



JYOTI NIVAS COLLEGE
Autonomous
Bengaluru , Karnataka

INAUGURATION OF INTERNATIONAL CONFERENCE ON PUBLIC MENTAL HEALTH AND NEUROSCIENCE

Date: 9th December, 2015

Venue: Jyoti Nivas College Autonomous

The International Conference on Public Health and Neuroscience (ICPMN) was inaugurated at Jyoti Nivas College today with great gusto. It is a two-day conference organised by Sarvasumana Association, Bangalore and Azyme Biosciences Pvt. Ltd., Bangalore. The theme of the conference is public mental health, an issue of increasing importance, along with the medical field of neuroscience.

Mrs. Padmashree Murthy of Sarvasumana Association welcomed the chief guests, faculty and students. She introduced the audience to Sarvasumana and its long list of achievements. She spoke of the importance of this conference and invited the students to contemplate the topics presented and send their research papers to Sarvasumana.

The principal, Dr. Sr. Elizabeth C S, came on stage and delivered her message. She began with an amusing anecdote about the mind and matter that drew the audience in. She lamented today's focus on materialistic and physical wellness and spoke of the importance of mental health. There is a deep stigma attached to mental illness, despite its prevalence. According to statistics Sr. Elizabeth quoted, 10% of the world's population is affected by at least one of a wide variety of mental illnesses – 1 in 5 children and 1 in 4 persons. Yet, mental health is missing from public health debates. The World Health Organisation's Comprehensive Mental Health Action sought to change this by prioritising mental health in public health programmes. Sr. Elizabeth then briefly introduced the chief guest, Dr. Ravi of the Department of Neurovirology at the National Institute of Mental Health and Neuroscience (NIMHANS), Bangalore. He is one of the people trying to bring together public health and mental health as a comprehensive whole.

Towards the end, Sr. Elizabeth referred to ancient Indian philosophy and the wisdom it contained – the Atharva Veda described what we today call schizophrenia. She emphasised the role of each individual in the audience, their potential to create awareness and remove stigma. She wisely said that the value of a life is measured by the number of lives it touches. In conclusion, she spoke of the importance of spirituality and left with an ancient adage on her lips: *Sarvajana sukhino bhavantu.*



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A dance performance followed Sr. Elizabeth's address. The theme of the dance was 'light of compassion'. It beautifully and symbolically portrayed the stigma and rejection faced by the mentally and physically challenged. In tune to ominous-sounding music, girls dressed in dark colours turned their faces away and rejected another girl portraying a mentally and physically challenged person in a wheelchair. A second group of girls, dressed in happy pink and purple, danced to upbeat music as they portrayed the inclusion of the girl in the wheelchair. In the end, all the dancers held up placards reading uplifting, positive messages, such as "Share your grief", "Be strong" and "Take care". The message the dance so seamlessly conveyed was to be considerate to those who have challenges to overcome and aid their living.

The chief guest, Dr. Ravi, neurovirologist at NIMHANS, addressed the audience next. The compère, Ms. Roshni, informed the audience that Dr. Ravi has 118 publications and multiple accolades to his name. Apart from NIMHANS, he also acts as the chairman and member of various committees.

Dr. Ravi spoke of his time at NIMHANS, his interest in virology and the role virology plays in mental illness. He said that in his experience, the emergence of viruses can, in many cases, be attributed to human behaviour. He gave the example of the introduction of mosquito-borne Japanese encephalitis in Kerala, a state that previously never had cases of the disease. Speaking of the relationship between virology and mental illness, he quoted his former classmate Abraham Verghese – "There is more to AIDS than the virus." The devastation caused by the illness, the stigma, isolation, and blame and shame all play a role in deteriorating the quality of life of those affected.

Dr. Ravi referred to Sr. Elizabeth's speech and spoke of the importance of public mental health. The priorities for public health action depend on four factors: whether the illness is highly prevalent, likely to have serious consequences, likely to remain stable or grow in the future, and whether it causes concern and responds to specific intervention. Pilot studies conducted by the NIMHANS are showing that mental health issues must urgently be included in public health policies. A study in Kola district showed that 5-7% of the people suffered from mental illness, of which 2-3% was serious mental illnesses. These trends reflect the larger trends in the Indian population. He stressed the importance of mental health by presenting these statistics.

In conclusion, Dr. Ravi spoke of the exciting discoveries in the new field of psychoneuroimmunology (PNI). PNI is an interdisciplinary field that studies the relationship between the immune system, nervous system, behaviour and mental illness. He invited the



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students to look up a groundbreaking research paper in the journal *Nature* that revealed the importance of gut flora on the immune system and even behaviour.

Dr. Pradeep Naik felicitated the chief guests and Sr. Elizabeth, despite their humble refusals to do so. He then invited Dr. Shriram to address the audience.

Dr. Shriram is from the department of medical electronics at MS Ramaiah Institute of Technology. His brief speech introduced the audience to the field of biomedical engineering and how Indian students are bringing innovation to this field. Inventions made by students of MSRIT include a wearable cardiac belt and wearable EEG cap produced at low costs. He invited students to explore the multidisciplinary field of biomedical engineering and to share their ideas and questions with him personally.

The inauguration function came to a close with a vote of thanks from Dr. V N Yogananda Murthy.

ALCOHOL AND TOBACCO ADDICTION: A TALK BY DR. DHARAV SHAH

Date: 9th December 2015

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The highly-qualified, young Dr. Dharav Sunil Shah came all the way from Mumbai to deliver a talk on alcohol and tobacco abuse and addiction here at Jyoti Nivas College. He was welcomed and introduced to the audience by Mrs. Christina from the department of psychology.

Dr. Shah has an MBBS, Diploma in Psychiatric Medicine and MD in Psychiatry. He has done over 250 presentations across the country, reaching thousands of youngsters and warning them against the dangers of alcohol and tobacco.

Dr. Shah spoke easily to the audience and tailored his presentation accordingly. He spoke about how alcohol and tobacco companies are starting to focus on women as a new market and source of revenue, and how very little is known about the ill-effects of alcohol and tobacco. Most people think alcohol abuse causes death by liver cirrhosis or tobacco by cancer. But these diseases make up just a fraction of the myriad problems alcohol and tobacco cause. The leading causes of death attributed to alcohol and tobacco consumption are heart disease and stroke. Alcohol additionally causes death by neurological problems, epilepsy, infectious diseases, murders and suicides. These substances also cause death by tuberculosis.

After those surprising statistics, Dr. Shah focused on how alcohol slowly and over a long time greatly reduces the quality of one's life. It causes health problems related to organs all over the body.



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Interestingly, alcohol abuse is associated with the “delusion of infidelity”, in which the alcohol abuser wrongly suspects his/her partner of being unfaithful. It causes problems with (specifically, a reduction in) fertility, stamina, muscle and heart strength, alertness at work and attractiveness. It causes a huge financial strain, which is worsened by alcohol abuse-fuelled occupational absenteeism. Alcohol and tobacco work by building dependence and causing withdrawal symptoms when one tries to quit. They destroy mental health and academic performance, often acting as gateway drugs, leading to addictions to hard drugs. It may cause legal complications (e.g. drunk driving), loss of social respect and even domestic violence.

Dr. Shah then tackled the many misconceptions surrounding alcohol usage. People may believe they are stress busters, good for health in moderation or that responsible drinking will prevent any adverse effects. But in reality, in the long run, alcohol causes problems for everyone who consumes it, whether or not they do so responsibly. And because it is not possible to predict or guarantee one’s addiction or the ability to avoid it, “responsible” drinking is altogether a myth.

In conclusion, Dr. Shah listed some preventive measures for reducing alcohol and tobacco use. Raising taxes, legal countermeasures and restricting availability are measures that can be taken by the government. On a social level, one can promote a culture of abstinence by creating awareness before the age of first contact, including information about addiction in textbooks, teaching youngsters how to deal with peer pressure and de-normalising alcohol and tobacco use.

Throughout the talk, Dr. Shah made the girls in the audience laugh with little jokes and impressions. But most of all, he made them think and want to bring about a change. He will have reached out to many more youngsters through the members of his audience today.

PUBLIC MENTAL HEALTH ISSUES IN INDIA

Date: 9th December 2015

Venue: Jyoti Nivas College Autonomous

The first talk of the conference was delivered by Professor Dr. Chandrasekhar, MBBS, MD and a Diploma holder in Psychiatric Medicine. He delved into the topic of public mental health issues by talking about mental health issues of children and adolescents. 50% of children and adolescents are mentally affected, of which 2.5% are mentally challenged. A lot of reasons exist for mental retardation in children. Some of the major reasons are child sexual abuse, child labour and malnutrition which causes anaemia. 50% of the students who fail their SSLC/PUC exams are overcome by so much fear that they commit suicide or indulge in criminal activities.

Next, Dr. Chandrashekhar spoke about women and mental health. There is a significant deficit when it comes to the number of women per 1000 men (sex ratio) and the demographic features of women. For



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example, only 54% of women are literate, but at 76% men are far ahead. Women struggle with low self-esteem, helplessness and gender discrimination. Women also face problems in reproductive period like negative reaction to menarche, pre-menstrual tension and pregnancy.

80% of senior citizens are affected by mental health problems. This is because the financial and social system usually discards them. Substance abuse can cause mental health issues, with alcohol contributing to 30% of cases, cannabis 3.5%, heroin 3% and opiates 2%.

Women abusing substance is on the rise in India, which is the largest producer of spirits. Alcohol abuse is seen in 30% of deaths. Physical illness and disasters (like earthquake, cyclone, riot, tsunami, terrorism, etc.) also play an important role in mental health problems. 1% of pregnant women are affected by HIV in Karnataka. There is treatment available for mental health problems from teachers, counsellors and parents through mental health programmes and life skill education.

PRESENT AND FUTURE OF PUBLIC MENTAL HEALTH

Date: 9th December 2015

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The plenary talk of the day was delivered by Dr. Sharmitha Krishnamurthy. Mental health goes beyond just freedom from illness; we must also consider positive mental health. Biological, physiological, and social factors play an important role in mental health. When an individual is not happy with their life, their mental health is affected adversely. Experiences in childhood, adolescence and beyond can shape individual mental health. Positive mental health prevents premature death, family and social burden, lots of discrimination, exclusion and human rights violation. It is important to put useful knowledge to practice, promote rights and inclusion which are the reasons to invest in positive mental health.

Another need of the hour is to decentralise points of care. The procedure for treating mental health problems should be as follows:

- Early identification
- Treatment
- Guided self help
- Increase capacity of specialist
- Empower and ensure rights
- Reduce discrimination

As for the question of who these specialists or caretakers will be, they are service users and families and mental health professionals. The government and media must play key roles in creating awareness.



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MYTHS AND FACTS ABOUT MODERN AGRICULTURAL BIOTECHNOLOGY

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In the second session, Prof. C. Kameshwara Rao spoke about tackling myths and finding facts about modern agricultural biotechnology. In simpler words, he wanted to speak about something we all indulge in: food. Myth is an ancient traditional story of gods or heroes and fact is anything that happens, the truth, reality or real state of things. Genetic engineering is the addition or removal of genes. Bio-security is bio-safety and environmental safety. Genetic engineering aims at enhancing tolerance of crops to abiotic stress, and their nutritional enhancement. Bio-safety and evaluation measure direct health effects caused by genetically engineered food, impact of genetic engineering crops on non-target organisms and impact on biodiversity and environment.

Despite over 30 years of research on bio-security, no country in the world has reported a satisfactory system for GE crops. One of the main reasons for global commercial cultivation is that GE crops can help address the global food crisis.

Prof. Rao then spoke about specific crops as examples for both sides of the GE argument. Firstly, he spoke about the humble brinjal (or aubergine or eggplant as it is sometimes called). India is the country of origin of brinjal. Genetic engineering crops should not be grown in their centre of origin. BT brinjal jeopardises the use of brinjal in Indian medicine. Activism against BT brinjal survives on facts and journalism. Organic farming cannot ensure food security – thus the BT brinjal was brought about. However, since February 9, 2010 a moratorium on BT brinjal has been in place. GE crop activities in both public and private sectors were put on hold, due to new restrictions, such as permission from state government and the fear of uncertain futures.

Secondly, Prof. Rao spoke about cotton. 95% of cotton in India is of bollard type. India was at the 4th global position. The public is unaware of the root causes of activism against BT cotton. They do not realise that genes cannot easily spread to all “other organisms”. In relation to this issue, the next topic touched upon was biopiracy. The term biopiracy has no legal standing in any official document such as Convention on Biodiversity or Indian Biodiversity Act. Activists made biopiracy a major issue making the public think that biotechnologists and companies are thieves defrauding poor countries.

Thirdly, Prof. Rao spoke about “golden rice”. Extensive clinical and other data are available on the efficacy and cost effectiveness of golden rice in ameliorating vitamin A deficiency. New genes in GE crops have not been clinically proven to be allergenic in 20 years. Different varieties of the same crop have been grown in the neighboring fields for decades and farmers have never complained that the crop did not breed true. Organic farming will take India to pre-green revolution times and if the whole of India goes organic, it can feed only about a half of the present population. However, despite its benefits,



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even after a decade there has been no progress in commercial release in India, Philippines and Bangladesh.

Finally, Prof. Rao said that anti-tech activism can be rather spontaneous. Conventionally, though, anti-tech activism is premeditated, well-organized and supported by pesticide industry and dealers, conventional seed developers and organic lobby.

DAY-2 10TH DECEMBER 2015

NEUROBIOLOGY OF DEPRESSION

Date: 10th December 2015

Venue: Jyoti Nivas College Autonomous

The first session began with a talk by Dr. Lokesh Babu about the neurobiology of depression. The sadness that characterises depression comes from heart. Too many people are influenced by media about what their lives are supposed to be like, leading to disappointments and sadness. Depression may be a life-long disorder for many patients. The Monoamine Hypothesis states that the neurotransmitter monoamine helps us stay happy. Depression is due deficiency of monoamines, serotonin, and dopamine.

Another concept Dr. Babu spoke about is the concept of learned helplessness. Helplessness, like any other behaviour, can be learned. It may become the default state we function in, thus leading to depression.

In the end, Dr. Lokesh Babu was felicitated by Dr. Somshekhar from Azyme Biosciences.

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

Date: 10th December 2015

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The first plenary talk was delivered by Dr. Dharav Shah. He began by defining somatoform disorders. The term refers to the presence of a problem which does not seem to have an easy solution. These days, we feel the immense pressure of studies. We need to focus on efforts and not the results.

As a reminder, Dr. Shah said that sexual disorders are treatable and need not cause as much distress as they do. The talk ended with the felicitation of Dr.Dharav Shah by Dr. Lokesh Babu.



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SLEEP DISORDERS AND RECENT ADVANCES IN TREATMENT

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Dr. Satish Ramiah presented the second plenary talk on sleep disorders and their treatment. Sleep is a very important need of the human body. Growth hormone is released in the body of children when they are in deep sleep. Lack of good sleep can have negative consequences not just for children, but also for adults. Impaired higher cognitive functions are usually a result of lack of sleep.

Normal sleep is defined as 16 hours to 6 hours of sleep (the higher number recommended for children). For those who cannot sleep for 6 hours continuously, a 15-minute nap in the afternoon can do as much good as 1 hour of night sleep. Imbalance in neurotransmitters involved in sleep disorders such as insomnia and hypersomnia.

To assess a sleep disorder, the parameters usually used are of substance misuse. One is asked to keep a sleep diary or "Actigraphy" to further analyse sleep patterns and sleep hygiene. Sleep hygiene refers to regularity of the timings of sleep and food habits around bedtime. The talk ended with the felicitation of Dr. Satish Ramaiah by Dr. Lokesh Babu.

SESSION 2: HUMAN NEURAL STEM CELLS AS A WINDOW INTO HEALTHY AND DISEASED BRAIN

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Dr. Pankaj Seth spoke about the fascinating world of human neural stem cells. In order to understand brain disease, scientists usually look at biopsy/autopsy brain tissue and neural stem cells. The unique properties of stem cells are that they are unspecialised and can thus take on the role of any cell.

Dr. Seth also spoke about the link between HIV and the brain. 30% of HIV-positive patients develop AIDS and in paediatric cases, this figure jumps to 50%. This can wreak havoc on the brain, especially in paediatric cases where the brain has not even matured.

The talk ended with the felicitation of Dr. Pankaj Seth by Dr. Mohan.

PREDICTION OF PROTEIN-PROTEIN INTERACTIONS BY MACHINE LEARNING



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Dr. Angshuman Bagchi spoke about this topic in the first plenary talk of the day. In our body, muscles are the providers of mechanical strength. The data set in the study was divided into two:

- Sequence Based
- Structure Based.

Dr. Angshuman Bagchi was felicitated by Dr. Preenon Bagchi.

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

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Dr. Ashish A. Deshmukh delivered this speech in the second plenary talk of the day.

*Neuronal cells 50%

*Non-neuronal cells 50%

*Chronically brain injury and people suffering from stroke.