Commentary

Synaesthesia: A Disease or Melancholy

Sikata Nanda[1], S. C. Mahapatra[2], Anshuman Dash[1]*

Synaesthesia is an unintentional cross-modal awareness in which the activation of one sensory or cognitive channel produces experiences in another. This sensory integration results in a wide range of perceptual associations, such as seeing colors in response to sounds or feeling flavors while reading words.

Research into the neuronal mechanics of synaesthesia has shed light on the inner workings of the brain's sensory processing. The phenomenon has encouraged multidisciplinary collaboration, with artists incorporating synesthetic experiences into their works and scientists researching the genetic and environmental variables that contribute to its emergence.

Synaesthesia may have both beneficial and negative effects on people, underscoring the need for sophisticated methods to manage it. While some people find synesthetic senses enriching, others may seek ways to minimize or regulate their experiences. Mindfulness methods, cognitive behavioral therapy, and, in certain situations, pharmaceutical intervention are also possible approaches.

Synaesthesia not only raises problems about the nature of perception and awareness, but it also provides novel options for creative expression and technological advancement. So, it's a mysterious tapestry of sensory harmony.

Access this article online

Website: www.cijmr.com

DOI: 10.58999/cijmr.v3i02.188

Keywords: Synesthesia, Sensory Integration, Creative Expression, Management

Introduction

Synaesthesia, originating from the Greek words "syn," meaning together, and "aesthesis," meaning feeling, is the unintentional merging of distinct sensory or cognitive channels. In the field of human perception, there exists an intriguing phenomenon known as synaesthesia, a perceptual interweaving of the senses that contradicts normal sensory experiences. Individuals with synaesthesia, rather than sticking to established boundaries that separate sight from sound, taste from touch, and color from emotion, embark on a mesmerizing trip where the senses intersect in unexpected and sometimes beautiful ways. Unlike illnesses that afflict or depression that dampens the spirit, synaesthesia arises as a distinct neurological phenomenon that enhances the perceptual environment of people who experience its whimsical embrace.[1]

Rather, it is a process of the nervous system where activation of one sensory or cognitive channel causes involuntary sensations in another pathway. To put it another way, synesthetes may feel a mixing or crossing of perceptions that are not common in the general public. Those who have synaesthesia, for instance, may view numbers as having particular geographical places, identify tastes with words, or sense colors when they hear music. People with synaesthesia often view it as a natural and normal part of their senses, which means that it's not hazardous at all.

Is Synaesthesia a Disability

In general, synaesthesia is not seen as an impairment. In reality, some people with synaesthesia could discover that their special sensory experiences foster their creativity or improve specific cognitive functions. Many synesthetes have very regular lives and may even view their synesthetic experiences as beneficial parts of who they are. It's critical to distinguish between disorders that fall under the category of disabilities—disabilities

[1]Department of Community Medicine, Bhīma Bhoi MCH Balangir, Odisha, India.

[2]Department of Community Medicine, Banaras Hindu University, Varanasi, Uttar Pradesh, India.

Correspondence to: Sikata Nanda, Department of Community Medicine, Bhīma Bhoi MCH Balangir, Odisha, India.. E-mail: sikatananda@yahoo.co.in

Submitted: 13/06/2024 Revision: 08/07/2024
Accepted: 13/07/2024 Published: 20/08/2024

How to cite this article: Nanda S, Mahapatra SC, Dash A. Synaesthesia: A Disease or Melancholy. Central India Journal of Medical Research. 2024;3(2):22-26.

that frequently include functional limitations—and differences in perception, such as synaesthesia. While synaesthesia is primarily described as a variation in how the brain processes sensory information, disabilities are usually characterized by impairments that substantially affect a person's ability to do daily tasks.

What Causes Synaesthesia

Although the precise etiology of synaesthesia is unknown, it is usually accepted to have something to do with the wiring of the brain. According to research, there may be a physiological foundation for synaesthesia involving variations in the composition or operation of the neuronal connections inside the brain. According to some theories, people who have synaesthesia may have more connections between areas of their brain that are ordinarily apart.

The merging of sensory perceptions might result from this greater connectedness. For instance, a person with color-hearing synaesthesia may have more connections in the brain areas in charge of processing sound and color.

Synaesthesia development may also be influenced by genetics. Empirical research has indicated the possibility of a hereditary susceptibility to synesthetic experiences, which can occasionally run in families.[2]

Classification of Synaesthesia

Synaesthesia is commonly regarded as a neurological condition rather than a sickness or disease. Today, it is more commonly recognized as a unique and typically benign aspect of perception. It's important to realize that there are several types of synaesthesia, and people might experience them in different ways.

Researchers frequently categorize different forms of synaesthesia according to how various sensory or cognitive processes intersect[3]. One possible classification is:

Projective synaesthesia

Seeing colors, forms, or shapes when stimulated, e.g., a projector might see the color as if it were physically present

Associative synaesthesia

Feeling a strong and involuntary connection between the stimulus and the sense that it triggers. For instance, an associator might mentally visualize a color when hearing a word.

Semantic synaesthesia

Experiencing synaesthesia based on the meaning of the stimulus.

Conceptual synaesthesia

Experiencing synaesthesia based on abstract concepts or categories. For instance, a person might associate certain emotions with specific colors or shapes.

Intermodal synaesthesia

Experiencing synaesthesia across different sensory modalities.

Intramodal synaesthesia

Experiencing synaesthesia within the same sensory modality.

Synthetic synaesthesia

Experiencing synaesthesia as a combination of different sensations.

Analytic synaesthesia

Experiencing synaesthesia as a decomposition of the stimulus into its components.

Comprehensive synaesthesia

Experiencing synaesthesia as a holistic perception of the stimulus.

External synaesthesia

Experiencing synaesthesia as projected onto the external world.

Internal synaesthesia

Experiencing synaesthesia as occurring in the mind.

Bidirectional synaesthesia

Experiencing synaesthesia in both directions (e.g., seeing colors when hearing sounds and hearing sounds when seeing colors).

Unidirectional synaesthesia

Experiencing synaesthesia in only one direction (e.g., seeing colors when hearing sounds but not hearing sounds when seeing colors).

Can Synaesthesia Be Harmful

Synaesthesia is generally considered harmless. Many persons with synaesthesia discover that their unique sensory impressions enhance their creativity or offer them a new and richer way of perceiving the world. In these instances, synaesthesia is frequently seen as a normal variation in sensory perception rather than a detrimental illness. However, it is crucial to note that individual experiences may differ. Some persons with synaesthesia may find their senses bothersome or overpowering. If a person is upset or handicapped by their synesthetic

experiences, they may seek help or adjustments. It is critical to treat each instance carefully, addressing any problems or obstacles depending on the particular requirements of the person experiencing synaesthesia.

Is Synaesthesia Rare

Synaesthesia is considered relatively rare in the general population, but its prevalence can vary depending on the specific type of synaesthesia. Some estimates suggest that approximately 1 in 2,000 people experience some form of synaesthesia, but the prevalence rates can differ for different types of synesthetic experiences.

Based on which senses or cognitive processes are involved, the most common types of synaesthesia are:[4]

Grapheme-color synaesthesia

This is one of the more common types, where individuals associate specific colors with letters or numbers.

Auditory-visual synaesthesia

Some people may see visual images in response to certain sounds.

Lexical-gustatory synaesthesia

This involves experiencing tastes when hearing or thinking about certain words.

Spatial sequence synaesthesia

Individuals with spatial sequence synaesthesia perceive sequences of numbers, months, or days as having specific spatial locations. For example, they might see the months of the year arranged in a particular spatial pattern.

Number-form synaesthesia

Similar to spatial sequence synaesthesia, number-form synesthetes visualize numerical sequences, often in the form of a mental map or landscape.

Mirror-touch synaesthesia

This type involves feeling physical sensations on one's own body when observing another person being touched or experiencing tactile stimuli. For instance, watching someone touch their face might trigger a sensation of touch on the synesthete's own face.

Positive Aspects of Synesthesia

Enhanced creativity

Many synesthetes report that their condition enhances their creativity. The cross-activation of senses may contribute to unique and innovative ways of thinking, especially in artistic and creative pursuits.

Richer perceptions

Synesthetes often describe a more vibrant and multi-dimensional perception of the world. This can result in a richer and more sophisticated comprehension of their environment.

Memory enhancement

Some synesthetes claim that their synesthetic experiences help them remember information more effectively. For instance, associating colors with numbers might aid in recalling numerical sequences.

Artistic expression

Synesthetes may have a natural inclination towards artistic expression, as their sensory experiences can be translated into visual or auditory art forms.[5]

Challenges of Synaesthesia

Distraction

The constant interplay of sensory experiences can sometimes be distracting, making it challenging to focus on specific tasks. This can be particularly problematic in situations that require sustained attention.

Misunderstanding and isolation

Individuals with synaesthesia may find it difficult to convey their experiences to others who do not share the condition. This can lead to feelings of isolation and a sense of being misunderstood.

Overwhelm in stimulating environments

In environments with a high level of sensory stimuli, such as crowded places or loud events, synesthetes may experience sensory overload, leading to discomfort and fatigue.

Cognitive load

Processing information through multiple sensory channels simultaneously can increase cognitive load. This may be challenging in situations that demand quick decision-making or require a high level of cognitive processing.

Inconsistency

Synesthetic experiences can vary in intensity and consistency among individuals. Some may find their synesthetic perceptions enjoyable and manageable, while others might experience them as intrusive or disruptive.[6]

Cure of Synaesthesia

In general, synaesthesia is deemed as a lifelong and stable attribute and sometimes it is cherished as a gift where

people feel that it enhances their artistic capabilities. Hence, it does not require a cure, but in some cases where certain comorbidities like autistic spectrum disorder, ADHD, and epilepsy are present, synaesthesia becomes overwhelming to cope with. In those circumstances, seeking therapy becomes necessary.

Prevention of Synaesthesia

Synaesthesia is generally considered a harmless and often fascinating condition, but if someone wishes to prevent or manage synesthetic experiences, there are a few considerations:

Trigger identification

Certain sounds, phrases, or visual stimuli elicit synesthetic sensations in some persons. Understanding these triggers might help people avoid or control circumstances that can elicit synesthetic responses.

Avoiding triggers

Once triggers have been identified, individuals may opt to avoid or limit their exposure to stimuli that cause synaesthesia. For example, if particular genres of music routinely cause synesthetic experiences, individuals may choose to avoid listening to those specific genres.

Relaxation techniques

Stress and anxiety exacerbate synesthetic sensations. Practicing relaxation techniques such as deep breathing, meditation, or yoga will decrease the frequency of synesthetic episodes.

Mindfulness and distractions

The art of being present in the moment might help people focus on their current sensory sensations rather than allowing their brains to wander into synesthetic perceptions. Activities that require focus might also act as distractions.

Counseling or therapy

Speaking with a mental health expert, such as a psychologist or counselor, can help people understand and manage synesthetic experiences. Cognitive-behavioral therapy (CBT) is an effective treatment option for tackling perceptions and reactions.

Pharmacological intervention

In specific circumstances, drugs may be administered to aid with synesthetic episodes. However, the choice to employ medicine should be made in consultation.

It's important to note that the impact of synaesthesia can vary widely among individuals. Some may view their synesthetic perceptions as a positive and integral part of their identity, while others may find certain aspects challenging. Additionally, research on synaesthesia is ongoing, and our understanding of this phenomenon continues to evolve.

Take Forward of Synaesthesia

Synaesthesia is a unique and intriguing phenomenon that has fascinated researchers, artists, and the general public. Here are a few ways to "take forward" the exploration of synaesthesia:[7-9]

Scientific research

Continue scientific research to understand the neural mechanisms underlying synaesthesia. Investigate the genetic and environmental factors that contribute to the development of synesthetic experiences.

Artistic expression

Encourage artists, musicians, writers, and other creatives to explore and incorporate synesthetic experiences into their work. This can lead to the creation of unique and innovative forms of art.

Educational awareness

Raise awareness about synaesthesia in educational settings. Discuss its prevalence, variations, and the ways it can be perceived across different individuals. This can help foster understanding and acceptance.

Technological integration

Explore how technology can be used to simulate or enhance synesthetic experiences. Virtual reality, for example, could provide a platform for individuals to experience a form of synaesthesia in a controlled and creative way.

Cross-disciplinary collaboration

Encourage collaboration between scientists, artists, psychologists, and other professionals to gain a holistic understanding of synaesthesia. Such collaborations could lead to innovative insights and applications.

Supportive communities

Establish communities or forums where individuals with synaesthesia can share their experiences and insights. This can create a supportive environment for those who may find their synesthetic perceptions to be isolating or challenging.

Philosophical exploration

Engage in philosophical discussions about the nature of perception, consciousness, and subjective experiences.

Synaesthesia raises intriguing questions about the boundaries and interconnectedness of our sensory and cognitive processes.

Understanding synaesthesia not only contributes to our knowledge of sensory perception but also offers insights into the broader complexities of the human brain.

Conclusion

Synaesthesia, while not fully understood, is generally considered a variation in sensory perception rather than a disorder. Exploring synaesthesia involves fostering curiosity, understanding, and appreciation for the diversity of human experiences.

References

1. Hubbard EM, Ramachandran VS. Neurocognitive Mechanisms of Synesthesia. Neuron [Internet]. 2005 Nov;48(3):509–20. Available from:https://www.sciencedirect.com/science/article/pii/S0896627305008354
2. Cytowic RE, Eagleman D. Wednesday is indigo blue : discovering the brain of synesthesia. Cambridge, Mass.: Mit Press; 2009.
3. Rogowska A. Categorization of Synaesthesia. Review of General Psychology [Internet]. 2011 Sep [cited 2020 Oct 7];15(3):213–27. Available from: https://journals.sagepub.com/doi/10.1037/a0024078
4. Bence S. Synesthesia: What It Is, Types, Causes, and Treatment [Internet]. Verywell Health. 2023. Available from: https://www.verywellhealth.com/synesthesia-8405029
5. Wave Team E. Pros And Cons Of Synesthesia 2023 - Ablison [Internet]. www.ablison.com. 2023. Available from: https://www.ablison.com/pros-and-cons-of-synesthesia/#google_vignette
6. Synesthi M, Swaner N. 10 Disadvantages to Synesthesia [Internet]. Listverse. 2012 [cited 2024 Feb 2]. Available from: https://listverse.com/2012/09/02/10-disadvantages-to-synesthesia/#:~:text=In%20order%20to%20solve%20this
7. Price M. Some challenges and extensions to Ward's framework for future synaesthesia research. Cognitive Neuropsychology [Internet]. 2021 May 19 [cited 2024 Feb 2];38(4):279–82. Available from: https://pubmed.ncbi.nlm.nih.gov/34961408/
8. Yon D, Press C. Back to the future: synaesthesia could be due to associative learning. Frontiers in Psychology [Internet]. 2014 Jul 7 [cited 2024 Feb 4];5. Available from: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2014.00702/full
9. Kash S. Tasting Words and Hearing Colour? an Exploration of Synaesthesia [Internet]. Medical Channel Asia. 2023 [cited 2024 Feb 4]. Available from: https://medicalchannelasia.com/tasting-words-and-hearing-colour-an-exploration-of-synaesthesia/