Details of Module and its structure

Module Detail	
Subject Name	**Education**
Paper Name	**Perspectives, Issues and Research in Teacher Education**
Module Name/Title	**Teacher Education on Health in India**
Module Id	**e-PGEDN 10.18**
Pre-requisites	• **Knowledge of the health related issues of India.** • **Knowledge about some of the Physical Health Problems and Mental Health Disorders.** • **Knowledge about some of the areas of health and hygiene.**
Objectives	**After going through the module the learners will be able to:** • **discuss the scenario of status of healthy in India.** • **describe the health hazards of the present decade.** • **identify the mental health disorders- causes & remediation.** • **define Human Development Index and share the HDI scenario of India.** • **discuss the Health Concerns of India.**
Keywords	**Health and hygiene, oppositional defiant disorder, attention deficit hyperactive disorder, bipolar disorders, depression, obsessive compulsive neurosis, schizophrenia and hallucination, health concerns.**

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1. Status of Health in India

Healthy nations require healthy human beings and healthy environment. Fully healthy human beings in the 21st Century are a figment of imagination. There are evident physical and mental disorders. There is degeneration of environment. The ultra modern society has invited many imbalances. There is an alarming number of underweight children in India. Fast food is resulting into unimaginable diseases. Sparrows and Honey Bees are disappearing. Forests of Multi-Storey Buildings are in the perceptible range. Rivers are polluted. Water is polluted. Air is polluted. Soil is polluted. The health issues are countless. Starting from pre-natal health, across the country very few women are healthy during the pregnancy period, physically and mentally. It affects the off-springs adversely. The status of soil in which the seeds are sown, the irrigation water, the fertilizers, the atmospheric air, all have degenerated. The food stuff available in the market is largely contaminated. The green washed vegetables and fruits are readily available in any season, in the markets. There is spurt in Pesticide– laced vegetables across India (THE TIMES OF INDIA, Ahmedabad/Baroda, Oct.5, 2015). It is well known that vegetables sold in

major cities contain pesticides, but, it has now emerged that these harmful chemicals are present in alarmingly high doses in greens across the country. A report by the agriculture ministry showed that there has been an almost two- fold increase in the number of samples having pesticides above the permitted maximum residual level (MRL) in vegetables, fruits, meat and spices in the past seven years. In 2008-09, 1.4% of the samples tested failed the MRL test (183 out of 13,348 samples) while the figure went up to 2.6% in 2014-15 (543 out of 20, 618 samples). Vegetables accounted for over 56% of the samples which had more MRL than the limit set by the food regulator. The maximum number of failed samples in most test centres was from the vegetable family. For example, in Anand, out of 54 samples with MRL over permissible level, 42 were vegetable samples. It was 17 out of 34 in Kalyani, a suburb of Kolkata, and 14 out of 15 in Solan. In Delhi the situation was equally alarming. Out of 41 samples with high presence of pesticides, 31 were vegetables. These included spinach, coriander leaves, capsicum, and okra. A large part of vegetables available in Delhi is grown along the Yamuna and nearby regions. The data showed in Gurgaon, of the 24 samples, 11 were vegetables. In Mumbai, out of 38 samples with high pesticide content, 25 were vegetables and in Port Blair, all eight failed samples were from this category. In Hyderabad, 27 of 51 such samples were vegetables and in Jaipur, it was 7 out of 10 samples. Recently Food Safety and Standards Authority of India proposed regulations for heavy metal content in a range of food items.

The drastic change in eating habits, especially of the teen age and youth, is another alarming issue. The most liked food of the present generation is constituted of pizzas, pastas, burgers, frankie, hot dogs, artificial chinese food and foreign food. The use of fibers in the preparation of packed fast food causes lot of digestive problems. We have largely forgotten the Indian Cultural Heritage. Our tastes have changed as per the tastes of the producers. A sizable number of Indians are vitamin D and B12 deficient. Most of the cold drinks are highly opaque. We do not know what we are drinking. There is over dose of preservatives.

Many a people have psycho-neurosis, obsessive neurosis, insomnia, depression, hyper-tension, aggression, stress and strain, artery blockage, diabetes, and tuberculosis. There is alarming fall in the heart & brain entrainment ratio. The life styles have changed. The digital age is suffering from many health hazards. The loss of eye power at an early age is more due the use of

electronic gadgets than any other cause. The modern kitchens seem to be beautiful in face but create many health problems. The use of microwaves, non-sticky cook-wares and electronic appliances rather than necessity has become a fashion and prestige symbol. Over use of microwaves results in removal of nutritive ingredients of the food.

2. Top 10 health concerns of the decade

In the last ten years, innumerable diseases and conditions have plagued mankind. From the recent Swine Flu pandemic to Cancer, AIDS and Obesity in children, we bring you a roundup of the most alarming ones which have managed to create ripples of tension in the minds of the young and old alike. (ARADHANA V BHATNAGAR, Jan 7, 2010, 12.00am IST). After sharing and discussing with several professionals and housewives across the country, we confirmed these health concerns with experts in the line of medicine and health. Here are top of the mind health concerns voiced by men, women and also children.

a. Heart diseases

Heart disease is the number one killer of both men and women. Now researchers say India, a country with more than one billion people, will likely account for 60 per cent of heart disease patients worldwide. A study among Asian Indian men showed that half of all heart attacks in this population occur under the age of 50 years and 25 per cent under the age of 40, according to the Indian organization, Medwin Heart Foundation. Although more men die of heart disease than women, females tend to be under-diagnosed, often to the point that it's too late to help them once the condition is discovered.

b. Cancer

The good news is that survival rates have improved for many types of cancers in recent years. But, you can lower your risk by adopting a healthy lifestyle. Screenings also can help find some cancers early, when they are most treatable. Skin, lung, prostate, colon and testicular cancers are the ones that worry most men, while women feel anxious about breast cancer. It is second to lung cancer as the leading cause of death for women. Experts say the fear of breast cancer can sometimes be exaggerated, stopping women from going to their doctors for screening, or pushing women to make rash decisions about mastectomy, when it may not be necessary.

c. HIV/ AIDS

The HIV/AIDS epidemic will affect women's health in coming years. Rates of infection are found in population groups with certain high-risk behaviors (i.e., sex workers, intravenous drug users, and sexually transmitted disease patients). However, infection also is increasing in the general population. Despite the alarming growth of the epidemic, most women in India have very little knowledge of AIDS. Even among those who had heard of the disease, there were many misconceptions about modes of transmission.

d. Swine Flu

Soon after the outbreak of H1N1 virus in the United States and Mexico in March 2009, the Government of India started screening people coming from the affected countries at airports for swine flu symptoms. Till date there have been 852 confirmed HINI deaths in the country confirms the health ministry. What begins with sudden chills, cough, sore throat, headache and fatigue, worsen and lead to death if not detected on time.

e. Reproductive health

Many of the health problems of Indian women are related to or exacerbated by high levels of fertility. Research has shown that numerous pregnancies and closely spaced births erode a mother's nutritional status, which can negatively affect the pregnancy outcome. Unwanted pregnancies terminated by unsafe abortions also have negative consequences for women's health.

f. Osteoporosis

A largely preventable disease, the habits and life styles that women develop in their childhood, in their adolescence, and in their early adult years really play a significant role in the development of osteoporosis. This is because bodies build up most of bone mass until age 30. Then new bone stops forming and the focus is on maintenance of old bone. It is never too late to keep bones strong and avoid fractures.

g. Depression

Depression appears to affect more women than men. Research has proved that women need a connection with others in their lives. They need that sustenance and if they don't have it, they tend to get depressed.

h. Unintentional injuries

Accidents, also called unintentional injuries, are the third leading cause of death around the world. They account for one of every four people treated in an emergency department. Death can result from motor vehicle accidents, falls and fires.

i. Diabetes

More than nine out of ten people with diabetes have type 2 diabetes. Many men don't even know they have it until they develop problems such as erectile dysfunction, vision loss, or kidney disease.

j. Obesity

A difficult condition to treat, obesity and overweight rates for children and teens have been steadily rising. Children who are obese face serious health problems, including asthma, joint pain, high blood pressure, and type 2 diabetes. In the poll parents reported that they discuss at length limiting junk food and physical activity. However, most do not curtail TV time.

3. Health Disorders (Mental Health Disorders:)

a. Oppositional Defiant Disorder

Oppositional defiant disorder (ODD) is defined by the DSM-5 as "a pattern of angry/irritable mood, argumentative/defiant behavior, or vindictiveness lasting at least six months". Unlike children with Conduct Disorder (CD), children with oppositional defiant disorder are not aggressive towards people or animals, do not destroy property, and do not show a pattern of theft or deceit. A diagnosis of ODD is also no longer applicable if the individual is diagnosed with reactive attachment disorder (RAD).

- **Signs and Symptoms**

The fourth revision of the *Diagnostic and Statistical Manual (DSM- IV- TR)* (now replaced by DSM-5) stated that the child must exhibit four out of the eight signs and symptoms to meet the diagnostic threshold for oppositional defiant disorder. Furthermore, they must be perpetuated for longer than six months and must be considered beyond normal child behavior to fit the diagnosis. Signs and symptoms were: actively refuses to comply with majority's requests or consensus-supported rules; performs actions deliberately to annoy others; is angry and resentful of others; argues often; blames others for their own mistakes; frequently loses temper; is spiteful or seeks revenge; and is touchy or easily annoyed. These patterns of behavior result in impairment at school and/or other social venues.

- **Genetic influences**

Research indicates that parents pass on a tendency for externalizing disorders to their children that may be displayed in multiple ways, such as inattention, hyperactivity, or oppositional and conduct problems. This heritability can vary by age, age of onset, and other factors. Adoption and twin studies indicate that 50% or more of the variance causing antisocial behavior is attributable to heredity for both males and females. ODD also tends to occur in families with a history of ADHD, substance use disorders, or mood disorders, suggesting that a vulnerability to develop ODD may be inherited. A difficult temperament, impulsivity, and a tendency to seek rewards can also increase the risk of developing ODD. New studies into gene variants have also identified possible gene-environment (G x E) interactions, specifically in the development of conduct problems. A variant of the gene that encodes the neurotransmitter metabolizing enzyme monoamine oxidase-A (MAOA), which relates to neural systems involved in aggression, plays a key role in regulating behavior following threatening events. Brain imaging studies show patterns of arousal in areas of the brain that are associated with aggression in response to emotion-provoking stimuli.

- **Prenatal factors and birth complications**

Many pregnancy and birth problems are related to the development of conduct problems. Malnutrition, specifically protein deficiency, lead poisoning, and mother's use of alcohol or other

substances during pregnancy may increase the risk of developing ODD. Although pregnancy and birth factors are correlated with ODD, strong evidence of direct biological causation is lacking.

- **Neurobiological factors**

Deficits and injuries to certain areas of the brain can lead to serious behavioral problems in children. Brain imaging studies have suggested that children with ODD may have subtle differences in the part of the brain responsible for reasoning, judgment and impulse control Children with ODD are thought to have an overactive behavior activation symptom (BAS), and underactive behavioural inhibition system (BIS). The BAS stimulates behavior in response to signals of reward or non-punishment. The BIS produces anxiety and inhibits ongoing behavior in the presence of novel events, innate fear stimuli, and signals of non reward or punishment. Neuro-imaging studies have also identified structural and functional brain abnormalities in several brain regions in youths with conduct disorders. These brain regions are the amygdala, prefrontal cortex, anterior cingulate, and insula, as well as interconnected regions.

- **Social-cognitive factors**

As many as 40 percent of boys and 25 percent of girls with persistent conduct problems display significant social-cognitive impairments. Some of these deficits include immature forms of thinking (such as egocentrism), failure to use verbal mediators to regulate his or her behavior, and cognitive distortions, such as interpreting a neutral event as an intentional hostile act.

- **Environmental factors**

Negative parenting practices and parent–child conflict may lead to antisocial behavior, but they may also be a reaction to the oppositional and aggressive behaviors of children. Factors such as a family history of mental illnesses and/or substance abuse as well as a dysfunctional family and inconsistent discipline by a parent or guardian can lead to the development of behavior disorders. Insecure parent–child attachments can also contribute to ODD. Often little internalization of parent and societal standards exists in children with conduct problems. These weak bonds with their parents may lead children to associate with delinquency and substance abuse. Family instability and stress can also contribute to the development of ODD. Although the association

between family factors and conduct problems is well established, the nature of this association and the possible causal role of family factors continues to be debated.

Low socioeconomic status is associated with poor parenting, specifically with inconsistent discipline and poor parental monitoring, which are then associated with an early onset of aggression and antisocial behaviors.

Externalizing problems are reported to be more frequent among minority-status youth, a finding that is likely related to economic hardship, limited employment opportunities, and living in high-risk urban neighborhoods.

- **Diagnosis**

For a child or adolescent to qualify for a diagnosis of ODD, behaviours must cause considerable distress for the family or interfere significantly with academic or social functioning. Interference might take the form of preventing the child or adolescent from learning at school or making friends, or placing him or her in harmful situations. These behaviours must also persist for at least six months. Effects of ODD can be greatly amplified by other disorders in comorbidity such as ADHD. Other common comorbid disorders include depression and substance use disorders.

- **Management**

Approaches to the treatment of ODD include parent management training, individual psychotherapy, family therapy, cognitive behavioural therapy and social skill training. According to the American Academy of Child & Adolescent Psychiatry for ODD are tailored specifically to the individual child, and different treatment techniques are applied for pre-schoolers and adolescents. al preventative programs have had a positive effect on those at high risk for ODD. Both home visitation and programs such as Head Start have shown some effectiveness in preschool children. Social skills training, parent management training, and anger management programs have been used as prevention programs for school-age children at risk for ODD. For adolescents at risk for ODD, cognitive interventions, vocational training and academic tutoring have shown preventative effectiveness. There is also limited evidence that the atypical

antipsychotic medication risperidone decreases aggression and conduct problems in youth with disruptive behavioral disorders, such as ODD.

- **Epidemiology**

ODD has an estimated lifetime prevalence of 10.2% (11.2% for males, 9.2% for females).

- **History**

Oppositional defiant disorder was first defined in the DSM-III (1980). Since the introduction of ODD as an independent disorder, the field trials to inform the definition of this disorder have included predominantly male subjects. Some clinicians have debated whether the diagnostic criteria presented above would be clinically relevant for use with females. Furthermore, some have questioned whether gender-specific criteria and thresholds should be included. Additionally, some clinicians have questioned the preclusion of ODD when conduct disorder is present. According to Dickstein, the DSM-5 attempts to:

> "Redefine ODD by emphasizing a 'persistent pattern of angry and irritable mood along with vindictive behavior,' rather than DSM-IV's focus exclusively on 'negativistic, hostile, and defiant behavior.' Although DSM-IV implied, but did not mention, irritability, DSM-5 now includes three symptom clusters, one of which is 'angry/ irritable mood'—defined as 'loses temper, is touchy/easily annoyed by others, and is angry/ resentful.' This suggests that the process of clinically relevant research driving nosology, and vice versa, has ensured that the future will bring greater understanding of ODD".

b. Attention Deficit Hyperactive Disorder (ADHD)

Attention-deficit/hyperactivity disorder (ADHD) is a brain disorder marked by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development.

- Inattention means a person wanders off task, lacks persistence, has difficulty sustaining focus, and is disorganized; and these problems are not due to defiance or lack of comprehension.

- Hyperactivity means a person seems to move about constantly, including in situations in which it is not appropriate; or excessively fidgets, taps, or talks. In adults, it may be extreme restlessness or wearing others out with constant activity.
- Impulsivity means a person makes hasty actions that occur in the moment without first thinking about them and that may have high potential for harm; or a desire for immediate rewards or inability to delay gratification. An impulsive person may be socially intrusive and excessively interrupt others or make important decisions without considering the long-term consequences.

- **Signs & Symptoms**

Inattention and hyperactivity/impulsivity are the key behaviors of ADHD. Some people with ADHD only have problems with one of the behaviors, while others have both inattention and hyperactivity-impulsivity. Most children have the combined type of ADHD. In preschool, the most common ADHD symptom is hyperactivity. It is normal to have some inattention, unfocused motor activity and impulsivity, but for people with ADHD, these behaviors:

- are more severe
- occur more often
- interfere with or reduce the quality of how they functions socially, at school, or in a job

- **Diagnosis of ADHD**

Diagnosis of ADHD requires a comprehensive evaluation by a licensed clinician, such as a pediatrician, psychologist, or psychiatrist with expertise in ADHD. For a person to receive a diagnosis of ADHD, the symptoms of inattention and/or hyperactivity-impulsivity must be chronic or long-lasting, impair the person's functioning, and cause the person to fall behind normal development for his or her age. The doctor will also ensure that any ADHD symptoms are not due to another medical or psychiatric condition. Most children with ADHD receive a diagnosis during the elementary school years. For an adolescent or adult to receive a diagnosis of ADHD, the symptoms need to have been present prior to age 12. ADHD symptoms can appear as early as between the ages of 3 and 6 and can continue through adolescence and adulthood. Symptoms of ADHD can be mistaken for emotional or disciplinary problems or missed entirely in quiet, well-behaved children, leading to a delay in diagnosis. Adults with undiagnosed ADHD

may have a history of poor academic performance, problems at work, or difficult or failed relationships.

ADHD symptoms can change over time as a person ages. In young children with ADHD, hyperactivity-impulsivity is the most predominant symptom. As a child reaches elementary school, the symptom of inattention may become more prominent and cause the child to struggle academically. In adolescence, hyperactivity seems to lessen and may show more often as feelings of restlessness or fidgeting, but inattention and impulsivity may remain. Many adolescents with ADHD also struggle with relationships and antisocial behaviors. Inattention, restlessness, and impulsivity tend to persist into adulthood. ADHD is more common in males than females, and females with ADHD are more likely to have problems primarily with inattention. Other conditions, such as learning disabilities, anxiety disorder, conduct disorder, depression, and substance abuse, are common in people with ADHD.

- **Treatment & Therapies**

While there is no cure for ADHD, currently available treatments can help reduce symptoms and improve functioning. Treatments include medication, psychotherapy, education or training, or a combination of treatments. The most common type of medication used for treating ADHD is called a "stimulant." Although it may seem unusual to treat ADHD with a medication that is considered a stimulant, it works because it increases the brain chemicals dopamine and norepinephrine, which play essential roles in thinking and attention.

Under medical supervision, stimulant medications are considered safe. However, there are risks and side effects, especially when misused or taken in excess of the prescribed dose.For example, stimulants can raise blood pressure and heart rate and increase anxiety. Therefore, a person with other health problems, including high blood pressure, seizures, heart disease, glaucoma, liver or kidney disease, or an anxiety disorder should tell their doctor before taking a stimulant. A few other ADHD medications are non-stimulants. These medications take longer to start working than stimulants, but can also improve focus, attention, and impulsivity in a person with ADHD. Doctors may prescribe a non-stimulant: when a person has bothersome side effects from

stimulants; when a stimulant was not effective; or in combination with a stimulant to increase effectiveness.

Although not approved by the U.S. Food and Drug Administration (FDA) specifically for the treatment of ADHD, some antidepressants are sometimes used alone or in combination with a stimulant to treat ADHD. Antidepressants may help all of the symptoms of ADHD and can be prescribed if a patient has bothersome side effects from stimulants. Antidepressants can be helpful in combination with stimulants if a patient also has another condition, such as an anxiety disorder, depression, or another mood disorder.

- **Psychotherapy**

Adding psychotherapy to treat ADHD can help patients and their families to better cope with everyday problems. Behavioral therapy is a type of psychotherapy that aims to help a person change his or her behavior. It might involve practical assistance, such as help organizing tasks or completing schoolwork, or working through emotionally difficult events. Behavioral therapy also teaches a person how to:

- monitor his or her own behavior
- give oneself praise or rewards for acting in a desired way, such as controlling anger or thinking before acting

Parents, teachers, and family members also can give positive or negative feedback for certain behaviors and help establish clear rules, chore lists, and other structured routines to help a person control his or her behavior. Therapists may also teach children social skills, such as how to wait their turn, share toys, ask for help, or respond to teasing. Learning to read facial expressions and the tone of voice in others, and how to respond appropriately can also be part of social skills training.

Cognitive behavioral therapy can also teach a person mindfulness techniques, or meditation. A person learns how to be aware and accepting of one's own thoughts and feelings to improve focus and concentration. The therapist also encourages the person with ADHD to adjust to the life changes that come with treatment, such as thinking before acting, or resisting the urge to take

unnecessary risks. Family and marital therapy can help family members and spouses find better ways to handle disruptive behaviors, to encourage behavior changes, and improve interactions with the patient.

- **Education & Training**

Children and adults with ADHD need guidance and understanding from their parents, families, and teachers to reach their full potential and to succeed. For school-age children, frustration, blame, and anger may have built up within a family before a child is diagnosed. Parents and children may need special help to overcome negative feelings. Mental health professionals can educate parents about ADHD and how it affects a family. They also will help the child and his or her parents develop new skills, attitudes, and ways of relating to each other.

Parenting skills training (behavioral parent management training) teaches parents the skills they need to encourage and reward positive behaviors in their children. It helps parents learn how to use a system of rewards and consequences to change a child's behavior. Parents are taught to give immediate and positive feedback for behaviors they want to encourage, and ignore or redirect behaviors that they want to discourage. They may also learn to structure situations in ways that support desired behavior.

Stress management techniques can benefit parents of children with ADHD by increasing their ability to deal with frustration so that they can respond calmly to their child's behavior. Support groups can help parents and families connect with others who have similar problems and concerns. Groups often meet regularly to share frustrations and successes, to exchange information about recommended specialists and strategies, and to talk with experts.

c. Bipolar Disorders

It is a mental condition marked by alternate periods of elation & depression. Bipolar disorder also called manic depressive is a mental illness that brings severely high & low moods and changes in sleep, thinking, energy and behavior. People who have bipolar disorder can have periods in which they feel overly happy and energized and other periods of feeling very sad,

hopeless, and sluggish. In between those periods, they usually feel normal. You can think of the highs and the lows as two "poles" of mood, which is why it's called "bipolar" disorder.

The word "manic" describes the times when someone with bipolar disorder feels overly excited and confident. These feelings can also involve irritability and impulsive or reckless decision-making. About half of people during mania can also have delusions (believing things that aren't true and that they can't be talked out of) or hallucination (seeing or hearing things that aren't there). Hypomania describes milder symptoms of mania, in which someone does not have delusions or hallucinations, and their high symptoms do not interfere with their everyday life. The word "depressive" describes the times when the person feels very sad or depressed. Those symptoms are the same as those described in major depressive disorder or "clinical depression, a condition in which someone never has manic or hypomanic episodes. Most people with bipolar disorder spend more time with depressive symptoms than manic or hypomanic symptoms.

- **Symptoms of Bipolar Disorder**

In bipolar disorder, the dramatic episodes of high and low moods do not follow a set pattern. Someone may feel the same mood state (depressed or manic) several times before switching to the opposite mood. These episodes can happen over a period of weeks, months, and sometimes even years. How severe it gets differs from person to person and can also change over time, becoming more or less severe. Symptoms of mania ("the highs"):

- Excessive happiness, hopefulness, and excitement
- Sudden changes from being joyful to being irritable, angry, and hostile
- Restlessness
- Rapid speech and poor concentration
- Increased energy and less need for sleep
- Unusually high sex drive
- Making grand and unrealistic plans
- Showing poor judgment
- Drug and alcohol abuse becoming more impulsive

During depressive periods ("the lows"), a person with bipolar disorder may have:

- Sadness

- Loss of energy
- Feelings of hopelessness or worthlessness
- Not enjoying things they once liked
- Trouble concentrating
- Uncontrollable crying
- Trouble making decisions
- Irritability
- Needing more sleep
- Insomnia
- Appetite changes that make them lose or gain weight
- Thoughts of death or suicide
- Attempting suicide

d. Depression

Depression is an extremely complex disease. No one knows exactly what causes it, but it can occur for a variety of reasons. Some people experience depression during a serious medical illness. Others may have depression with life changes such as a move or the death of a loved one. Still others have a family history of depression. Those who do may experience depression and feel overwhelmed with sadness and loneliness for no known reason.

What Are the Main Causes of Depression?

There are a number of factors that may increase the chance of depression, including the following:

- **Abuse.** Past physical, sexual, or emotional abuse can increase the vulnerability to clinical depression later in life.
- **Certain medications**. Some drugs, such as isotretino in (used to treat acne), the antiviral drug interferon-alpha, and corticosteroids, can increase your risk of depression.
- **Conflict**. Depression in someone who has the biological vulnerability to develop depression may result from personal conflicts or disputes with family members or friends.

- **Death or a loss**. Sadness or grief from the death or loss of a loved one, though natural, may increase the risk of depression.
- **Genetics**. A family history of depression may increase the risk. It's thought that depression is a complex trait, meaning that there are probably many different genes that each exert small effects, rather than a single gene that contributes to disease risk. The genetics of depression, like most psychiatric disorders, are not as simple or straightforward as in purely genetic diseases such as Huntington's chorea or cystic fibrosis.
- **Major events**. Even good events such as starting a new job, graduating, or getting married can lead to depression. So can moving, losing a job or income, getting divorced, or retiring. However, the syndrome of clinical depression is never just a "normal" response to stressful life events.
- **Other personal problems**. Problems such as social isolation due to other mental illnesses or being cast out of a family or social group can contribute to the risk of developing clinical depression.
- **Serious illnesses**. Sometimes depression co-exists with a major illness or may be triggered by another medical condition.
- **Substance Abuse**. Nearly 30% of people with substance abuse problems also have major or clinical depression.

e. Obsessive Compulsive Disorder

It is believed that OCD is likely to be the result of a combination of either neurobiological, genetic, behavioural, cognitive, or environmental factors that trigger the disorder in a specific individual at a particular point in time.

Biological causes of OCD have focused on a circuit in the brain which regulates primitive aspects of our behaviour such as aggression, sexuality, and bodily excretions. This circuit relays information from a part of the brain called the orbitofrontal cortex (front part of the brain), to another area the striatum, and the thalamus (deeper parts of the brain). It also includes other regions such as the caudate nucleus of the basal ganglia. When this circuit is activated, these

impulses are brought to your attention and cause you to perform a particular behaviour that appropriately addresses the impulse.

- **Serotonin**

Abnormalities, or an imbalance in the neurotransmitter, or brain chemical, serotonin, could also be to blame. Serotonin is the chemical in the brain that sends messages between brain cells and it is thought to be involved in regulating everything from anxiety, to memory, to sleep. Medications known as Selective Serotonin Re-uptake Inhibitors (SSRIs) are often used to treat OCD, although it is not fully known why the SSRI medications seem to help some people with OCD.

These chemicals are sent out by one nerve cell into the space between it and then the next cell. The next cell in line gets the message once those chemicals get to it from across the gap. Then that nerve cell releases a chemical toward the next nerve cell so it gets the message.

It's important that the right amount of chemical is sent or the message might be heard wrong.
A key chemical involved in OCD is called serotonin. And a key gene for this process is hSERT. hSERT has the instructions for making a serotonin transporter. The transporter's job is to mop up extra serotonin after a nerve splits it towards the next nerve cell in line. In some people with OCD, hSERT works too fast, and may collect all the serotonin before the next cell has even heard the signal! Their nerves are whispering when they should be speaking out loud.

f. Schizophrenia and Hallucination

Individuals with schizophrenia often experience hallucinations. Hallucinations are perceptual experiences which occur without any actual source. In other words, there is no actual stimulus in the environment creating the sound, image, etc. The schizophrenic perceives something as very real even though it isn't real at all. Hallucinations can involve any one of the senses – sight, sound, taste, smell or touch. The most common hallucinations experienced by schizophrenics, however, are auditory in nature.

i. Auditory hallucinations

Auditory hallucinations usually involve voices talking to or about the person. Most of the time, the voices either provide a running commentary on whatever the schizophrenic individual is doing or they tell the person what he/she should do. They may also be carrying on conversations, or give warnings, alerting the schizophrenic about potential danger or harm. The imaginary voices heard by schizophrenic individuals can be very disturbing. Voices which tell them what to do are referred to as "command hallucinations". These can be especially problematic if they are telling them to harm themselves or someone else. This can potentially make schizophrenic individuals vulnerable to suicide or violence, as they feel compelled to obey the voices. Voices can also be problematic if they are telling them to not take their medication or warning them that everyone is out to get them (for example, healthcare staff or family who are trying to help). As a result, voices can play a significant role in a schizophrenic person's adherence to treatment. Auditory hallucinations also disrupt the person's thinking, making it difficult to focus or concentrate. Auditory hallucinations may involve other things besides voices, although it is much less common. The person may hear music playing. S/he may also hear other sounds, such as footsteps or sirens, for example.

ii. Visual hallucinations

Schizophrenics can also have visual hallucinations, which are the second most common type with this disorder. Visual hallucinations involve seeing things which aren't really there. They may involve images which are very clear, as well as vague or distorted. Visual hallucinations can be especially frightening, depending on the image.

iii. Olfactory hallucinations

Involve the sense of smell. They often involve an unpleasant smell, and sometimes the schizophrenic person believes (much to his/her embarrassment) that the odor is coming from his/her own body.

iv. Tactile hallucinations

Involve the sense of touch, and may, for example, involve the feeling that snakes or bugs are crawling on or inside the body. Also, the person may believe an invisible hand or fingers are touching him/her.

v. Gustatory hallucinations

Involve the sense of taste. This may be experienced as a strange taste in something they are eating or drinking.

- **Connection to delusions**

Quite often the hallucinations coincide with delusions (false beliefs) which the schizophrenic is also experiencing. For example, if a schizophrenic man has the delusion that aliens have invaded his home, he may hear voices which he believes are aliens talking to him or about him. He may believe he sees them moving about his home, or smell odd odors which he attributes to their presence.

- **Treatment**

Hallucinations are most effectively treated with antipsychotic medications. For some individuals, antipsychotics may completely eradicate the hallucinations. For others, they may only reduce them to some degree.

The reversal of the proverb 'Health is Wealth' --- 'Wealth is Health' seems to be the major contributor towards all kinds of health issues. For revival of health, we should go back to our old politeness and ancient culture, namely, simple living & high thinking, with naturalism, naturopathy & full Yoga. The present module further focuses on Human Development Index, Universe Development Index, Heart and Brain Entrainment Ratio, Problems of Beta Thal Major and Dementia in India.

4. Human Development Index

The Human Development Index (HDI) is a composite statistic of life expectancy, education, and income indices. Published on 4 November 2010 (and updated on 10 June 2011), starting with the 2011 Human Development Report the HDI combines three dimensions:

- A long and healthy life: Life expectancy at birth
- Education index: Mean years of schooling and Expected years of schooling
- A decent standard of living: GNI per capita

In its 2010 Human Development Report, the UNDP began using a new method of calculating the HDI. The following three indices are used:

- Life Expectancy Index $(LEI) = \frac{\text{LE}-20}{82.3-20}$
- Education Index $(EI) = \frac{\sqrt{\text{MYSI.EYSI}}}{0.951}$
  - Mean Years of Schooling Index $(MYSI) = \frac{\text{MYS}}{13.2}$
  - Expected Years of Schooling Index $(EYSI) = \frac{\text{EYS}}{20.6}$
- Income Index $(II) = \frac{\ln(\text{GNIpc})-\ln(100)}{\ln(107{,}721)-\ln(100)}$

Finally, the Human Development Index is the geometric mean of the previous three normalized indices: $HDI = \sqrt[3]{LEI.EI.II}$

LE: Life expectancy at birth

MYS: Mean years of schooling (Years that a 25-year-old person or older has spent in schools)

EYS: Expected years of schooling (Years that a 5-year-old child will spend with his education in his whole life)

GNIpc: Gross national income at purchasing power parity per capita

5. Growth Rate of various States in India & HDI

Progress has picked up unprecedented pace during the last 2 decades. Haryana is leading State in the country among the big States in per capita income. The per capita income of Haryana was 1,09, 227 in 2011-12, whereas, the per capita income is estimated of Rs. 1,28, 341 during 2012-13. The economic growth of the State is 9.9%, which is the highest of India. Haryana is the first State to provide safe drinking water facilities all over the State. The per capita expenditure in the

State on the health services during the year 2011 was Rs. 490.28. (Hindustan Times, Delhi, Sunday, Feb. 3, 2013). Haryana was carved out of Punjab on Nov. 1, 1966. Having emerged as a path-breaker and trend setter, Haryana has traversed a great distance.

But, has the State really made a tremendous growth in totality? What are the Education Index and Life Expectancy Index of Haryana State? What is the level of internal security & external security in Haryana? What is the level of equity & equality in Haryana? What is the Human Development Index in Haryana? What is the overall State Development Index? What is the relative status of agriculture and industry in Haryana? How the GDP and HDI of the State could be enhanced? In which domains Haryana could be emulated by the other States of India and vice-versa? Kerala State has always been excelling literacy rate. But, has the State realized sustainable development. Karnataka & Andhra Pradesh are the leading States on Information Technology implementation. But what is the Human Development Index in these States? What is the present status of Punjab on HDI which has been a prosperous State? What is the status of North East of India on HDI? It is high time for India to produce State-wise Human Development Index.

6. From HDI to Universe Development Index (UDI)

When will we move from HDI to UDI, that is, from Human Development Index to Universe Development Index? It is because rather than nurturing the nature we have started abusing the nature. Rather than treating the nature as Source we have started using her as Resource. Trees are being cut brutally. Animals are being killed inhumanly. Even when we can satisfy our hunger with vegetarian food, we have the craze to go for non-vegetarian. We are becoming Smarts-Smart Cities and Smart Villages. There is a need to redefine Smart in India. The worst states of our Roads speak a lot of our psyche and soul. Every entity has its own place in the universe. Every element of this universe needs to be duly respected. Where have gone the sparrows, butterflies and glow worms? What is the rate of plantation of Micro Wave Towers. Is digital India the resolve to all the problems of India? Which are the considerations for new system designs and conversion? A sparrow is as significant as a human Baby. A tree is as important as a human being. A glow worm is as important as a saint. Tiger, deer and elephants are as important as human creature. A NEEM is as important as a multi storey building. The nests of the birds are

as important as the multi bed rooms. We have stopped realizing that the survival of the human beings is directly proportional to the survival of the nature. We are depriving our children of their childhood. The beauties of the childhood are lost in the school curriculum framework. The children are deprived of the games, sports and nature. There is a move from real to the virtual. On one side we have made the lives of children miserable, whereas, on the other side introduced wonderful life skills in the school curricula. We have closed the wells and are busy with mineral water. There is rarely drinking water in the schools. Children carry their water in own plastic bottles. We the human beings have made our lives miserable. Most of the problems are deliberately invited by the so called civilized, modern human beings. What is the resolve? Let us not be over smart. There is a need to develop Universe Development Index considering life expectancy of every organism, healthy culture of every organism, and investment and income on every entity.

7. Wholistic Health

A person is said to be healthy when the body embodies all the subsystem at the proper place structurally and functionally& there is optimum interrelation & interdependence among them and all of these constitute a unit integrated whole (SWASTH), which works efficiently, effectively and easily. This is the state where ideas spring, feelings flow, motor creates, the soul reins and the self resonates with all naturally. There is equation amongst DARSHAN (Ideas), AACHAAR (Behaviour) & KRM (Action). There is Heart & Brain Entrainment. There is optimum secretion & equation of adrenalin & dopamine.

- **Beta Thal Major Problem in India**

Beta Thal Major is a big problem in India. Many a children are suffering from this disease. They have to go for Blood Transfusion (BT), periodically, depending upon their HB level. Some of the Problems which have come to the fore are as follows:

- Despite requesting, some of the doctors do not specify the exact volume of blood required during BT. They would write one Unit or Two Units without specifying the volume. The Unit size has not been defined.
- Whether the Unit size is 200 ml or 300 ml, mostly the Doctors on internship insist on transfusing it over four hours.

- If there is induction of HCV or HIV during BT, the Parents are accountable, not the hospital or Blood Bank.
- Very recently we have come across a new term –DAMA, that is, Discharge Against Medical Advice. When the BT is over, then the Doctor Trainee on internship would report the status of the Child who's BT has been completed to the Chief Consultant, who is usually at home. The Chief Consultant from home would advise to stay back over night and the discharge could be done on his/her advent next day. If the Parents refuse, then they are advised to sign DAMA and take the child home at their own Risk.
- Locating the Veins of these children for vain flow for BT is a challenging task.
- There are some doctors who are trying Hydroxyl Urea on Beta Thal Children. Due permission should be sought for any clinical trial.
- Iron Chillation is a very costly and challenging task. Many a chillators are available, such as, Despheral, Kelpher, Desirox , and Asunra.
- The facilities to find the level of Iron deposit in various body organs, such as, heart & lever are rarely available.
- Bone Marrow Transplantation and Stem Cell Transplantation facilities are very rare.
- There are no National Guidelines available with respect to Beta Thal Major Patients.

- Problem of Dementia in India

Problem of dementia is on the increase in India. There are a large number of cases of significant memory loss during old age. It has got something to do with our Thinking Habits. A large number of we Indians are suffering from compulsive recursive obsessive neurosis which causes anxiety, tension, stress, strain, inattention, headache, forgetfulness and diffidence. It is self killing. There is an immediate need of Thinking Training in India.

- **Some Concerns**

  General Problems

  - Our food habits have changed. There is evident transition from home made food to fast food. It has come to the fore that these preserved foods are largely not hygienic. These usually contain excessive fats and spices and are acidic. Though the food is high calorie, but, it does not provide adequate energy, Also, the preservatives used, such as, nitrogen,

chlorine, carbonic acid, vinegar and impure sugar (molasses) are harmful. Also, the refined wheat flour (Maida) consumes significantly more time for digestion. The fats overused for frying cause many a health problems. Consumers have changed their tastes as per the tastes of the producers, fair or foul. There is ocean of food stuff, but, non-compatible. What to choose? Where from?

- The entire environ is polluted, There are water pollution, air pollution, soil pollution and noise pollution. Which water to drink, which air to breathe, which vegetables & fruits to eat, and how to find noise free corner? There is environmental awareness but very rare environmental ethics. There is degeneration of environment. With the lust for luxury many a species are disappearing. Fully healthy people are no longer seen. Every one suffers from one or the other disease. What is the resolve?
- The life styles have changed. We have moved from naturalism to existentialism. We have moved from simple living and high thinking to high living and simple thinking, from health is wealth to wealth is health. We are going far away from our heritage and culture. Truthfulness, compassion and forbearance seem to be mere slogans. We are in more of competitive societies than cooperative. The nuclear families have resulted into the alienation of children.
- We are using technology or technology is using us? We have media crowd, but, no media culture. There are many health hazards due to over use of technology. It is high time that we become techno-savvy, info-savvy, net-savvy and media-savvy.
- Our greatest disease is passions, possessions, obsessions. There are many a medical malpractices. There is a need to realize professional ethics.
- Malls are rising in India at a rapid pace, but, we do not have mall culture. Almost every hand has cell phone, A to Z phones, but, we do not have cell culture. Only God knows what we keep communicating round the clock. Health hazards are self evident. Modernization and perfective maintenance ought to be there. Modernization and perfective maintenance demand precise regulatory mechanisms and controls.

Solutions

- Each one of us should practice Yoga for sound health.
- We need to employ, both, preventive, and ameliorative measures for sustaining sound health.

- Health Education ought to be integrated with Educational Curricula at all levels, from pre-primary, through tertiary and continuing.
- We should observe healthy Heart & Brain entrainment Ratio.
- We should sustain our smiles and laughter under even the most adverse conditions.
- Human Development Index should be of prime importance for any nation.
- India should come up with Universe Development Index (UDI).
- Various States in India ought to learn from the development of each other.
- India should formulate National Health Policy at the earliest.

8. Concluding Remarks

Degenerating health of all in India is an alarming issue. There are many health issues in India. Neither we are fully aware of the self nor that of environment. There is a need for observing healthy heart and brain entrainment ratio. Yoga can contribute to the heart and brain entrainment ratio and sound health. Modern society is busy without business. We rarely find natural, continuous, spontaneous, roaring laughter, and natural graceful soothing smiles. Let us revive our health, resonating laughter, and flowing smiles, because, it is our duty to preserve and sustain the cultural heritage of India. The State ought to define its role and arrive at a Health Policy for India. We need not produce a health issue repertoire, because all these issues are self evident.

Despite the policies and programs on Environment and Health, the Plants, Trees and greenery are disappearing. Children keep munching the junk food, non-stop. Adults keep drinking the tea and coffee, count-less. No research rigor is required to know the health status of India. The street roads full of Pan and Tobacco spits, full of all sorts of roughage, pits and ditches reveal a lot of the Psycho-Somatic State. Junk food, green washed vegetables and fruits, medical malpractices, all sorts of pollution narrate our health problems. Could the Education, Society and State converge and reflect on the health issues? No government policies will work, unless each and every Indian is health educated and accountable. Human Development Index ought to be the priority of Indian Government.

Health issues in India are highly alarming. Despite all the preventive maintenance why do we fall sick? It is because the environment is polluted. Who is accountable? We all Every foreign latest

virus first enters in India. It is because we do not have adequate security measures. There are many indigenous diseases born in India, Some of these have been named, the others are yet to be named. We salute all of us for our survival, because, we employ all the possible Medical Sciences, such as, Naturopathy, Homeopathy, Allopathy, Ayurved. We need to bring about health sensitivity and consciousness. We recall age old slogan "Prevention is better than Cure." But, how to sustain health in a suffocating environment? Health Education seems to be the best resolve. Health Education should be introduced in Educational Curricula at all levels. Let us observe environmental ethics. Medical Sciences ought to do analysis at the functional level. Medical Sciences & Medical Ethics ought to be perfected. More than the ameliorative, we require preventive measures for the full health of the masses. We should employ RAJ YOG, KARM YOG, BHAKTI YOG & GYAN YOG as Voiced by Swami Vivekananda, and ancient Cultivation Practice of Truthfulness, Compassion and Tolerance.