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## Comparative Review of the Three Avastha of Mind in Upanishads and Stages of Sleep

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### ABSTRACT

**Background:** Upanishads describe the three avastha (states) of mind/consciousness as Jagrita, Swapna and Sushupti. Though the epistemology of the names of these states of mind is indicative of a wakeful to deep sleep states of mind, explanations in Upanishads make it clear that these are the states of spiritual consciousness. Stages of sleep have been studied elaborately over time. Polysomnographic and biological findings have helped to identify distinct stages of sleep.

**Materials and Methods:** This study is a sincere effort to comparatively find out any similarities or dissimilarities in the concept of these states of mind and stages of sleep in Upanishads and contemporary medical science literature respectively.

**Results and Discussion:** The mind differently functions and actualizes itself from gross to subtle things in the different avastha of mind. Interesting observations were found like states of mind were close to the measure of mindfulness index of mind. In the case of stages of sleep, different brain waves, activities of mind like cognition, memory and restoration of normalcy of brain tissues have been found to be happening to varying degrees in different stages.

**Conclusion:** Proper recommendations were made for the further studies to understand and validate the concept of states of mind and for the application of these concepts in the fields of sleep medicine and psychotherapy.

**Keywords:** Upanishad, Mind, Sleep, Brain waves, Mindfulness

### INTRODUCTION

Human life or *Ayu* has the basis in terms of basically two forms; *sharirika* (physical) and *manashika* (mental). Body and mind are the two realms of our existence in this world. Mind is the more enigmatic yet very important part of our existence. Humans being the most intelligent species of mammals think constantly for planning, understanding etc. The intensity and character of the activity of the mind varies with different time of the day and especially in the relation to the sleep. Sleep is the restorative mechanism for both the body and mind.<sup>1</sup> Bulk of literature were found both in oriental sciences and modern sciences about the sleep, mind and consciousness. Human consciousness is one of the most studied and discussed topics since ancient times and till now. Some scientists believe that human consciousness should have evolved over time, while others theorize human consciousness as a natural unchangeable phenomenon.<sup>2</sup> Though numerous studies have come up in the past three decades, the understanding of human consciousness is far less than clear.<sup>3</sup> East and West division of the human culture and thinking is the recent construct of human civilization. Human consciousness has been the common tool of collecting informative data for humans all around the world since time immemorial.<sup>4</sup> In the recent times, due to the technological advancements of medical science, the studies on the human consciousness has mostly focused on its neural and psychological correlates, which has become mere

brain function studies. There are more lagging parts in the studies of human consciousness like human-environment, brain-heart connection and beyond like the role of soul. Cartesian dualism's impact is pertinent in the study of human consciousness as well. Though the way of observation is different i.e., objective in modern sciences while subjective in oriental sciences but if the object of observation is same, mind and sleep being here, some coherent observation is bound to happen along with dissimilar ones.<sup>5</sup> As an effort to explore the integral nature of human consciousness a review study was planned to correlate and compare the findings of studies on mind and consciousness in both oriental and contemporary medical science. The careful observation of the literature for the comparative review study and recommendations for further studies and applications in the field of sleep medicine and psychotherapy were intended.

## MATERIALS AND METHODS

Oriental literature sources like Upanishads were thoroughly searched for the information regarding states of mind/ consciousness. Contemporary medical science literature was also extensively studied to find out information regarding the stages of sleep and related activity of mind.

## RESULTS AND DISCUSSION

**Avastha of mind:** The majority of the Upanishads like *Brihadaranyak Upanishad*, *Chaandogya Upanishad* including *Mandukya Upanishad* and Yogic texts spoke of the various details of the three states of the mind; waking, that is, *Jagrita* (awaken), *Swapna* (dreaming), *Susupta* (dreamless sleep). The fourth transcendent state of the *Turiya* (mind) in relation to the *Atma* is also mentioned, in which mind settles in *Atma* and identifies itself with *Paramatma*.<sup>6-7</sup> *Mandukya Upanishad* has further given the nomenclature for the *Atma* in each of these stages focusing on the form and function of soul at those stages; *Jagrita*, where the soul called as *Vaisvanara* is in wakefulness and enjoys gross things.<sup>8</sup> The individual *Jivatma* (soul) is awake and it identifies itself with the various external objects by means of the modifications of the mind. Mind tries to seek for the instant gratification with the temporary fulfilments of the immediate needs/desires like food, cloths like enjoyments.

*Swapna*, where the soul called as *Taijasa*, is in the state of the dream, where it enjoys subtle things.<sup>9</sup> In dream, the senses are quiet and absorbed in the mind. Mind alone is active during dream among the senses. The objects perceived in dreams are revivals of impressions priorly created in waking state.

*Prajña*, the soul named for *Sushupta* state causes person even in a deep sleep to enjoy mere bliss.<sup>10</sup> In *Dridha Sushupti* (dreamless sleep), one experiences a cessation of empirical consciousness. There is no activity of the mind in this *avastha*. There is neither *raga* nor *dvesha* (like or dislike). The mind gets *laya* (dissolved) into its cause. The self continues to exist, though it is devoid of all the experiences. Person feels that he was existing even during sleep as soon as one is awake. *Turiya*, where the soul is called

as *Atma*; is the pure self-conscious soul which enjoys its own state and is tranquil in its singleness.<sup>6</sup> *Atma* is a superconscious state capable of experiencing all other three states simultaneously and that state of existence is when the 'individual self' is merged with the 'universal consciousness' or attained the liberated state of '*Brahman*'. There is no object-subject polarity (duality) in this universal state and it is unitary or singular.

**Stages of sleep:** Transition of a person from the sheer wakefulness to deepest sleep occurs slowly. Sleep occurs in five stages: wake, N1, N2, N3, and REM. Stages N1 to N3 are composed of non-rapid eye movement (NREM) sleep. With each further stage of sleep, a deeper state of sleep is achieved. The majority of NREM is spent in the N2 stage, while approximately 75% of total sleep is spent in the NREM stages.<sup>11</sup> On average, a night's sleep consists of 4 to 5 sleep cycles, with the progression of sleep stages in the following order: N1, N2, N3, N2, REM.<sup>12</sup> A complete sleep cycle takes roughly 90 to 110 minutes. The first REM period is short, and, as the night progresses, longer periods of REM and decreased time in deep sleep (NREM) occurs.

**Wake/Alert:** The first stage is the wake stage or stage W. The predominance of beta/ alpha waves depends on whether the eyes are open or closed. During eye-open wakefulness, beta waves predominate. As individuals become drowsy and close their eyes, alpha waves become the predominant pattern.<sup>13</sup>

**N1 (Stage 1):** This is the lightest stage of sleep and begins when more than 50% of the alpha waves are replaced with low-amplitude mixed-frequency (LAF) activity.<sup>11</sup> EEG recording shows theta waves (low voltage) predominance. Muscle tone is present in the skeletal muscle, and breathing tends to occur at a regular rate. This stage lasts around 1 to 5 minutes, consisting of 5% of total sleep time.

**N2 (Stage 2):** This stage represents deeper sleep as your heart rate and body temperature drop. It lasts around 25 minutes in the first cycle and lengthens with each successive cycle eventually, comprising 45% of the total night's sleep.<sup>13</sup> EEG has the predominant presence of sleep spindles, K-complexes, or both. Sleep spindles are brief, powerful bursts of neuronal firing in the superior temporal gyri, anterior cingulate, insular cortices, and thalamus, inducing calcium influx into cortical pyramidal cells. This mechanism is believed to be integral to synaptic plasticity. Sleep spindles play an important role in memory consolidation.<sup>14</sup> K-complexes are long delta waves that last for approximately one second and are known to be the longest and most distinct of all brain waves. K-complexes have been shown to function in maintaining sleep.<sup>15</sup>

**N3 (Stage 3):** This is considered the deepest stage of sleep and comprises 25% of total night's sleep. EEG shows predominance of delta waves with much lower frequencies and higher amplitudes.<sup>13</sup> This stage is the most difficult to awaken from, and, for some people, even loud noises (> 100 decibels) will not awaken them. As people age, they tend to spend less time in this slow, delta wave sleep and more time in stage N2 sleep. If someone is awakened during this stage, they will have a transient phase of mental foginess,

known as sleep inertia.<sup>16</sup> This is the stage when the body repairs and regrows tissues, builds bone and muscle and strengthens the immune system. This is also the stage when sleepwalking, night terrors, and bedwetting occurs.<sup>17</sup>

**Rapid Eye Movement Stage (REM):** REM is not considered a restful sleep stage as it involves dreaming. While the EEG is similar to that of an awake individual, the skeletal muscles are atonic and without movement, except for the eyes and diaphragmatic breathing muscles, which remain active. However, the breathing rate becomes more erratic and irregular. This stage usually starts 90 minutes after you fall asleep, with each of your REM cycles getting longer throughout the night. The first period typically lasts 10 minutes, with the final one lasting up to an hour. REM is when dreaming, nightmares, and penile/clitoral tumescence occur.<sup>18</sup> People tend to awaken spontaneously in the morning during an episode of REM sleep. The brain is highly active throughout REM sleep, showing increased levels of acetylcholine (Ach) and increasing brain metabolism by up to 20%.<sup>19</sup>

## DISCUSSION

Upanishads have dealt in detail about the different degree of wakefulness to deep sleep as per the time (day/night) or sleeping process. According to the nature of the consciousness observed in different *avastha* of *mind*, it has been named differently. *Prajna* is the *Atma* at *Sushupti* state, where *mana* becomes in unison with *Atma*, since it has no modifications like fear, anger etc. *Jagrita* and *Swapna* terms don't necessarily relate to sleep/wakefulness but more to the complete consciousness/mindfulness. *Turiya* state is the transcendental state where a person can know/feel all those things in the previous states and is still utterly blissful, superconscious and non-dualistic state.<sup>6</sup> These states of consciousness have more inclination towards the subjective clarity of the things happening around a person's life in an unbiased mindful approach. It is secondarily related to the sleep as an applied aspect.

Modern sleep studies have very clearly divided sleep in 5 stages based on the objective parameters like brain waves predominant in any stage, part of the brain found active on polysomnography tests and functional magnetic resonance imaging (fMRI) tests.<sup>12</sup> Five stages of sleep concerns itself more to the cognitive and other brain-mind activities happening at that particular stage rather than the mindful/spiritual clarity which enjoys the consciousness at that stage.

*Avastha* of mind in different states is the systemic observation of quality of consciousness/*Atma*. The processes of mind, *indriya* at those states are analysed along with the reference to sleep/wakefulness. *Atma* is mentioned as the *nirvikar*, *nirguna*, luminous and an eternal part of our existence. Mind in the process of perceiving and analysing the things, misunderstands its existence with the material pleasure and things. But the ultimate bliss lies on actualizing itself to the true eternal and indestructible soul. *Jagrita* state mind is superficially awake and the modifications of mind make it see the gross or the superficial meaning of life.

Person is guided by the basic instincts of survival like food, shelter etc. at this state. *Swapna* state starts when a person fatigued by mental and physical strain, withdraws its mind from the senses and falls asleep. *Smriti* comes in play at this state, and person begins picturizing, reliving, reasoning the past or future events. It has no connection to the present reality. *Sushupti* state mind is free from any type of modifications so mind gets deep relaxation and revitalization is achieved. *Turiya* is the transcendental state where *Atma* actualizes to its true form, so it can dwell into all other three states. Consciousness is in its purest form and subtlest in this state, meaning that a person is mindful all the time.

Sleep is for resting of the mind and body. Stages of sleep are divided on the basis of the activity level of mind and the depth of sleep. Brain waves/patterns like sleep spindles and K-complexes signifies the depth of sleep. Wakeful stage (W) is similar to the *Jagrita* state of consciousness. A person in wakeful stage is actively thinking and beta waves are predominant in brain. Contrary to wakeful stage, *Jagrita* also signifies some level of mindfulness along with the wakefulness. *Jagrita* state has very less amount of mindfulness though it's a wakeful stage. It also comprises the drowsy phase before shifting to the light sleep. First stage (N1) of sleep is the shallow sleep stage lasting for the short span just before shifting to deeper stage of sleep where a person's mind remains partly active for the purpose of memory consolidation. N3 in particular resembles more to the *Sushupti* state. But N1 and N2 can also be roughly correlated to the *Sushupti* state as a person's mind is not involved in dreaming and is rather more peaceful sleep than the REM sleep. At both NREM sleep stage and *Sushupti* state, unconscious layer of mind is more or less disconnected from the conscious part of mind. Mind and body experiences burst of relaxation, bliss and restorative impulse at these stages.

REM sleep can be appropriately correlated to the *Swapna* state of consciousness. Mind is in the play of fantasies, fear, future ambitions etc. For that particular time of dreaming, the sensations, activities of dream are perceived as real. After gaining the waking consciousness, person realizes that it was a dream.

Metaphorically, *Jagrit Swapna* and *Swapna Jagrita* terms are also mentioned in Vedic literature.<sup>6</sup> *Jagrit swapna* refers when a person is lost in dreaming or calculating the pros and cons of a thing, being on the wakeful state. It can also be the efforts of a person trying to cope up to stresses. *Swapna Jagrita* means trying to slowly control what we dream. Thus, one can have the control over how one reacts to the daily problems and stresses of life. It is the epitome of the mindfulness one can have.

## CONCLUSION

On carefully observing the description of states of consciousness and stages of sleep, it can be concluded that these are about the similar phenomenon relating to the sleep consciousness and mindfulness. Due to the nature of observation itself, stages of sleep can be useful in study of sleep disorder and treatment. States of mind can be utilized to understand and assess the mindfulness



level of our consciousness and for teaching and understanding the different states of mind a normal person, mentally ill or a highly advanced seer can have. It can be thus applied in mindful training material, workshops and communication.

## RECOMMENDATIONS

States of mind can be utilized as the measure of mindfulness index for the psychotherapeutic assessment before/during psychiatric treatment, counselling and therapy. Further, scales can be developed based on the characteristics of mind in different states. It can further aid in the research of sleep and consciousness. Stages of sleep and aberrations that can be observed in different conditions of sleep, neurological and mental disorders are being utilized in modern medicine and should be understood and applied in other allied medicinal sciences like Ayurveda also.

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