THE EFFICACY OF COLOR THERAPY TORCH: A PILOT STUDY

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Background: Color therapy, also known as chromotherapy, is a non-invasive treatment that utilizes visible light within the electromagnetic spectrum to promote health and well-being. With historical roots in ancient healing traditions, modern scientific advancements have refined its application in phototherapy, photobiomodulation, and low-level laser therapy (LLLT). Colors are believed to interact with biological systems at the cellular level, influencing physiological and psychological functions. Despite increasing interest, limited studies have systematically assessed the therapeutic efficacy of color therapy devices. This study investigates the impact of a newly developed portable color therapy torch, the Azeemi Chroma Torch, on mood, energy levels, sleep quality, and pain relief.

Materials and Methods: We designed the Azeemi Chroma Torch as a safe and portable colour therapy device incorporating seven interchangeable colored acrylic sheets to deliver targeted light therapy. The study involved a six-week pilot intervention with 100 participants, each receiving 30-minute sessions three times per week. The torch emitted specific wavelengths corresponding to therapeutic colors, and treatment protocols were customized for conditions Seasonal Affective Disorder (SAD). Patient responses to different colors were recorded based on mood, energy levels, sleep quality, and pain relief. Standardized exposure protocols were followed to ensure safety and efficacy.

Results: The intervention yielded significant therapeutic benefits across multiple parameters. 80% of participants reported an improvement in overall mood. Sleep quality improved in 70%, suggesting potential modulation of circadian rhythms. Psychological benefits included a 60% reduction in anxiety and depression symptoms. The observed benefits align with the hypothesized mechanisms of chromotherapy including neurohormonal regulation.

Conclusion: The findings confirm that the Azeemi Chroma Torch is an effective intervention for improving mood, energy levels, sleep quality, and pain relief. The results support its clinical application for treating SAD and related conditions, highlighting its potential as an accessible, non-invasive therapy. A dose-response relationship suggests that longer exposure enhances therapeutic effects, though individual variability necessitates personalized treatment protocols. Future research should explore the effects of color therapy across diverse populations, investigate its impact on cognitive functions, and examine its potential in modulating inflammation at a molecular level. These insights could inform the development of targeted light-based therapeutic interventions for broader clinical applications.

Keywords: Visible Range Radiation Therapy, Color Therapy, Chromotherapy, Azeemi Chroma Torch.

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INTRODUCTION

Colors are ubiquitous in nature, manifesting as a vibrant form of energy that permeates the environment and influences all living organisms. Derived from sunlight, colors exert profound effects on plants, animals, and humans [1, 30]. As an essential component of life across the universe, each color, characterized by its hue, value, intensity, temperature, and energy level, interacts uniquely with the human body. This interaction forms the basis of color therapy (also known as chromotherapy) which utilizes the visible spectrum of electromagnetic waves (wavelengths ranging from 380 to 780 nm) to treat diseases, prevent ailments, and promote overall health and well-being. Historically, ancient healers in early civilizations employed this practice to cure illnesses and restore vitality [2]. In the 19th century, Western scientists began exploring this traditional method through a scientific lens, developing innovative devices to deliver colored light as a therapeutic intervention for patients. These early color therapists sought to evaluate health outcomes objectively, paving the way for modern advancements such as phototherapy, photobiomodulation, and low-level laser therapy (LLLT) [3]. Phototherapy employs polychromatic light for healing, while LLLT uses near-red or infrared electromagnetic rays to stimulate tissue regeneration and repair [3]. These therapies are believed to act at the cellular level, particularly on mitochondria and the enzyme cytochrome c oxidase [31]. To improve the effectiveness and reach of color therapy in treating deeper internal organs, novel techniques such as implantable light-emitting probes and intravascular laser methods have emerged [4]. Additionally, photodynamic therapy (PDT) has been introduced, which utilizes photosensitive medications activated by targeted wavelengths of light to selectively

eliminate cancerous cells [14]. Activated by light, these drugs produce localized effects with reduced systemic side effects.

Augustus James Pleasonton (1808–1894) contributed to the popularization of color therapy by advocating the use of blue light for injuries, pain, burns, physical development, fertility, and rheumatoid arthritis [15]. Edwin D. Babbitt utilized red light therapy for treating conditions such as nerve paralysis, physical exhaustion, weakness, and chronic rheumatic ailments. He recommended yellow light to stimulate bowel movements, induce vomiting, and relieve bronchial disorders. Additionally, blue light was advised for managing headaches, sciatica, mental agitation, nervous disorders, meningitis, heatstroke, and inflammatory conditions [16]. Charles Klautsche further documented 123 diseases successfully managed with chromotherapy [17]. Conditions such as insomnia [5], diabetes [6], seasonal affective disorder (SAD) [7], immune dysfunction [8], hyperacidity [9], dengue fever [10], cutaneous wound healing [11], chronic joint disorders [12], and inflammation [13] have been targeted successfully using colour therapy in the past .

Visible light, comprising the seven colors of the rainbow, varies in its therapeutic effects based on wavelength and tissue type. For instance, red (620–750 nm) boosts energy and improves skin smoothness; yellow (570–620 nm) enhances neuromuscular tone, reduces skin irritation, and stimulates happiness; green (520–570 nm) lightens hyperpigmented skin and promotes calmness; cyan (500–520 nm) treats inflamed skin and reduces swollen capillaries; blue (450–500 nm) increases alertness, aids memory, and regulates circadian rhythms; and violet (380–450 nm) reduces stress and facilitates sleep [1]. In colour therapy, light energy is thought to be absorbed through the skin, eyes, water, and the environment.

Human physiology is intricately linked to light, as evidenced by the regulation of the circadian rhythm and sleep-wake cycle via the suprachiasmatic nucleus (SCN) in the anterior hypothalamus. Light signals transmitted through the eyes stimulate the SCN to maintain neurohormonal balance, supporting physical health and well-being [13]. Chromotherapy conjectures that diseases arise from imbalances in the body's energy forces, including color, sound, heat, movement, touch, and pressure. When colors become deficient or excessive due to various factors, psychological and physical symptoms emerge. Restoring balance by supplying the deficient color is believed to alleviate these conditions, influencing the mind, body, and soul. Colors induce mental, emotional, biochemical, physiological, and physical changes, with a pronounced impact on the psyche, often a contributing factor in psychosomatic disorders and the emotional dimensions of physical illnesses.

MATERIAL AND METHODS

A colour therapy torch is a medical device engineered to deliver therapeutic light for conditions such as SAD, neonatal jaundice, and various musculoskeletal and dermatological ailments. This study designed and developed a safe, effective, and portable colour therapy torch, named "Azeemi Chroma Torch", that meets or exceeds industry standards for safety and efficacy. The device features intuitive controls, a rechargeable cable providing a one-hour battery backup, and a compact design with an adjustable stand for ease of use. It incorporates seven interchangeable 2-mm thick acrylic sheets (diameter: 74 mm), each producing a distinct color, red, orange, yellow, green, blue, brown, and violet, within the visible spectrum (see Figure 2: 7 Colored Acrylic Sheet). The light source is a light-emitting diode (LED) bulb, selected for its bright, energy-efficient, and cool light output. A reflective surface, typically made of metal or plastic, directs the emitted light toward the target area, ensuring efficient delivery.

The "Azeemi Chroma Torch" (see Figure 1) emits broad-spectrum light mimicking natural outdoor illumination. This design enables the torch to target specific aspects of well-being, such as relaxation, energy enhancement, or mood improvement, depending on the selected color. Applications for this device span clinical settings (e.g., spas and wellness centers) and home use for personalized relaxation or targeted chromotherapy.

The torch's LED spotlight, combined with specialized acrylic sheets, generates a range of colors with therapeutic potential. Each color corresponds to specific wavelengths within the visible spectrum, tailored to influence physiological and psychological states. The device's versatility allows it to address diverse conditions by adjusting the emitted color and session parameters based on therapeutic goals.

Treatment Protocols: We set the treatment duration and frequency for Seasonal Affective Disorder (SAD) patients to be 20–30 minutes per session in the morning. For optimal results, patients position the torch 16–24 inches (40–60 cm), angled to minimize glare and ensure even light distribution. Sessions begin with shorter durations (5–10 minutes) to assess tolerance, with color and intensity adjusted to individual comfort levels. Patients sit or lie comfortably with eyes open, avoiding intense staring, to prevent eye strain.

The torch is placed at a comfortable distance and angle to avoid discomfort or glare. Patients are advised to relax and breathe normally during sessions, gradually reducing exposure time at the end to ease transitions. Post-session exposure to direct sunlight or bright lights is discouraged, and hydration is encouraged. Eye protection is recommended, and skin sensitivity should be monitored, with session duration or intensity adjusted as needed.

Treatment schedules and follow-up sessions should align with healthcare professional recommendations, particularly for conditions like circadian rhythm disorders, skin conditions, or general pain management.

Figure 1: Azeemi Chroma Torch

Figure 2: 7 Colored Acrylic Sheet (Diameter 74mm) 2mm thick

Usage protocols were tested to evaluate the torch's efficacy across the specified conditions. Initial sessions assessed patient response to light intensity and color, with adjustments made to optimize therapeutic benefits. Outcomes were recorded based on standardized treatment durations and patient feedback, ensuring replicability and safety in application

Results: A 6-week pilot study was conducted to evaluate the efficacy of the Azeemi Chroma Torch as a complementary therapeutic intervention for patients diagnosed with Seasonal Affective Disorder (SAD). The study included 100 patients aged between 25 and 50 years, alongside a control group for comparative analysis. The intervention consisted of 30-minute sessions administered three times per week. Participants receiving chromotherapy reported statistically significant therapeutic benefits. Specifically, mood enhancement was documented in 80% of the intervention group, accompanied by self-reported improvements in emotional well-being. Sleep quality metrics indicated substantial improvement in 70% of participants, reflecting beneficial effects on sleep regulation associated with SAD symptoms. Furthermore, 60% of participants reported reduced symptoms of anxiety and depression, demonstrating the intervention's potential for meaningful psychological impact in the context of SAD. These

findings suggest promising outcomes, requiring further controlled clinical trials to substantiate chromotherapy's efficacy in managing SAD and highlighting underlying mechanisms.

DISCUSSION

The findings of this pilot study indicate that the Azeemi Chroma Torch has the potential to be an effective intervention for enhancing mood, elevating energy levels, and improving sleep quality for patients with Seasonal Affective Disorder. Its capacity to alleviate symptoms of anxiety and depression further highlights its therapeutic potential. These results align with the hypothesized mechanisms of colour therapy, which likely influence circadian rhythms and neurohormonal pathways. The variability in participant responses highlights the influence of individual differences, which may warrant further exploration to optimize treatment protocols.

Conclusion: This study confirms the efficacy of a colour therapy torch ("Azeemi Chroma Torch") as an intervention for improving mood, energy levels, and sleep quality. The findings support its clinical utility in treating Seasonal Affective Disorder (SAD), with implications for broader therapeutic applications. These results contribute to the growing evidence base for colour therapy as a non-invasive, accessible treatment modality and provide a foundation for future investigations into its mechanisms and applications.

Subsequent studies should explore the effects of color therapy torches across diverse populations, including children, older adults, and individuals with specific medical conditions, to assess generalizability. Investigating personalized color therapy protocols, tailored to factors such as color perception, personality traits, or neurophysiological profiles, could enhance efficacy and patient outcomes. Additionally, research should examine the impact of color therapy on cognitive functions, such as attention, memory, and executive function, as well as its potential to modulate inflammation at a molecular level. These inquiries could highlight the full therapeutic scope of light-based interventions and inform the development of targeted treatment strategies.

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