When Confucian Culture Meets Digital Stress: Moderators of Social Media Harm in Chinese Adolescents

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Abstract. This study examines the psychological impact of negative social media exposure on Chinese adolescents, with particular attention to the moderating roles of psychological resilience, family connectedness, and digital literacy. Grounded in Ecological Systems Theory, a cross-sectional survey was administered to 500 high school students using validated psychometric instruments to assess levels of exposure, mental health outcomes, and protective factors. The findings indicate that frequent exposure to harmful online content significantly predicted higher levels of depression and suicidal ideation, underscoring the risks posed by digital environments. Psychological resilience emerged as a significant moderator, weakening the relationship between negative exposure and psychological distress, thereby suggesting its potential as a protective resource. In contrast, family connectedness and digital literacy did not significantly buffer these effects, pointing to cultural and contextual variations in protective mechanisms. These results emphasize the need for resilience-based interventions and further culturally sensitive research on adolescent digital well-being in non-Western societies.

Keywords: social media, adolescent mental health, psychological resilience, family connectedness, digital literacy

1. Introduction

In recent years, concerns have grown over the psychological toll of social media use on adolescents, with numerous studies documenting correlations between excessive exposure and elevated risks of depression, anxiety, and suicidal ideation [1]. Despite these associations, the mechanisms remain insufficiently understood, especially the moderating factors that may buffer or intensify these effects under different conditions [2]. Adolescents respond differently to online environments, suggesting that not all exposure leads to harm [2].

Ecological Systems Theory [3] provides a useful framework for examining this interplay, hypothesizing that factors like psychological resilience [2], family connectedness [4], and digital literacy [5] play pivotal roles. However, empirical investigations into these moderators remain scarce, particularly in non-Western settings like China, where rapid digitalization intersects with distinct cultural valuess [6,7].

This study aims to address this gap by investigating how these protective factors influence the relationship between negative social media exposure and mental health outcomes (depression and

suicidal ideation) in Chinese adolescents. By focusing on moderating mechanisms, the research seeks to move beyond simple correlation models and inform targeted interventions to reduce suicide risks among vulnerable youth. While a link between social media and mental health challenges is established [2], most studies overlook the conditional nature of this relationship—when and for whom it becomes harmful. Preliminary findings suggest exposure to negative online content (e.g., cyberbullying, idealized portrayals) can exacerbate feelings of loneliness and hopelessness [2,8], but these effects are not universal [8].

To understand this variability, scholars have called for research into protective moderators. Psychological resilience may serve as an internal buffer, while family connectedness has been associated with better mental health, even amid digital stressors [9]. Digital literacy may further enable adolescents to navigate online environments safely [4,10]. Despite their theoretical relevance, these moderating variables have rarely been examined in Yet, these variables have rarely been tested together in culturally specific settings like China, where Confucian family structures and emerging digital cultures coexist [11,12]. Drawing upon Ecological Systems Theory, this study conceptualizes these moderators at both the micro (individual) and mesosystem (family, digital environment) levels to develop a more comprehensive understanding of digital risk and resilience.

2. Literature review

2.1. Negative social media exposure and adolescent mental health

Negative social media exposure refers to encounters with psychologically harmful content, such as cyberbullying, hostile comments, and content promoting self-harm. Unlike screen time, this concept emphasizes the nature and perceived threat of the content, which is a central risk factor for internalizing symptoms like depression and suicidal ideation [6]. Empirical literature confirms this link; systematic reviews show that problematic social media use is associated with depression and anxiety, and psychological autopsy studies reveal that most adolescents who died by suicide had engaged with harmful digital content shortly before their deaths. In China, exposure to negative smartphone content was also strongly associated with depressive symptoms. Despite these associations, current research is limited by its reliance on cross-sectional designs, a focus on Western contexts, and a scarcity of studies on moderating variables. This study seeks to address these gaps within the Chinese context [13].

H1. Exposure to negative social media content is positively associated with Chinese adolescent depression and suicidal ideation.

2.2. Psychological resilience as a protective moderator

Psychological resilience is an individual's capacity to adapt to adversity, acting as a crucial stress-coping mechanism during adolescence. Research has confirmed that resilience is a measurable trait associated with fewer symptoms of depression and anxiety, even in digital contexts. Scholars have called for exploring resilience as a protective factor against suicide risk linked to harmful online exposure, a topic that remains understudied. While some research in China has explored related concepts, most models treat resilience as a main-effect variable rather than a moderator of digital risks. This study tests resilience's interactive role, acknowledging that cultural scripts in China may influence how it functions [9].

H2: Psychological resilience moderates the association between negative social media exposure and Chinese adolescent mental health, such that the relationship is weaker among adolescents with

higher resilience.

2.3. Family connectedness as an environmental buffer

Family connectedness—emotional closeness, trust, and communication with caregivers—is theorized to be a relational buffer against external stressors, including digital ones. In Western settings, open family communication is linked to lower rates of depression and anxiety. However, its protective role may not be universal. In collectivist cultures like China, where filial piety and emotional restraint are valued, adolescents may hesitate to disclose online distress to parents. High family closeness could even paradoxically heighten vulnerability if it suppresses open communication about digital risks. This study empirically tests its moderating role in the Chinese context.

H3. Family connectedness moderates the association between negative social media exposure and adolescent mental health, such that the relationship is weaker among adolescents with higher family connectedness.

2.4. Digital literacy as a cognitive moderator

Digital literacy refers to the skills needed to navigate and manage digital content, serving as a protective psychological resource. While technically fluent, many adolescents lack the critical awareness to manage digital risks effectively. Research in Hong Kong found that digital literacy can have complex effects. Scholars have advocated for integrating digital literacy into frameworks for building resilience and preventing suicide, but most research is Western-based [14]. In China, factors like internet censorship and educational inequality may constrain adolescents' ability to critically assess online risks. This study addresses this gap by testing its function as a cognitive buffer in the Chinese context.

H4. Digital literacy moderates the association between negative social media exposure and adolescent mental health, such that the relationship is weaker among adolescents with higher digital literacy.

Figure 1 illustrates the study's conceptual framework.

3. Methods

3.1. Research design, participants, and sampling

This study used a cross-sectional survey design guided by Ecological Systems Theory. The participants were 500 adolescents (aged 15–18) from three public high schools in second- and third-tier cities in mainland China (Xi'an, Hefei, and Changsha). A stratified cluster sampling method was used. Ethical approval was obtained from the relevant Institutional Review Board.
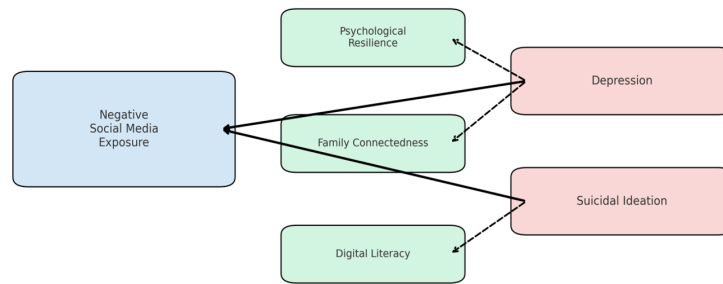
Figure 1. Conceptual framework showing the hypothesized direct and moderating relationships

3.2. Measures

Negative Social Media Exposure: A 10-item scale adapted from Nesi [6] measured the frequency of encountering harmful content (e.g., cyberbullying, exclusion). (α = .95).

Depression and Suicidal Ideation: Depression was measured with the 10-item CES-D Scale [15] (α = .85). Suicidal ideation was assessed with the 8-item SIQ short form [16](α = .88).

Psychological Resilience: Measured with the 10-item Connor-Davidson Resilience Scale (CD-RISC-10) [17] (α = .94).

Family Connectedness: Assessed with the 8-item Family Connectedness Scale [18] (α = .92).

Digital Literacy: Measured with a 10-item scale adapted from Ng [19] assessing critical evaluation and self-regulation skills (α = .94).

3.3. Data collection and analysis

Surveys were administered in schools during class time. Data were analyzed using IBM SPSS Statistics 29, employing descriptive statistics, Pearson correlations, and hierarchical multiple regression to test the four hypotheses, including interaction terms for moderation.

4. Result

Table 1. Descriptive statistics for main study variables (N = 500)

Variable	Min	Max	Mean	SD
Depression (CES-D)	16.0	26.0	23.41	1.48
Suicidal Ideation	9.0	18.0	13.43	1.66
Psychological Resilience	3.0	39.0	22.16	5.78
Family Connectedness	16.0	40.0	27.89	4.06
Digital Literacy	20.0	50.0	35.16	5.27
Negative Exposure	10.0	50.0	30.01	6.03

Descriptive statistics (Table 1) show that adolescents reported moderate levels of negative social media exposure, depression, and suicidal ideation. Pearson correlations (Table 2) revealed that negative social media exposure was significantly and positively correlated with depression (r = .34, p < .001) and suicidal ideation (r = .21, p < .001). Psychological resilience was significantly and

negatively associated with both outcomes. Family connectedness and digital literacy were not significantly correlated with depression or suicidal ideation.

Table 2. Pearson correlations among study variables

Variable	1	2	3	4	5	6
1. Depression	—	.281**	–.438**	.012	–.042	.344**
2. Suicidal Ideation	.281**	—	–.268**	–.062	.072	.212**
3. Resilience	–.438**	–.268**	—	–.025	–.016	–.405**
4. Family Connectedness	.012	–.062	–.025	—	–.075	.003
5. Digital Literacy	–.042	.072	–.016	–.075	—	–.003
6. Negative Exposure	.344**	.212**	–.405**	.003	–.003	—

Hierarchical regressions supported H1, the negative social media exposure significantly predicted higher levels of depression (β = .344, p < .001) and suicidal ideation (β = .212, p < .001). H2, revealing that psychological resilience significantly moderated the relationship between negative exposure and both depression (interaction β = –.255, p < .001) and suicidal ideation (interaction β = –.183, p < .001). This indicates that the harmful effect of negative exposure was weaker for adolescents with higher resilience.

However, H3 and H4 were not supported. The interaction terms for family connectedness (p = .872) and digital literacy (p = .253) were not statistically significant, indicating that neither factor significantly moderated the relationship between negative exposure and depression in this sample.

5. Discussion

This study examined the psychological impacts of negative social media exposure on Chinese adolescents and the moderating roles of key protective factors. Consistent with prior research, negative social media exposure was found to be significantly associated with higher levels of depression and suicidal ideation [1,4]. The most salient finding is the significant moderating role of psychological resilience. Adolescents with higher resilience were substantially buffered from the harmful mental health effects of negative online content. This reinforces the idea that resilience serves as a critical internal resource, enabling youth to cognitively and emotionally reframe digital threats. Consequently, interventions aimed at fostering resilience—such as school-based training in emotional regulation and problem-solving—may represent effective strategies to mitigate online harm [9].

Contrary to expectations, family connectedness and digital literacy did not emerge as significant moderators. A possible explanation for the non-significant role of family connectedness in the Chinese context is that adolescents may conceal digital distress from parents due to cultural norms of emotional restraint, shame, or fear of restrictions, thereby limiting the protective function of family bonds. Similarly, the operationalized dimensions of digital literacy may not have been sufficient to shield adolescents from the emotional toll of cyberbullying or social exclusion. These findings suggest that the effectiveness of protective factors is highly context-specific and shaped by cultural and social dynamics.

6. Conclusion

Overall, the findings underscore the importance of prioritizing internal coping mechanisms, particularly psychological resilience, when designing interventions to address the negative impacts of social media. While family connectedness and digital literacy remain important aspects of adolescent development, they may not always function as effective buffers against online harm in the Chinese cultural context. Instead, intervention programs should emphasize resilience-building as a more direct and impactful strategy.

This study is not without limitations. The cross-sectional design prevents causal inferences, the sample was restricted to adolescents from second- and third-tier cities, and the measure of digital literacy may not have adequately captured socio-emotional components. Future research should employ longitudinal designs, broaden the sampling scope, and develop more nuanced measures of digital literacy to capture its protective potential.

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