

Stop Scrolling: Analysis of Scrolling Addiction, Confirmation Bias, and the Moderating Role of Cognitive Flexibility

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Abstract: The individual's critical thinking ability can be hampered by various cognitive distortions, one of them is confirmation bias. This bias often exists as a result of excessive scrolling addiction. This research examines the relationship between scrolling addiction and confirmation bias, as well as to test the role of cognitive flexibility as a moderating variable in this relationship. This study employed a quantitative approach involving 154 participants. Data were analyzed using hierarchical regression analysis to examine both direct relationships and moderation effects. The findings reveal that scrolling addiction has a significant positive association with confirmation bias ($r = 0.311$). Furthermore, the moderation analysis demonstrates that cognitive flexibility significantly influences the strength of the relationship between *scrolling addiction* and confirmation bias, as indicated by a higher R-squared value from 0.097 to 0.268. These findings suggest that cognitive flexibility plays a moderating role in the relationship between *scrolling addiction* and confirmation bias.

Keywords: *confirmation bias, cognitive flexibility, and scrolling addiction*

Abstrak: Kemampuan berpikir kritis individu dapat terhambat oleh berbagai distorsi kognitif, salah satunya adalah bias konfirmasi. Bias ini kerap muncul sebagai dampak dari kebiasaan melakukan aktivitas menggulir media sosial secara berlebihan (*scrolling addiction*). Penelitian ini bertujuan menganalisis keterkaitan antara *scrolling addiction* dan bias konfirmasi, dengan fleksibilitas kognitif diuji sebagai variabel moderator. Pendekatan kuantitatif digunakan dalam penelitian ini dengan jumlah partisipan sebanyak 154 orang. Data dianalisis melalui analisis regresi berjenjang guna menguji hubungan langsung dan peran moderasi. Hasil analisis menunjukkan bahwa *scrolling addiction* berhubungan positif dengan bias konfirmasi secara signifikan ($r = 0,311$). Lebih lanjut, hasil analisis regresi moderasi menunjukkan bahwa fleksibilitas kognitif secara signifikan mempengaruhi kekuatan hubungan antara *scrolling addiction* dan bias konfirmasi, yang tercermin dari meningkatnya nilai *R square* dari 0,097 menjadi 0,268. Temuan ini mengindikasikan bahwa fleksibilitas kognitif berperan dalam memoderasi hubungan antara *scrolling addiction* dan bias konfirmasi.

Kata Kunci: *bias konfirmasi, scrolling addiction, dan fleksibilitas kognitif*

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Introduction

Changes in the way individuals interact and obtain information are strongly influenced by the presence of social media. Through social media, individuals can connect with various global events very quickly and easily (Imran, 2020). In this era, the use of social media can no longer be separated from people's daily routines. However, a lack of wisdom in using social media can trigger various negative impacts that are often unnoticed by users, ranging from cybercrime, hate speech, and the risk of

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personal data leaks to the spread of hoaxes (false information) (Paramitha *et al.*, 2023).

Humans tend to be easily influenced by rumors, opinions, and various information they receive. This condition reflects that humans are cognitive beings (Kappeler & Silk, 2010). Humans are capable of storing a large amount of information; however, the brain's capacity to process all incoming information remains limited (Azzahra *et al.*, 2022).

The abundance of social media content and the various information contained within it has the potential to hinder an individual's cognitive control, causing psychological tension and fatigue (Shi *et al.*, 2020), thereby making it difficult for individuals to examine information optimally (Gunaratne *et al.*, 2021). As a consequence, individuals become more likely to accept information from social media without critically evaluating it beforehand, as they assume that the information is already correct (Parra-Medina & Álvarez-Cervera, 2021). This situation can subsequently trigger confirmation bias (Johnson *et al.*, 2020).

Confirmation bias refers to an individual's tendency to remember, interpret, seek, and reinforce information that is consistent with previously held beliefs (Modgil *et al.*, 2024). Confirmation bias involves the tendency to consider an idea from only one perspective, focus on a single possibility, and underestimate other alternatives, which can ultimately encourage belief polarization (Kassin *et al.*, 2013).

Confirmation bias (particularly in the context of social media) occurs due to the implementation of algorithm-based systems that work by displaying content aligned with users' preferences. These systems work by monitoring and analyzing user activities, such as what users frequently search for, like, or share, resulting in repeated exposure to information that is consistent with users' views (Bessi, 2016).

Confirmation bias has negative impacts, namely encouraging individuals to unconsciously continue seeking information that reinforces their views (Kassin *et al.*, 2013), assigning greater weight to information that is consistent with their beliefs, while simultaneously disregarding or rejecting contradictory information (Modgil *et al.*, 2024). Socially, confirmation bias can lead to broader consequences, such as divisions in viewpoints and the formation of inaccurate public perceptions and opinions (Shin & Thorson, 2017). This bias can also strengthen beliefs that are not supported by facts, which will influence the way individuals make decisions.

A study entitled *The Spreading of Misinformation Online* explains that confirmation bias can have negative consequences in the form of limitations in individuals' ways of thinking, thereby increasing the potential for the spread of hoaxes (Naja & Kholifah, 2020). This finding is reinforced by the results of a survey conducted by the Indonesian Telematics Society (Mastel) (2019), which showed that hoaxes are often spread due to a lack of critical thinking skills and insufficient evaluation of information before sharing it. The survey also identified several factors that trigger the spread of hoaxes, namely information originating from trusted individuals (63.3% of 941 participants), the use of convincing statements (24.6%), being influenced by political choices (8.5%), and being carried away by hate speech (3.6%). Of these figures, 12.1% of participants were influenced by opinion steering.

Research has revealed that social media plays a significant role in shaping beliefs and influencing individuals' decision-making processes (Wolff & Buciuman, 2025). In this context, the use of social media has the potential to place individuals in a filter bubble, namely an algorithm specifically designed to adjust content according to users' preference tendencies (Wulandari *et al.*, 2021). Its purpose is to encourage users to continuously seek and access information according to their preferences, thereby strengthening their views of that information. As a result, individuals are encouraged to continuously engage in scrolling through various social media content. This condition can ultimately foster dependence, in which individuals continuously engage in scrolling and potentially develop an addiction to this activity, known as scrolling addiction.

According to a survey in a study conducted by Villacorta (2020), 96.8% of participants reported feeling unable to disengage from scrolling on social media. In addition, 77.4% of participants continuously engaged in scrolling without realizing it, and 74.2% of participants reported feeling “trapped” in watching videos or clips that were actually unimportant. Subsequently, a study conducted by Saputra (2019), showed that only approximately 17% of participants implemented time management when using social media. Meanwhile, the majority of participants (83%) engaged in social media scrolling freely without paying attention to the time. It was recorded that most participants spent between 1 and 3 hours each day engaging in social media scrolling (39.39%), followed by those who did so for 4 to 6 hours per day (32.32%). Meanwhile, 20.20% of participants engaged in this activity for 7 to 12 hours, while the remaining 4.04% spent more than 12 hours per day scrolling.

In the context of social media scrolling addiction, algorithms that adjust content according to individual preferences also contribute to reinforcing confirmation bias. Social media users tend to interact more frequently within groups that share similar views, thereby increasing the likelihood of confirmation bias. This can lead to polarization, the spread of misinformation, and misunderstandings of actual reality (Sugiono, 2021). Social media users are more vulnerable to biased and unbalanced information, which can weaken their capacity to process and critically evaluate information.

This phenomenon of confirmation bias can be regarded as a consequence of scrolling addiction. This condition is associated with the high and excessive frequency of individuals' social media access, which causes individuals to be continuously exposed to similar information. Under such conditions, individuals' ability to filter and critically evaluate information becomes reduced.

On the other hand, cognitive flexibility refers to an individual's capacity to consider various different perspectives, including conflicting ones, regarding an event or object. This ability plays an important role in helping individuals respond to complex and diverse information in a more adaptive and open manner (Kazu & Pullu, 2023). Individuals who demonstrate good cognitive flexibility tend to have a greater ability to filter, evaluate, and respond to information on social media more wisely (Ritter *et al.*, 2014).

Research on cognitive flexibility has shown that individuals with high levels of cognitive flexibility generally demonstrate cognitive aspects of thinking, such as the ability to generate ideas flexibly and fluently, the ability to think originally (Wu & Koutstaal, 2020), as well as the ability to develop and elaborate an idea as part of an effort to solve problems (Santosa & Setyawan, 2014), accompanied by an awareness of the various options available in each situation (Kazu & Pullu, 2023). Cognitive flexibility also plays a role in enhancing focus and insight. In this context, cognitive flexibility becomes an important variable that can influence the dynamics of the relationship between scrolling addiction and confirmation bias.

Social media, through personalization algorithms, can systematically reinforce biases in individuals (Alsaad *et al.*, 2018). Several studies have also indicated an association between confirmation bias and social media use (Ghani & Rahmat, 2023; Modgil *et al.*, 2024; Tiainen, 2023; Workman, 2018). Therefore, this study focuses on examining the relationship between confirmation bias and scrolling behavior in the context of social media use.

In addition, findings from previous studies indicate that individuals with high cognitive flexibility are better able to adapt to new information and demonstrate openness to various views and perspectives (Ionescu, 2012) which ultimately enhances individuals' ability to control confirmation bias (Sassenberg *et al.*, 2022) as a negative consequence of scrolling addiction. Previous research has also revealed that cognitive flexibility can reduce confirmation bias (Romero-Ferreiro *et al.*, 2022; Sassenberg *et al.*, 2022). Confirmation bias can be minimized through cognitive flexibility (Sassenberg *et al.*, 2022) and optimal metacognitive abilities (Rollwage & Fleming, 2021). Cognitive flexibility as a moderator has also been examined by Tanhan, et al. (2024) who showed that cognitive flexibility has a moderating effect on the relationship between social media addiction and phubbing.

Therefore, this study enriches previous research by positioning cognitive flexibility as a moderator that explains the relationship between scrolling addiction and confirmation bias. Understanding the relationship among these three variables can not only enrich the field of cognitive psychology but also provide a conceptual foundation for the development of services focused on psychological well-being in the digital era. In the practice of guidance and counseling, knowledge of the tendency toward confirmation bias and the role of cognitive flexibility can help counselors design assistance strategies that encourage individuals to evaluate information more objectively, remain open to various perspectives, and use social media more wisely.

Methodology

Research Design

This study employed a quantitative non-experimental approach with a correlational design. This method focuses on objective measurement through statistical analysis or the collection of numerical data. This approach focuses on collecting statistical data by examining the relationships between the variables under investigation in order to provide details about a particular phenomenon (Boucaud, 2017).

Research Participants

This study involved participants who were university students residing at the Student Islamic Boarding School of Universitas Islam Sultan Agung (Pesanmasa). The selection of these participants was based on the results of a preliminary survey indicating that students at Pesanmasa were actively engaged in social media use and showed a tendency to believe information that was consistent with their personal views. This condition made this group relevant for further investigation in the context of confirmation bias.

Sampling was conducted using a cluster random sampling technique based on faculty divisions as the cluster units. All faculties with students residing at the Student Islamic Boarding School of Universitas Islam Sultan Agung had an equal opportunity to be selected as the research cluster. The lottery results determined the Faculty of Pharmacy as the sample cluster targeted for data collection. This study obtained official permission from the Faculty of Psychology, Universitas Islam Sultan Agung, which was subsequently submitted to the Pesanmasa coordinator as the institution where the research was conducted.

A total of 154 participants were involved in this study. Of the total participants, 4.5% were male ($n = 7$) and 95.5% were female ($n = 147$), with ages ranging from 16 to 23 years, with a mean age of 18.1 years ($SD = 0.715$). Participants aged 18 years constituted the largest age group, consisting of 107 participants (69.5%), followed by those aged 19 years, consisting of 26 participants (16.9%), those aged 17 years, consisting of 17 participants (11.0%), and those aged 20 years, consisting of 2 participants (1.3%), while 1 participant each (0.6%) was aged 16 and 23 years.

Data Collection Procedure

Data were collected using three types of instruments: the Confirmation Bias Scale, the Scrolling Addiction Scale, and the Indonesian version of the Cognitive Flexibility Inventory. The Confirmation Bias Scale and the Scrolling Addiction Scale were developed by the researchers based on the theoretical foundations of their respective constructs, while cognitive flexibility was measured using the Cognitive Flexibility Inventory (Dennis & Wal, 2010) Indonesian version, adapted by Rahayu, Aprodita, and Rasyida (2022).

The Confirmation Bias Scale was developed based on the five aspects of confirmation bias proposed by Gertner et al. (2016), namely Wason selection, information search decision making, defocused images, evaluation/weighting of evidence, and evaluation/weighting of questions. Following

the development of the items, the scale first underwent an expert judgment process conducted by an expert competent in the field of psychology, namely a lecturer who is also a psychologist, to assess the suitability of each item with the construct and theoretical components to be investigated. In addition, a readability test was conducted with several psychology students to ensure that the wording of each item was easy to understand and did not cause ambiguity for respondents. The scale was developed with a total of 30 statement items, consisting of 15 favorable and 15 unfavorable statements. An example of a favorable item is, "I am accustomed to considering information from various perspectives before drawing a conclusion," while an example of an unfavorable item is, "I believe that my initial opinion is usually stronger than information or evidence that emerges later." All items used a four-point Likert scale: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). For favorable items, scores ranged from 4 (SS) to 1 (STS), while scores for unfavorable items were reverse-scored. Following the instrument trial, 21 items had a discrimination coefficient ≥ 0.25 , indicating that these items had high discriminatory power. Meanwhile, the remaining 9 items did not reach this threshold and were therefore considered to have low discriminatory power and were ultimately eliminated. After the removal of items with low discriminatory power, the scale reliability increased from $\alpha = 0.774$ to $\alpha = 0.834$. Thus, the scale used in this study consisted of 21 items with a hypothetical score range of 21–84, in which higher scores indicated higher levels of confirmation bias.

The Scrolling Addiction Scale was developed based on the six components of addictive behavior proposed by Andreassen (2012), namely salience, mood modification, tolerance, withdrawal, conflict, and relapse. Before being used, this scale also underwent an expert judgment process conducted by an expert competent in the field of psychology, namely a lecturer who is also a psychologist, as well as a readability test involving several psychology students to ensure the clarity of the wording of each item. The initial scale consisted of 36 items, comprising 18 favorable and 18 unfavorable items. An example of a favorable item is, "I tend to spend more time scrolling through social media than engaging in other activities," while an example of an unfavorable item is, "I do not think it is necessary to spend more time scrolling through social media to feel satisfied." All items used a four-point Likert scale: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). For favorable items, scores ranged from 4 (SS) to 1 (STS), while scores for unfavorable items were reverse-scored. Based on the results of the instrument trial, 14 items had a discrimination coefficient ≥ 0.25 and were therefore retained, while 22 items were eliminated. After the removal of items with low discriminatory power, the scale reliability increased from $\alpha = 0.683$ to $\alpha = 0.814$. Thus, the scale used in this study consisted of 14 items with a hypothetical score range of 14–56, in which higher scores indicated a higher tendency toward scrolling addiction.

Cognitive Flexibility Inventory (CFI) is a measurement instrument developed in the form of a self-report by Dennis and Wal (2010). This instrument consists of 20 statement items that have been shown to be valid, with good reliability (Cronbach's alpha = 0.81). The scale was subsequently adapted into Indonesian by Rahayu, Aprodita, and Rasyida (2022), with a reliability result of 0.836. To evaluate the psychometric quality of the instrument, testing was conducted using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to ensure model fit and assess whether the instrument met the criteria for good fit or acceptable fit. Model fit was evaluated based on several indices, including CFI (Comparative Fit Index), RMSEA (Root Mean Square Error of Approximation), SRMR (Standardized Root Mean Square Residual), and GFI (Goodness of Fit Index). The analysis results indicated that five items were identified as problematic and were therefore eliminated from the scale. Thus, the final Indonesian version of the CFI consisted of 15 items and demonstrated acceptable model fit, with CFI = 0.928, RMSEA = 0.071, SRMR = 0.057, and GFI = 0.927.

Data Analysis

Data analysis aimed to examine the relationship between scrolling addiction and confirmation bias, as well as the moderating role of cognitive flexibility. The direct relationship and moderation effect

were tested using moderation regression analysis with a hierarchical regression approach (Widhiarso, 2010). Prior to the main analysis, basic assumptions were tested, namely normality, linearity, and multicollinearity. All data analyses were conducted using SPSS Statistics version 24.

Results

This study involved a total of 154 participants, consisting of 7 males and 147 females, with ages ranging from 16 to 23 years. The social media platform most frequently accessed by the participants was TikTok, used by 113 participants, followed by Instagram, used by 91 participants. Other platforms that were also frequently used included X (18 participants), WhatsApp (8 participants), Facebook (3 participants), Google Book and Google Scholar (3 participants each), and Telegram (1 participant).

Table 1. Descriptive Statistics

Variable	Mean	SD	1	2	3
1. Confirmation Bias	47,31	5,670	—		
2. Scrolling Addiction	33,31	4,050	0,311***	—	
3. Cognitive Flexibility	70,23	12,880	-0,478***	-0,392***	—

****p*-value < 0,001

Based on the data description, scrolling addiction had a significant positive relationship with confirmation bias ($r = 0.311$; $p < 0.001$), indicating that individuals with higher levels of scrolling addiction tended to show greater tendencies toward confirmation bias. In addition, cognitive flexibility had a significant negative relationship with both scrolling addiction ($r = -0.392$; $p < 0.01$) and confirmation bias ($r = -0.478$; $p < 0.01$), indicating that individuals with higher cognitive flexibility tended to have lower levels of scrolling addiction and confirmation bias.

Table 2. Score Categorization

Confirmation Bias Score			Scrolling Addiction Score			Cognitive Flexibility Score			Category
Score Range	n	%	Score Range	n	%	Score Range	n	%	
68,25 < x	0	0,00%	40,5 < x	3	1,95%	82.5 < x	29	18,83%	Very High
57,75 < x ≤ 68,25	1	0,65%	33.5 < x ≤ 40,5	70	45,45%	67.5 < x ≤ 82.5	52	33,77%	High
47,25 < x ≤ 57,75	89	57,79%	26.5 < x ≤ 33.5	74	48,05%	52.5 < x ≤ 67.5	64	41,56%	Moderate
36,75 < x ≤ 47,25	56	36,36%	19.5 < x ≤ 26.5	7	4,55%	37.5 < x ≤ 52.5	9	5,84%	Low
x ≤ 36,75	8	5,19%	x ≤ 19.5	0	0,00%	x ≤ 37.5	0	0,00%	Very Low

Referring to Table 2, it can be seen that there were no participants in the very high category for the confirmation bias variable. A total of 1 participant (0.65%) was classified in the high category, 89 participants (57.79%) were in the moderate category, 56 participants (36.36%) were in the low category, and 8 participants (5.19%) were classified in the very low category. Furthermore, for the scrolling addiction variable, 3 participants (1.95%) were in the very high category, 70 participants (45.45%) were in the high category, 74 participants (48.05%) were in the moderate category, 7 participants (4.55%) were classified in the low category, and no participants were in the very low category. Meanwhile, for the cognitive flexibility variable, 29 participants (18.83%) were in the very high category, 52 participants (33.77%) were in the high category, 64 participants (41.56%) were classified in the moderate category, 9 participants (5.84%) were in the low category, and no participants were classified in the very low category.

Before proceeding to the data analysis stage, a series of assumption tests were conducted, including tests of normality, linearity, and multicollinearity.

Assumption Testing

A series of assumption tests were conducted before proceeding to the data analysis stage. The assumption tests included normality, linearity, and multicollinearity tests. Data normality was tested using the One-Sample Kolmogorov–Smirnov Test, and the results showed a residual significance value of 0.200 ($p > 0.05$), indicating that the residual data were normally distributed. The linearity test indicated that there were significant linear relationships between the research variables. First, the relationship between scrolling addiction as the independent variable and confirmation bias as the dependent variable yielded a deviation from linearity significance value of 0.312. Second, the relationship between cognitive flexibility as the moderator variable and confirmation bias as the dependent variable showed a deviation from linearity value of 0.091. Both values were above 0.05, indicating a linear relationship pattern. In the multicollinearity test, the tolerance value was 0.847 ($0.847 > 0.1$) and the Variance Inflation Factor (VIF) value was 1.181 ($1.181 < 10$). Thus, it can be concluded that the analysis model did not indicate multicollinearity among the independent variables.

Hypothesis Testing

Hierarchical regression analysis was used to test the research hypotheses by entering the predictor, moderator, and interaction variables sequentially, following the regression analysis procedure with a moderator variable proposed by Widhiarso (2010).

Table 3. Results of the Hierarchical Regression Model Analysis

Model	Predictor	R	R ²	Adjusted R ²	Std. Error	F	p
1	Scrolling Addiction	0,311	0,097	0,091	5,407	16,260	0,000
2	Cognitive Flexibility	0.496	0,246	0,236	4,955	29,985	0,000
3	Scrolling * Flexibility	0,518	0,268	0,253	4,899	4,453	0,037

Based on the regression analysis results for Model 1, scrolling addiction was found to have a significant relationship with confirmation bias ($R = 0.311$; $R^2 = 0.097$; $F(1,152) = 16.260$; $p < 0.001$). The R^2 value of 0.097 indicates that scrolling addiction was able to explain 9.7% of the variance in confirmation bias. This finding indicates that the higher the level of scrolling addiction, the greater the tendency for individuals to experience confirmation bias. Therefore, the first hypothesis was accepted.

In Model 2, cognitive flexibility was entered together with scrolling addiction as a predictor. The analysis results showed a significant increase in the coefficient of determination ($R = 0.496$; $R^2 = 0.246$; $F(1,151) = 29.985$; $p < 0.001$). This model was able to explain 24.6% of the variance in confirmation bias.

In Model 3, the interaction variable between scrolling addiction and cognitive flexibility was entered into the regression model. The analysis results showed that the addition of the interaction variable produced a significant increase in the coefficient of determination ($R = 0.518$; $R^2 = 0.268$; $F(1,150) = 4.453$; $p = 0.037$). The total R^2 value of 0.268 indicates an increase in the proportion of variance explained by the model from 9.7% to 26.8%. This finding indicates that cognitive flexibility plays a significant role as a moderator in the relationship between scrolling addiction and confirmation bias.

Discussion

Confirmation bias is described as an individual's tendency to focus on, interpret, and reinforce information that is consistent with their existing beliefs. This causes individuals to tend to verify their own views and disregard contradictory information, resulting in an increasingly polarized perspective toward an issue or event. This bias occurs when a person encounters data or facts that reinforce an attitude or belief that has already been established (Modgil *et al.*, 2024).

Confirmation bias causes individuals to tend to evaluate an idea unilaterally by considering only one possibility, which can subsequently reinforce the polarization of views (Kassin *et al.*, 2013). This

condition also hinders individuals' ability to engage in critical thinking processes (Schwind & Buder, 2012).

Several experts have linked confirmation bias to social media use, as these platforms have the potential to reinforce biases held by their users. Social media plays an important role in influencing personalized algorithms, thereby trapping users within a particular cycle of content consistently and potentially fostering bias (Alsaad *et al.*, 2018).

Social media platforms use algorithms to tailor content to users' interests and preferences, leading users to believe that the information they receive has indeed been specifically tailored to them. This condition encourages users to become increasingly interested in and continuously explore the available content (Wulandari *et al.*, 2021). If this continues over time, it can reinforce intensive social media use habits and potentially develop into scrolling addiction.

Individuals experiencing scrolling addiction are more likely to become trapped in confirmation bias because they frequently encounter content that aligns with their existing views. This reinforces those beliefs and leads to the disregard of contradictory information, thereby exacerbating confirmation bias.

In this regard, cognitive flexibility plays a crucial role in moderating the relationship between scrolling addiction and confirmation bias. Cognitive flexibility itself refers to an individual's ability to simultaneously consider and respond to various conflicting perspectives on an event (Kazu & Pullu, 2023). The way individuals process information and make decisions is strongly influenced by cognitive flexibility, particularly when they are in an environment characterized by an abundance of information stimuli, such as social media (Setyawan, 2020).

This study aimed to examine the relationship between scrolling addiction and confirmation bias, as well as to investigate the role of cognitive flexibility as a moderator in this relationship. The first hypothesis proposed that scrolling addiction would be positively associated with confirmation bias, such that higher levels of scrolling addiction would be associated with a greater tendency for individuals to experience confirmation bias.

Based on the analysis results, the first hypothesis was supported, indicating a positive and significant relationship between scrolling addiction and confirmation bias. This finding is consistent with the study by Ghani and Rahmat (2023) which showed that social media plays a dominant role in the formation of confirmation bias. The widespread use of social media makes it one of the primary sources contributing to the formation of this bias. The intensity of social media scrolling is associated with increased content curation by algorithms, which has the potential to reinforce individuals' exposure to confirmation bias.

The analysis of the role of cognitive flexibility as a moderator showed that this variable effectively functions as a moderator in the relationship between scrolling addiction and confirmation bias. This was evident from the increase in the R square value after cognitive flexibility was included in the analysis model. In addition, the correlation test results indicated that cognitive flexibility had an inverse relationship with both scrolling addiction and confirmation bias. This finding further confirms that the level of cognitive flexibility differentiates the tendency toward confirmation bias, with individuals with low cognitive flexibility showing higher confirmation bias than individuals with high cognitive flexibility, even at high levels of scrolling addiction.

The findings of this study are consistent with the study by Ardi and Pradiri (2021) which showed that confirmation bias can be minimized through flexible thinking abilities and an open attitude. Krems (1995) also stated that low cognitive flexibility increases the likelihood of experiencing confirmation bias, making it important to maintain optimal cognitive flexibility as an effort to reduce bias.

These results underscore the importance of flexible thinking and the ability to avoid becoming trapped in personal views, considering that the tendency to uncritically accept assumptions can be minimized through reflective and flexible thinking.

Conclusion

Based on the overall analysis results, this study shows that there is a positive relationship between scrolling addiction and confirmation bias, indicating that the higher the level of scrolling addiction, the greater the tendency for individuals to experience confirmation bias. Through moderation analysis, it was found that cognitive flexibility functions as a variable that influences the strength of this relationship. These findings provide practical implications that efforts to reduce the tendency toward confirmation bias among social media users should not only focus on controlling excessive scrolling behavior but also on developing cognitive flexibility. Psychoeducational programs, critical thinking training, and interventions aimed at enhancing individuals' ability to consider multiple perspectives may serve as strategies for minimizing the negative impacts of social media use.

This study has limitations in terms of the scope of participants, who were drawn from a single sample group, and therefore the findings should be interpreted with caution. In addition, the use of a correlational research design does not allow conclusions to be drawn regarding causal relationships between the variables. Therefore, future research is recommended to involve participants with more diverse characteristics and to employ longitudinal or experimental designs to obtain a more comprehensive understanding of the relationship between scrolling addiction, cognitive flexibility, and confirmation bias.

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