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MEDITATION –MEDICATION IN PSYCHIATRIC DISORDERS

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ABSTRACT

Meditation is a mind-body practice in complementary and alternative medicine (CAM). There are many types of meditation, most of which originated in ancient religious and spiritual traditions. Generally, a person who is meditating uses certain techniques, such as a specific posture, focused attention, and an open attitude toward distractions. The aim of Meditation is to reduce or eliminate irrelevant thought processes through training of internalised attention, thought to lead to physical and mental relaxation, stress reduction, psycho-emotional stability and enhanced concentration. Physiological evidence shows a reduction with Meditation of stress-related autonomic and endocrine measures, while neuroimaging studies demonstrate the functional up-regulation of brain regions of affect regulation and attention control. . In this paper we discuss the physiological and neurophysiological benefits of Meditation and its potential effectiveness as a complementary treatment approach for mental illness.

KEYWORDS: posture, neurophysiological, complementary and alternative medicine (CAM).

INTRODUCTION

Neuropsychiatric disorders such as depression, alcohol and drug abuse are on the increase worldwide. Neuropsychiatric disorders account for 31% of total disability and are expected to rise by 2020 . Meditation is one of the innovative conceptual and therapeutic models of care relevant to the amelioration of mental illness. Meditation has in recent years received considerable attention as a potential adjunct or alone in the intervention of psychiatric disorders as it is cost-effective and presumably free of side effects.

What is Meditation

In English *meditation* is derived from the Latin *meditatio*, from a verb *meditari*, meaning "to think, contemplate, devise, ponder" [2] Medicine and meditation come from same root word 'medere' – making whole. Even Healing and Holy have the same origin. Meditation is an ancient method of employing the mind-body connection to achieve specific developmental goals. Over the four thousand years since the beginning of Yoga, the developmental goals have shifted, and so have the methods . Principles of meditation involve relaxation, oxygenation, imagery, visualization, concentration, self-hypnosis, cognitive restructuring, peak experiences and secretion of endorphins. Meditation is essentially a physiological state of demonstrated reduced metabolic activity – different from sleep – that elicits physical and mental relaxation and is reported to enhance psychological balance and emotional).[3] In Western psychology, three states of consciousness are described: sleep, dream and wakefulness. In Eastern philosophy and in several Western religious and mystical traditions, an additional and supposedly ''higher'' state of consciousness has been described, the socalled ''fourth state of consciousness'', the state of ''thoughtless awareness''[4]. In thoughtless awareness the incessant thinking processes of the mind are eliminated and the practitioner experiences a state of deep mental silence. This state can be achieved by the practice of ''Meditation''. According to the Yoga Sutras of Patanjali, one of the oldest recorded scriptures on Meditation, ''Yoga is the suppression of the modifications of the mind''.

Types of meditation

Researchers have categorized meditative techniques into two forms, those that emphasize "concentration," such as transcendental meditation (TM) and other mantra-based meditation programs, and those that emphasize "mindfulness," such as mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT). [5]The majority of Meditation techniques are therefore in essence an attention training by which thoughts are consciously manipulated. This involves either the narrowing or focussing of the attention on internal events such as breathing, an object, one point in space, or a mantra (several Buddhist practices, Yoga Nidra, Sahaja Yoga) or expanding the attention non-judgmentally on the moment to moment experience and observing thoughts and feelings from a meta-cognitive awareness state (Mindful Meditation, Vipassana and Zen Buddhist practices). Some of commonly practised types are Mindfulness, also called 'Vipassana', comes from the Buddhist spiritual tradition. For almost almost 3,000 years, Buddhist monks have practiced

mindfulness meditation -- but in recent years mindfulness practice has become increasinglywidespread and applied outside of the BuddhismMindfulness is taught along with an awareness on the breath,with no attempt to change the breathing pattern, which makes it observational rather than active. Zazen meditation comes from in the Buddhist tradition. It is a minimal kind of meditation, done for long periods of time, with little instruction beyond the basics of posture (sit with your back straight). Transcendental Meditation is a concentrative practice that developed by the Indian yogi Maharishi Mahesh Yogi (born Mahesh Prasad Varma) in 1955. He claimed that the practice derives the from Hinduism.TM is the commonest form of mantra meditation.Its aims to prevent distracting thoughts by use of mantrasor , a sacred word that is repeated. Kundalini is another practice that comes from Vedanta. Kundalini is the name for the rising stream of energy that exists in a human being (there is also a downward stream, not emphasized in Kundalini). The aim of Kundalini meditation is to become aware of that rising stream, and to ride the stream to infinity. The practitioner concentrates on their breath flowing through each of the energy centers of the body, always moving upward, toward the energy center just above the top of the head.[6]

Benefits of Meditation

Several studies have examined the physiological state accompanying active or concentrative meditation like TM leads to wakeful hypometabolic state that is characterised by decreased sympathetic nervous activity, important for fight and flight mechanisms, and increased parasympathetic activity, important for relaxation and restvii Among the changes noted were reductions in respiratory rate, decreases in tidal volume, serologic drops in lactate levels, and increases in basal skin resistance[8]. Young and colleagues17 have hypothesized that this hypometabolic state, consciously induced during TM-style meditation, serves an estivationor hibernation-like role that allows for successful adaptation and plasticity in the midst of environmental change and stress. This state may have health-promoting and restorative benefits, as well as positive effects on neural plasticityix TM has also been found to be associated with increased cerebral perfusion to the frontal and occipital regions during active meditationxSahaja Yoga Meditation, for example, a technique that evokes thoughtless awareness on a daily basis, works via activation of parasympathetic–limbic pathways and reduce autonomic activity .[9] Studies using other Meditation techniquessuch as mindful or Buddhist Meditation have reported similar changes indicative of increased parasympathetic activity, suggesting that this is a characteristic feature of Meditation [12] Most types of meditation, which involve an initial focusing of attention, are associated with increased

regional blood flow or glucose metabolism in the prefrontal and cingulate cortex, areas that are important in selection of a mental task. During visualization, regional blood flow increases in the visual cortex and visual association areas in the occipital lobes. In contemplation of 'self' the parietal lobes on both sides are activated.

Neurophysiological effects during Meditation are the reduction of mental activity and the generation of positive affect meditation appears to begin by activating the prefrontal and cingulate cortex, during meditation there is increased activity in the hippocampus or inner aspect of the temporal lobe. activation and increased activity of the hippocampus and amygdala as well as limbic stimulation in meditation results in stimulation of the ventromedial hypothalamus with stimulation of the peripheral parasympathetic system. The increased parasympathetic activity is associated with a subjective sensation, first of relaxation and later, a more profound sense of quiescence. Activation of parasympathetic system results in decreased heart and respiratory rate. All these physiological responses are observed during meditation.

Many electrophysiological studies have examined the brain activation during a variety of concentrative Meditation techniques. Meditation has been reported to be 'the fourth state' (apart from dreaming, sleep and wakefulness) with mainly increased alpha and then theta rhythms, and increased alpha coherence (with increased blood flow and melatonin being observed in mediation, unlike sleep) [13] Increased activation in alpha activity has been found to correlate with reduced levels of anxiety .[14]During the Meditation, compared to rest, the long-term Meditators showed more feelings of happiness and less mental activity than the short-term Meditators. In their EEG measures, the long-term Meditators showed increased power in low band frequency EEG activity of theta and alpha, which was particularly pronounced over the left frontal regions.[15]

During meditation relatively greater activity of the parasympathetic than sympathetic nervous system leads to decreased production of the catecholamines, epinephrine and norepinephrine by the adrenal medulla, increases brain serotonin, which is important in regulating mood. In addition to elevating mood, serotonin can stimulate increased production of acetylcholine, involved in memory mechanisms and attention . Long-term (duration of four months or greater) TM has been shown to result in decreased cortisol levels, as well as a heightened cortisol response to acute stress—which has been interpreted to suggest that TM can protectagainst the impact of chronic stress [16] It has been hypothesized that TM can lead to

increased GABA indirectly through its effect on ketones and the neuroendocrine system A functional imaging study using PET compared rest(listening to speech) to active Meditation (Meditation under verbal instruction) during Yoga Nidra (based on breathing exercises) found decreased binding of a radioactive tracer that competes with endogenous dopamine in the ventral striatum. This corresponds to about 65% increase in dopamine release in limbic brain regions.[17] Several studies of Meditation have observed increases in blood plasma levels of melatonin chronically in long-term Both neurochemicals are closely linked, play an important role in mood stabilisation, positive affect, stress-prevention and aging and there is evidence for their implications in affective disorders such as depression Melatonin has been shown to have a stimulatingeffect on the immune system and the antioxydative defense system, thus delaying .[18]

A recent MRI study was conducted to assess the cortical thickness in 20 participants with extensive 'insight meditation' experience. Meditators showed thicker cortex in the anterior parts of the brain such as the lateral PFC, MPFC and temporal areas, and thinner cortex in the posterior parts of the brain, including the lateral and medial parietal regions. The prefrontal cortical thickness was most pronounced in older participants, suggesting that meditation probably offsets age-related cortical thinning.[19]

Clinical effectiveness of Meditation in psychiatric disorders

Meditation techniques evident to reliefs stress and anxiety, create emotional resilience and mood regulation,this is due to an increased parasympathetic activity, decreased LC firing with decreased noradrenaline, increased GABAergic drive, increased serotonin and decreased levels of the stress hormone cortisol. The increased levels of endorphins and AVP also contribute to the anxiolytic effects of meditation [20] meditation has antidepressant effects due to the associated increase in serotonin and dopamine.[21] Mindfulness Meditation based stressreduction interventions in patients with major depression and anxiety on symptoms of depression [22] The TM movement has reported that TM can help addiction, as well as improve depression, reduce anxiety, enhance cognitive function, and promote insight and healthy choices [23] Bipolar disorder is defined by the presence of one or more episodes of abnormally elevated mood, clinically referred to as 'mania'. Williams and others of Oxford University showed in a study that meditation helps to reduce symptoms of bipolar disorder individuals.[24] Mindfulness meditation training can help people with BPD to feel less "stuck" in their emotions, and less judgmental of the emotions because it allows a little bit of space

for noticing the emotion and be more strategic in terms of how to act in the face of the emotion. [25] Bulimia Nervosa is an eating disorder primarily affecting women in which patients throw up after eating. 40% of women with bulimia (eating disorder) do not improve with normal treatment.researcher Proulx found that meditation brings about an inner transformation in Bulimia patients and suggested that meditation may be effective in treating the aforementioned 40% and might also be useful in preventing symptoms in younger women.[26] researchers Shannahoff-Khalsa and others of the University of California at San Diego found that Kundolini meditation was effective in treating patients with obsessive compulsive disorder. [27] Meditation techniques could potentially play a role in the prevention as well as the intervention of disorders of attention and affect regulation.

Attention deficithyperactivity disorder (ADHD), is defined as a disorder of age-inappropriate symptoms of hyperactivity, inattention andimpulsiveness Children with ADHD typically suffer from deficits in cognitive functions of self-control and attention and are known to have reduced size and function of fronto-parietal neural networks during tasks of inhibition and Meditation reduces symptoms of hyperactivity through the reduction of sympathetic activity, inducing improvement of cognitive functions of sustained attention, inhibitory control and self-monitoring .

Relative Contra-Indications include: meditation can actually be harmful in psychosis, severe depression, confusional states, extreme anxiety and the dementias.; it can precipitate psychosis or release a debilitating flood of painful affect in some seriously disturbed individualsxxix.4 Meditation can induce psychotic states via mechanisms such as increased 5HT 2 receptor activation, increased DMT, increased NAAG and increased dopamine. In others, it can exacerbate obsessive and schizoid traits. Like a drug, meditation must be prescribed with careful attention to the psychological status of the patient .

CONCLUSION

Meditation practices leads feelings of deep relaxation and stress relief enhanced concentrative attention skills, improved self-control and self-monitoring and better ability to inhibit irrelevant interfering external and internalactivity, positive mood, emotional stability and resilience to stress and negative life events (detachment); personality changes such asenhanced overall psychophysiological changes during Meditation. Meditation techniques with emphasis on concentrative practices, for example, may be more suitable for pathologies

with attention problems, while Meditation techniques that emphasise emotional stress reduction may be more efficient in affective pathologies.however, there is scope for the use of some of these Meditation techniques as a promising health intervention for specific disorders, either alone or as an adjunct to existing conventional treatment.

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