose that vasicine is safe at nanogram quantity for a zebrafish when administered orally. This could translate into milligrams quantity in mammals or micrograms in larger mammals. Hepatic metabolism could render the molecule safer and more efficient. By therapeutic index standards the dosages falls within a wide range of therapeutic potential before inducing toxicity.

Conclusions: Since Vasicine with our preliminary docking studies have proven hypothetically to be a prospective molecule in inhibiting cAMP specific phosphodiesterase enzyme (PDE7B), therapeutic dosages of Vasicine could be promising as apotential therapy in cognitive enhancement for neurological disorders such as Alzheimer's and Parkinson disease, multiple sclerosis, etc.

Keywords: Cognitive, neurological disorders, oral administration, pathology, toxicity, vasicine, Zebrafish,

INFLUENCE OF AGE ON ARSENIC INDUCED BEHAVIOURAL AND NEUROCHEMICAL PERTURBATIONS: AMELIORATION WITH ZINC AND α-TOCOPHEROL

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Objectives: This study was planned to determine the influence of age on arsenic induced behavioural and neurochemical perturbations at three different ages of rats; young (PND21), adult (3 months) and aged (18 months) animals at seven days post-acute exposure. Further, we also evaluated the therapeutic efficacy of essential metal Zn and an antioxidant, α-Tocopherol against As-induced neurotoxicity.

Design and Methodology: Rats of all age groups were randomly divided into 4 groups and were treated for a period of one week as follows:

Group I: Control animals (saline) (n=6)

Group II: Arsenic as sodium arsenite (10 mg/kg, orally through gavage) (n=6)

Group III: As (10 mg/kg, orally) + Zinc as ZnCl2 (0.02% through drinking water) (n=6)

Group IV: As (10 mg/kg, orally) + Vit-E, (125 mg/kg body weight, orally through gavage) (n=6).

Results: As-exposed rats at all ages showed significant alterations in behavioural functions (open field behaviour, total locomotor activity, grip strength and exploratory behaviour and water maze learning). Neurochemical studies conducted in three brain regions (cerebral cortex, cerebellum and hippocampus) at different age points showed significant increase in ACh content levels, accompanied by a decrease in the AChE enzyme activity level. Among the brain regions, the effects were more pronounced in hippocampus followed by cerebral cortex and cerebellum. Among the three different age points, aged animals were found to be more vulnerable to the As-induced toxicity followed by young and adult animals. However, these As-induced alterations were reduced following supplementation with both Zn and Vit-E. Among the two, Vit-E was found to provide greater protection in restoring the altered behavioural and neurochemical perturbations.

Conclusion: In conclusion, our results showed that the as induced alterations in behaviour and brain cholinergic system of rats can be attributed to As-induced neurotoxicity. This burden could be reversed with essential metal, Zn and vitamin E supplementation. However, our results lead us to suggest that aged rats are more vulnerable to as toxicity and Vitamin E supplementation produced significant reversal effect due to therapeutic efficacy against as neurotoxicity.

Keywords: Arsenic, aging, behaviour, cholinergic system, vitamin E, zinc.

RETHINKING PSYCHOTHERAPY IN LIGHT OF FINDINGS FROM CULTURAL NEUROSCIENCE

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Background: Psychotherapy concept had been used for ages, it was first named in 1853 by Walter Cooper Dendy. After this the concept was developed into a method of treatment by the Nancy School. It was later that Freud, a neurologist, introduced new methods of practicing psychotherapy. However, it is important to note that right from the development of the concept to innovative practices, psychotherapy was fundamentally a western philosophy of treating the ailing mind. Introduced during colonialism, psychotherapy has always been a standard of psychological treatment for the mentally sick. Schools training psychotherapists exist in many part of the country today; however, very few attempts have been made to rethink the process from the ground up. The aim of this work is to offer a new solution to an age-old problem of cultural mismatch of therapy mode for Indian clients. Psychotherapy being a process involving both thought patterns and communication as tools of modifying behaviour, it is important to know if this link can help practitioners in getting a new perspective of the process and its expected implications for their patients.

Objectives:

1. To pursue a qualitative analysis of psychotherapeutic case studies from India and West.

2. To undertake comparative analysis of case studies in terms of their response to treatment.

3. To identify areas of the process causing delay in treatment and response of the patient.

4. To draw an explanation of the phenomena in light of recent findings in neuroscience.

Design and Methodology: The research design chosen is Grounded Theory, since the idea is to develop a new framework for the practice of psychotherapy, especially in the Indian context. Methods used for data collection is an extensive literature review, content analysis, comparative analysis and formulation of a new theoretical framework based on observations from cultural neuroscience.

Results: A new perspective of psychotherapy suited for application to clinical psychiatric and psychological cases in India can be obtained.

Conclusions: Present work attempts to identify the link between cultural influences on brain to practice treatment for mental disorders. Such an attempt will help in re-designing the process of psychotherapy to suit an audience culturally different from one which was used to design the western model of practice.

Keywords: Content analysis, philosophy, psychotherapy,

PARAPHILIA AND RELATED CRIME: A NEUROLOGICAL PERSPECTIVE

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Objective: The cardinal objective of this paper is to contrive awareness amidst the public anent paraphilia. It will elucidate the intrinsic causes adhering paraphilia and will give a neurological perspective to it. It agnates criminal activities to multifarious forms of paraphilia and its coping contrivances wielding neuropsychology.

Design and Methodology: The research work was steered using case study method. The theories pertaining to crime and sexual disorders endowed by psychologists abetted further in the inquest. Paraphilia, a psychosexual disorder ultimately perturbs the process of sexual arousal which is a primordial stage of the sexual response cycle. It is premeditated as sexual perversion or a disorder of sexual preference. It was contemplated speculatively via disparate provenances that paraphilia is an impairment of the neurological facet of brain.

Result: The research aided in apprising the subsistence of umpteen sorts of paraphilia, *es quibus* eight were espied to be the most prosaic ones. The scrutiny ascertained the fact that men were more impinged by paraphilia as conferred to women. The dissertation of various literatures and theories led to the denouement that neuropsychology can patronize in the diagnosis as well as the regimen of this sexual malady. It was discerned that nescience to this deviant behavior led to vehement and erroneous crimes.

Conclusion: This paper accentuates the effect of paraphilic individuals on society. It expedites the liaison of sexuality to the neurological facet of human beings *ainsi que* the psychosocial structure of crime. Also this sexual anomaly can breach the eudaemonia of the society. The paper also rivets the effect of Paraphilia on minors that fosters juvenile delinquency. It concludes with the conflicting and accosting mechanisms to abate the risk of such impetuous behavior and fallacious deeds.

Keywords: Crime, juvenile delinquency, neuroscience, neuropsychology, paraphilia,

WORKING WITH JUVENILE SEX OFFENDERS – CHALLENGES AND OPPORTUNITIES FOR COUNSELORS

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Objectives: To examine:

1) What is the likelihood for 'reform' for a juvenile sex offender in juvenile justice system in India?

2) What role can and should counselors in juvenile justice system play in empowering and enabling the reform of juvenile sex offenders?

Design and Methodology:

1) Insights and perspectives of the author from practice as a counselor in juvenile justice system

2) Review of related articles, literature, media reports and research on counseling juvenile sexual offenders

Results and conclusions:

1) It is possible to reform youthful sex offenders provided there are specially designed, developmentally appropriate and evidence-based programs provided to juvenile sex offender

2) Counselors can play acrucial role in empowering and enabling the young person to reform and lead a meaningful, productive and crime–free life.

3) There is a need for counselors in the juvenile justice system in India to be specially trained and professionally equipped to counsel juvenile sex offenders.

Sexual offences by juveniles have been the subject of much media coverage and public debate following the Delhi gang rape in 2012 and several other instances of sexual offences by juveniles across the country over the last 3 years.

This has led to demands from some sections of the society to lower the age of juveniles from 18 to 16 years, to transfer of juveniles committing 'serious and heinous offences' into the adult criminal justice system, and more stringent and punitive laws to 'deter' potential juvenile offenders from committing similar heinous offences. Interestingly, there have also been demands to exercise reason and restraint and not bring in sweeping changes to the existing progressive Juvenile Justice Act based on populist perceptions and as a knee-jerk reaction to one or two cases receiving extensive media coverage. There is a growing body of scientific research in neuroscience showing that the adolescent brain is structurally and functionally different from that of adults and therefore, adolescents should not be held to the same standards of culpability as adults, irrespective of the nature of the offence. There is also evidence that punitive laws and harsher punishments do not deter crime, rather the swift and speedy implementation of laws do. Mental health professionals – including counsellors need to be specifically trained and skilled to address the various challenges of juvenile sexual offenders.

Keywords: counsellors, mental health, sexual offenders,

PAX6 IS CRITICAL FOR TLX3 ACTIVATION AND EXPRESSION OF NICOTINIC CHOLINERGIC RECEPTOR A3 IN CEREBELLUM

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Background: Tlx3, a homeobox transcription factor, is identified as an important selector gene involved in imprinting glutamatergic neuronal fate. Study regarding the mechanism of Tlx3 regulation is an important one as it will help to unravel the process by which a glutamatergic neuronal fate is decided by the activation of a single gene and its downstream effectors.

Methods: Preliminary studies were carried out in HeLa cell line by luciferase and RT- PCR analysis. Immuno histochemical analysis was carried out to screen CNS regions where Pax6 and Tlx3 were co-expressed. *In vitro* culture of cerebellar granule neuron was standardized and Pax6/Tlx3 interaction was confirmed by real time PCR analysis. Immuno histochemical analysis was carried out in E16 $Pax6^{+/+}$ WT and $Pax6^{-/-}$ Sey cerebellum to analyze dependency of Tlx3 expression on Pax6. Further to identify the possible downstream targets of Tlx3, microarray analysis was carried out between anterior and posterior cerebellar lobes.

Results: In silico analysis of Tlx3 gene demonstrated the presence of active region in the proximal promoter of Tlx3 specifically in cerebellum and further analysis revealed the presence of conserved Pax6 binding sites in that region. To recapitulate and identify whether same interaction happens *in vivo,* different regions of developing CNS were scanned for co-expression of Pax6/Tlx3 and we identified these two proteins were co-expressed in the granule neurons of cerebellum. Complete dependency of Tlx3 on Pax6 was confirmed by immuno histochemical analysis of $Pax6^{+/+}$ Wt and $Pax6^{-/-}$ Sey (KO) cerebellum showed that Tlx3 expression was completely absent in Pax6 knockout cerebellum but remains unaffected in spinal cord even in the absence of Pax6. Results obtained using immuno histochemical analysis confirmed that Chrnα3 positive CGNs co-expressed Tlx3 in posterior cerebellum.

Conclusions: Current study proves that Pax6 through Tlx3 is involved in the development of Chrnα3 expressing excitatory granule neurons in the posterior lobes of cerebellum during early development. Alteration in this pathway could lead to reduced Chrnα3 expression in cerebellar granule neurons as observed in autistic condition which needs to be investigated further.

✓ Novel expression pattern of Tlx3 in the proliferating granule neurons present in the posterior cerebellum was identified.

✓ Positive regulation of Tlx3 by Pax6 during cerebellar granule neuron development was established.

✓ Chrnα3 was identified as a possible downstream target of Tlx3 which further explains the reason for the need of expression of Tlx3 specifically in the posterior cerebellar lobes.

Keywords: Cerebellar granule, *In vitro* culture, immuno histochemical,

DIETARY RESTRICTION SLOWS DOWN THE AGING RELATED DEPOSITION OF NEUROFIBRILLARY TANGLES AND SENILE PLAQUES IN THE MOUSE CEREBROCORTICAL AND HIPPOCAMPAL NEURONS.

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Objectives: Reduction in dietary intake during adult life is the single most effective way to reduce the risk of neurodegenerative disorders. To study the effect of dietary restriction on age related cytological alterations in the neurons viz. Deposition of neurofibrillary tangles and senile (β amyloid) plaques in the cerebral cortex and hippocampus of mouse brain.

Design and Methodology: Mice from the control group were fed *ad libitum* whereas the mice from the experimental group were subjected to 40% dietary restriction from three months of age up to 24 months. Animals from both the groups were sacrificed after 24 months of age and brain regions were studied light microscopically. Histochemical study of neurofibrillary tangles was performed by silver staining method described by Cobb and Bielschowsky (1928) and staining of β amyloid was accomplished by modified Congo red method of Puchtler *et al.* (1962).

Results: The neurofibrillary tangles and senile plaques were significantly lower ($p < 0.001$) in the diet restricted group than the *ad libitum* fed group.

Conclusion: The present investigations delineate the hormetic effects of dietary restriction in slowing down the neurodegeneration at cytoarchitectural level.

Keywords: Cytological, histochemical, neurodegeneration

THEME - 5

INFORMATION SCIENCE

INSILICO IMPLICATION OF SINGLE NUCLEOTIDE POLYMORPHISMS IN LRRK2 GENE TOWARDS PARKINSON'S DISEASE

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Objectives: Parkinson's disease is a degenerative disorder of the central nervous system mainly affecting the motor system which causes autonomic dysfunction, neuropsychiatric problem, tremor, rigidity, slowness of movement, and postural instability. The symptoms of Parkinson's disease result from the death of dopamine generating cells in the substantia nigra, a region of the midbrain. Parkinson's disease is a genetic disorder that results due to the mutation in LRRK2 gene. The mutated protein Dardarin of the gene LRRK2 interacts with the C-terminal R2 Ring finger domain of the protein Parkin and induces apoptosis of the neural cells.

Design and Methodology: There are 25 non-synonymous known natural variant Single Nucleotide Polymorphism (SNPs) for Parkinson's disease. These SNPs were evaluated for its effect on the structure of protein Dardarin using I-Mutant tool to find out the unstable SNPs. The short listed SNPs with unstable functional effects were used to build homology models using Easy Modeller. The template for the models was based on the wild type structure of Dardarin (PDB_ID 2ZEJ). The built models were validated using SAVES server and were docked with its disease causing substrate Parkin (PDB_ID 4K7D) using PATCHDOCK. The docking results were reviewed to obtain those SNPs that were highly debilitating to the structure of Dardarin and were binding with high affinity to Parkin.

Results: The top SNP based models with high docking score are thus indicative of disease susceptibility compared to the other SNPs in LRRK2.

Conclusion: Thus the identification of LRRK2 based SNPs can be used to indicate higher susceptibility of Parkinson's disease.

Keywords: Docking, non-synonymous SNP, parkinson's disease, LRRK2, parkin,

DETERMINATION OF POTENTIAL PHYTOCHEMICAL INHIBITORS FOR NDM-1 USING DIFFERENT DOCKING ALGORITHMS

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Objective: New Delhi Metallo-beta-lactamase-1 (NDM-1) is an enzyme that makes bacteria resistant to a broad range of beta-lactam antibiotics. NDM-1 was first detected in *Klebsiella pneumonia* isolate from a Swedish patient of Indian origin in 2008. The resistance includes the antibiotics of carbapenems family that are main stay for the treatment of antibiotic resistant bacterial infections. The gene of NDM-1 is one member of a large gene family that encodes beta-lactamase called carbapenemases. Carbapenemases are particularly dangerous resistance mechanisms, as they can inactive a wide range of different antibiotics. The resistance conferred by the gene NDM-1, aids the expansion of bacteria that carry it through a human host, since they will face less opposition from populations of antibiotic sensitive bacteria, which is diminished by the original antibacterial treatment. So to hinder the action of NDM-1, potential phytochemical compounds were identified using different docking algorithms.

Design and Methodology: 300 antibacterial phytochemical compounds taken from Dr. Duke's Phytochemical and Ethanobotanical database were docked with the receptor of NDM-1(PDB_ID:3GP4) using iGEMDOCK and Accelrys ligandfit.Thus the top scoring compounds with the energy value greater than the known inhibitor Captopril were shortlisted as probable inhibitors of NDM-1.The results obtained from both docking software's with similar top hits were checked for their drug – likeliness properties using admetsar.

Results: This suggests that the top hits can block the action of NDM-1 and prevent it from flourishing in any organism if found.

Conclusion: From the acquired results it can be inferred that these compounds can cease the lethal action of NDM-1 enzyme and may impede the formation of a superbug.

Keywords: ADMET, carbapenemases, docking, NDM-1, phytochemical compounds.

AYUR-INFORMATICS: ESTABLISHING AN *IN-SILICO* AYURVEDIC REMEDY FOR AIDS.

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Objective: Establishing ligands for HIV receptor proteins.

Background: Acquired Immuno Deficiency Syndrome (AIDS) is a clinical syndrome that is the result of infection with Human Immuno Deficiency Virus (HIV), which causes profound immunosuppression. It has been a serious, life-threatening health problem since the first case was identified in 1981 and is the most quickly spreading disease of the century. Worldwide, it is the fourth biggest killer.

Methodology: 3D structures of CCR5 and CXCR4 proteins were generated using Homology Modeling. Active compounds from the medicinal herbs - *Azadirachta indica* (neem), *Vitex negundo* (nishinda), *Emblica officinalis* (amlaki), *Aegle marmelos* (bel), *Adhatoda vasica* (vasak), *Berberis aristata* (daruharidra) and *Swertia chirajita* (chirata) tested to have anti-viral property were used in this work.

Results: Chemical structures of the phyto-component of these herbs were retrieved from pubchem & converted to.pdb.

Conclusions: Both the proteins were successfully docked with the *phyto*-components. These compounds can be checked for efficacy by receptor ligand binding assay studies.

Keywords: AIDS, bioinformatics, CCR5, CXCR4, drug designing, homology modeling,

DATA REPOSITORY FOR NOVEL DRUG LEADS AND
GENES OF SLEEP BEHAVIOUR DISORDER

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Objective: Designing database for sleep disorders.

Background: Sleep disorder is medical disorder of the sleep patterns of a person or animal. Some sleep disorders are serious enough to interfere with normal physical, mental, social and emotional functioning. Generally it is classified in to Rapid eye movement and Non Rapid eye movement sleep behaviour disorder. REM sleep behaviour disorder (RBD). It is a parasomnia, which involves undesired events that happen while sleeping. RBD occurs due to loss of normal voluntary muscle atonia during sleep resulting in motor behaviour in response to dream content. NREM sleep behaviour disorder unlike REM sleep, there is usually little or no eye movement during these stages. Dreaming is rare during NREM sleep, and muscles are not paralyzed as in REM sleep.

Methodology: Several genes causing sleep disorder are taken into consideration such as Serotonin, g-Aminobutyric acid (GABA), Special AT-rich sequence-binding protein 2 (SATB2), proton myo-inositol cotransporter (PMIC), plasmolipin, CHOLINE, Hypocretin, transcriptional enhancer factor 3 (TEF3), DNA (cytosine-5)-methyltransferase 1 (DNMT1) and others. These proteins details are retrieved from National centre for Biotechnology Information (NCBI). 3D structure of above protein receptors was modelled by homology modelling technique and threading studies. Several medicinal herbs are seen to cure for sleep disorder. The phytochemical of those medicinal herbs were screened against those receptor genes. Novel ligands were shortlisted based on their fitness and docking score.

Results: Overall there were 10 genes and 35 chemical compounds for REM and 11 genes and 35 compounds for NREM sleep behaviour disorder were analysed and shortlisted the compounds with the most number of interactions.

Conclusion: Online database is built with the genes 3D structure and their medicinal herbs chemical compounds with best docked results along with their 3D structure of the docked results.

Keywords: REM, NREM, Serotonin, medicinal herbs, docking.

THEME - 6

CREATIVE ARTICLES

MAN - A 'SOPHISTICATED APE'

Man, Nature, Evolution, and the Problem of Alienation- An Upanisadic Resolution.

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The cliché claim that 'man is a rational animal' is the basis for endowing upon him all kinds of responsibilities-moral, social or cultural in nature. But this attribution has in it hidden the implication that man is basically an animal. Consequently, any philosophy of values and culture subscribing to the said claim has to address this hidden implication at the very outset. But that very task is self-defeating in the present day scenario of scientific theories of evolution, whether physical or biological, since the philosophical approach based on any such theories has to absolve man of any absolute responsibility as to his socio cultural existence. This is explicit in the materialist-reductionist tradition and implicit in other traditions of the West. However in the East, this issue is addressed in an ingenious fashion, elevating altogether the 'being of man' to a different level. This unique viewpoint of the eastern traditions as to human existence, and the philosophical basis of the same is proposed to be elucidated in contrast to the Western approach. Also the possible ways in which other traditions may be enlightened and informed from it are proposed to be explored.

NEW MODEL OF POSITIVE PSYCHOTHERAPEUTIC INTERVENTION: HOPE THERAPY

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Background: The term hope has been used in literature, philosophy and other disciplines of social sciences as a desirable human trait that has thought to have significant positive implications in all spheres of human life. Almost all religious scriptures aim to make human beings as being hopeful and hope has been considered as an important component of faith. Scientific work on the variable of "hope" started in 1950's. In the clinical area, Jerome Frank (1968, 1973), Karl Menninger (1959), Victor Frankl (1966, 1992) highlighted the importance of hope in alleviating suffering through psychological interventions. Frank posits that psychotherapy is a sort of persuasion and healing process that inculcate hope in people suffering from emotional problems. Synder, Higgins and Stucky (1983) started formulating the basic tenets of hope theory by asking people's explanations for their possible reasons and failures or when they perform poorly on a given set of tasks.

Objectives: Main objectives of the present paper will be to sensitize the mental health professionals about a new model of positive psychotherapeutic intervention known as Hope Therapy and its application in clinical and non-clinical domains of life.

Method: Main goals of the current paper will be to focus on a) Conceptualization of Hope b) Components of Hope c) Difference between Hope and Optimism d) Models of Hope e) Principles of Hope interventions f) Process of Hope Therapy g) Applications of Hope interventions and h) Current direction in Hope interventions.

Conclusions: The new emerging model of hope intervention has been research on mental health issues like depression. It needs to be incorporated with other contemporary models of psychotherapy. It has implications not just for alleviating mental health issues but also for improving emotional well-being.

Key words: Hope, optimism, hope therapy.