

Effect of Sensory Stimulus on Pattern of Dreams Among Persons with Disability and Non-Disability

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Abstract:

Analysis of dream is still a difficult concept to understand. Many theories has come which has a wide range of opinion on dreams. It is a complex concept influenced by stimulus that brain receives from sensory organs. The aim of the present study was to find the Effect of sensory stimulus on pattern of dreams among persons with disability and non disability. It is a survey research through interview method. 60 students were selected using purposive technique of sampling. All the persons were interviewed based on pre decided questions and open ended answers. A wide range of responses were given by the participants. It was found that children with disability also dream as non disabled students. It was found that sensory blockage has less impact role on dream among children with disability.

Keywords: Dream, Sensory organs, Visual impairment, Hearing impairment, Non disabled.

Introduction:

In my dreams I have sensations, odours, tastes, and ideas which I do not remember to have had in reality (Helen Keller). August Kekule has discovered the benzene structure in his dream. The dream is the psychic activity of the sleeper. Dreams are normal part of sleeping. Dreams contains a pattern of images, ideas, emotions, and sensations that occur in the mind during certain stage of sleep. According to Sigmund Freud dreams represents an opportunity to gain access to the unconscious thoughts. According to Freud individual can increase self awareness and gain valuable insights to help them in dealing practical challenges of life. He also distinguished between manifest and latent content of dream. According to him manifest content is the actual context of the dream and latent content is the hidden meaning or interpretation of latent content. Unlike Freud Cartwright believes that dreams are just reflection of real life situations or events that are going in ones present life According to Alan Hobson in his Activation-synthesis theory of dreaming proposed that dreams are not meaningful they are rather result of brain making sense of neural activities that happens in REM stage of sleep.

The pattern and content of dreams are not fully understood by the researcher, although they have been a topic of scientific speculation and a subject of philosophical and religious interest throughout recorded history. A reminiscence of the concept of the dream that was held in primitive times seems to underlie the evaluation of the dream which was current among the peoples of classical antiquity (Berlin 1868). Dreaming is often considered a subjective experience generated by the mind and brain, while cut off from the body and the external environment (Brueckner, 1986). From philosophical view point dream is

referred to as brain in a vat consciousness, whereby the brain generates experience even in the absence of physical input or outward control.

Stages of Sleep:

Sleep occurs in five stages Wake stage, N1, N2, N3, and Rapid eye movement (REM). The intensity of sleep varies from stage 1 to stage 5 i.e. with each stage a progressive deeper sleep. Stage N1 and N3 are non-rapid eye movement (NERM) sleep. Most of the sleep falls under NERM stage. The stage one to five is considered as one cycle of sleep of duration 90 to 110 minutes. A typical night sleep has 4 to 5 such cycle of sleep.. The first cycle is shorter and as the night progresses the length of cycle increases. However the cycle duration also depends on various other factors such as age, biological condition, psychological factors, disability etc.

Stage 1: Wake

This stage is also called as stage W. During this stage individual starts feeling drowsy close eyes.

Stage 2: N1

This stage is lightest stage of sleep. Breathing is regular in this stage. Muscle tone is present. This stage last for 5 to 10 minutes. It is of 5% of total sleep.

Stage 3: N2

This stage has a deeper sleep compared to stage N1. The heart rate and body temperature drops. Muscle tone is minimal. teeth grinding occurs in this stage. This cycle last for about 25 to 30 minutes contributing about 45% of total sleep.

Stage 4: N3

N3 is considered as the deepest stage of sleep. It is also called as slow-wave sleep. As Individual falls into very deep sleep in this stage. it is difficult to awake them. Some people even don't respond to loud noises. The duration of this stage last from 30 to 60 minutes. The duration of this stage varies with the age. Older people spends less time in this stage. EEG is conducted in this stage. In this stage night mare, sleepwalking occurs.

Stage 5: REM

REM is the last stage of sleep cycle. The skeleton muscle tone is absent with irregular and rapid muscle movement. Breathing rate is erratic and irregular. This state is associated with dreaming. This stage last for about 10 to 20 minutes contributing about 25% of sleep. Dreaming and nightmare occurs in this stage.

Role of senses in Dreams.

We know that senses play an important role in construction of knowledge. They are the gateway for learning. The vision, hearing, touch, smell and taste are five senses called receptors which receives the stimulus sends information to brain for processing. Brain in turn sends information called response through appropriate sensory organ. During rapid eye movement (REM) sleep, when the eyelids are closed and the physical body is lying quite still in bed, demonstrably going nowhere, and largely doing nothing (at least by way of movement) we end up appearing to sense The senses has a impact on dream patterns. Individual have a sense of visual and auditory stimulation. Dreams can sometimes incorporate external sensory stimuli (e.g. sounds, smells and physical sensations) into their course and content, either directly or indirectly. This shows that the brain is still able to monitor, process, and perceive what is happening in the surrounding environment during sleep(Bloxham & Durrant 2014).

Nevertheless there are obvious constraints to simulating dream worlds(Carr, 2020) . First, unlike in VR, sensory processing in sleep is limited by both gating and arousal mechanisms. Gating mechanisms act to selectively filter sensory information during sleep and vary by sleep stages and type of stimulation (Andrillon & Kouider, 2019). For instance, cortical processing is selectively amplified for relevant as opposed to irrelevant speech (Legendre, Andrillon, Koroma, & Kouider, 2019) and speech related to current concerns, but not unrelated speech, has been shown to influence dream content (Hoelscher, Klinger, & Barta, 1981). According to carr et.al., sleep is a fragile state, and an abundance of sensory stimulation will lead to micro arousals or full awakenings. A second limitation that distinguishes dreaming from virtual simulations is the level of control the experimenter has over the simulation. Based on the recall of dreams, we sense visual, auditory and touch in dream. Smell and olfactory senses are very rare. The most predominant is visual followed by auditory, tactile, smell and taste.

External events are sometimes simultaneously incorporated into dreams while the dreamer is still asleep (Schredl & Stuck, 2009) . A range of stimuli of varying modalities, such as water droplets on the skin (Dement & Wolpert, 1958), positive and negative odours (Schredl, Atanasova, Hörmann, Maurer, Hummel & Stuck, 2009), and sounds (Berger, 1963) have all been incorporated into dream content, either directly or in disguised form.

Objectives:

- To find out the relationship between sensory perceptions and dream patterns.
- To find out the relationship between visual Perceptions and dream patterns.
- To find out the relationship between auditory Perceptions and dream patterns
- To find out the relationship between tactile Perceptions and dream patterns
- To find out the relationship between Olfactory Perceptions and dream patterns.
- To find out the relationship between gustatory Perceptions and dream patterns.

Methodology:

A total of 60 sample were drawn using purposive sampling technique in DSMNRU, Lucknow. Out of which 20 were students with visual impairment, 20 hearing impairment and 20 non disabled students. A demographic data were taken of all the students. Students were interviewed for 15 to 30 minutes separately. Some of the questions were like: Do you get dream. Do you wake up while dreaming. Do you get any night mares during night. Do you get the same dream repeatedly. Do you see the clear images of a person, place things in your dream. Do you ever dreamt of tasting something. Do you ever dreamt of smelling something. Do you ever dreamt of touching, holding or poking something. Do you hear the sounds, conversation, in your dream etc.. Students were asked not to share the questions to others students and maintain confidentiality in order to avoid any pre planned Responses by the students.

Table 1: Shows the categorization of sample.

Visual Impairment				Hearing Impairment				Non disabled
Congenital		Acquired		Congenital		Acquired		
TB	LV	TB	LV	Deaf	HH	Deaf	HH	
10	05	02	03	09	07	02	02	
15		5		16		04		
20				20				20

TB-Total Blind; LV-Low vision; HH-Hearing impairment

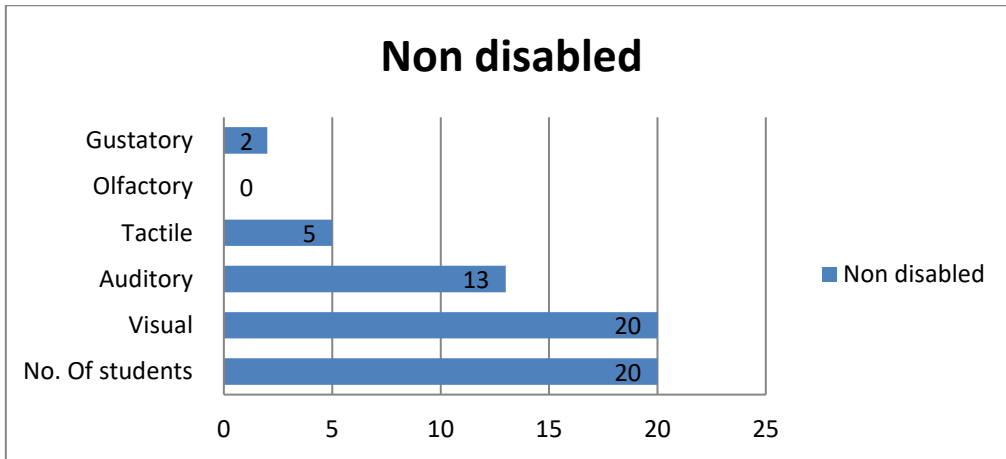
Result:

There are wide range of responses among all the 60 participants. The following shows the number of participants sensory responses in their dreams

Table 2: Shows the range of responses based on sensory pattern

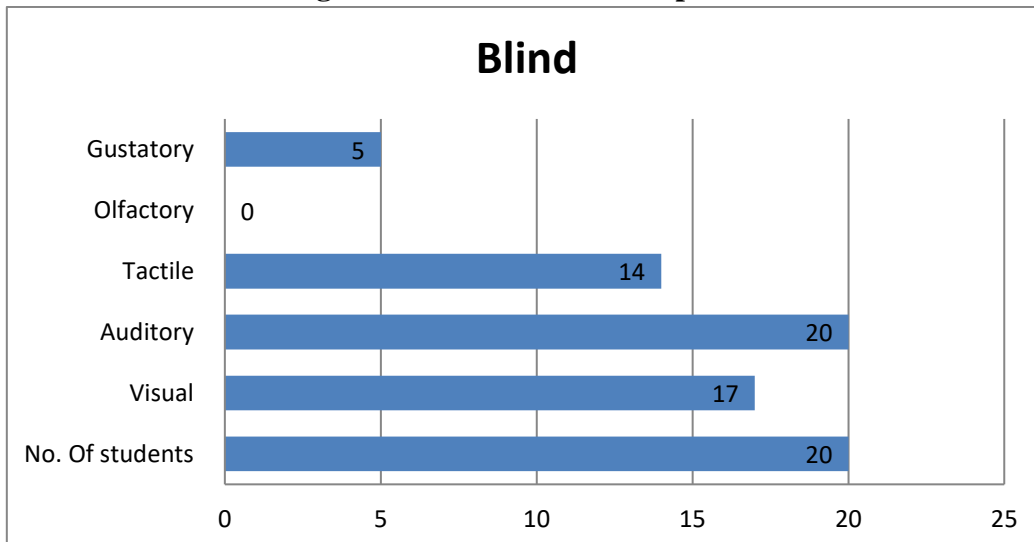
	No. Of students	Visual	Auditory	Tactile	Olfactory	Gustatory
Non disabled	20	20	13	05	00	02
Acquired VI	05	05	05	04	00	02
Congenital VI	15	12	15	10	00	03
Acquired HH	04	04	02	03	01	00
Congenital HH	16	16	05	09	00	03
Total	N=60	57	40	31	1	10

Figure 1: Non Disabled Students Responses



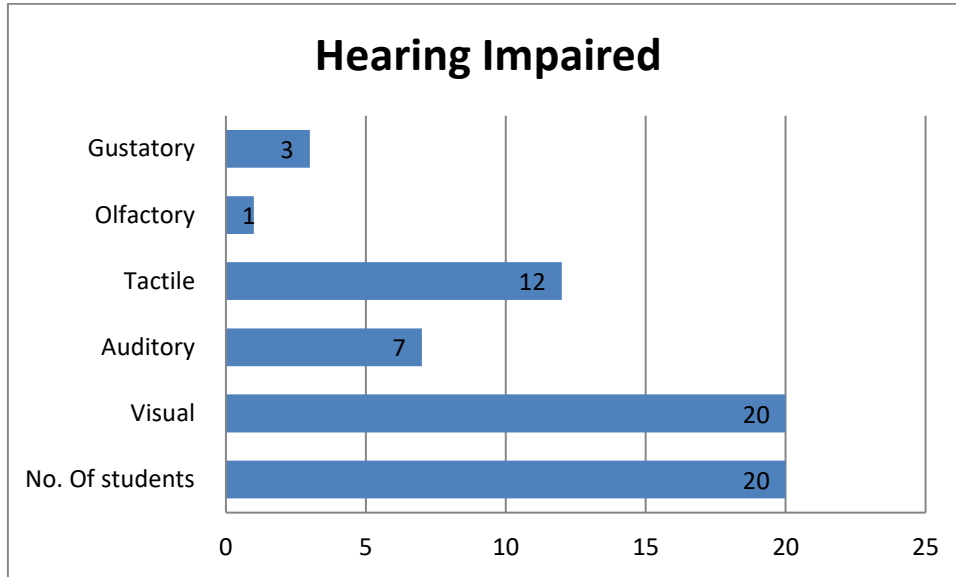
The above graph indicates that out of 20 non disabled students, all of them has a visual senses in their dreams. 13 students sensed a sounds in their dream. they at least once woke up with night mare of somebody calling. 5 students have sensed tactile sensation and body jerks. 2 students have got dream of tasting food. One of them responded of spitting food out of bad taste.

Figure 2: Blind students Responses



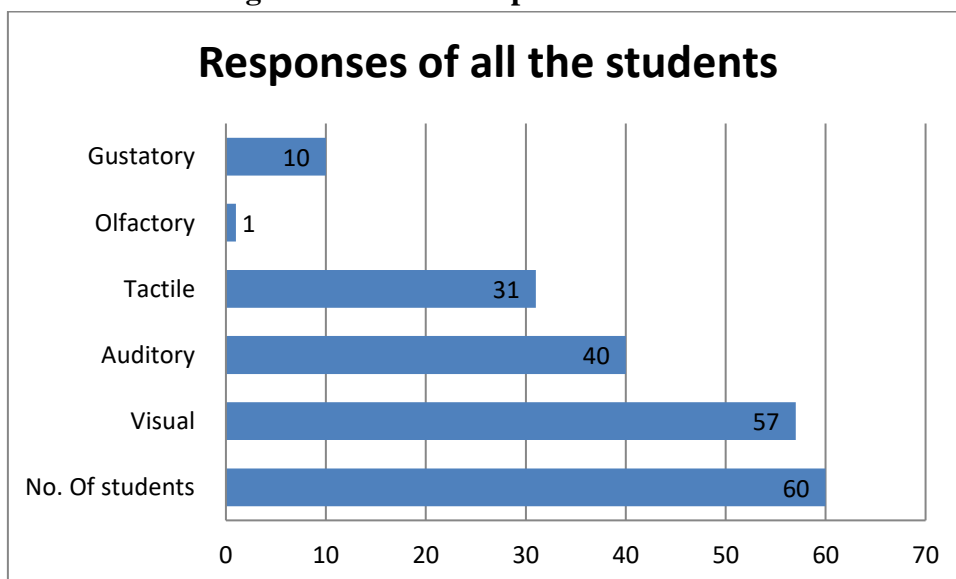
The above graph represents the blind students responses. It indicates that out of 20 students 17 students could visualize things in their dream. 20 have sensed sound atleast once in their dream. 14 had a touch sensation in their dream and 5 of them have tasted food in their dream.

Figure 3: Hearing Impairment Responses



The above graph represents the Hearing Impaired students responses. It indicates that out of 20 students 20 students could visualize things in their dream. 07 have sensed sound atleast once in their dream. 12 had a touch sensation in their dream, 1 of them had smelled perfume, and 3 of them have tasted food in their dream

Figure 4: Overall Responses of students



The above graph represents the responses of all the 60 participants. It indicates that out of 60 students 57 students could visualize things in their dream. 40 have sensed sound atleast once in their dream. 31 had a touch sensation in their dream, 1 of them had smelled perfume, and 10 of them have tasted food in their dream

Findings:

The disability does not affect the senses in dream. All students responded that they do dream in their sleep. Research says that everybody irrespective of age, gender and disability falls into dream. The result shows that students with Visual impairment whether they have congenital or acquired blindness or whether they are total blind or low vision could visualise things in their dream. The degree or severity had no impact on visualization of things in dream. It was just a dream. As children see themselves as if they are flying like their super heroes. Some of the blind students responded that they dream as if they are running very fast as some body is chasing them. except smell atleast one visual impaired students have sensed visual, auditory , tactile and taste sense in their dream.

Students with hearing impairment even though they have hearing that can be corrected with hearing aid, they refuse to wear. They believe in sign language communication. Students with hearing impairment whether they are congenital or acquired Deaf or hard of hearing they could sense the sounds in their dream. Atleast one have responded that they can sense visual, auditory, tactile smell and taste sense in their dream. It was single stimulation and mixture of senses also. One of the sensed that he was standing in a market and people were gathered around him and speaking. Atleast one time each of them woke up with panic.

All the non disabled students fall into dream in their sleep. All non disabled students visualise the events in their dream. All students hear the conversations, sounds, etc in their dream. They had atleast one panic woke up.

Conclusion:

- All students irrespective of disability or non disabled falls into dream.
- They have the same cycle of sleep irrespective of sleep.
- The sleeping habits are same as non disabled students.
- Blind students even though they have lost vision still they can sense vision in dream.
- Hearing impaired students are able to sense hearing sounds in their dreams although they are deaf.
- All students got up in panic atleast one time in their life.

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