

The Impact of Short-Video Usage Types on Adolescents' Mental Health: The Mediating Role of Online–Offline Integration

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Received:
30/09/2025
Revised:
07/10/2025
Accepted:
22/10/2025
Published:
30/10/2025

ABSTRACT

Based on the Online–Offline Integration Hypothesis, this study examines the effects of adolescents' short-video usage types (informational vs. entertainment) on mental health (depression, anxiety, stress) and tests the mediating role of online–offline integration. A questionnaire survey of 799 middle school students revealed that informational short-video usage positively predicted online–offline integration, which in turn reduced symptoms of depression, anxiety, and stress; entertainment usage negatively predicted online–offline integration, thereby indirectly exacerbating mental health problems. Online–offline integration partially mediated the associations between both types of usage and mental health. These findings provide a novel perspective for understanding the health effects of short-video consumption and offer practical implications for guiding adolescents to balance online and offline life.

Keywords: short-video usage types; online–offline integration; mental health; adolescents; mediation effect.

INTRODUCTION:

1.1 Research Background and Problem Statement

Short videos have become a core medium in adolescents' daily media use, and the heterogeneous effects of different content types on mental health have attracted increasing scholarly attention (China Internet Network Information Center, 2024). Prior research suggests that informational short videos (e.g., educational, news) may enhance psychological adaptation through knowledge acquisition, whereas entertainment short videos (e.g., comedy, gaming) may induce negative emotions via excessive immersion (Jeong et al., 2016; Keles et al., 2020). However, these studies have yet to elucidate the underlying mechanism explaining why similar durations of short-video use can lead to divergent psychological outcomes.

Recent evidence indicates that the health effects of short-video usage depend not only on content type but also on the complexity of usage patterns. For example, Liu et al. (2024) used latent profile analysis (LPA) to classify adolescents' short-video usage into four patterns—"low use," "average use," "long duration," and "many friends." The "long duration" and "many friends" groups exhibited higher levels of depression and fear of missing out (FoMO), implying that both usage intensity (e.g., daily viewing time) and social interaction features (e.g., online friend count) may increase risk. Generational differences also play a role; studies show that Gen Z adolescents predominantly use short videos for entertainment and relaxation, and are more likely to neglect offline responsibilities due to immersive content experiences (Yu et al., 2022).

The Online–Offline Integration Hypothesis proposed by Lin et al. (2018) offers a theoretical framework for this

phenomenon. It posits that the degree to which individuals integrate their online and offline worlds—through self-identity consistency, interpersonal interconnectedness, and functional coordination—determines the health outcomes of internet use. High integration allows for the seamless incorporation of online experiences into offline life, thereby avoiding potential risks, whereas low integration leads to fragmentation and increased psychological burden. From this perspective, informational and entertainment short-video usage may influence adolescents' mental health indirectly via their impact on online–offline integration.

LITERATURE REVIEW AND HYPOTHESES

1.2.1 Short-Video Usage Types and Online–Offline Integration

Informational short videos (e.g., educational, news) often directly align with real-world needs (e.g., academic support, social awareness), fostering the transformation of online knowledge into offline competence and enhancing the coordination between online behavior and offline functions (Weiser, 2001). Wu et al. (2021) found that adolescents who actively used short videos to obtain practical information (e.g., study resources) were more likely to integrate online content into offline life, forming a positive "information transformation–real-world application" cycle.

In contrast, entertainment short videos (e.g., comedy, gaming) are more virtual in nature. Excessive use can cause conflicts between online experiences and offline responsibilities (e.g., study, in-person socializing). This usage type often features "passive browsing" (e.g., aimless scrolling, reliance on algorithmic recommendations), fostering a sense of time loss and

How to cite: Zhu Liyue and Balan Rathakrishnan. The Impact of Short-Video Usage Types on Adolescents' Mental Health: The Mediating Role of Online–Offline Integration. *Advances in Consumer Research*. 2025;2(5):727–731.

undermining self-identity and interpersonal consistency (Liu et al., 2024). Wang et al. (2021) found that individuals immersed in virtual entertainment content exhibited impaired offline social functioning and role fulfillment—paralleling the negative effect of entertainment short videos on integration.

Hypotheses:

- H1: Informational short-video usage positively predicts online–offline integration.
- H2: Entertainment short-video usage negatively predicts online–offline integration.

1.2.2 Online–Offline Integration and Mental Health

According to the Online–Offline Integration Hypothesis, high integration—via self-identity consistency, interpersonal interconnectedness, and social functional coordination—mitigates problems such as online escapism and offline role confusion, thereby reducing depression, anxiety, and stress (Lin et al., 2018). Empirical evidence links higher integration with greater life satisfaction and lower loneliness and internet addiction (Lin et al., 2018). Kelly et al. (2024) further demonstrated that fragmented online–offline lives create a “negative information loop,” wherein individuals escape offline stress through online entertainment, but the gap between virtual experiences and reality amplifies negative emotions, ultimately worsening mental health.

Hypothesis:

H3: Online–offline integration negatively predicts depression, anxiety, and stress.

1.2.3 The Mediating Role of Online–Offline Integration

Combining H1–H3, informational usage may enhance mental health by increasing integration, while entertainment usage may worsen mental health by reducing integration. The “active–passive use” distinction further explains this: informational usage is active (goal-oriented knowledge acquisition) and fosters goal alignment between online and offline activities; entertainment usage is passive (aimless browsing) and tends to produce an “online immersion–offline detachment” state.

Previous studies show that online–offline integration mediates the effects of personal traits on mental health (Lin et al., 2018) and that content valence (e.g., hedonic pleasure from entertainment) can indirectly affect offline emotional regulation via integration (Kelly et al., 2024).

Hypotheses:

- H4: Online–offline integration mediates the negative association between informational usage and depression, anxiety, and stress.
- H5: Online–offline integration mediates the positive association between entertainment usage and depression, anxiety, and stress.

METHOD

2.1 Participants

The study recruited students from a public junior high school in Xuchang City, Henan Province, China, using a combination of cluster sampling and voluntary participation. A total of 807 questionnaires were distributed, with 799 valid responses obtained, yielding a response rate of 99.01%. Among the valid sample, 421 were male (52.69%) and 378 were female (47.31%). By grade level, 407 students were in Grade 7 (50.94%) and 392 in Grade 8 (49.06%). Ages ranged from 12 to 15 years ($M = 13.09$, $SD = 0.75$). All participants provided informed consent, and teachers assisted in questionnaire completion. The study adhered strictly to ethical standards, ensuring anonymity and confidentiality of data.

2.2 Measures

2.2.1 Short-Video Usage Types Questionnaire

Based on the 2021 China Minor Internet Use Report and typical adolescent usage scenarios, a self-developed questionnaire classified short-video content into seven categories (comedy, leisure, hobbies, educational, gaming, news, variety shows). Principal component analysis extracted two dimensions:

- Informational usage (educational, hobby-related, news; $\alpha = 0.75$)
- Entertainment usage (comedy, leisure, gaming, variety shows; $\alpha = 0.68$)

Responses were rated on a 6-point scale (0 = never watch, 5 = more than 3 hours per day), with higher scores indicating higher usage frequency.

2.2.2 Online–Offline Integration Scale (OOIS)

The 15-item OOIS developed by Lin et al. (2018) was used, covering three dimensions:

- Self-identity integration (e.g., “My self-presentation online is consistent with offline,” $\alpha = 0.80$)
- Interpersonal integration (e.g., “My online friends know about my real life,” $\alpha = 0.72$)
- Social function integration (e.g., “I use short videos to support real-life study/life,” $\alpha = 0.63$)

The total scale's Cronbach's $\alpha = 0.75$. Items were rated on a 4-point scale (1 = strongly disagree, 4 = strongly agree), with higher scores indicating higher integration.

2.2.3 Mental Health Scale (DASS-12)

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The shortened Depression Anxiety Stress Scales (DASS-12) by Lee et al. (2019) was used, comprising three subscales: depression (4 items, $\alpha = 0.83$), anxiety (4 items, $\alpha = 0.78$), and stress (4 items, $\alpha = 0.81$). Items were rated on a 4-point scale (0 = never, 3 = very often), with higher scores indicating more severe symptoms.

2.3 Data Analysis

- Analyses were conducted using SPSS 27.0 and AMOS 21.0:
- Descriptive statistics and correlation analysis.
- Structural equation modeling (SEM) to test variable relationships.
- Bootstrap method (5,000 resamples) to test mediation effects.

RESULTS

3.1 Common Method Bias and Correlation Analysis

Harman's single-factor test showed that the first factor accounted for 27.3% of the variance ($< 40\%$), indicating no serious common method bias. Correlations (Table 1) indicated:

- Informational usage was positively correlated with online–offline integration ($r = 0.33$, $p < .001$) and negatively correlated with depression ($r = -0.42$), anxiety ($r = -0.43$), and stress ($r = -0.44$) (all $p < .001$).
- Entertainment usage was negatively correlated with online–offline integration ($r = -0.32$, $p < .001$) and positively correlated with depression ($r = 0.48$), anxiety ($r = 0.42$), and stress ($r = 0.50$) (all $p < .001$).
- Online–offline integration was negatively correlated with depression ($r = -0.41$), anxiety ($r = -0.37$), and stress ($r = -0.39$) (all $p < .001$).

Table 1 Descriptive Statistics and Correlation Analysis of Variables

Variable	1	2	3	4	5	6
1.Information-oriented use	1					
2.Entertainment-oriented use	-0.04	1				
3.Online and offline integration	0.33***	-0.32***	1			
Depression	-0.42***	0.48***	-0.41***	1		
Anxiety	-0.43***	0.52***	-0.37***	0.86***	1	
Stress	-0.44***	0.50***	-0.39***	0.89***	0.87***	1

3.2 Mediation Analysis

The structural equation model demonstrated a good fit ($\chi^2/df = 2.12$, GFI = 0.93, CFI = 0.95, RMSEA = 0.047). Specific path coefficients are shown in Figure 1, while Bootstrap results are presented in Table 2.

- Informational usage exerted significant indirect effects via online–offline integration on depression (-0.09 , 95% CI $[-0.12, -0.06]$), anxiety (-0.08 , 95% CI $[-0.11, -0.05]$), and stress (-0.07 , 95% CI $[-0.10, -0.04]$), accounting for 36–38% of the total effect.
- Entertainment usage exerted significant indirect effects via online–offline integration on depression (0.13 , 95% CI $[0.09, 0.17]$), anxiety (0.12 , 95% CI $[0.08, 0.16]$), and stress (0.10 , 95% CI $[0.07, 0.13]$), accounting for 41–43% of the total effect.

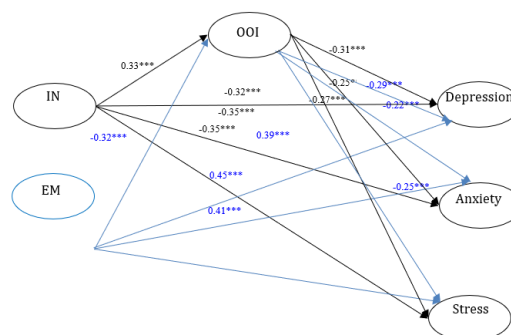


Figure 1: Mediation Model of Online-Offline Integration

Note: IN=Informational short-video usage, EM = Entertainment short-video usage, OOI=Online and offline integration. *** $p < 0.001$.

Table2 Mediation Effect Test Results for Online-Offline Integration (Bootstrap, n=5000)

Independent Variable	Dependent Variable	Indirect Effect	95% Confidence Interval	Total Effect	Mediation Effect Percentage
	Depression	-0.09	[-0.12, -0.06]	-0.24	37.5%

Information-oriented use	Anxiety	-0.08	[-0.11, -0.05]	-0.21	38.1%
	Stress	-0.07	[-0.10, -0.04]	-0.19	36.8%
Entertainment-oriented use	Depression	0.13	[0.09, 0.17]	0.31	41.9%
	Anxiety	0.12	[0.08, 0.16]	0.29	41.4%
	Stress	0.10	[0.07, 0.13]	0.24	41.7%

DISCUSSION

4.1 Relationship Between Short-Video Usage Types and Online–Offline Integration

H1 and H2 were supported. Informational usage positively predicted integration, consistent with the “real-world service” nature of informational content. Educational content supports academic tasks, and news content expands social cognition, both enhancing the coordination between online and offline functions (Weiser, 2001; Wu et al., 2021).

In contrast, entertainment usage negatively predicted integration, possibly due to its higher degree of virtuality, which may foster an “online immersion–offline avoidance” pattern (Snodgrass et al., 2011b). Liu et al. (2024) found that adolescents with high entertainment usage often replace offline social interaction with online activities, reducing interpersonal integration. Yu et al. (2022) also noted that Gen Z adolescents’ stronger sense of immersion in entertainment short videos can lead to “time loss,” further undermining social functional integration.

4.2 The Mediating Mechanism of Online–Offline Integration

H4 and H5 were validated. Online–offline integration is a key mechanism linking usage types to mental health. Informational usage promotes resilience by enhancing integration (e.g., transforming online knowledge into offline skills; Bandura, 1978), whereas entertainment usage undermines integration (e.g., substituting real-life interactions with virtual ones), increasing loneliness and stress (Lin et al., 2018).

The proportion of mediation (36–43%) suggests that integration is important but not the sole mechanism. Kelly et al.’s (2024) “negative information loop” model offers additional insight: online–offline fragmentation may lead adolescents to consume more negative content, creating a self-perpetuating cycle of worsening emotions. Self-control may also play a role; Yu et al. (2022) observed that immersion in entertainment content can weaken self-regulation, jointly influencing mental health with integration.

4.3 Practical Implications

Findings suggest practical strategies for guiding adolescents’ short-video use. For informational usage, schools can encourage the transformation of online learning into offline practice (e.g., science experiments, field research), creating a closed loop of “online acquisition–offline application” to boost integration. For entertainment usage, parents and teachers should be aware of the risks of passive browsing, using interventions such as content labeling to highlight

connections between online content and real life (Kelly et al., 2024).

Moreover, tailored interventions targeting specific integration dimensions could be developed: for adolescents with low self-identity integration, encourage authentic self-presentation in short videos (e.g., sharing daily learning rather than fabricated personas); for those with weak interpersonal integration, promote collaborative offline activities stemming from short-video interactions (Lin et al., 2018).

CONCLUSION

This study confirms that online–offline integration mediates the relationship between short-video usage types and adolescents’ mental health: informational usage enhances integration and improves psychological well-being, whereas entertainment usage reduces integration and exacerbates psychological problems. The findings offer a novel “integration mechanism” perspective on media-use effects and provide evidence-based recommendations for encouraging adolescents to consume more informational content while fostering consistency between online and offline life.

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