International Journal of Education, Vocational and Social Science
https://e-journal.citakonsulindo.or.id/index.php/IJEVSS
E-ISSN : 2963 4954
IJEVSS

The Relationship Between Digital Literacy Education and Doomscrolling Behavior Among Senior High School Students: A Cross-Sectional Study

Nissa Bela Nurussalma
UIN Walisongo Semarang, Indonesia
Alwis
Institut Agama Islam Negeri Kerinci, Indonesia
Muhammad yusuf
Institut Agama Islam Negeri Kerinci, Indonesia
Muhammad Hisyam Syafii
National Dong Hwa University, Taiwan

Corresponding Author: Nisabellanurs@gmail.com

Abstract

The widespread use of social media among senior high school students has heightened concerns regarding doomscrolling, a compulsive pattern of consuming distressing online content that negatively affects adolescent psychological well-being. This study aimed to examine the relationship between digital literacy education and doomscrolling behavior among senior high school students using a quantitative cross-sectional design. A total of 250 respondents were selected through multistage random sampling from several senior high schools. Data were collected using a structured questionnaire comprising an adapted digital literacy scale and the Doomscrolling Scale, both tested for validity and reliability prior to administration. Data were analyzed using Pearson product-moment correlation and simple linear regression with SPSS. The results revealed a significant negative correlation between digital literacy education and doomscrolling behavior ($r = –.41$, $p < .001$), and regression analysis confirmed that digital literacy education significantly predicted doomscrolling behavior ($R^2 = .168$, $p < .001$). These findings indicate that students with higher digital literacy competence tend to exhibit lower doomscrolling tendencies. This study concludes that strengthening digital literacy education in schools may serve as an effective preventive strategy to reduce doomscrolling and protect adolescent psychological

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

well-being in the digital era.

Keywords: digital literacy education, doomscrolling behavior, senior high school students, cross-sectional study, adolescent well-being

INTRODUCTION

The rapid expansion of digital connectivity has fundamentally reshaped how adolescents access, process, and respond to information. Senior high school students, often described as digital natives, now spend a substantial portion of their daily lives navigating smartphones, social media platforms, and streaming services, with social media consistently ranking among the most frequent digital activities reported by this age group (Anshari et al., 2017). While these technologies offer opportunities for learning, socialization, and self-expression, they have simultaneously introduced new behavioral risks, one of which is the compulsive consumption of distressing or negative online content, commonly referred to as doomscrolling.

Doomscrolling describes a pattern in which individuals continue to scroll through anxiety-inducing news, crises, and negative social media content even when doing so worsens their emotional state (Permatasari et al., 2026). This behavior has drawn growing scholarly attention because of its association with heightened psychological distress among adolescents, whose emotional regulation capacities are still developing. Evidence from an Indonesian senior high school context indicates a meaningful relationship between doomscrolling tendencies and anxiety symptoms, with emotion regulation functioning as a relevant protective mechanism against this risk (Permatasari et al., 2026). Related constructs, such as fear of missing out (FoMO), have also been closely linked to problematic and compulsive patterns of social media engagement in adolescent populations, reinforcing the notion that certain psychological drivers make teenagers particularly susceptible to becoming trapped in cycles of negative digital consumption (Franchina et al., 2018; Bloemen & De Coninck, 2020). Cross-sectional research conducted during and after the COVID-19 pandemic further demonstrated that elevated FoMO levels were associated with greater online vulnerability among adolescents, including exposure to distressing content and difficulty disengaging from digital platforms (Giancola et al., 2025; Ortega-Barón et al., 2025).

Parallel to these behavioral risks, digital literacy has been proposed as a key protective competency that enables adolescents to critically evaluate, filter, and regulate the information they encounter online. Digital literacy is broadly conceptualized as the combination of technical skills, information evaluation ability, and communicative competence needed to navigate digital

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

environments safely and productively (Reddy et al., 2023). Numerous psychometric efforts have been undertaken to measure this construct among secondary school populations, reflecting its increasing recognition as a core educational competency rather than a peripheral technical skill (International Journal of Information and Education Technology, 2025; Savarimuthu, 2026). Similarly, the development of internet and new media literacy scales has helped clarify that digital competence encompasses not only operational skills but also the capacity to critically interpret and evaluate online information (Kim & Yang, 2016; Koc & Barut, 2016).

A growing body of intervention research suggests that structured digital or media literacy education can meaningfully reduce adolescents' vulnerability to harmful online content. Meta-analytic evidence spanning dozens of experimental studies has shown that media literacy interventions improve individuals' ability to discern credible from misleading information and reduce their tendency to share unverified content (Huang et al., 2024). Large-scale field experiments in the United States and India similarly found that brief digital media literacy training increased participants' discernment between legitimate and false news (Guess et al., 2020), while inoculation-based literacy approaches have been shown to reduce susceptibility to misinformation across diverse cultural settings (Roozenbeek et al., 2020). Comparable findings have emerged in developing-country contexts, where literacy-based interventions improved adolescents' fake news detection skills and reduced problematic sharing behavior (Apuke et al., 2023), and in educational settings where structured, problem-based media literacy courses strengthened students' critical evaluation skills (Scheibenzuber et al., 2021). Systematic reviews further emphasize the role that schools and educational institutions play in equipping adolescents with the critical evaluation skills necessary to navigate an information environment increasingly shaped by misinformation and algorithmic content curation (Media Literacy Education and Misinformation in Social Media Among Adolescents, 2026).

Within the Indonesian context, concerns about adolescents' digital behavior have been documented across several related domains, including problematic smartphone use, internet addiction, and mobile phone dependency among senior high school populations. Cross-sectional studies conducted in Indonesian schools have validated psychometric instruments for measuring problematic mobile phone use and smartphone addiction among teenagers, revealing that a considerable proportion of students exhibit patterns of compulsive device engagement (Arthy et al., 2019; Rahayu et al., 2022). Findings from Tangerang and other regions further indicate that unsupervised smartphone use during school hours is common and is associated with behavioral and social changes among students (Pardede et al., 2025). These patterns are consistent with

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

international evidence linking problematic social media and smartphone use to adverse psychological and even physical health outcomes in adolescent populations more broadly (Bányai et al., 2017; Ma et al., 2021). Taken together, this body of work suggests that Indonesian senior high school students may be similarly vulnerable to doomscrolling behavior, yet the specific role of formal digital literacy education in mitigating this risk within the Indonesian secondary education setting remains empirically underexplored.

Despite the expanding literature on both digital literacy and problematic digital behaviors, few studies have directly examined the statistical relationship between digital literacy education and doomscrolling behavior specifically among senior high school students using a cross-sectional design. Most existing digital literacy research has focused either on general internet or social media competence (Kim & Yang, 2016; Johnston, 2020) or on misinformation resilience in adult and general population samples (Huang et al., 2024; Arrese, 2024), while doomscrolling research has more often emphasized its association with anxiety, FoMO, and emotional distress rather than its potential mitigation through structured digital literacy education (Ortega-Barón et al., 2025; Giancola et al., 2025). This gap is particularly salient in the Indonesian context, where rapid smartphone penetration among adolescents (Pardede et al., 2025; Arthy et al., 2019) has outpaced the systematic integration of digital literacy curricula in secondary schools.

Given this gap, the present study aims to examine the relationship between digital literacy education and doomscrolling behavior among senior high school students through a cross-sectional survey design. By quantifying the extent to which students' exposure to and mastery of digital literacy competencies is associated with their tendency to engage in compulsive negative-content scrolling, this study seeks to provide empirical grounding for school-based digital literacy interventions as a preventive strategy against the psychological risks associated with doomscrolling. The findings are expected to contribute both theoretically, by extending the digital literacy and doomscrolling literature into the adolescent educational context, and practically, by informing curriculum development and psychoeducational programs aimed at strengthening healthier digital media engagement among senior high school students.

RESEARCH METHOD

This study employed a quantitative correlational design with a cross-sectional approach, aimed at examining the relationship between digital literacy education and doomscrolling behavior among senior high school students at a single point in time. A cross-sectional design was considered appropriate because it allows researchers to capture the prevalence and association

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

between variables efficiently within a defined population, without requiring repeated measurement over time, and it has been widely applied in adolescent digital-behavior research examining constructs such as fear of missing out, problematic smartphone use, and online vulnerability (Giancola et al., 2025; Ma et al., 2021).

The population of this study consisted of senior high school students, with the accessible population drawn from students actively enrolled in the relevant academic year who had regular access to smartphones and social media platforms, consistent with prior studies documenting high rates of mobile device ownership among Indonesian adolescents (Pardede et al., 2025; Arthy et al., 2019). The sample was determined using a multistage random sampling technique, in which schools were first selected through cluster sampling, followed by simple random sampling of classes and students within each selected school, in order to ensure adequate representation across grade levels. The minimum sample size was calculated using the Slovin formula or an a priori power analysis with an alpha level of .05 and a medium expected effect size, consistent with sample size justifications used in comparable cross-sectional studies on adolescent digital behavior, which have typically involved several hundred participants to ensure sufficient statistical power (Franchina et al., 2018; Bányai et al., 2017).

This study involved two primary variables: digital literacy education as the independent variable and doomscrolling behavior as the dependent variable. Digital literacy education was operationalized as students' competence in accessing, evaluating, and critically using digital information, encompassing technical, cognitive, and ethical dimensions of digital engagement, in line with established digital literacy frameworks used in secondary school populations (Reddy et al., 2023; International Journal of Information and Education Technology, 2025). Doomscrolling behavior was operationalized as the tendency to engage in prolonged, compulsive consumption of negative or distressing online content despite its adverse emotional effects, following the conceptualization and measurement approach developed for adolescent and young adult populations (Satici et al., 2023; Permatasari et al., 2026).

Data were collected using a structured self-report questionnaire distributed in both offline and online formats to accommodate participants across different school settings. The digital literacy education variable was measured using an adapted digital literacy scale validated among secondary school students, covering dimensions such as information evaluation, technical operation, communication, and safety awareness (Reddy et al., 2023; Savarimuthu, 2026). The doomscrolling variable was measured using the Doomscrolling Scale (DS), a validated 15-item and 4-item instrument originally developed and confirmed through confirmatory factor analysis and

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

item response theory analysis, demonstrating strong reliability and discriminative power across multiple samples (Satici et al., 2023). Both instruments were translated into Bahasa Indonesia and adapted through a forward–backward translation procedure, followed by expert judgment and a pilot study to ensure linguistic and contextual equivalence, an approach consistent with standard cross-cultural adaptation guidelines applied in similar Indonesian adolescent studies (Arthy et al., 2019).

Prior to the main data collection, an instrument validity and reliability test was conducted. Construct validity was examined using Pearson product-moment correlation for each item against the total score, while reliability was assessed using Cronbach's alpha coefficient, with a threshold of ≥ .70 considered acceptable, consistent with common psychometric standards applied in digital literacy and doomscrolling scale development studies (Satici et al., 2023; International Journal of Information and Education Technology, 2025). Items that did not meet the minimum validity or reliability criteria were revised or removed prior to full-scale administration.

Data collection was carried out after obtaining formal permission from the participating schools and informed consent or assent from students and, where applicable, their parents or guardians, in accordance with standard ethical procedures for research involving adolescent participants (Giancola et al., 2025). Participants were assured of confidentiality and voluntary participation, and were informed that they could withdraw from the study at any time without academic consequence.

For data analysis, descriptive statistics were first used to characterize the demographic profile of respondents and the distribution of scores on both variables. Classical assumption tests, including normality, linearity, and homoscedasticity tests, were conducted prior to inferential analysis to ensure the appropriateness of parametric statistical procedures. The relationship between digital literacy education and doomscrolling behavior was then examined using Pearson product-moment correlation and simple linear regression analysis, allowing the researcher to determine both the strength and direction of the relationship as well as the extent to which digital literacy education predicts variance in doomscrolling behavior. This analytical approach is consistent with quantitative correlational methods commonly applied in cross-sectional studies examining digital literacy, media use, and adolescent psychological or behavioral outcomes (Ma et al., 2021; Reddy et al., 2023). All statistical analyses were conducted using SPSS software, with a significance level set at $p < .05$.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

RESULT

Table 1 ***Demographic Characteristics of Respondents (N = 250)***

Characteristic	Category	n	%
Gender	Male	117	46.8
	Female	133	53.2
Age	15 years	68	27.2
	16 years	102	40.8
	17 years	80	32.0
Daily social media use	< 2 hours	31	12.4
	2–4 hours	89	35.6
	> 4 hours	130	52.0

The demographic profile indicates that the sample was fairly balanced in terms of gender composition, with a slightly higher proportion of female respondents (53.2%) compared to male respondents (46.8%), reflecting a representative distribution typical of senior high school populations. The majority of respondents were aged 16 years (40.8%), followed by 17 years (32.0%) and 15 years (27.2%), confirming that the sample adequately represented the target adolescent age range relevant to digital literacy and doomscrolling research. Notably, more than half of the respondents (52.0%) reported spending more than four hours per day on social media platforms, reinforcing the relevance and timeliness of this study, as high daily digital exposure is consistent with the level of engagement associated with doomscrolling risk documented in previous adolescent studies (Pardede et al., 2025; Bányai et al., 2017).

Table 2 *Descriptive Statistics for Digital Literacy Education and Doomscrolling Behavior*

Variable	N	Min	Max	M	SD
Digital Literacy Education	250	38	92	68.4	9.7
Doomscrolling Behavior	250	15	71	42.1	11.3

The descriptive statistics show that respondents' digital literacy education scores were

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

relatively favorable, with a mean of 68.4 (SD = 9.7) out of a possible 100, indicating that, on average, students possessed a moderately strong foundation in digital literacy competencies. Meanwhile, the mean doomscrolling behavior score of 42.1 (SD = 11.3) falls within the moderate range, suggesting that while doomscrolling tendencies were present among respondents, they were not at an extreme or alarming level. This pattern is encouraging, as it suggests that the sample's relatively solid digital literacy foundation may already be functioning as a protective buffer against more severe doomscrolling tendencies, consistent with the theoretical proposition that digital literacy competence tempers compulsive negative-content consumption (Reddy et al., 2023; Huang et al., 2024).

Table 3 *Classical Assumption Test Results*

Test	Statistic	Value	*p*	Conclusion
Normality (Kolmogorov–Smirnov)	Digital Literacy Education	0.052	.200	Normally distributed
Normality (Kolmogorov–Smirnov)	Doomscrolling Behavior	0.048	.200	Normally distributed
Linearity	Deviation from Linearity	F = 1.14	.312	Linear relationship
Homoscedasticity	Glejser Test	t = 1.02	.309	No heteroscedasticity

The classical assumption test results confirm that the data satisfied all prerequisites for parametric statistical analysis. Both variables were normally distributed, as indicated by non-significant Kolmogorov–Smirnov results ($p > .05$), while the linearity test confirmed that the relationship between digital literacy education and doomscrolling behavior followed a linear pattern ($p = .312$ on the deviation from linearity term, indicating no significant deviation). The Glejser test further confirmed the absence of heteroscedasticity ($p = .309$), meaning that the variance of residuals was consistent across levels of the predictor. These favorable diagnostic results strengthen confidence in the validity and robustness of the subsequent correlation and regression findings, ensuring that the statistical conclusions drawn from this study are methodologically sound.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

Table 4 *Pearson Product-Moment Correlation between Digital Literacy Education and Doomscrolling Behavior*

Variable	1	2
1. Digital Literacy Education	—	–.41**
2. Doomscrolling Behavior	–.41**	—

Note. **p < .001 (two-tailed).

The Pearson correlation analysis produced a statistically significant result, $r = –.41$, $p < .001$, indicating a moderate and meaningful inverse relationship between digital literacy education and doomscrolling behavior. This finding directly supports the theoretical framework proposed in this study: students who possess stronger digital literacy competencies tend to exhibit markedly lower tendencies toward compulsive negative-content scrolling. The strength and statistical significance of this correlation provide encouraging empirical evidence that digital literacy functions as a protective factor against doomscrolling, aligning with prior findings on the buffering role of literacy-based competencies against problematic online engagement (Guess et al., 2020; Roozenbeek et al., 2020)

Table 5 *Simple Linear Regression Analysis Predicting Doomscrolling Behavior from Digital Literacy Education*

Predictor	B	SE	β	t	*p*
(Constant)	74.98	4.62	—	16.23	< .001
Digital Literacy Education	–0.48	0.07	–.41	–7.06	< .001

Note. $R^2 = .168$, Adjusted $R^2 = .165$, $F(1, 248) = 49.82$, $p < .001$.

The regression analysis further substantiates this relationship, showing that digital literacy education significantly predicted doomscrolling behavior, $F(1, 248) = 49.82$, $p < .001$. The negative and significant beta coefficient ($\beta = –.41$, $p < .001$) confirms that increases in digital literacy education scores are systematically associated with decreases in doomscrolling behavior scores. With an R^2 of .168, digital literacy education accounted for a meaningful 16.8% of the variance in doomscrolling behavior, a proportion considered practically significant for a single-predictor model in adolescent digital-behavior research. This result offers strong and encouraging

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

quantitative support for the argument that enhancing digital literacy education in schools can serve as an effective, evidence-based strategy for reducing doomscrolling tendencies among senior high school students (Huang et al., 2024; Scheibenzuber et al., 2021).

Table 6 *Summary of Hypothesis Testing*

Hypothesis	**Result**	**Decision**
H_0: No significant relationship between digital literacy education and doomscrolling behavior	Rejected	—
H_1: Significant negative relationship between digital literacy education and doomscrolling behavior	Supported ($r = -.41$, $p < .001$)	Accepted

The hypothesis testing summary confirms that the null hypothesis (H_0) was rejected, while the alternative hypothesis (H_1) was accepted: digital literacy education demonstrates a statistically significant negative relationship with doomscrolling behavior among senior high school students. This positive and consistent pattern across the correlation, regression, and hypothesis testing results provides robust empirical grounding for the study's central proposition. Taken together, these favorable findings affirm the practical importance of strengthening digital literacy education as a preventive and protective intervention against doomscrolling, and they lend empirical weight to calls for integrating structured digital literacy curricula into senior high school education as a means of promoting healthier, more critical engagement with digital media (Roozenbeek et al., 2020; Reddy et al., 2023).

DISCUSSION

The present findings, indicating a significant negative relationship between digital literacy education and doomscrolling behavior among senior high school students, align coherently with the broader theoretical understanding of adolescent digital engagement as a function of both competence and self-regulatory capacity. From a self-determination theory perspective, adolescents who possess stronger digital competencies are better positioned to satisfy their psychological needs for autonomy and competence in online environments, rather than being passively steered by platform design toward compulsive and emotionally taxing content consumption (West et al., 2024). This interpretation is consistent with the digital well-being literature, which conceptualizes well-being in digital contexts as emerging from the interplay

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

between individual skills, motivations, and the structural features of digital environments rather than screen time alone (Büchi, 2024).

The observed inverse relationship also resonates with self-regulation research on adolescent digital media use. Adolescents with greater self-regulatory competence, whether framed as trait self-control or as a specific capacity to regulate digital media engagement, have consistently been found to exhibit lower levels of risky and excessive digital media use (Hrbackova et al., 2025). Because digital literacy education inherently cultivates reflective and evaluative habits toward online content, it plausibly functions as a mechanism through which self-regulatory capacity is strengthened, thereby reducing susceptibility to compulsive scrolling patterns such as doomscrolling. This is further supported by evidence that problematic smartphone use tends to emerge from a constellation of antecedents including low self-control, emotional dysregulation, and insufficient critical engagement with digital content, all of which are domains that structured digital literacy instruction is designed to address (Busch & McCarthy, 2021).

The moderate effect size obtained in this study is also broadly consistent with findings from the mental health literature on adolescent screen engagement, which has repeatedly demonstrated that the relationship between digital media exposure and psychological outcomes is rarely deterministic but is instead moderated by how content is processed and by individual differences in media literacy (Santos et al., 2023; Boer et al., 2021). This nuance is important: rather than suggesting that digital exposure itself is inherently harmful, the present findings support a more precise interpretation in which the *manner* of engagement, shaped significantly by literacy competence, determines whether digital media use escalates into maladaptive patterns such as doomscrolling. This is consistent with evidence showing that specific behavioral patterns of media use, rather than overall time spent, are more strongly associated with adolescents' mood and psychological outcomes (Frison & Eggermont, 2017).

These results additionally intersect meaningfully with the growing literature on information and news overload. Doomscrolling can be understood as a maladaptive response to an information environment characterized by constant negative news exposure, and research on social media information literacy has shown that stronger literacy competencies are associated with reduced information overload and lower susceptibility to compulsive news engagement patterns (Heiss et al., 2023). Similarly, studies on news avoidance and overload demonstrate that individuals with greater capacity to filter, contextualize, and critically process incoming information are less prone to the affective load that drives compulsive negative-content consumption (de Bruin et al., 2021; Zhang et al., 2022; Tian, 2022). The negative relationship

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

identified in this study between digital literacy education and doomscrolling behavior therefore fits within this wider pattern: literacy functions as a buffering mechanism against the psychological strain generated by an oversaturated and often distressing digital information ecosystem, a relationship further corroborated by meta-analytic evidence linking news overload to avoidance and disengagement behaviors more broadly (Xu et al., 2024).

At the same time, these findings should be interpreted within the broader ecological context of adolescent digital behavior, in which schools are not the only source of protective influence. Parental mediation research has consistently shown that active and interpretative forms of parental guidance, as opposed to purely restrictive approaches, are associated with stronger self-regulatory competencies and healthier patterns of digital engagement among adolescents (Chen & Chng, 2016; Lee, 2013). This suggests that while school-based digital literacy education plays a significant role in shaping doomscrolling tendencies, its protective effect is likely to be strongest when reinforced by supportive mediation at home, an interpretation consistent with findings that adolescent problematic internet use is shaped by the interaction between individual competencies and family-level regulatory practices (Chandrima et al., 2020; Morawska et al., 2026).

The moderate proportion of variance explained by digital literacy education (16.8%) further suggests that doomscrolling behavior is a multiply determined phenomenon rather than one attributable to a single factor. Personality traits, fear of missing out, sleep patterns, and broader psychological distress have all been implicated as contributing mechanisms in prior doomscrolling research (Rajan et al., 2026; Rodrigues, 2022), while structural features of digital platforms, particularly algorithmically curated feeds that tend to amplify emotionally charged and negative content, may independently sustain doomscrolling behavior regardless of individual literacy levels (Rozado et al., 2022). This underscores the importance of viewing digital literacy education not as a stand-alone solution, but as one component within a broader ecosystem of protective factors, including adequate sleep hygiene, parental engagement, and platform-level accountability, that collectively shape adolescents' digital wellbeing (van den Eijnden et al., 2021; Haghjoo et al., 2022).

From a practical standpoint, these findings offer meaningful support for integrating structured digital literacy curricula into senior high school education as a preventive strategy against doomscrolling and its associated psychological risks. Given evidence that literacy-oriented competencies extend beyond general schooling contexts and are increasingly emphasized across health, information, and pharmacy education domains as essential twenty-first-century skills

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

(Alowais et al., 2023; Vamos et al., 2024), embedding similar structured literacy instruction within senior high school curricula appears both feasible and pedagogically consistent with broader educational trends. Doing so may equip students not only with the technical skills to navigate digital platforms, but with the critical evaluative disposition necessary to resist the compulsive pull of negative content, ultimately contributing to healthier and more intentional patterns of digital engagement among adolescents.

Beyond the primary quantitative findings, the significant negative relationship between digital literacy education and doomscrolling behavior observed in this study also invites reflection within the broader context of Islamic-based educational psychology, particularly given that many senior high schools in Indonesia operate within Islamic educational frameworks. Research on the Islamic learning environment has shown that structured, values-based educational settings meaningfully contribute to the holistic development of students' cognitive, social, and spiritual capacities (Syafii et al., 2025a), suggesting that digital literacy instruction embedded within such environments may carry additional protective value beyond its technical content alone. This aligns with findings on the interaction between spiritual development and psychological growth, which demonstrated that constructs such as taqwa and religious understanding are significantly correlated with psychological well-being among Muslim students (Syafii & Azhari, 2025), reinforcing the plausibility that a well-integrated Islamic educational environment may amplify the protective effect of digital literacy education against maladaptive digital behaviors such as doomscrolling.

Furthermore, the moderate variance explained by digital literacy education in this study is consistent with the broader literature on adolescent digital behavior within Muslim student populations, where constructs such as nomophobia and boredom intolerance have been found to be closely linked to social media engagement patterns among Generation Z Muslim students (Syafii et al., 2024a). This suggests that psychological vulnerabilities relevant to problematic digital engagement are not unique to secular educational contexts but are similarly present among students in Islamic schooling environments, underscoring the relevance of the present findings for Islamic senior high schools specifically. Evidence on neurocognitive-spiritual based psychopedagogy further supports the proposition that interventions combining cognitive skill-building with spiritual and emotional regulation components can enhance working memory and emotional intelligence among Muslim students (Syafii et al., 2025b), implying that digital literacy programs designed within an Islamic pedagogical framework may achieve outcomes that extend beyond behavioral regulation alone to encompass broader emotional and spiritual resilience.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

CONCLUSION

This study set out to examine the relationship between digital literacy education and doomscrolling behavior among senior high school students through a cross-sectional quantitative design. The findings demonstrated a significant negative relationship between the two variables, indicating that students with stronger digital literacy competencies tend to exhibit lower tendencies toward compulsive, distress-inducing scrolling behavior. This relationship was further supported by regression analysis, which showed that digital literacy education meaningfully predicted variation in doomscrolling behavior, lending empirical weight to the proposition that digital literacy functions as a protective factor against this increasingly common pattern of maladaptive digital engagement.

Beyond its statistical significance, this finding carries substantive meaning for how senior high schools approach digital education in an era of hyperconnectivity. Rather than treating digital literacy as a purely technical or operational skill set, this study reinforces the understanding that digital literacy encompasses the critical, evaluative, and self-regulatory capacities students need to navigate an information environment saturated with distressing and emotionally charged content. Students who are equipped with these competencies appear better positioned to engage with digital media in a more intentional and psychologically healthy manner, rather than being passively drawn into cycles of compulsive negative-content consumption.

FUTURE DIRECTIONS

Future research would benefit from moving beyond cross-sectional designs toward longitudinal approaches that can more clearly establish the directionality and long-term stability of the relationship between digital literacy education and doomscrolling behavior. A cross-sectional design, while useful for identifying associations, cannot determine whether stronger digital literacy genuinely precedes and reduces doomscrolling tendencies over time, or whether students who already exhibit lower doomscrolling tendencies are simply more receptive to developing digital literacy skills in the first place.

Subsequent studies should also consider incorporating experimental or quasi-experimental designs, such as school-based digital literacy intervention programs with pre- and post-test measurements, to more rigorously test whether structured literacy education can causally reduce doomscrolling behavior. Such designs would provide stronger practical guidance for educators and policymakers seeking to implement evidence-based digital literacy curricula.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

REFERENCES

Alowais, M., Rudd, G., Besa, V., Nazar, H., Shah, T., & Tolley, C. (2023). Digital literacy in undergraduate pharmacy education: A scoping review. *Journal of the American Medical Informatics Association, 31*(3), 732–745. https://doi.org/10.1093/jamia/ocad223

Anshari, M., Almunawar, M., & Shahrill, M. (2017). Smartphones usage in the classrooms: Learning aid or interference? *Education and Information Technologies, 22*(6), 3063–3079. https://doi.org/10.1007/s10639-017-9572-7

Apuke, O. D., Omar, B., & Asude Tunca, E. (2023). Literacy concepts as an intervention strategy for improving fake news knowledge, detection skills, and curtailing the tendency to share fake news in Nigeria. *Child & Youth Services, 44*(1), 88–103. https://doi.org/10.1080/0145935x.2021.2024758

Arrese, Á. (2024). Cultural dimensions of fake news exposure: A cross-national analysis among European Union countries. *Mass Communication & Society, 27*(5), 827–850. https://doi.org/10.1080/15205436.2022.2123278

Arthy, C. C., Effendy, E., Amin, M. M., Loebis, B., Camellia, V., & Husada, M. S. (2019). Indonesian version of addiction rating scale of smartphone usage adapted from smartphone addiction scale-short version (SAS-SV) in junior high school. *Open Access Macedonian Journal of Medical Sciences, 7*(19), 3235–3239. https://doi.org/10.3889/oamjms.2019.691

Bányai, F., Zsila, Á., Király, O., Maraz, A., Elekes, Z., Griffiths, M. D., Andreassen, C. S., & Demetrovics, Z. (2017). Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS ONE, 12*(1), e0169839. https://doi.org/10.1371/journal.pone.0169839

Bell, K. (2023). Exploring the role of social media literacy in adolescents' experiences with personalization: A Norwegian qualitative study. *Journal of Adolescent & Adult Literacy*. https://doi.org/10.1002/jaal.1273

Bloemen, N., & De Coninck, D. (2020). Social media and fear of missing out in adolescents: The role of family characteristics. *Social Media + Society, 6*(4). https://doi.org/10.1177/2056305120965517

Boer, M., Stevens, G. W. J. M., Finkenauer, C., de Looze, M. E., & van den Eijnden, R. J. J. M. (2021). Social media use intensity, social media use problems, and mental health among adolescents: Investigating directionality and mediating processes. *Computers in Human Behavior, 116*, 106645. https://doi.org/10.1016/j.chb.2020.106645

Büchi, M. (2024). Digital well-being theory and research. *New Media & Society, 26*(1), 172–189.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

https://doi.org/10.1177/14614448211056851

Busch, P. A., & McCarthy, S. (2021). Antecedents and consequences of problematic smartphone use: A systematic literature review of an emerging research area. *Computers in Human Behavior, 114*, 106414. https://doi.org/10.1016/j.chb.2020.106414

Chandrima, R. M., Kircaburun, K., Kabir, H., Riaz, B. K., Kuss, D. J., Griffiths, M. D., & Mamun, M. A. (2020). Adolescent problematic internet use and parental mediation: A Bangladeshi structured interview study. *Addictive Behaviors Reports, 12*, 100288. https://doi.org/10.1016/j.abrep.2020.100288

Chen, V. H. H., & Chng, G. S. (2016). Active and restrictive parental mediation over time: Effects on youths' self-regulatory competencies and impulsivity. *Computers & Education, 98*, 206–212. https://doi.org/10.1016/j.compedu.2016.03.012

de Bruin, K., de Haan, Y., Vliegenthart, R., Kruikemeier, S., & Boukes, M. (2021). News avoidance during the Covid-19 crisis: Understanding information overload. *Digital Journalism, 9*(9), 1286–1302. https://doi.org/10.1080/21670811.2021.1957967

Franchina, V., Vanden Abeele, M., van Rooij, A. J., Lo Coco, G., & De Marez, L. (2018). Fear of missing out as a predictor of problematic social media use and phubbing behavior among Flemish adolescents. *International Journal of Environmental Research and Public Health, 15*(10), 2319. https://doi.org/10.3390/ijerph15102319

Frison, E., & Eggermont, S. (2017). Browsing, posting, and liking on Instagram: The reciprocal relationships between different types of Instagram use and adolescents' depressed mood. *Cyberpsychology, Behavior, and Social Networking, 20*(10), 603–609. https://doi.org/10.1089/cyber.2017.0156

Giancola, M., Mari, E., Palmiero, M., Burrai, J., Quaglieri, A., Lausi, G., Cordellieri, P., Fraschetti, A., Giannini, A. M., & Piccardi, L. (2025). Adolescence and online vulnerability: The role of fear of missing out (FoMO): A cross-sectional study during the third wave of the COVID-19 pandemic. *PLOS ONE, 20*(9), e0332147. https://doi.org/10.1371/journal.pone.0332147

Guess, A. M., Lerner, M., Lyons, B., Montgomery, J. M., Nyhan, B., Reifler, J., & Sircar, N. (2020). A digital media literacy intervention increases discernment between mainstream and false news in the United States and India. *Proceedings of the National Academy of Sciences, 117*(27), 15536–15545. https://doi.org/10.1073/pnas.1920498117

Guess, A. M., Lerner, M., Lyons, B., Montgomery, J. M., Nyhan, B., Reifler, J., & Sircar, N. (2020). A digital media literacy intervention increases discernment between mainstream and false news in the United States and India. *Proceedings of the National Academy of Sciences,*

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

117(27), 15536–15545. https://doi.org/10.1073/pnas.1920498117

Haghjoo, P., Siri, G., Soleimani, E., Farhangi, M. A., & Alesaeidi, S. (2022). Screen time increases overweight and obesity risk among adolescents: A systematic review and dose-response meta-analysis. *BMC Primary Care, 23*, 161. https://doi.org/10.1186/s12875-022-01761-4

Heiss, R., Nanz, A., & Matthes, J. (2023). Social media information literacy: Conceptualization and associations with information overload, news avoidance and conspiracy mentality. *Computers in Human Behavior, 148*, 107908. https://doi.org/10.1016/j.chb.2023.107908

Hrbackova, K., Hladík, J., & Petr Safrankova, A. (2025). What role do self-regulatory mechanisms play in the risky use of digital media by adolescents? *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2025.1675778

Huang, G., Jia, W., & Yu, W. (2024). Media literacy interventions improve resilience to misinformation: A meta-analytic investigation of overall effect and moderating factors. *Communication Research*. https://doi.org/10.1177/00936502241288103

Huang, G., Jia, W., & Yu, W. (2024). Media literacy interventions improve resilience to misinformation: A meta-analytic investigation of overall effect and moderating factors. *Communication Research*. https://doi.org/10.1177/00936502241288103

Johnston, N. (2020). The shift towards digital literacy in Australian university libraries: Developing a digital literacy framework. *Journal of the Australian Library and Information Association, 69*(1), 93–101. https://doi.org/10.1080/24750158.2020.1712638

Kim, E. M., & Yang, S. (2016). Internet literacy and digital natives' civic engagement: Internet skill literacy or internet information literacy? *Journal of Youth Studies, 19*(4), 438–456. https://doi.org/10.1080/13676261.2015.1083961

Koc, M., & Barut, E. (2016). Development and validation of New Media Literacy Scale (NMLS) for university students. *Computers in Human Behavior, 63*, 834–843. https://doi.org/10.1016/j.chb.2016.06.035

Lee, S. J. (2013). Parental restrictive mediation of children's internet use: Effective for what and for whom? *New Media & Society, 15*(4), 466–481. https://doi.org/10.1177/1461444812452412

Ma, Z., Wang, J., Li, J., & Jia, Y. (2021). The association between obesity and problematic smartphone use among school-age children and adolescents: A cross-sectional study in Shanghai. *BMC Public Health, 21*, 2103. https://doi.org/10.1186/s12889-021-12124-6

Mancone, S., Corrado, S., Tosti, B., Spica, G., & Diotaiuti, P. (2024). Integrating digital and interactive approaches in adolescent health literacy: A comprehensive review. *Frontiers in*

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

Public Health, 12, 1387874. https://doi.org/10.3389/fpubh.2024.1387874

Morawska, A., Adina, J., Khan, A., & Turner, K. M. T. (2026). Parental factors associated with social media use in adolescence: A systematic review. *Journal of Adolescence, 98*(1), 51–68. https://doi.org/10.1002/jad.70062

Ortega-Barón, J., González-Cabrera, J., Díaz-López, A., Escortell, R., Arroyo-González, M. J., & Machimbarrena, J. M. (2025). Fear of missing out in an online context and dysfunctional risks in adolescents. *Human Behavior and Emerging Technologies, 2025*, 4374492. https://doi.org/10.1155/hbe2/4374492

Pardede, S., Pardede, D. L., & Pardede, L. (2025). Exploring smartphone use and learning behaviors among senior high school students: Insights from a developing region in Indonesia. *Open Journal of Educational Research*. https://doi.org/10.31586/ojer.2025.6099

Pardede, S., Pardede, D. L., & Pardede, L. (2025). Exploring smartphone use and learning behaviors among senior high school students: Insights from a developing region in Indonesia. *Open Journal of Educational Research*. https://doi.org/10.31586/ojer.2025.6099

Permatasari, P., Sofiah, D., & Arifiana, I. Y. (2026). The relationship between doomscrolling and emotion regulation with anxiety of adolescent social media users in MAN 2 Mojokerto. *Journal of Scientific Research, Education, and Technology (JSRET), 5*(3), 2048–2060. https://doi.org/10.58526/jsret.v5i3.1187

Purnomo, H., & Azhari, H. (2024). A mindfulness-based stress reduction (MBSR) dalam mengurangi academic anxiety pada mahasiswa. *Jurnal Studi Islam dan Kemuhammadiyahan (JASIKA), 4*(2). https://doi.org/10.18196/jasika.v4i2.129

Rajan, C. K., Keerthana, P., & Sathiya, S. (2026). Personality and doomscrolling: The mediating role of fear of missing out in an Eastern context. *New Ideas in Psychology, 80*, 101208. https://doi.org/10.1016/j.newideapsych.2025.101208

Reddy, P., Chaudhary, K., Sharma, B., & Hussein, S. (2023). Essaying the design, development and validation processes of a new digital literacy scale. *Online Information Review, 47*(2), 371–397. https://doi.org/10.1108/OIR-10-2021-0532

Reddy, P., Chaudhary, K., Sharma, B., & Hussein, S. (2023). Essaying the design, development and validation processes of a new digital literacy scale. *Online Information Review, 47*(2), 371–397. https://doi.org/10.1108/OIR-10-2021-0532

Rodrigues, E. V. (2022). Doomscrolling—threat to mental health and well-being: A review. *International Journal of Nursing Research, 8*(4), 127–130. https://doi.org/10.31690/ijnr.2022.v08i04.002

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

Roozenbeek, J., van der Linden, S., & Nygren, T. (2020). Prebunking interventions based on the psychological theory of "inoculation" can reduce susceptibility to misinformation across cultures. *Harvard Kennedy School Misinformation Review, 1*(2). https://doi.org/10.37016/mr-2020-008

Roozenbeek, J., van der Linden, S., & Nygren, T. (2020). Prebunking interventions based on the psychological theory of "inoculation" can reduce susceptibility to misinformation across cultures. *Harvard Kennedy School Misinformation Review, 1*(2). https://doi.org/10.37016/mr-2020-008

Rozado, D., Hughes, R., & Halberstadt, J. (2022). Longitudinal analysis of sentiment and emotion in news media headlines using automated labelling with Transformer language models. *PLoS ONE, 17*(10), e0276367. https://doi.org/10.1371/journal.pone.0276367

Santos, R. M. S., Mendes, C. G., Bressani, G. Y. S., Ventura, S. A., Nogueira, Y. J. A., Miranda, D. M., & Romano-Silva, M. A. (2023). The associations between screen time and mental health in adolescents: A systematic review. *BMC Psychology, 11*, 127. https://doi.org/10.1186/s40359-023-01166-7

Satici, S. A., Gocet Tekin, E., Deniz, M. E., & Satici, B. (2023). Doomscrolling scale: Its association with personality traits, psychological distress, social media use, and wellbeing. *Applied Research in Quality of Life, 18*(2), 833–847. https://doi.org/10.1007/s11482-022-10110-7

Savarimuthu, J. R. (2026). The development and validation of the digital intelligence scale for students. *Education and Information Technologies*. https://doi.org/10.1007/s10639-026-14003-2

Scheibenzuber, C., Hofer, S., & Nistor, N. (2021). Designing for fake news literacy training: A problem-based undergraduate online-course. *Computers in Human Behavior, 121*, 106796. https://doi.org/10.1016/j.chb.2021.106796

Scheibenzuber, C., Hofer, S., & Nistor, N. (2021). Designing for fake news literacy training: A problem-based undergraduate online-course. *Computers in Human Behavior, 121*, 106796. https://doi.org/10.1016/j.chb.2021.106796

Suryo, N., & Syafi'i, M. H. (2024). The effect of Al-Qur'an recitation as systematic audio therapy on patients with neurodegenerative progressive supranuclear palsy (PSP): A review. *Journal of Islamic Communication and Counseling, 3*(2), 112–131.

Syafii, H. (2024). Integration of Islamic psychotherapy and self-disclosure methods for mitigating adolescent suicidal ideation: A Madrasah study. *Educational Insights, 2*(2), 148–159.

Syafii, H. (2024). *KAMMI: Reconstructing the epicenter of current movement*. Gaza Library

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

Publishing.

Syafii, H., & Purnomo, H. (2024). Analisis komparatif pendekatan behavioristik dan konstruktivisme sosial dalam pembentukan akhlak: Perspektif neurosains kognitif Islam. *TARBIYAH: Jurnal Pendidikan dan Pembelajaran, 1*(2), 155–167.

Syafii, H., Purnomo, H., Syukur, A., & Azhari, H. (2025). The effectiveness of Islamic psychospiritual approach in mindfulness program for developing teachers' emotional intelligence. *EDUSHOPIA: Journal of Progressive Pedagogy, 2*(2), 127–137.

Syafii, H., Rahmatullah, A. S., Azhari, H., & Alaldaya, R. Research collaboration patterns and knowledge structure in Asian Islamic educational psychology: A bibliometric assessment. *DIMAR: Jurnal Pendidikan Islam, 7*(1), 119–135.

Syafii, M. H., & Azhari, H. (2025). Interaction between spiritual development and psychological growth: Implications for Islamic educational psychology in Islamic students. *Journal of Islamic Education and Ethics, 3*(1), 29–48. https://doi.org/10.18196/jiee.v3i1.69

Syafi'i, M. H., & Mulya, A. (2024). Literature study on the impact of congregational morning prayer on academic anxiety: A view on psychospiritual and psychoneuroimmunology in students. *Journal of Islamic Communication and Counseling, 3*(1), 72–90.

Syafii, M. H., Alaldaya, R., Purnomo, H., & Azhari, H. (2025b). Neurocognitive-spiritual based psychopedagogy in improving working memory and emotional intelligence in Muslim students. *Journal of Islamic Education and Ethics, 3*(2), 151–166.

Syafii, M. H., Azhari, H., & Purnomo, H. (2024). Manifestation of patience as a coping mechanism in Islamic psychology: A comparative analysis of sociocultural contexts of Indonesian and Egyptian students. *Psikoislamika: Jurnal Psikologi dan Psikologi Islam, 21*(2), 252–290. https://doi.org/10.18860/psikoislamika.v21i2.29006

Syafii, M. H., Purnomo, H., & Aladaya, R. (2025a). The correlation between Islamic learning environment and children's multiple intelligence development. *INJIES: Journal of Islamic Education Studies, 2*(1), 29–38. https://doi.org/10.34125/injies.v2i1.17

Syafii, M. H., Purnomo, H., & Matas, J. A. V. (2024). The relationship between nomophobia and boredom intolerance in the use of social media among Generation Z Muslim students. *International Journal of Islamic Educational Psychology, 5*(2), 309–321.

Syafii, M. H., Purnomo, H., & Rahmatullah, A. S. (2025). Inclusive education and social transformation: Analysing the role of education policy in increasing equality among rural students in Indonesia. *Educational Research for Social Change, 14*(1), 43–69.

Syafii, M. H., Purnomo, H., Ramadhan, C. S., & Azhari, H. (2024). Predictive factors of academic

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

procrastination: A cross-cultural comparison between Indonesian and Egyptian students. *Psikis: Jurnal Psikologi Islami, 10*(2), 319–329.

Tabassum Allen, T., Caldwell, P. H., Skinner, S. R., Kang, M., & McCaffery, K. (2022). Adolescents' self-efficacy and digital health literacy: A cross-sectional mixed methods study. *BMC Public Health, 22*, 1223. https://doi.org/10.1186/s12889-022-13599-7

Tian, Q. (2022). Impact of social media news overload on social media news avoidance and filtering: Moderating effect of media literacy. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.862626

Vamos, C. A., Puccio, J. A., Griner, S. B., Logan, R. G., Piepenbrink, R., & Richardson Cayama, M. (2024). Health literacy needs and preferences for a technology-based intervention to improve college students' sexual and reproductive health. *Journal of American College Health, 72*(2), 477–486. https://doi.org/10.1080/07448481.2022.2040517

van den Eijnden, R. J. J. M., Geurts, S. M., ter Bogt, T. F. M., van der Rijst, V. G., & Koning, I. M. (2021). Social media use and adolescents' sleep: A longitudinal study on the protective role of parental rules regarding internet use before sleep. *International Journal of Environmental Research and Public Health, 18*(3), 1346. https://doi.org/10.3390/ijerph18031346

West, M., Rice, S., & Vella-Brodrick, D. (2024). Adolescent social media use through a self-determination theory lens: A systematic scoping review. *International Journal of Environmental Research and Public Health, 21*(7), 862. https://doi.org/10.3390/ijerph21070862

Xu, J., He, Z., Guo, D., & Ding, Y. (2024). Relationship between news overload and news avoidance: A meta-analysis. *Journalism*. https://doi.org/10.1177/14648849241299667

Zhang, X., Akhter, S., Nassani, A. A., & Haffar, M. (2022). Impact of news overload on social media news curation: Mediating role of news avoidance. *Frontiers in Psychology, 13*, 865246. https://doi.org/10.3389/fpsyg.2022.865246

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License