

The Impact of Brain Rot on Students' Anxiety and Learning Focus: Literature Review

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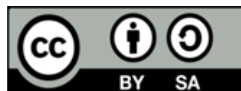
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ABSTRACT

The phenomenon of brain rot has emerged as a growing concern among university students due to excessive exposure to digital media such as TikTok, Instagram, and YouTube, which may impair attention, self-regulation, and cognitive performance. This study aims to examine the relationship between brain rot, anxiety, and learning focus among university students, and to explore its implications from both psychological and Islamic perspectives. This research uses a literature review approach by analyzing journals, books, and scientific reports published between 2017 and 2025, focusing on studies related to digital media use, cognitive decline, and student well-being. The findings indicate that excessive digital consumption correlates with higher levels of anxiety, reduced attention span, impaired executive functions, and lower academic motivation. The study emphasizes the importance of digital literacy, screen time management, and self-awareness interventions to mitigate brain rot and maintain students' mental and

academic well-being.

INTRODUCTION

The phenomenon of brain rot has become an increasingly prominent trend among the younger generation, especially college students, along with the increasing use of social media and digital platforms such as TikTok, Instagram, and YouTube. This term refers to conditions in which excessive consumption of digital content leads to a decline in cognitive function, such as difficulty concentrating, decreased memory, and increased anxiety (Johnson, 2023). Data from a Pew Research Center survey shows that in 2023, about 95% of teens and college students in the United States spend more than 7 hours per day in front of screens, with 70% reporting symptoms of anxiety related to social media use (Anderson & Jiang, 2023).

In addition, recent research reveals that the phenomenon of brain rot is not only limited to Generation Z, but also affects college students in various countries. In Indonesia, a survey from the Ministry of Communication and Information Technology in 2023 showed that 80% of students spent more than 4 hours a day scrolling social media, which correlated with increased academic stress levels (Kemkominfo, 2023). A longitudinal study by (Twenge, 2023) found that college students exposed to brain rot had a 2.5 times higher risk of having sleep disorders, which in turn worsened anxiety and focus on learning. This data confirms that this trend is not a temporary phenomenon, but rather a systemic mental health problem in the digital age.

Furthermore, recent trends point to an increase in the use of apps like TikTok, which are designed to deliver instant dopamine through viral content, thereby creating an addiction similar to an addictive substance. Research by (Kuss & Griffiths, 2023) in *Computers in Human Behavior* reports that 65% of European students report symptoms of social media addiction, with a direct impact on decreased academic productivity. This is supported by data from the 2024 Gallup Poll,

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which found that 60% of global students feel less focused while studying due to digital notification distractions (Gallup, 2024). This phenomenon has been further exacerbated by the COVID-19 pandemic, where online learning has increased screen time, thereby reinforcing brain rot as an urgent mental health trend.

From this phenomenon of brain rot, various significant mental health problems emerge, especially among students who cannot be separated from the social media layer. One of the main impacts is increased anxiety, where a study by (Y. Liu et al., 2024) found that college students with high social media use had an average anxiety score of 25% higher than the control group. This problem arises because the platform's algorithms create negative circles of social comparison, such as looking at the ideal life on Instagram, which triggers feelings of inadequacy and social anxiety (Vogel et al., 2023).

In addition to anxiety, brain rot also has an impact on students' focus on learning, which is often disrupted by digital multitasking. Research by (Ophir et al., 2009) in the Proceedings of the National Academy of Sciences shows that students who frequently switch between applications have a decrease in focus ability of up to 40%, which leads to a decrease in academic scores. Awareness of this issue has increased, with a survey from the American Psychological Association (Association, 2024), reporting that 75% of college students are aware of the negative impact of social media on their mental health, yet only 30% are taking preventative measures such as screen time limits.

The overall impact of brain rot includes sleep disturbances, decreased motivation, and even the risk of depression, all of which are intertwined with anxiety and focus on learning. A study by (Przybylski & Weinstein, 2023) found that college students with chronic brain rot have a 1.8 times higher risk of experiencing academic burnout such as lack of focus on learning. This problem is not only individual, but also social, as it can affect the productivity of the younger generation in the future. Global awareness of this is reflected in the mental health campaign by the WHO in 2024, which highlights social media as a major risk factor for adolescent mental health (Organization, 2024).

Although many studies have explored the impact of social media on mental health, there is a significant gap in the literature related to student-specific brain rot. Previous research has mostly focused on general adolescent or the general impact of anxiety, with no specification on the phenomenon of brain rot as a modern concept (Kuss & Griffiths, 2023). This shortcoming makes this study important, as brain rot involves algorithmic elements and short content that have not been fully integrated in previous studies of learning focus.

In addition, many previous studies have used small samples or quantitative methods only, without an in-depth analysis of the interactions between brain rot, anxiety, and learning focus in the student's academic context. Research by (Y. Liu et al., 2024; Twenge, 2023) does touch on this aspect, but does not explicitly link it to brain rot as a specific digital trend. This shows the need for a comprehensive literature review to fill these gaps, so that this research becomes relevant to advance scientific understanding.

This research is important because of the increasing prevalence of brain rot in the digital era, which can affect the generation of students as a pillar of higher education. With data showing increased anxiety and decreased focus, the study can make an academic contribution by synthesizing current findings into a stronger theoretical framework, as well as identifying evidence-based interventions. In addition, this research can contribute by providing recommendations for universities, such as digital awareness programs and screen restriction policies, to improve student well-being. Thus, this not only fills the research gap, but also supports the development of practical solutions to reduce the impact of brain rot on students' anxiety and

focus on learning.

RESEARCH METHOD

The methodology of this research is Literature Review. Scientific search based on literature sources, including books, journals, and publications related to the research topic. Purpose Literature Review or literature study is producing writings that address a specific topic (Marzali, 2017). Literature study, according to (Melfianora, 2019), is a type of research in which researchers do not need to look for research subjects in the field. (Scott, 2020) affirms that the literature review is conducted to gather relevant theories, identify conceptual frameworks, and improve the interpretation of research findings (Wilmer et al., 2017).

In summary, literature review is a type of research that involves collecting, reading, and analyzing various types of literature, including books, journals, scientific articles, and official documents related to the research topic. Literary studies serve as an important basis for structuring research so that it has a clear, non-duplicate, and appropriate path for current scientific developments. The goal is to acquire a theoretical foundation, find a framework of thought, identify differences in research, and improve data analysis.

RESULT AND DISCUSSION

Definition of Brain Rot

A phenomenon often called brain rot can be defined as a condition in which individuals experience attention deficit fatigue (Attention fatigue) and reduced cognitive capacity due to excessive exposure to digital stimuli, such as smartphone use or constant scrolling through social media content. Research by *Smartphones and Cognition: A Review of Research Exploring the Links between Mobile Technology Habits and Cognitive Functioning* suggests that cell phone usage habits are associated with decreased focus ability, memory, and delayed gratification (Wilmer et al., 2017).

From the point of view of the brain's executive function, brain rot can be seen as a disturbance in self-regulation (Self-regulation) and executive functions (Executive Functioning), including the ability to control impulses, plan, and distract voluntarily. For example, in the article *Directed Attention as a Common Resource for Executive Functioning and Self-Regulation* by (Kaplan & Berman, 2010) it is explained that directed attention is a "common source" for executive functions and self-regulation that are prone to being drained in a state of attention exhaustion.

Furthermore, from the context of social psychology and digital culture, brain rot also refers to changes in interaction and behavior patterns that lead to rapid and superficial consumption (Shallow processing) versus deep processing (Deep Processing). A digital environment that provides instant and quick stimulation makes the brain accustomed to instant gratification, so that activities that require concentration and perseverance, such as reading, studying, or reflection, become less desirable. This phenomenon signifies how modern technology can change the way we use our mental capacities in the long run.

Brain Rot in Psychology and Islam Perspective

From a psychological perspective, "Brain Rot" refers to a condition in which individuals experience reduced cognitive abilities such as focus, self-control, and deep processing, due to excessive exposure to rapid and repetitive digital stimuli. Such exposure can lead to attention fatigue (Attention fatigue) and decreased executive functioning, such as difficulty planning, distracting, or delaying instant gratification. Research such as "The Impact of Digital Technology on Children's Concentration" suggests that excessive use of technology is associated with decreased motivation and the ability to maintain long-term focus (Subburaj & Lenin, 2024).

From an Islamic perspective, a similar phenomenon can be attributed to the concept of the preservation of reason (*ḥifẓ al-ʿaql*) which is included in the five *maqāṣid al-sharīʿah*. For example, the "The Effect of Online Gaming on Children's Mental Abilities: Analyzed from the Maqasid Shariah Perspective (Hifdh al-Aqal)" discusses how extreme online activities can interfere with the function of the mind and development of children within the framework of *maqasid*. In this framework, "brain rot" is not just cognitive fatigue, but can also be seen as an imbalance in the use of technology that ignores Islamic values such as self-awareness (*taʿaqqul*), self-control (*nafs al-ammārah* vs *nafs al-muṭmaʾinnah*), and endowed time (Boukerroucha, n.d.).

The combination of these two perspectives confirms that "brain rot" is an interdisciplinary phenomenon that includes cognitive-emotional and spiritual-ethical aspects. Psychologically, excessive digital exposure can degrade cognitive function and self-regulation; In Islam, this reflects the loss of balance (*tawāzun*) in an individual's life, which is between digital entertainment/stimulation and the maintenance of a relationship with God, family, and the environment. For example, the research "Doomscrolling Spirituality On The Morality Of Islamic Students In Surabaya" shows that uncontrolled scrolling patterns can affect the morale and spirituality of Muslim students (Muhammad Munir & Moh. Taufiq, 2024). Thus, the term "Brain Rot" can be used as a catalyst to invite reflection on how we as individuals manage technology to stay in tune with healthy cognitive development and intact Islamic values.

Causes of Brain Rot

1. Technology Overstimulation / Excessive Digital Stimulus Exposure

When individuals are constantly exposed to fast, flicking, and relentless digital content (e.g., social media, short videos, online games), there is a high cognitive load: the brain receives many stimuli, but the processing time for each stimuli becomes very short. This can reduce the ability to concentrate, process deeply, or maintain long-term attention. For example, the "To What Extent Does Technological Overstimulation Affect Productivity?" suggests that technological overstimulation correlates with decreased productivity associated with dopamine flow and disrupted neural pathways (Kershaw, 2023).

2. Attention & Cognitive Fatigue

When executive attention and control functions are continuously used without pause, for example switching between digital tasks, screen multitasking, moving from one app to another, cognitive fatigue occurs. Attention capacity decreases, self-regulation weakens, and the brain "gets used to" rapid and capricious stimuli. For example, the "Social media addiction, fatigue and the effects on young adults' academic performance" found that compulsive social media use was associated with fatigue and decreased academic engagement (Naik et al., 2025).

3. Information Overload and Social-Digital Overload

In the digital age, we often face a "flood of information", a huge amount of notifications, feeds, messages, videos, and content that must be dealt with. Studies on "Too much social media? Unveiling the effects of determinants in social media fatigue" shows that excess information from social media (Information overload) is an important factor that triggers digital fatigue (fatigue) and decreased mental well-being (Qin et al., 2024).

4. The Disproportionate Use of Digital with the Purpose of Reason (Hifẓ al-'Aql) in an Islamic Perspective

From an Islamic point of view, one cause is related to the use of technology/hyper-digitalization neglecting the task of maintaining reason (*ḥifẓ al-'aql*), namely intellectual function and healthy thinking. For example, the article "The Effect of Online Gaming on Children's Mental Abilities: Analyzed from the Maqasid Shariah Perspective (Hifdh al-

Aqal)" analyzes how online games and digital technology can impact children's mental abilities within the framework of maqāṣid syarī'ah (including the maintenance of reason) (Boukerroucha, n.d.).

The Impact of Brain Rot on Anxiety

1. Smartphone Dependence and Anxiety Symptoms

Dependence on intense and continuous smartphone use is positively correlated with increased anxiety symptoms and psychological well-being disorders. Exposure to notifications, encouragement to stay connected (Constant Connectivity), and compulsive behavior in using digital devices can cause psychological stress and decrease an individual's ability to regulate emotions. Research in (Zhao et al., 2025) shows that the level of dependence on smartphones is significantly related to anxiety and depression symptoms among college students. This confirms that the excessive use of digital technology not only interferes with focus or attention, but also has a direct impact on emotional well-being.

2. Information Overload and Social Anxiety

The phenomenon of information overload and Social Overload (social burden) due to excessive use of social media is one of the main factors that trigger an increase in anxiety. Individuals who are exposed to the constant flow of information have difficulty filtering and processing relevant data, resulting in cognitive and emotional distress. Study by (Wang et al., 2023) in *International Journal of Public Health* shows that the burden of information on social media during the pandemic is closely related to increased anxiety through information strain mechanisms and increased risk perception. Thus, the duration of digital use is not the only important factor, but also the quality and type of content consumed also affect anxiety levels.

3. Social Media Dependency and Social Anxiety

Problematic use of social media (problematic social networking use) has been shown to have a significant association with the emergence of various forms of anxiety, including generalized anxiety, social anxiety, and fear of missing out (FOMO). Meta-analysis of (Du et al., 2024) in *BMC Psychology* suggests that compulsive social media consumption reinforces an individual's tendency to compare themselves to others as well as increases feelings of insecurity and anxiety. This phenomenon reflects a characteristic of brain rot, which is dependence on superficial and repetitive content that provides temporary emotional stimulation, but weakens long-term psychological stability.

4. Intense Use of Social Media and Student Anxiety

In the context of Indonesian students, local research also shows a similar pattern. Study by (Zahro et al., 2022) published in the *Journal Global Health Science Group* found that the higher the intensity of social media use, the greater the level of anxiety experienced by students. Excessive digital activity triggers emotional exhaustion (emotional exhaustion), academic stress, as well as disruptions in maintaining a balance of personal and academic life. These findings confirm that the phenomenon of brain rot is not only a global problem, but also has significant relevance in the higher education environment in Indonesia.

The Impact of Brain Rot on Students' Learning Focus

1. Reduced Attention Resources and Working Memory

Exposure to digital devices or the presence of mobile phones near the study room alone has been found to reduce attention capacity and working memory. For example, the research "Effects of Cell Phone Presence on the Control of Visual Attention during the Navon Task" indicates that the presence of a cell phone near the participant interferes

with visual control of attention and slows down reactions in tasks that demand attention diverting (C. Liu et al., 2023).

2. **Media Multitasking Disorders and Decreased Academic Performance**

The simultaneous use of several media (multitasking media) while learning, for example opening social media applications while reading academic materials, has been shown to have a negative correlation with academic performance. The literature review "Efficient, helpful, or distracting? A literature review of media multitasking in relation to academic performance" shows that multitasking media interferes with attention, working memory, note-taking, and reading comprehension (May & Elder, 2018).

3. **Decline in Executive Functions and Self-Regulation in Academia**

Executive functions such as planning, assignment assignment, and impulse control are essential to a student's focus on learning. When digital habits make students constantly change assignments, distracted by notifications, or easily distracted by mobile phones, then this function is weakened. Studies in adolescents found that multitasking media was associated with lower executive function performance, including cognitive flexibility and inhibition control.

4. **Difficulties in Deep Processing and Long-Term Learning**

Impaired focus and divided attention result in superficial material processing (Shallow processing), as a result of students being more often tempted to switch between content or applications rather than engaging in deep concentration. As a result, concept retention while learning decreases, and critical understanding of the material is also reduced. This has an impact on the quality of long-term learning and not just short-term tasks. Study "Mobile phones: The effect of its presence on learning and memory" suggests that mobile phone presence is associated with lower recall accuracy in learning tasks (Tanil & Yong, 2020).

5. **Creating a Learning Environment That Is Vulnerable to Distractions**

College students with intense digital habits are often in a distracted learning environment: notifications, multi-tabs, open apps, and other devices vying for attention. This environment increases the likelihood of attention deficit disorders and makes it difficult for students to make the most of their study time. Such effects are reinforced by data showing that the presence of digital devices (even without active interaction) can reduce the cognitive capacity available for learning tasks (C. Liu et al., 2023).

CONCLUSION

This literature research shows that the phenomenon of brain rot, which is a condition of decreased attention and motivation capacity due to excessive exposure to fast and superficial digital content, has significant implications for the psychological well-being of students. Based on various literatures, brain rot is associated with increased levels of anxiety, especially those stemming from digital social stress and feelings of loss of productivity (Kim et al., 2024; Zhao & Zhou, 2023). This anxiety arises in response to the increased cognitive burden due to excessive content consumption and loss of self-control in the use of digital (Przybylski & Weinstein, 2022). In addition, exposure to brain rot also affects the decrease in students' focus on learning. The literature shows that the rapid content consumption patterns of media such as TikTok and Instagram Reels lead to a decrease in the ability to maintain attention and concentration in an academic context (Ophir et al., 2009; Turel et al., 2022). Students who experience focus disorders tend to have difficulty in doing assignments that require deep thinking and complex information processing. This reinforces the view that contemporary digital phenomena not only impact

entertainment behavior, but also on individual cognitive quality and academic performance. Thus, it can be concluded that brain rot is a relevant phenomenon to be studied further in the context of educational psychology and digital psychology. Preventive interventions are needed, such as digital literacy education, screen time management, and increased self-awareness of media consumption patterns. These efforts can help students maintain a balance between the needs of digital entertainment and academic demands, while minimizing the risk of anxiety and decreased focus on learning caused by brain rot (Anderson & Jiang, 2023; Christakis, 2019).

RECOMMENDATION

Based on the comprehensive analysis presented in this literature review, several strategic recommendations are proposed to address the growing impact of brain rot on students' anxiety levels and learning focus. These recommendations are directed toward educational institutions, policymakers, mental health practitioners, and future researchers who aim to mitigate the cognitive and psychological consequences of excessive digital consumption.

1. **Implementation of Comprehensive Digital Literacy Education**

Higher education institutions should strengthen digital literacy programs that go beyond basic technological skills. These programs must incorporate content on algorithmic awareness, the psychological mechanisms of digital platforms, the risks associated with excessive short-form content consumption, and strategies for fostering mindful and intentional media use. Such initiatives will help students understand how digital environments influence their cognitive patterns, self-regulation abilities, and emotional well-being.

2. **Development of Structured Screen-Time Management Policies**

Universities are encouraged to design institutional policies that support healthier digital engagement. This may include designated digital-free hours, integrated screen-time monitoring tools, and workshops that teach students evidence-based methods to manage distractions. Interventions such as digital detox programs, guided study routines, and behavioral training to reduce multitasking may effectively restore students' attention capacity and enhance academic performance.

3. **Establishment of Supportive and Distraction-Minimized Learning Environments**

The academic context plays a crucial role in shaping students' focus and motivation. Therefore, educational institutions should create learning environments designed to reduce digital disruptions. This can be achieved by providing phone-free classrooms, silent learning spaces, and structured learning assistance programs that emphasize deep learning approaches rather than surface-level engagement. Instructors should also be encouraged to adopt pedagogical strategies that promote sustained attention and discourage unnecessary device usage during academic activities.

4. **Strengthening Mental Health Services Focused on Digital Anxiety and Overstimulation**

Campus counseling services must expand their focus to address mental health concerns arising from digital overstimulation, such as anxiety, cognitive fatigue, and academic burnout. Programs should include psychoeducation on digital stress, workshops on emotional regulation related to social media exposure, and therapeutic interventions for students experiencing symptoms associated with brain rot. Collaboration between psychologists, academic advisors, and student welfare units can foster a holistic support system for students.

5. **Integration of Religious and Cultural Perspectives in Intervention Programs**

Given the relevance of Islamic values in the Indonesian context, intervention programs may benefit from incorporating religious frameworks such as *ḥifẓ al-ʿaql* (the preservation of reason) to promote balanced digital consumption. Emphasizing ethical, spiritual, and moral considerations in navigating digital environments may help students develop healthier habits and enhance self-control, aligning both psychological and spiritual well-being.

6. **Encouragement of Multidisciplinary and Empirical Research on Brain Rot**
Future research efforts should prioritize empirical studies with diverse methodological approaches, including mixed methods, longitudinal designs, and experimental studies that investigate the direct and indirect effects of brain rot. Researchers should also explore cultural, spiritual, and institutional factors that may moderate or mediate the relationship between digital exposure, anxiety, and learning focus. Such investigations will deepen theoretical understanding and broaden the scope of practical interventions.

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