

Journey through Artistic Eras depicting Dreams, Sleep, and its Disorders

Viagem por Eras Artísticas retratando Sonhos, Sono e seus Transtornos

Art is the Queen of all sciences communicating knowledge to all the generations of the world.

Leonardo da Vinci

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ABSTRACT

This narrative review presents a comprehensive examination of artistic periods since the Renaissance, paralleling the evolution of neurology and pictorial artistic expression about sleep, ending with the importance of the contemporary digital era. Over the centuries, artists have been drawn to the enigmatic themes of dreams, sleep, and their disorders, using them to explore the complexities of the human condition, emotions, and the interaction between reality and imagination. Thus, drawing references from diverse artistic eras, including their pictorial representations of sleep, alongside milestones in the history of neurology, this study reveals a rich interconnectivity between art, neurological advances, and social change.

Keywords: Sleep and its Disorders, Human Emotions, Symbolism in Art, Dreams and Dreaming, Artistic Eras, Neurological Advancements, Contemporary Digital Art

RESUMO

Esta revisão narrativa apresenta um exame abrangente dos períodos artísticos desde o Renascimento, em paralelo com a evolução da neurologia e a expressão artística pictórica sobre o sono, terminando com a importância da era digital contemporânea. Ao longo dos séculos, os artistas foram atraídos pelos temas enigmáticos dos sonhos, do sono e dos seus distúrbios, aproveitando-os para explorar as complexidades da condição humana, das emoções e da interação entre a realidade e a imaginação. Assim, extraindo referências de diversas épocas artísticas, incluindo suas representações pictóricas do sono, paralelamente a marcos na história da neurologia, este estudo revela uma rica interconectividade entre arte, avanços neurológicos e mudanças sociais.

Palavras-chave: Sono e seus Distúrbios, Emoções Humanas, Simbolismo na Arte, Sonhos e Sonhos, Eras Artísticas, Avanços Neurológicos, Arte Digital Contemporânea

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INTRODUCTION

This article, the fifth in a seven-part series on neuroaesthetics and the visual arts, addresses sleep in the artistic eras.

The quote from Leonardo Da Vinci presented at the beginning of this article reveres the profound impact of artistic expression and the ability of art to transmit knowledge across generations. In particular, artists over time have been captivated by the intricate aspects mainly of dreams, but also of sleep and its disorders, finding in them a rich theme that allows the exploration of the human condition, emotions and the interface between reality and dreams, delving deeper into the unconscious. This representation also reflects prevailing cultural attitudes towards sleep and related mental states in different historical periods.

This article, based on references such as Invaluable⁵, Wikipedia¹¹, Agarwal et al.¹, Wikimedia Commons^{9,10}, and others related to sleep illustrations²⁻⁸ embarks on a different exploration. The main objective is to present the artistic eras from the Renaissance onwards, outlining their defining characteristics and juxtaposing them with the evolutionary milestones of neurology. By interweaving advances in understanding the brain and its functions with the evolution of artistic expression, this examination seeks to illustrate how social, technological, and scientific developments have influenced both artistic creation and neurological achievements, especially concerning sleep as summarized in the Figures 1. Furthermore, this study emphasizes the fundamental role of today's digital era, both in its artistic and practical dimensions, for contemporary artistic expressions.

Exploring dreams in art opens up a world of symbolism, emotion, and exploration of the human experience. Dreams have left a significant mark on the pictorial arts, whether as a tool for self-expression, as a way to explore the frontiers of reality, or as a means of exploring the hidden corners of the mind.

Humanistic approach to aesthetics

This section explores a spectrum of artistic movements ranging from the Renaissance to contemporary art, covering crucial eras such as Renaissance Art, Mannerism, Baroque, Rococo, Neoclassicism, Romanticism, Realism, and avant-garde movements such as Impressionism, Post-Impressionism, Fauvism, Expressionism, Cubism, and Surrealism. Each is defined by distinctive traits that have left their mark on the history of art, often alongside the era of advances in neuroscience.

Throughout the history of art, sleep has emerged as a multifaceted motif depicted in both secular and sacred art. Sleep is often described as a state of restorative rest, providing solace and healing and symbolizing a break from

the chaos of the waking world. Many representations explore the mysterious world of dreams, exploring the symbolism and hidden desires of the subconscious mind. Representations of sleep often reflect cultural attitudes towards sleep, its rituals, and the impact of sleep or its absence on mental health and well-being. Artists also portray sleep as a vehicle for spiritual enlightenment, prophetic visions, or as a symbol of rejuvenation and rest or of fear, from redemptive and magical fears to those evoked by nightmares. The presence of sleep in aesthetic art often involves figures such as young, seductive women, innocent children alone or with their caregivers, and, less commonly, men as a subject for simple contemplation. Artists also draw on mythology and religion, transforming sleep into rich sources of inspiration and symbolism. Thus, Berthe Morisot's serene portraits of *Le Berceau* and Jean-Francois Millet's *Sleeping Peasants* portray sleep as restorative, while others, such as Henry Fuseli's "The Nightmare," explore its darker, more disturbing aspects. The Surrealists, influenced by Freud, delved into the subconscious realm, as seen in the symbolic works of Salvador Dalí.

Throughout the history of art, sleep has persisted as a multifaceted theme in both secular and sacred art. Portrayed alternatively as a central focus or background element, sleep has served as a channel for transmitting spiritual enlightenment, prophetic dreams, or as a symbol of rejuvenation and rest. Thus, the representation of sleep covers a spectrum of perceptions, ranging from its redemptive and magical aspects to the fears evoked by nightmares.

Throughout these artistic eras, each one brings specific characteristics that influence aesthetics, themes, and techniques, shaping the evolution of art over time. This evolution reflects simultaneous technological and neurological advances, highlighting the interaction between artistic expression and progress in science.

The representation and interpretation of dreams in art have evolved throughout different artistic eras, each movement bringing distinct perspectives and explorations that have served as a vehicle for artists to explore emotions, and human consciousness, offering interpretations that transcend conventional reality.

As we delve deeper into specific artistic periods, such as the surrealist exploration of the dream world realized by Salvador Dalí and René Magritte, or the romantic fascination with the symbolic qualities and mysteries of dreams epitomized in Henry Fuseli's "The Nightmare," we witness artists taking advantage of the power of dreams to create interesting and contemplative works of art. Surrealism delved into the subconscious, aiming to express the workings of the unconscious mind through dreamlike images, while romanticism embraced themes of the supernatural and mysterious, often incorporating dreamlike elements.

The timeline of art and neurology reveals their intertwined evolution. The milestones in neurology from

1857 to 1896 coincided with scientific discoveries about the structure of the brain and the doctrine of neurons, aligning with artistic movements exploring human expression, psychology, and introspection. Likewise, from the early 20th century, as neurology advanced in parallel with Psychoanalysis, several artistic eras emerged, reflecting evolving trends and movements in art. These connections suggest that neurological advances have also inspired artists to delve deeper into the human psyche, emotions, and introspection, manifesting in art that reflects a scientific understanding of the evolving complexities of the brain.

Furthermore, an exploration of the scientific understanding of sleep highlights its crucial role in restoring energy and maintaining bodily functionality. Understanding the brain's neural connections and the cyclical nature of wakefulness, slow-wave sleep, and REM sleep highlights the importance of sleep in our lives, with approximately a third of our existence dedicated to this essential process. This deeper exploration not only delves into the artistic significance of sleep but also sheds light on its physiological aspects, inviting a comprehensive understanding of this universal and indispensable human experience.

Renaissance Art (1400–1600) portrays a realistic portrait of human figures, linear perspective, classical themes, and the use of light and shadow (*chiaroscuro*). During this era, dreams were often depicted as symbolic narratives and painters presented dream scenes as allegories, representing moral lessons or religious visions. Artists like Rafael, with his "Vision of a Knight", e. g., incorporated dreamlike elements to convey messages. A sleep-related painting copy from this artistic epoch included in the Figures is 'Sleeping Venus', c.1510, by Giorgione (–1510), oil on canvas, located in the Gemäldegalerie Alte Meister. The focus of the Renaissance changed with Northern painters such as Hieronymus Bosch, who introduced disturbing and surreal dynamic elements into artistic representations of dreams, oniric art. The Renaissance saw a resurgence in anatomical studies, leading to more accurate representations of the human form in art, and artists such as Leonardo da Vinci and Michelangelo explored anatomy to create more realistic and developed human figures. Andreas Vesalius's publication on human anatomy laid the foundation for modern neuroanatomy and emphasized the systematic study of the human body through dissections. Thus, from the Renaissance through the 19th century, many profound advances were observed in both neurology and the arts, reflecting significant changes in knowledge and preparing society for the following centuries of major paradigm shifts.

Mannerism (1527 - 1580) features stylized compositions, elongated and exaggerated figures, unconventional poses, complex and intricate works of art, and a departure from classical ideals. A painting from this Era of Art included in the Figures is 'Water' (1566) by Giuseppe Arcimboldo - Arcimboldo (1526-1593). Arcimboldo's composite portraits, including the one

representing "Water", often contain surreal elements and whimsical representations of natural elements and human figures, reflecting the imaginative and dreamlike qualities associated with sleep.

The Baroque (1600-1750) has dramatic use of light and shadow, grandeur, rich colors, ornate and elaborate works, emotional intensity, interest in the human intellect, and religious and mythological themes. Caravaggio and Rembrandt used *chiaroscuro* to create dramatic and otherworldly dreamscapes. Dreamlike elements were infused into mystical or divine scenes, depicting celestial visions or spiritual epiphanies. Baroque artists occasionally explored sleep as part of religious and allegorical themes and paintings such as José de Ribera's 'Jacob's Dream' illustrated biblical dream narratives. Furthermore, the Dream of St. Joseph continues to be a popular theme in religious art, often symbolizing divine revelation and guidance in the Christian faith, with Georges de La Tour, a French Baroque painter, known for his work "Dream of St. Joseph" (c. 1640-1645), which shows Saint Joseph sleeping with an angelic figure at his side, illuminating the scene with a soft, bright light. Another classic painting of the period is 'A Girl Sleeping', 1657, by Johannes Vermeer (1632-1675), and another included in the Figures is represented by 'Sleeping Girl', c. 1615, by Domenico Fetti (1589–), oil on canvas located in the Museum of Fine Arts, Budapest.

Rococo (1699–1780) has an ornate and decorative style, pastel colors, a love of nature, and an emphasis on cheerful themes. A notable painter of this era was Jean-Honoré Fragonard (1732-1806), and a representative painting of him is 'The Swing' – an iconic example of Rococo art. This painting captures a romantic and playful scene in a lush garden, which can be associated with the dreamy qualities of sleep and desire. A painting related to sleep from this artistic period included in the Figures is "Sleeping Bacchantes Surprised by Satyrs", 1760, by François Boucher (1703-1770).

Neoclassicism (1750–1850) emphasized classical themes and forms, clear, precise lines, and moral and political messages. A painting from this artistic period related to sleep included in the Figures is a dimly lit room where an old man sleeps sitting up, 'Sleep', by François Marius Granet (1775-1849), oil on canvas located in the Musée Granet.

Romanticism (1780 - 1850) emphasized individualism, imagination, and emotions over reason, appreciation for nature, passion and sensation, and the rejection of order and rationality. Romantic artists were driven by a fascination with the subconscious and the supernatural, sometimes incorporating dreamlike or nightmarish elements into their works. Romantic painters were fascinated by the emotional and imaginative aspects of dreams. Johann Heinrich Füssli, also known as Henry Fuseli or Fusely (1741-1825) was a Swiss painter, draftsman, and art writer based in Great Britain, with many of his works depicting supernatural experiences, inspired by dreams,

with an emphasis on the sublime and the supernatural. Fuseli explored the emotional and psychological aspects of dreams in works such as 'The Nightmare' (1781), which showed a woman having a nightmare about a demon that depicts sleep paralysis and nightmares. Fuseli's Nightmare broke with moralistic narratives, presenting a mysterious and disturbing scene that anticipated Freud's psychoanalytic theories. Dreams have become a means of exploring the depths of human emotion and the unknown. This move away from moral logic aligned more with the ideals of Romanticism, emphasizing emotion and spirituality to the detriment of reason. A painting from this artistic era included in the Figures is 'The Sleep of Reason Produces Monsters', 1799, by Francisco Goya (1746-1828), an etching and other intaglio media, located at the Nelson-Atkins Museum of Art which explores the consequences of the absence of reason, potentially delving into the realm of nightmares and sleep-related imagery. Goya's engraving is part of his 'Los Caprichos' series. At this time, still, in the Enlightenment of the late 18th century, fundamental neurological achievements were growing, such as Luigi Galvani's experiments with frog nerves that contributed to the understanding of bioelectricity, in parallel with a growing interest in neural impulses and electrical activity in the nervous system. Furthermore, Phrenology emerged, which attempted to correlate brain structure with specific personality traits, although not scientifically accurate, stimulated interest in brain functions and inspired artistic interpretations of mental faculties. However, during the period of Galvani's discoveries in neurology and the rise of Phrenology, the art world was experiencing a transition from the Enlightenment era to Romanticism. The Enlightenment, characterized by rationality, reason, and scientific inquiry, influenced art by emphasizing clarity, order, and precision in artistic representations, and artists sought realism and precision, often depicting subjects in a precise and calculated manner. This period favored classical themes, historical narratives, and portraits that were more formal and controlled in their expression. However, the rise of Romanticism, which began to flourish around the end of the 18th century, marked a significant shift in artistic expression. By embracing emotions, imagination, and individualism, diverging from the strict rationality of the Enlightenment, artists of this period sought to evoke feelings and passions in their work, exploring themes of nature, the supernatural, and human emotions. The parallels between Galvani's neurological discoveries and the emergence of Phrenology in art are found more in the Romantic era. While Phrenology attempted to correlate personality traits with brain structures, artists delved deeper into exploring the human psyche, emotions, and mysterious aspects of the mind. This alignment may have inspired artists to depict subjects with greater emphasis on inner emotions, psychological depth, and the complexities of the human mind, aligning with the Romantic movement's emphasis on individuality and emotional expression.

Realism (1848 - 1900) depicts ordinary life and people with attention to detail, often addressing social and political issues with accurate depictions of everyday life, detailed and realistic depictions, moving away from romanticized or idealized subjects and focusing on as far as the eye could physically see. A notable painter of this era was Gustave Courbet (1819-1877), who portrayed everyday life, and a representative painting by him is "The Stonebreakers", a realistic portrait of workers addressing social issues and the human condition. A sleep-related painting copy from this artistic epoch included in the Figures is represented by 'The Sleeping Spinner', 1853, by Gustave Courbet (1819-1877), oil on canvas located in the Fabre museum. During this period, with the identification of the area of speech production by Broca and the discovery of the motor cortex by Fritsch and Hitzig, art began to explore expression and movement in profound ways. This aligns with artistic movements such as Realism and Impressionism. Realism sought to portray life as it was, emphasizing accurate representation that could reflect the scientific precision and localization evident in the discoveries of neurology. Impressionism, on the other hand, focused on capturing fleeting moments, emphasizing movement and sensation over precise details. This could be correlated with understanding motor skills and the representation of movement in art.

Art Nouveau (1890 - 1910) emphasized natural forms, sinuous lines, decorative and ornamental style, flowing lines, decorative motifs, a focus on decorative arts and the female form, and influence on applied arts, architecture, graphic design, and illustration. A notable painter of this era was Gustav Klimt (1862-1918), and a sleep-related painting copy included in the Figures is 'Night', 1890, by Ferdinand Hodler (1853-1918), on oil canvas, located in the Kunstmuseum Bern, Bern, Switzerland.

Impressionism (1865-1885) captures the fleeting moment, the use of light and color, and everyday scenes with rapid brushstrokes, an unfinished feel, modern life as a subject, and an emphasis on light and color. Impressionist artists often depicted scenes of leisure and everyday life, which may indirectly address the topic of sleep, but without a specific focus on sleep disorders. An example is 'Young Girl Dreaming', from 1881, by Paul Gauguin in his first works, impressionist genre. A sleep-related painting copy from this artistic epoch included in the Figures is 'The Artist's Son', c. 1868, by Claude Monet (1840-1926), located at the Carlsberg Glyptotek.

Post-Impressionism (1885-1910) with subjective views, symbolic and personal meanings, abstraction, and a focus on inner emotions, artists worked independently with similar ideals and emphasized the emotional and symbolic use of color, brushstrokes, and form. One notable painter was Vincent van Gogh (1853-1890) and his related painting, 'Starry Night' - one of the most famous paintings in the world, known for its emotional intensity and use of color. Many of his sleep works include 'Girl Kneeling by a Cradle',

1883, Mediumpencil and Charcoal highlighted with white, located in the Van Gogh Museum. Another painter from this time was Henri de Toulouse-Lautrec who became known for his depiction of cabaret scenes and nightlife, being able to indirectly address themes related to sleep and its disorders through his depictions of the night scene and for being an insomniac as portrayed in his painting 'Nuit Blanche'. A sleep-related painting copy from this artistic epoch included in the Figures is 'La méridienne' or 'La sieste', 1889-1890, by Vincent van Gogh (1853-1890), oil on canvas, located in the Musée d'Orsay, Paris. As far as the intersection with neurology is concerned, the era of the Golgi staining technique and Ferrier brain mapping, which contributed to the understanding of specialized brain regions and the doctrine of neurons, correlates with the emergence of art styles more abstract and introspective. This period saw the rise of Symbolism and the beginning of movements such as Post-Impressionism and Art Nouveau. Symbolism emerged as a reaction against the naturalism and realism of the time, focusing on the use of symbols, imagination, and emotional content, reflecting the introspective nature of the neuron doctrine's understanding of the brain. With regards to Post-Impressionism and Art Nouveau, they emphasized the subjective and emotional aspects of art, exploring new forms, colors, and designs that echoed the evolving understanding of the inner workings of the mind.

Fauvism (1900 - 1935) has a bold and non-naturalistic use of color and simplified forms, consequently the use of intense colors, bold brushstrokes, flat compositions, a move away from the representative purposes of color, expressive use of color and line. A sleep-related painting copy from this artistic epoch included in the Figures is 'Still Life with Sleeping Woman', 1940, by Henri Matisse (1869-1954) - adapted, oil on canvas, located in the Collection of Mr. and Mrs. Paul Mellon.

Expressionism (1905-1920) emphasizes emotions, distortion, and raw personal expression, focusing on the unconscious mind and personal expression best represented by Edvard Munch (1863-1944) with his painting 'The Scream' - an iconic work reflecting anxiety and turmoil emotions. A sleep-related painting copy from this artistic epoch included in the Figures is 'Sleeping Farmer', 1936, by Hendrik Chabot (1894-1949), located in the Van Abbemuseum.

Cubism (1907-1914) with radical fragmentation of objects, abstraction, rejection of traditional perspectives, geometric shapes, multiple points of view, and often unidentifiable subjects. Furthermore, when it comes to sleep, there is the painting 'Woman Sleeping at the Table', 1936, by Pablo Picasso (1881-1973) located in the Museum of Modern Art in New York. A painting from this artistic era related to sleep included in the Figures is 'Man in a Hammock', 1913, by Albert Gleizes (1881-1953), oil on canvas, located at the Albright-Knox Art Gallery, Buffalo, New York.

Surrealism (1916-1950) explores the unconscious

mind under the influence of Psychoanalysis and addresses the subconscious and the irrational, often with a detailed and realistic representation, consequently, there is a challenge to reason. Surrealism led by artists such as Salvador Dalí (1904-1989) and René Magritte (1898-1967) is perhaps the most famous movement that directly addresses dreams and the subconscious, and their works often feature bizarre, dreamlike, and boundary-pushing scenes. of reality. A notable painting by Dalí is "The Persistence of Memory," known for its melting clocks and dreamlike quality. Thus, surrealism as an artistic movement often reached the world of dreams and the subconscious, and artists such as Dalí and Magritte created numerous works related to dreamlike and surreal images. More specifically, Surrealist artists delved deeply into the unconscious mind and freed art from conscious control, celebrating the absurd and the dreamlike. Dalí incorporated dream imagery into his works, interpreting dreams as windows into the unconscious mind. A painting from this artistic period related to sleep included in the Figures is "Dream Caused by the Flight of a bee around a Pomegranate a second before waking", 1944, by Salvador Dali belonging to a private collection. It is a dreamlike composition that portrays the chaotic and fragmented nature of many dreams. Surrealism's focus on the subconscious and dreams, aligned with revealing deeper insights into brain functions, parallels the development of EEG and cerebral angiography in the 20th century, which alongside psychoanalysis may have inspired artists to explore the depths of the human mind and the mysterious nature of the brain. On the other hand, as the 19th century progressed, artists such as Henri Rousseau (1844-1910), the greatest representative of the so-called 'naïve' art, had works highly valued by symbolist artists. His painting 'The Sleeping Gypsy' (1897), located in the Museum of Modern Art in New York, is a fantastic, almost surrealist depiction of a lion encountering a gypsy woman on a moonlit night. The 'Sleeping Gypsy' provoked questions about reality versus dreams, challenging viewers to interpret their meaning. Symbolist painters such as Gustave Moreau and Odilon Redon used dream motifs to convey psychological and spiritual themes, exploring the subconscious mind and its mysterious symbolism.

Although Abstract Expressionism, Op Art, Pop Art, Arte Povera, Minimalism, Conceptual Art, and Contemporary Art, including Digital Art, are artistic movements that introduced several innovative concepts and styles, in parallel with advances in technology and neurosciences, they are not typically associated with the direct exploration of sleep and dreams in the same way as some other movements except Surrealism. Characteristics of these movements are: Abstract Expressionism (1940s-1950s), emphasizing emotion and spontaneity in art, reflected revelations in memory studies; Op Art (1950s to 1960s), optical effects, illusions, use of shapes, colors and patterns that appear to move or blur, black and white contrast for maximum visual impact; Pop Art (1950s - 1960s), use of

everyday and mundane objects, challenge of consumerism and mass media, identifiable images, shift from conventional modernism; Arte Povera (1960s), use of everyday materials, anti-elitist sentiment, focus on everyday elements, sculptural works with soil, stones, paper, rope, etc.; Minimalism (1960s to 1970s), emphasis on anonymity, materiality of works, order, simplicity and harmony, non-representational, focus on what is in front of the viewer; Conceptual Art (1960s to 1970s), focus on ideas about visual components, creating art in various forms such as performances, ephemera, exploration of language within art; Contemporary Art (1970-present), diverse and multifaceted, encompassing several schools and smaller movements, embracing skepticism, irony, philosophical criticism, the influences of technology and culture.

Contemporary artists have continued to explore sleep and dreams, some focusing on the disorienting aspects of modern life and their impact on sleep patterns, and this has been addressed through multimedia installations and conceptual art. The representation of sleep in contemporary culture reflects a complex interaction between scientific investigation, technological advances, social ideologies, and artistic expression. Contemporary perceptions about sleep, particularly through scientific research into circadian rhythms and neuroscience, have reshaped the understanding of its meaning in neuroculture society. Furthermore, contemporary artists approach sleep in a politically committed way, criticizing social norms and the effects of technological advancement on human rest. Themes of biodysregulation, images of insomnia, and pathologization of sleep are explored, reflecting the anxieties and disturbances caused by modernity. In essence, contemporary artistic representations of sleep interweave scientific discoveries, technological intrusions, and social critiques, providing a nuanced and multifaceted view of this fundamental yet enigmatic human experience⁷.

Digital Art encompasses a wide spectrum of styles, themes, and artistic practices involving digital technology since the 1960s. Salvador Dalí's use of computational processing in artistic creation cemented his role as an early adopter and innovator of digital art and photomosaic art. Furthermore, Warhol's foray into digital art in 1985 marked a significant milestone in his artistic exploration. He used an Amiga computer, captured a monochrome image of Debbie Harry via a video camera, and then digitized it into a graphics program called ProPaint, allowing Warhol to engage in digital manipulation techniques. Specifically, digital painting is the process of creating paintings using computer software that simulates traditional painting tools and techniques, offering users customizable options for creating unique visual effects. Another aspect of digital art centers on the way artists have explored the use of artificial intelligence (AI) in creating works of art since the 1960s. More recently, the advent of generative adversarial networks (GANs) in 2014 has provided a framework for machine learning where two

algorithms compete and iterate, enabling the generation of works of art. This technology allows computers to autonomously find optimal solutions and produce images that imitate traditional fine art. One significant aspect involves using text descriptions to ask AI to convert text into visual images. Through image generators, individuals can translate their language into paintings, essentially democratizing the creation of visual content, with some artists using image generators to produce foundational paintings rather than starting from scratch. They then refine these generated artworks, ultimately creating new digital paintings. This approach challenges the traditional boundaries of the art of painting, significantly lowering the barrier to entry into painting while incorporating AI-generated elements into the artistic process¹¹. However, the presence of this theme would depend on the specific intentions and creative choices of the artist, in this case, the author of this paper made use of Digital Art Generated by DALL-E 3 for demonstrations on sleep disorders included in the Figures: 'Elaborate, vivid REM sleep, hallucinogenic and emotional', 'Non-REM sleep report of dreams when it occurs, more conceptual, less vivid and less emotional', 'The fat man sleeping snoring', 'The lady with insomnia', 'The boy with the nightmare' and 'The man with daytime drowsiness'.

Regarding the parallel between arts and neurology, just as computed tomography scans revolutionized neuroimaging, artists explored unconventional means and techniques. Video and installation art reflected a similar search for new forms of expression and perception. The diversification in advances in neuroscience during the Decade of the Brain resonated with the diverse expressions of Postmodernism. Initiatives such as the Human Connectome Project mirrored the exploration of interconnectivity in contemporary art. Stem cell research in neurology has inspired interdisciplinary collaborations in art, integrating technology and diverse approaches. The convergence of art and technology in the digital revolution echoed the interdisciplinary nature of the Human Brain Project and therapeutic advances in neurology, presenting an era of innovation and exploration at the intersection of multiple fields.

These are just snapshots of each artistic era, and many other artists and artworks contributed to these movements. Each era reflects the unique cultural and artistic trends of its time, and throughout these artistic eras, the representation of sleep and sleep disorders has evolved along with changes in artistic styles, cultural influences, and scientific understanding. Thus, artists used their creativity to convey the mystery, symbolism, and emotional depth associated with the realms of sleep and dreams.

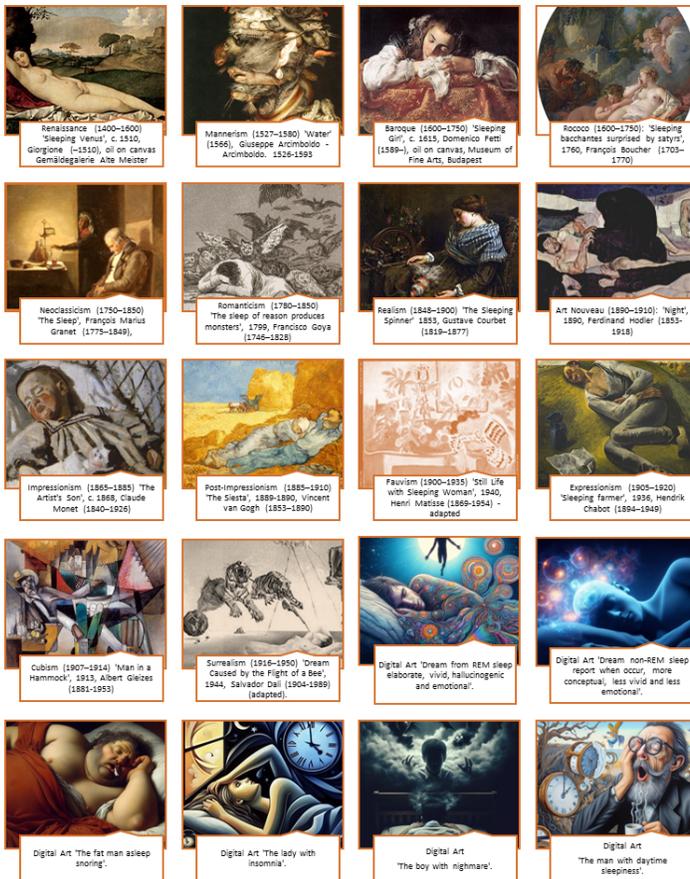


Figure 1. 'Evolution of Sleep in Art: From Renaissance to Digital Interpretations'. Sources: Wikimedia Commons and Digital Arts by Image Creator of the DALL-E platform with recommendations given by the author of this paper.

DISCUSSION

The depiction of dreams and sleep in art throughout history has been an enduring fascination, offering profound insights into human emotions and the enigmatic nature of the mind. Artists from the Renaissance to contemporary eras have approached these themes, and dreams have served as channels for creativity, blurring the lines between reality and the surreal, as they represent a means of conveying a spectrum of emotions, from tranquility to restlessness, and of probing intricate psychological states, often blurring the boundaries between the conscious and subconscious domains.

On the other hand, the advent of digital art opens up fascinating ways to delve deeper into these themes, as its dynamic and interactive nature aligns perfectly with the abstract and elusive nature of dreams. Furthermore, the incorporation of multimedia elements such as sound, video, and animation into digital art allows for more immersive experiences, potentially mirroring the sensory aspects of dreaming.

Notably, the emergence of AI Art Generators introduces new dimensions to this exploration, but while these tools help artists visualize dreamscapes and sleep-

related experiences, they primarily serve as complementary tools. However, the essence of creative vision, storytelling, and emotional depth remains rooted in the artist's interpretation and choices. AI complements the creative process, facilitating experimentation and exploration, but does not replace the artist's unique perspective and creativity.

AI-generated art would add depth and nuance to the discussion about specific works of art or artists from different eras and cultures who engaged deeply with these themes. This expanded context emphasizes the multifaceted nature of dreams in art and highlights how digital art and AI present new avenues for artistic expression while preserving the essence of creativity.

CONCLUSIONS

The depiction of dreams and sleep in art throughout history has revealed the intricate nuances of human emotions and the mysterious landscape of the mind. From the Renaissance to contemporary times, the fascination with dreams resonated deeply with artists, blurring the boundaries between reality and the surreal. Artistic representations of sleep evolved alongside cultural changes in artistic movements such as Romanticism and Surrealism, which particularly explored dreams and the unconscious. The evolution of artistic epochs, intrinsically intertwined with neurological milestones, reflects the parallel progression of human expression and scientific understanding. As the artistic landscape continues to evolve into the digital realm, the integration of AI into artistic creation offers new dimensions to delve deeper into these themes, while preserving the essence of artistic creativity. This exploration sheds light on the multifaceted nature of dreams in art, and also of sleep and its disorders, highlighting the profound interaction between art, neuroscience, and the human experience.

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