

A Neuroscientific Reading of the Impact of Media on Lifestyle and Family Relationships: A Meta-Analysis of Three Empirical Studies

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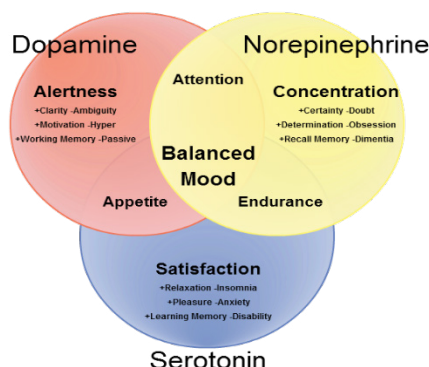
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Extended Abstract

Purpose

In the contemporary world, media are no longer merely tools for message transmission; rather, they function as cognitive, emotional, and behavioral environments capable of influencing mental processes, lifestyle patterns, and the quality of social and family relationships. The rapid expansion of digital media, social networking platforms, and interactive technologies has transformed human exposure to media stimuli from an occasional experience into a continuous and everyday process. Under such conditions, investigating the biological and neuroscientific mechanisms underlying media effects has become increasingly important.

The primary objective of this study is to provide a neuroscientific interpretation of the impact of media on lifestyle and family relationships through an analysis of the roles played by three major neurotransmitters: dopamine, serotonin, and norepinephrine. Positioned at the intersection of communication studies and cognitive neuroscience, this interdisciplinary research seeks to demonstrate how media stimuli interact with neural systems associated with reward, motivation, emotional regulation, and arousal, thereby influencing individual and social behaviors. Furthermore, the study aims to develop a conceptual framework for explaining the relationship between media consumption, behavioral dependency, lifestyle changes, and the quality of family relationships.



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Design/Methodology/Approach

This study employs a qualitative meta-synthesis approach. Unlike quantitative meta-analyses, which focus on statistical aggregation and effect-size estimation, the present research aims to identify common concepts, patterns, and themes across three independent empirical studies and interpret them in light of findings from cognitive neuroscience.

The first study, entitled *Everyday Life Without Television and Television Alternatives in Daily Life*, adopted a qualitative intervention-based approach. Ten Iranian families with high levels of television consumption voluntarily removed television from their daily lives for a specified period. Data were collected through in-depth interviews and daily reports and were analyzed using thematic analysis.

The second study, entitled *The Impact of Watching Violent Films on Physiological Arousal and Aggressive Feelings*, employed a quasi-experimental design. Sixty male and female university students were assigned to experimental and control groups. Physiological indicators, including heart rate, heart rate variability, skin conductance, muscular tension, respiration rate, and skin temperature, were measured using specialized biofeedback equipment. Aggressive feelings were assessed through a standardized questionnaire.

The third study, entitled *Examining Family Conditions in Cyberspace: An Analysis of Instagram Pages from the Perspective of Parent–Child Relationships*, utilized qualitative content analysis. A total of 150 highly visited Instagram pages were examined, and the data were analyzed using Mayring's qualitative content analysis procedure and NVivo software.

During the meta-synthesis stage, the findings of the three studies were reexamined and integrated across four analytical levels: biological, cognitive-emotional, social, and educational-policy dimensions. The theoretical framework of the study is grounded in the functions of the brain's reward system, emotional regulation mechanisms, and neural arousal processes.

Findings

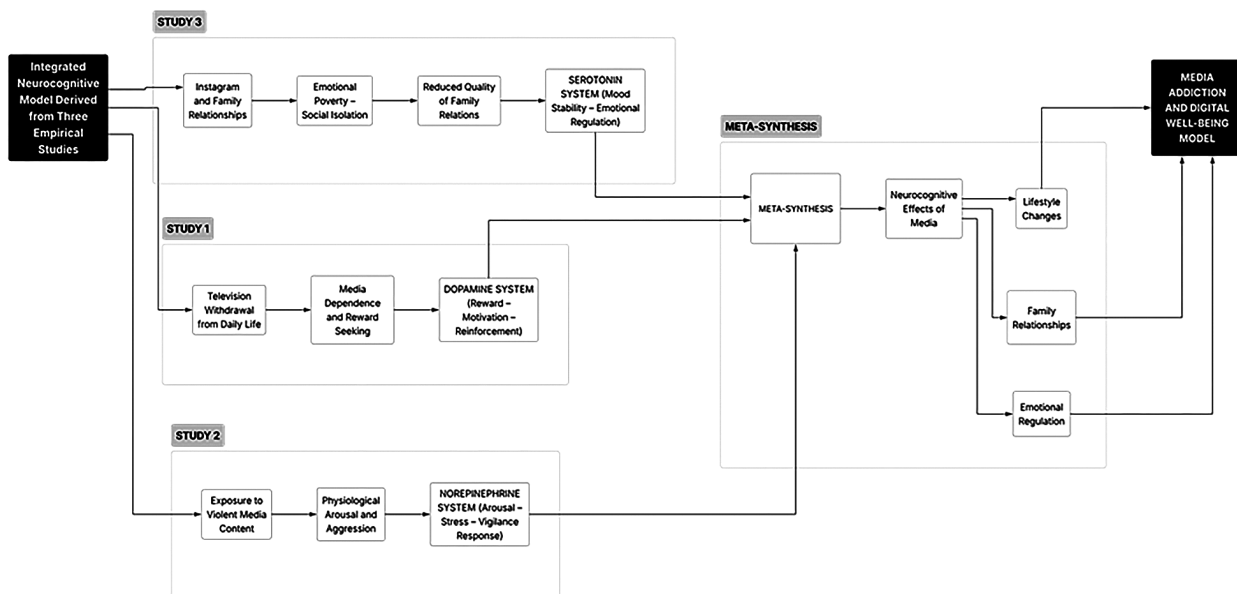
The findings indicate that many media-related consequences can be explained through the interaction of three major neural systems: the dopaminergic reward system, the serotonergic emotional regulation system, and the noradrenergic arousal system.

At the dopaminergic level, the results suggest that interactive media and social networking platforms reinforce reward anticipation and behavioral repetition through rapid, intermittent, and unpredictable rewards. Such mechanisms may contribute to the development of behavioral dependency and excessive media consumption. Across the three studies, the tendency to return to media use after its removal, the persistence of social media engagement, and the attractiveness of emotionally stimulating media content can all be interpreted within the framework of reward processing and reinforcement learning. In addition, neuroscience literature suggests that prolonged stimulation of this system may lead to receptor downregulation, a process that increases the need for stronger stimuli to achieve comparable levels of satisfaction.

At the serotonergic level, the findings indicate that excessive media consumption, particularly when it replaces meaningful social interaction and real-life activities, may be associated with reduced emotional regulation, emotional deprivation, lower levels of enduring satisfaction, and weakened family relationships. Within this framework, serotonin serves as a key neurotransmitter involved in mood stability and impulse control,

helping to explain some of the emotional consequences of media overuse.

At the noradrenergic level, the experimental study demonstrated that exposure to violent media content was associated with significant increases in physiological indicators such as respiration rate, muscular tension, and skin conductance. These findings suggest that certain types of media content can activate neural systems responsible for arousal and defensive readiness, thereby increasing alertness and physiological responsiveness. The integration of findings from the three studies led to the development of a conceptual model suggesting that continuous exposure to media stimuli may create a cycle consisting of: media stimulation - dopaminergic reward - behavioral repetition - reduced attractiveness of natural rewards - increased media dependency. Within this cycle, declining real-life interactions, deterioration in family relationship quality, and increased media consumption may mutually reinforce one another.



Research Limitations/Implications

This study is based on qualitative meta-synthesis; therefore, it does not seek to establish definitive causal relationships between neural variables and media behavior. Moreover, the original studies did not involve direct measurement of neurotransmitter levels or neuroimaging procedures. Consequently, the neuroscientific interpretations presented here are derived from the convergence between empirical findings and established neuroscience literature.

Despite these limitations, the findings suggest that traditional media theories alone may not be sufficient to fully explain media effects. Incorporating biological and cognitive variables can provide a more comprehensive understanding of media-related behaviors. Future studies are encouraged to employ methods such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), advanced physiological assessments, and longitudinal research designs to investigate more directly the relationship between media consumption and neurocognitive changes.

Practical Implications

The findings offer important implications for education, family counseling, and media policymaking. First, media management strategies should not rely solely on limiting screen time but should also promote a balance between media stimuli and real-life experiences. Second, activities such as employment, physical exercise, family interaction, social participation, artistic engagement, and nature-based recreation can serve as natural sources of reward and contribute to the recalibration of media consumption patterns. The results also highlight the importance of developing the concept of Neuro-Media Literacy, an approach in which individuals become familiar not only with media messages and technologies but also with the mechanisms through which media influence attention, emotion, motivation, and decision-making.

Social Implications

The findings demonstrate that media consumption is not merely an individual behavior but also a social and cultural phenomenon capable of influencing social capital, interpersonal relationships, family structures, and lifestyle patterns. Increased dependency on digital media may contribute to reduced face-to-face interaction, greater social isolation, and changes in family communication patterns.

Accordingly, cultural and educational policies should focus not only on promoting media literacy but also on increasing public awareness of the cognitive and neuroscientific dimensions of media use. Supporting families, teaching media self-regulation skills, and encouraging the production of health-oriented media content are among the key strategies proposed by this study.

Originality/Value

The principal innovation of this study lies in presenting an indigenous and interdisciplinary framework for analyzing media effects through the integration of communication studies and cognitive neuroscience. The added value of the article stems from its synthesis of findings from three independent studies—media withdrawal, laboratory experimentation, and social media analysis—within a unified conceptual model.

This research may be valuable for scholars in communication studies, cognitive neuroscience, media psychology, cultural policymaking, media education, and family counseling, while also providing a foundation for the future development of Neuro-Media Studies.

Keywords: Media Addiction, Dopamine, Media, Serotonin, Norepinephrine, Cognitive Neuroscience, Family Relationships