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Online Social Support and Life Satisfaction: Chain Mediation of Resilience and Psychological Distress in University Students with Facebook Addiction Risk

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Abstract

This study aimed to investigate (1) the mediating role of psychological distress in the association between online social support and life satisfaction and (2) the chain mediating role of resilience and psychological distress in the association between online social support and life satisfaction among university students at risk of Facebook addiction in Vietnam. 1198 university students were investigated with the psychological distress scale, resilience scale, life satisfaction scale and online social support scale. The results indicated that (1) Online social support significantly positively predicted life satisfaction; (2) psychological distress mediated the link between online social support and life satisfaction; (3) resilience and psychological distress chain mediated the association between online social support and life satisfaction. These findings contribute to our understanding of the complex interplay between online social support and the life satisfaction of university students at risk of Facebook addiction, emphasizing the potential benefits of increasing online social support to boost resilience, decrease psychological distress, and ultimately improve their life satisfaction.

Keywords Facebook addiction · Life satisfaction · Psychological distress · Online social support · Resilience

Introduction

University students represent a vulnerable population during early transitional stages of life [1]. Due to their needs for learning, entertainment, and social interaction, university students frequently engage with social networking platforms, particularly Facebook. Previous studies have identified a positive correlation between Facebook use and perceived online social support [72]. However, for some individuals, Facebook use can become compulsive

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and problematic. Facebook addiction is defined by compulsive engagement that leads to functional impairments, including psychological distress, interpersonal difficulties, and academic disruption [20]. In contrast, excessive use denotes a high frequency or duration of usage without necessarily meeting criteria for addiction [68].

In Vietnam, approximately 80.7% of students at the University of Hue exhibit signs of Facebook addiction—an incidence significantly higher than that reported in countries such as Bangladesh, India, Nigeria, and Iraq [32]. This disparity may be attributed to several factors, including Vietnam's cultural emphasis on social connectivity, the increased reliance on Facebook for online learning during the COVID-19 pandemic, and the relatively lower threshold on the Bergen Facebook Addiction Scale (≥ 12 points) employed in the study [32]. Individuals at risk of Facebook addiction are more likely to exhibit lower levels of resilience [43], greater psychological distress [9, 27, 28, 30, 54, 63] and reduced life satisfaction [8, 24, 64].

Social support refers to the resources available to an individual through interactions with other individuals, groups, or the broader community [49]. Online social support encompasses assistance provided by virtual communities on social networking platforms or other digital spaces [39]. In contrast, offline social support typically involves relationships rooted in geographic proximity or kinship [72]. Online social support transcends the spatial and temporal constraints of offline support, enabling access to a wider network of resources [21, 73]. However, online social support can also have adverse effects, including reduced self-esteem [52], increased risk of internet addiction [70], and exacerbated symptoms of depression and anxiety [51, 53]. Despite these risks, both offline and online social support, when appropriately utilized, significantly contribute to mental health by fostering resilience, enhancing life satisfaction, and reducing psychological distress.

Social Support and Mental Health (Resilience, Psychological Distress and Life Satisfaction)

Resilience is defined as an individual's capacity to adapt mentally to adversity, uncertainty, or hardship [2]. Research indicates that higher levels of social support are associated with greater psychological resilience, as observed in Chinese patient populations [71] and college students in China [41, 48] and Iran [58]. Similarly, online social support has been positively correlated with resilience in patient and resident samples [25, 72]. Social support mitigates psychological stress and promotes physical and mental well-being [50]. Factors such as positive coping strategies [41] and self-efficacy [71] further explain the relationship between social support and resilience.

Life satisfaction refers to an individual's overall evaluation of their feelings and attitudes toward life at a specific time [61]. Recent studies have demonstrated that social support is positively associated with life satisfaction [74, 75]. In online contexts, online social support has also been linked to increased life satisfaction [23, 39, 62].

Psychological distress encompasses unpleasant emotional or mental states characterized by stress, anxiety, depression, or other negative emotions [69]. Social support has been shown to reduce symptoms of psychological distress [38, 33, 55]. Likewise, online social support is negatively associated with symptoms such as depression and anxiety [72, 79]. High levels of social support may bolster self-esteem [79], enhance resilience [74], and

improve coping mechanisms [14], thereby supporting mental health in the face of stress and adversity [26, 34, 74].

Relationships Among Resilience, Psychological Distress, and Life Satisfaction

A negative correlation between resilience and psychological distress has been consistently reported in the literature, observed in patient and university student populations in China [56, 66] and Australia [7]. Resilience serves as a protective factor against mental health challenges, such as anxiety and depression [72]. Anderson and Priebe [5] suggest that external factors, including social support, enhance an individual's inherent resilience, enabling quicker recovery and effective coping with traumatic experiences or significant stressors, ultimately fostering positive mental health outcomes.

Psychological distress negatively impacts subjective well-being, encompassing stress, depression, and anxiety [18, 19]. Prolonged psychological distress increases the risk of developing mental disorders and exacerbates mental health challenges [44]. Higher levels of psychological distress are associated with lower life satisfaction among university students in China [78], India [46], Malaysia [12], and Turkey [16]. Life satisfaction is influenced by an individual's emotional state, with fewer negative emotions (e.g., happiness, hope, anger, disappointment, stress, depression, anxiety) correlating with higher life satisfaction [78].

Mediating Relationships and Study Context

Previous research has established associations between online social support and life satisfaction [23, 39, 62], online social support and resilience [25, 72], resilience and psychological distress [56, 66, 72], psychological distress and life satisfaction [12, 16, 46, 78], and online social support and psychological distress [72, 79]. These findings suggest potential mediating relationships among these variables. In Vietnam, studies have explored relationships between Facebook addiction and mental health outcomes, including loneliness, sleep quality, and depression [26, 27, 29], online social support and well-being [59] resilience and life satisfaction [34], and resilience, depression, and life satisfaction [35]. Additionally, psychological distress, resilience, and academic adjustment have been identified as mediators in the relationship between social support and life satisfaction among university students [3, 10, 15, 22, 77].

Despite these insights, no studies, globally or in Vietnam, have specifically examined the indirect relationship between online social support and life satisfaction among university students at risk of Facebook addiction. To address this gap, this study investigates, in a sample of Vietnamese university students at risk of Facebook addiction, (1) the mediating role of psychological distress in the association between online social support and life satisfaction and (2) the sequential mediating role of resilience and psychological distress in this association (see Fig. 1). Based on the literature, we propose the following hypotheses:

H1 Online social support would be positively related to life satisfaction.

H2 Psychological distress would mediate the association between online social support and life satisfaction.
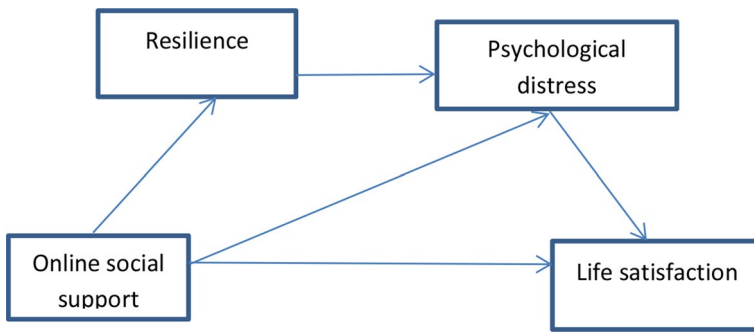
Fig. 1 Chain mediation hypothesis model path

H3 Resilience and psychological distress would chain mediate the association between online social support and life satisfaction.

Methods

Sample and Procedure

The research was approved by the Ministry of Science and Technology of Vietnam. Informed consent is obtained from participants. Data was collected in the second semester of the 2023–2024 school years through stratified sampling by school. The data collection process includes the following steps: First, the research is approved by the Ministry of Science and Technology; second, contact and online meetings with lecturers at two universities to select the sample and conduct the survey; Third, students are informed of the purpose and how to participate in the survey through lecturers. Fourth, students signed a survey consent form and completed measures of Facebook addiction, online social support, resilience, psychological distress, and life satisfaction. Finally, students received a gift worth 50,000 VND after completing the questionnaire. Criteria for selecting participants included: (i) being a university student; (ii) having a total score on the Bergen Facebook Addiction Scale of 12 points or more; (iii) being able to read and understand the contents of the questionnaire. A total of over 1600 questionnaires were distributed to participants, with 1534 questionnaires collected; however, only 1198 students met the criterion of a score of 12 or more on the Bergen Facebook Addiction Scale to participate in the study.

Instruments

The Bergen Facebook Addiction Scale (BFAS) [6] was used to recruit study participants. The scale contained five statements on the Likert 5-point scale, from 1 (very rarely) to 5 (very often). The minimum and maximum possible total scores that could be achieved were 6 and 30. In the Vietnamese context, a total score of 12 or above indicates that an individual is at risk of Facebook addiction [13]. In a sample of university students in Vietnam, this scale has very good reliability ($\alpha=0.900$) [32]. In our study, this scale had good reliability ($\alpha=0.751$).

Six items of the 2-Way Social Support Scale developed by Shakespeare-Finch and Obst [65] and revised by Lee et al., [47] were used to measure online social support among students. The questionnaire was translated into Vietnamese and developed by Ho and Nguyen [39]. Items are measured on a 7-point scale from "strongly disagree" (corresponding to 1 point) to "strongly agree" (corresponding to 7 points). In Vietnam, this scale has very good reliability and validity [39]. The scale has been used in a study in Vietnam with $\alpha=0.918$ [38]. In our study, this scale had good reliability and validity ($\alpha=0.954$; CR$=0.963$; AVE$=0.812$).

The Connor – Davidson Resilience Scale (CD-RISC-10) [11] was used to measure resilience among students. This questionnaire consisted of 10 items on a five-point Likert scale (from 0$=$not true at all to 4$=$true nearly all the time). The lowest and highest potential total scores that could be earned were 0 and 40. A total score below 25.5 is considered low resilience, and a total score greater than 25.5 is considered high resilience [76]. In a sample of university students in Vietnam, this scale has very good reliability ($\alpha=0.854$) [34]. In our study, the scale had good reliability and validity ($\alpha=0.904$; CR$=0.921$; AVE$=0.537$).

The Kessler Psychological Distress Scale (K10) [45] was used to measure symptoms of psychological distress among students. This questionnaire contains 10 items on a five-point Likert scale (from 1$=$none of the time to 5$=$all of the time). The lowest and highest potential total scores that could be earned were 10 and 50. A total score of 20 or more is considered at risk of psychological distress [42]. This scale has been widely used in many studies in Vietnam [36, 37]. In this study, this scale had good reliability and validity ($\alpha=0.920$; CR$=0.932$; AVE$=0.578$).

The Satisfaction With Life Scale (SWLS) [17] was applied to measure life satisfaction among students. This questionnaire consists of 5 items on a seven-point Likert-type response scale, ranging from 1 to 7 (from "strongly disagree" to "strongly agree"). The minimum and maximum possible total scores that could be achieved were 5 and 35, with lower scores reflecting lower life satisfaction. This scale has been widely used in many studies in [31, 34, 67]. In our study, the scale had good reliability and validity ($\alpha=0.901$; CR$=0.927$; AVE$=0.717$).

Data Analysis

To address potential common method bias due to the self-reported nature of the data, Harman's single-factor test was initially conducted using exploratory factor analysis (EFA) on all items from the survey scales. This test was performed to ensure the validity of the findings by assessing whether a single factor could account for the majority of the variance. We calculated the mean and standard deviation, as well as the correlation coefficients between the variables, using SPSS version 20. We also used Smart-PLS 3 to determine the validity and reliability of the scales, as well as their path coefficients. Partial Least Squares Structural Equation Modeling (PLS-SEM) with Smart-PLS software was used to identify the measurement and structural models [4]. PLS-SEM was used to assess the reliability (through Composite Reliability (CR) and Cronbach's alpha (α)) and construct validity (through Average Variance Extracted (AVE)) of the model, as well as to examine the direct and indirect effects among the variables.

Results

Descriptive Statistics and Correlation Analysis

Table 1 presents the demographic characteristics of the total sample, as well as the addicted and non-addicted groups. The sample was further categorized into non-addicted ($N=336$) and addicted ($N=1198$) groups based on the Bergen Facebook Addiction Scale. Descriptive statistics, including life satisfaction differences, are detailed in Table 1. Although the difference in life satisfaction between non-addicted (M=21.568, SD=6.469) and addicted (M=21.19, SD=5.686) groups was not statistically significant (t=1.051, $p>0.05$), the focus on the addiction-risk population is justified by the larger proportion of addicted students (78.096% of the sample) and their higher daily Facebook use (e.g., 33.9% used>3 h vs. 15.8% in non-addicted), indicating a potential association with mental health vulnerabilities that warrants further exploration.

The final sample was 1198 students in the Central and Central Highlands regions of Vietnam were selected as research subjects. Participants' ages ranged from 16 to 29, with an average age of 20.08 (SD=1.452), including 399 males (33.3%) and 799 females (66.7%). In terms of time spent on Facebook per day, 68 students use Facebook for less than 30 min (5.7%), 263 students use Facebook from 30 min to 1 h (22.0%), 460 students use Facebook from 1 h to 3 h (38.4%), 273 students use Facebook from 3 h to 5 h (22.8%), 82 students use Facebook from 5 h to 7 h (6.8%), and 52 students use Facebook more than 7 h (4.3%).

Variable	Total Sample (*N*=1534)	Non-Addicted (*N*=336)	Addicted (*N*=1198)
Age (M±SD)	20.08±1.484	20.08±1.595	20.08±1.452
Gender (% Male)	546 (35.6%)	148 (44.0%)	399 (33.3%)
Time spent on Facebook per day (%):			
<30 min	135 (8.8%)	67 (19.9%)	68 (5.7%)
30 min–1 h	381 (24.8%)	118 (35.1%)	263 (22.0%)
1–3 h	558 (36.4%)	98 (29.2%)	460 (38.4%)
3–5 h	309 (20.1%)	36 (10.7%)	273 (22.8%)
5–7 h	90 (5.9%)	8 (2.4%)	82 (6.8%)
>7 h	61 (4.0%)	9 (2.7%)	52 (4.3%)
Grade Level (%):			
Year 1	457 (29.8%)	100 (29.8%)	357 (29.8%)
Year 2	480 (31.3%)	105 (31.3%)	376 (31.4%)
Year 3	475 (31.0%)	105 (31.3%)	369 (30.8%)
Year 4	122 (8.0%)	26 (7.7%)	96 (8.0%)
Life Satisfaction (M±SD)	21.271±5.867	21.568±6.469	21.19±5.686
Life Satisfaction Difference		$t_{(1532)}=1.051, p>0.05$	
Facebook addiction (M±SD)	15.13±4.811	8.77±2.208	16.93±3.723
Facebook addiction Difference		$t_{(1532)}=50.541, p<0.001$	

Table 1 Characteristics of the research sample

By grade level, there were 357 first-year students (29.8%), 376 s-year students (31.4%), 369 third-year students (30.8%), and 96 fourth-year students (8.0%).

To assess potential common method bias, Harman's single-factor test was conducted using exploratory factor analysis on all items from the survey scales. The unrotated factor solution revealed that a single factor accounted for 26.178% of the total variance, which is below the commonly accepted threshold of 50%. This suggests that common method bias does not significantly influence the results of this study.

Descriptive statistics and Pearson correlation analysis were performed on resilience, online social support, psychological distress, and life satisfaction. The results were shown in Table 2. According to Table 2, online social support was positively correlated with resilience ($r=0.231$, $p<0.001$, $R^2=0.053$) and life satisfaction ($r=0.333$, $p<0.001$, $R^2=0.111$) but negatively correlated with psychological distress ($r = -0.206$, $p<0.001$, $R^2=0.042$). Resilience was positively correlated with life satisfaction ($r=0.317$, $p<0.001$, $R^2=0.101$) but negatively correlated with psychological distress ($r = -0.234$, $p<0.001$, $R^2=0.055$). There was a significant negative correlation between psychological distress and life satisfaction ($r = -0.137$, $p<0.001$, $R^2=0.019$). The small R^2 values (ranging from 0.019 to 0.111) indicate that the linear relationships between the variables exhibit low to moderate levels of variance explanation. Given the large sample size, these statistically significant correlations may not fully reflect practical significance, requiring further analysis.

Mediation Model Analysis

To address potential confounding, age, gender and Facebook use time per day were included as covariates in the PLS-SEM model. The results, presented in Fig. 2; Table 3, indicate that the mediation pathways remained significant. Specifically, online social support positively predicted life satisfaction ($\beta=0.320$, $p<0.001$, $F^2 = 0.111$), resilience ($\beta=0.230$, $p<0.001$, $F^2 = 0.057$), and negatively predicted psychological distress ($\beta = -0.168$, $p<0.001$, $F^2 = 0.030$). Additionally, resilience significantly negatively predicted psychological distress ($\beta = -0.210$, $p<0.001$, $F^2 = 0.046$), and psychological distress significantly negatively predicted life satisfaction ($\beta = -0.088$, $p<0.01$, $F^2 = 0.008$). Among the covariates, gender ($\beta = -0.010$, $p<0.05$) and Facebook use time per day ($\beta=0.038$, $p<0.05$) exhibited minimal effects, suggesting the robustness of the mediation pathways.

The results of mediation analysis are shown in Table 3. According to Table 3, the mediating effect of psychological distress in the relationship between online social support and life satisfaction is significant ($\beta=0.015$, $p<0.05$; CI = [0.003; 0.027]). The chain mediating

Table 2 Descriptive statistics and correlation analysis results

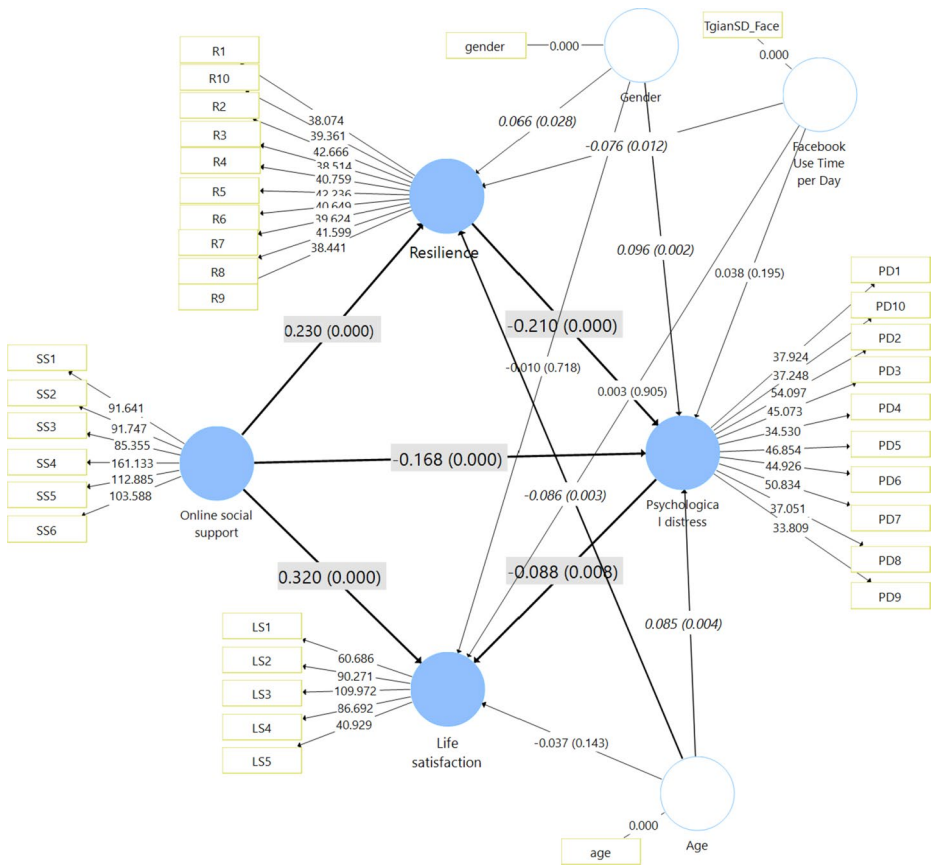| Variables	Online social support r (R^2)	Resilience	Psychological distress	Life satisfaction
Online social support	1			
Resilience	0.231*** (0.053)	1		
Psychological distress	-0.206*** (0.042)	-0.234*** (0.055)	1	
Life satisfaction	0.333*** (0.111)	0.317*** (0.101)	-0.137*** (0.019)	1
M±SD	26.077±8.687	18.008±6.532	29.405±6.742	21.187±5.686

Notes: ***: *p<0.00*

Fig. 2 Chain mediation model of resilience and psychological distress in the association between online social support and life satisfaction

effect of resilience and psychological distress in the relationship between online social support and life satisfaction is significant ($\beta=0.004$, $p<0.05$; CI$=0.001$; 0.009).

Discussion

Facebook addiction is increasingly prevalent among university students and is associated with adverse mental health outcomes, including heightened psychological distress and reduced well-being [8, 9, 43, 63]. Given these implications, research on the mental health of students at risk of Facebook addiction warrants greater attention. This study aimed to examine, among Vietnamese university students at risk of Facebook addiction, (1) the link between online social support and life satisfaction, (2) the mediating role of psychological distress in the association between online social support and life satisfaction, and (3) the chain mediating role of resilience and psychological distress in the association between online social support and life satisfaction.

Table 3 Chain mediation model of online social support, resilience, psychological distress and life satisfaction

Direct effects	β	F Square
Online social support → Resilience	0.230***	0.057
Online social support → Psychological distress	-0.168***	0.030
Online social support → Life satisfaction	0.320***	0.111
Resilience→ Psychological distress	-0.210***	0.046
Psychological distress →Life satisfaction	-0.088**	0.008
Age → Resilience	-0.086**	0.008
Age → Psychological distress	0.085**	0.008
Age → Life satisfaction	-0.037	0.002
Gender → Resilience	0.066*	0.005
Gender → Psychological distress	0.096**	0.010
Gender → Life satisfaction	-0.010	0.000
Facebook Use time per day → Resilience	-0.076*	0.006
Facebook Use time per day → Psychological distress	0.038	0.002
Facebook Use time per day → Life satisfaction	0.003	0.000
Indirect effects	**β**	**CI**
Online social support → Psychological distress → Life satisfaction	0.015*	[0.003; 0.027]
Online social support → Resilience → Psychological distress → Life satisfaction	0.004*	[0.001; 0.009]
Total indirect effect of online support on life satisfaction	0.019*	[0.005; 0.035]

Notes: ***: $p < 0.001$; **: $p < 0.01$; *: $p < 0.05$

Preliminary analyses indicated statistically significant correlations among online social support, resilience, psychological distress, and life satisfaction. However, the explanatory power of these relationships was limited, suggesting modest practical significance. Given the large sample size, these significant correlations should be interpreted with caution, as statistical significance may not necessarily reflect meaningful real-world impact. This finding highlights the importance of mediation analyses to elucidate the underlying mechanisms, such as the roles of resilience and psychological distress, in informing targeted mental health interventions for university students at risk of Facebook addiction.

Supporting Hypothesis 1, this study found that online social support positively predicts life satisfaction among Vietnamese university students at risk of Facebook addiction. This finding aligns with previous research demonstrating that online social support enhances life satisfaction among adolescents and university students [23, 47]. Social support fosters a sense of self-worth, social acceptance, and effective coping strategies, serving as a protective factor against adverse circumstances [14]. However, the modest effect sizes observed suggest that the practical significance of this relationship may be limited. Online social support alone may not substantially enhance life satisfaction without complementary interventions. Nonetheless, high levels of online social support are associated with reduced psychological distress [72, 79] and increased life satisfaction [23, 47].

Furthermore, this study found that psychological distress partially mediates the association between online social support and life satisfaction among university students at risk of Facebook addiction, supporting Hypothesis 2. This result is consistent with findings among

Turkish university students [15]. Students reporting higher levels of online social support exhibited lower psychological distress, which, in turn, was associated with greater life satisfaction. Prior research confirms a negative correlation between online social support and psychological distress [72, 79] and a significant negative association between psychological distress and life satisfaction [12, 16, 46, 78]. High levels of social support bolster self-esteem [79] and enhance coping abilities [14], reducing psychological distress among students with greater online social support [72, 79]. Consequently, lower psychological distress is linked to more positive attitudes and evaluations of life, contributing to higher life satisfaction [12, 16, 46, 78].

Supporting Hypothesis 3, this study found that resilience and psychological distress chain mediate the association between online social support and life satisfaction among Vietnamese university students at risk of Facebook addiction. Specifically, online social support was positively associated with resilience, which in turn was negatively correlated with psychological distress, ultimately enhancing life satisfaction. This chain mediation aligns with prior research indicating that: (1) online social support fosters positive coping strategies and self-efficacy, enabling individuals to adapt to stressors and maintain psychological well-being [41, 71], with studies confirming a positive association between online social support and resilience [25, 41, 48, 58, 72]; (2) higher resilience facilitates quicker recovery and effective coping with negative emotions, such as anxiety and depression, reducing psychological distress [5, 56, 66, 72]; and (3) lower psychological distress is associated with more positive life evaluations, increasing life satisfaction [12, 16, 46, 78].

The inclusion of age, gender, and daily Facebook use time as covariates in the PLS-SEM analysis enhanced the robustness of the mediation model by controlling for potential confounding factors. These adjustments reduced the risk of spurious relationships, strengthening the validity of the pathways linking online social support, resilience, psychological distress, and life satisfaction. The minimal influence of covariates, such as gender and daily Facebook use time, suggests that these core relationships remain stable across diverse student profiles. However, the modest effect sizes suggest that this chain mediation should be interpreted cautiously, as the large sample size may inflate statistical significance, limiting practical relevance. The Conservation of Resources (COR) theory [40] provides a framework to understand these findings. COR theory posits that individuals strive to acquire, retain, and protect resources, including external resources (e.g., online social support) and internal resources (e.g., resilience). In this model, online social support, as an external resource, enhances resilience, which reduces psychological distress and subsequently boosts life satisfaction. However, the conversion of external to internal resources is not always efficient. In Vietnam's collectivist culture, online social support may be perceived as less authentic or emotionally fulfilling compared to in-person or familial support, potentially diminishing its effectiveness in fostering resilience. Cultural norms around emotional expression and support-seeking may further limit the internalization of online support as a psychological resource. Thus, while the mediated pathway is supported, the small effect size may reflect cultural influences and the indirect nature of resource transformation, suggesting that the real-world impact on mental health outcomes requires further exploration.

This study identified both direct and indirect pathways through which online social support influences life satisfaction among Vietnamese university students at risk of Facebook addiction. The direct effect of online social support on life satisfaction was stronger than the total indirect effects mediated by psychological distress alone and by resilience and psy-

chological distress sequentially. This suggests that enhancing online social support may be more effective for improving life satisfaction than solely focusing on internal resources like resilience or reducing psychological distress. The significant mediating role of resilience in the relationship between online social support and mental health outcomes (psychological distress and life satisfaction) underscores its importance. Consequently, healthcare professionals and counselors should prioritize both increasing online social support and fostering resilience to improve mental health among at-risk students.

Previous studies have explored the impact of online social support on life satisfaction [23] and subjective well-being among adolescents and university students [39, 47]. Mediating effects of psychological distress [15], resilience [10, 22, 77], and academic adjustment [3] have also been examined in the relationship between social support and life satisfaction across diverse populations. However, no prior research has specifically investigated the indirect effects of resilience and psychological distress in the association between online social support and life satisfaction among university students at risk of Facebook addiction. This study provides novel insights by demonstrating that online social support directly enhances life satisfaction and that resilience and psychological distress mediate this relationship in this population. The results of this study also suggest ways to improve life satisfaction for university students at risk of Facebook addiction. To enhance life satisfaction among at-risk students, interventions should focus on strengthening online social support, fostering resilience, and reducing psychological distress. Differentiating between types of online social support, such as emotional support (e.g., empathy, validation) and instrumental support (e.g., advice, information), may optimize outcomes. Research indicates that emotional support is particularly associated with improved mental health outcomes, including reduced stress and increased life satisfaction, in online contexts [57, 60]. Thus, interventions should prioritize enhancing the quality and availability of emotionally supportive online interactions rather than merely increasing the quantity of social connections. Longitudinal studies are needed to validate the clinical relevance of these strategies, especially given the limited practical significance observed.

Despite its contributions, this study has certain limitations. First, the sample included only university students at risk of Facebook addiction from two universities in the Central and Highlands regions of Vietnam, which are characterized by lower levels of digitalization compared to other regions, such as urban areas in the north or south. This geographical constraint limits the generalizability of the findings to students in more digitally advanced regions. Future research should consider more diverse and representative samples to enhance external validity. Second, the cross-sectional design restricted our ability to establish causal relationships or assess the long-term effects of online social support on students at risk of Facebook addiction. Longitudinal studies or experimental designs could address this limitation by exploring these relationships over time. Third, this study focused solely on the mediating roles of resilience and psychological distress in the relationship between online social support and life satisfaction. Other factors, such as academic adjustment [3] or core self-evaluation [62], may also mediate or moderate this relationship, warranting further investigation. Finally, while the mediation analysis revealed significant pathways connecting online social support, resilience, psychological distress, and life satisfaction, the modest effect sizes, likely amplified by the large sample size, suggest that the practical significance of these findings is limited. This underscores the need for cautious interpretation, particularly given the geographical limitations of the sample, and future research should explore

additional mediators or contextual factors to better understand and enhance the real-world impact on at-risk students.

Data Availability Research data are not shared.

Declarations

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee. Ethical permission was obtained from a university in Vietnam.

Informed Consent Informed consent was obtained from all individual participants included in this study.

Conflict of Interest None.

References

1. Acharya L, Jin L, Collins W. College life is stressful today – Emerging stressors and depressive symptoms in college students. J Am Coll Health. 2018;66(7):655–64. https://doi.org/10.1080/07448481.2018.1451869.
2. Afek A, Ben-Avraham R, Davidov A, Berezin Cohen N, Ben Yehuda A, Gilboa Y, Nahum M. Psychological resilience, mental health, and inhibitory control among youth and young adults under stress. Front Psychiatry. 2021;11. https://doi.org/10.3389/fpsyt.2020.608588.
3. Akanni AA, Oduaran CA. Perceived social support and life satisfaction among freshmen: mediating roles of academic self-efficacy and academic adjustment. J Psychol Afr. 2018;28(2):89–93. https://doi.org/10.1080/14330237.2018.1454582.
4. Anderson JC, Gerbing DW. Structural equation modeling in practice: A review and recommended two-step approach. Psychol Bull. 1988;103(3):411–23. https://doi.org/10.1037/0033-2909.103.3.411.
5. Anderson K, Priebe S. Concepts of resilience in adolescent mental health research. J Adolesc Health. 2021;69(5):689–95. https://doi.org/10.1016/j.jadohealth.2021.03.035.
6. Andreassen CS, Torsheim T, Brunborg GS, Pallesen S. Development of a Facebook addiction scale. Psychol Rep. 2012;110(2):501–17.
7. Bacchi S, Licinio J. Resilience and psychological distress in psychology and medical students. Acad Psychiatry. 2017;41(2):185–8. https://doi.org/10.1007/s40596-016-0488-0.
8. Błachnio A, Przepiorka A, Pantic I. Association between Facebook addiction, self-esteem and life satisfaction: A cross-sectional study. Comput Hum Behav. 2016;55:701–5. https://doi.org/10.1016/j.chb.2015.10.026.
9. Bonfanti RC, Salerno L, Brugnera A, Lo Coco G. A longitudinal investigation on problematic Facebook use, psychological distress and well-being during the second wave of COVID-19 pandemic. Sci Rep. 2022;12(1):21828. https://doi.org/10.1038/s41598-022-26281-0.
10. Bukhori B, Ma'arif S, Panatik SA, binti, Siaputra IB, Afghani AA, Al. Study on Muslim university students in indonesia: the mediating role of resilience in the effects of religiousity, social support, Self-Efficacy on subjective Well-being. Islamic Guidance Couns J. 2022;5(2):152–71. https://doi.org/10.25217/igcj.v5i2.2972.
11. Campbell-Sills L, Stein MB. Psychometric analysis and refinement of the connor–davidson resilience scale (CD-RISC): validation of a 10-item measure of resilience. J Trauma Stress. 2007;20(6):1019–28. https://doi.org/10.1002/jts.20271.

12. Chee HJ, Ma'rof AA, Abdullah H, Zarimohzzabeih Z. The relationship between social adaptability, psychological distress, and parental attitude on life satisfaction among Malaysian young adults. Int J Acad Res Bus Social Sci. 2023;13(14). https://doi.org/10.6007/IJARBSS/v13-i14/18172.

13. Chương LT, Minh ĐĐ, Thảo MP. Độ Tin Cậy Và Tính Giá Trị Của Thang Điểm Đánh Giá Tình Trạng Nghiện Facebook Của Đại học Bergen phiên bản Tiếng Việt. Nghiên Cứu Y Học. 2020;1(24):138–44.

14. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. Psychol Bull. 1985;98(2):310–57. https://doi.org/10.1037/0033-2909.98.2.310.

15. Dadandı İ, Çıtak Ş. Psychological distress mediates the relationship between social support and satisfaction with life. Int J Contemp Educational Res. 2023;10(3):724–34. https://doi.org/10.52380/ijcer.2023.10.3.543.

16. Deniz ME, Satici SA, Doenyas C, Griffiths MD. Zoom fatigue, psychological distress, life satisfaction, and academic Well-Being. Cyberpsychology Behav Social Netw. 2022;25(5):270–7. https://doi.org/10.1089/cyber.2021.0249.

17. Diener E, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. J Pers Assess. 1985;49(1):71–5.

18. Diener E, Suh EM, Lucas RE, Smith HL. Subjective well-being: three decades of progress. Psychol Bull. 1999;125(2):276–302.

19. Dong X, Huang F, Shi X, Xu M, Yan Z, Türegün M. Mediation impact of physical literacy and activity between psychological distress and life satisfaction among college students during COVID-19 pandemic. SAGE Open. 2023;13(1):215824402311625. https://doi.org/10.1177/21582440231162503.

20. Elphinston RA, Noller P. Time to face it! facebook intrusion and the implications for romantic jealousy and relationship satisfaction. Cyberpsychology Behav Social Netw. 2011;14(11):631–5. https://doi.org/10.1089/cyber.2010.0318.

21. Erfani SS, Abedin B, Blount Y. The effect of social network site use on the psychological well-being of cancer patients. J Association Inform Sci Technol. 2017;68(5):1308–22. https://doi.org/10.1002/asi.23702.

22. Guo Y. Relationship between social support and life satisfaction of college students: resilience as a mediator and moderator. Ethics Progress. 2017;8(2):28–43.

23. Han Mo PK, Ma L, Li J, Xie L, Liu X, Jiang H, Chen Y, Fai Lau JT. Communication in social networking sites on offline and online social support and life satisfaction among university students: tie strength matters. J Adolesc Health. 2024;74(5):971–9. https://doi.org/10.1016/j.jadohealth.2023.10.030.

24. Hawi NS, Samaha M. The relations among social media addiction, Self-Esteem, and life satisfaction in university students. Social Sci Comput Rev. 2017;35(5):576–86. https://doi.org/10.1177/0894439316660340.

25. He Z, Chen M. How online social support enhances individual resilience in the public health crisis: testing a dual-process serial mediation model. Comput Hum Behav. 2024;158:108276. https://doi.org/10.1016/j.chb.2024.108276.

26. Ho TTQ, Gu C. Cyberbullying victimization and depression: self-esteem as a mediator and approach coping strategies as moderators. J Am Coll Health. 2023;71(1):94–101. https://doi.org/10.1080/07448481.2021.1877718.

27. Ho TTQ. Facebook addiction and depression: loneliness as a moderator and poor sleep quality as a mediator. Telematics Inform. 2021a;61:101617. https://doi.org/10.1016/j.tele.2021.101617.

28. Ho TTQ. Problematic Facebook use and depression among Hue university students: the mediating role of stress and anxiety. UED J Social Sci Humanit Educ. 2021b;11(2):61–6. https://doi.org/10.47393/jshe.v11i2.991.

29. Ho TTQ. Facebook addiction partially mediated the association between stress symptoms and sleep disturbance among Facebook users. Int J Mental Health Addict. 2023a;21(2):756–66. https://doi.org/10.1007/s11469-021-00619-7.

30. Ho TTQ. Stress and the development of depressive symptoms among Facebook users: A moderated mediation model of poor sleep quality and anxiety. Curr Psychol. 2023b;42(13):10742–50. https://doi.org/10.1007/s12144-021-02383-2.

31. Ho TTQ. Loneliness and depressive symptoms: moderation and mediation model. Am J Health Educ. 2024;1–10. https://doi.org/10.1080/19325037.2023.2297284.

32. Hồ TTQ. (2024). Nghiện Facebook ở sinh viên và mối quan hệ của nó với sự trì hoãn học tập - Nghiên cứu sinh viên Đại học Huế. Tạp Chí Tâm Lý Học, 2.

33. Ho TTQ, Li C, Gu C. Cyberbullying victimization and depressive symptoms in Vietnamese university students: examining social support as a mediator. Int J Law Crime Justice. 2020;63:100422. https://doi.org/10.1016/j.ijlcj.2020.100422.

34. Ho TTQ, Nguyen BP, Nguyen VB, Tran TKL. Resilience fully mediated in the link between risk of smartphone addiction and life satisfaction among college students. Adv Mental Health. 2023;1–10. https://doi.org/10.1080/18387357.2023.2200009.

35. Ho TTQ, Nguyen BTN, Nguyen NPH. Academic stress and depression among Vietnamese adolescents: a moderated mediation model of life satisfaction and resilience. Curr Psychol. 2022. https://doi.org/10.1007/s12144-022-03661-3.

36. Ho TTQ, Nguyen HT. Self- disclosure on social networking sites, loneliness and psychological distress among adolescents: the mediating effect of cyber victimization. Eur J Dev Psychol. 2023;20(1):172–88. https://doi.org/10.1080/17405629.2022.2068523.

37. Ho TTQ, Tran TKL, Van Huynh S. Smartphone addiction and psychological distress among Vietnamese college students: cyber-victimization as a mediator and academic stress as a moderator. J Public Mental Health. 2023;22(1):25–35. https://doi.org/10.1108/JPMH-08-2022-0081.

38. Ho TTQ, Hoang TH. Factors related to university students' cyberbullying in central Vietnam. J Sci Educational Sci. 2022;67(3):188–98. https://doi.org/10.18173/2354-1075.2022-0057.

39. Ho TTQ, Nguyen TH. Reliability and validity of Vietnamese version of social support on social networking sites scale for adolescents. J Sci Educational Sci. 2022;67(1):141–9. https://doi.org/10.18173/2354-1075.2022-0014.

40. Hobfoll SE. Conservation of resources: A new attempt at conceptualizing stress. Am Psychol. 1989;44(3):513–24. https://doi.org/10.1037/0003-066X.44.3.513.

41. Hou Y, Zhang Y, Cao X, Lei G, Liu G. The association between perceived social support and resilience among Chinese university students: A moderated mediation model. Psychol Sch. 2024;61(4):1474–90. https://doi.org/10.1002/pits.23122.

42. Jaisoorya, Rani A, Menon PG, Jose CRJMR, Kishore VKSR, A., K, T.,B, S. N. Psychological distress among college students in kerala, India—Prevalence and correlates. Asian J Psychiatry. 2017;28:28–31. https://doi.org/10.1016/j.ajp.2017.03.026.

43. Jose TP, Shekhar SK, A K. Facebook addiction and resilience among college students. Psychol Educ. 2017;54(3):1–5.

44. Kessler RC, Aguilar-Gaxiola S, Alonso J, Chatterji S, Lee S, Ormel J, Üstün TB, Wang PS. The global burden of mental disorders: an update from the WHO world mental health (WMH) surveys. Epidemiol Psichiatr Soc. 2009;18(1):23–33. https://doi.org/10.1017/S1121189X00001421.

45. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand S-LT, Walters EE, Zaslavsky AM. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. Psychol Med. 2002;32(6):959–76. https://doi.org/10.1017/S0033291702006074.

46. Lathabhavan R. Fear of COVID-19, psychological distress, well-being and life satisfaction: A comparative study on first and second waves of COVID-19 among college students in India. Curr Psychol. 2023;42(23):20203–10. https://doi.org/10.1007/s12144-022-03207-7.

47. Lee K-T, Noh M-J, Koo D-M. (2013). lonely people are no longer lonely on social networking sites: the mediating role of self-disclosure and social support. cyberpsychology, behavior, and social networking, 16(6), 413–418. https://doi.org/10.1089/cyber.2012.0553

48. Li J-N, Jiang X-M, Zheng Q-X, Lin F, Chen X-Q, Pan Y-Q, Zhu Y, Liu R-L, Huang L. Mediating effect of resilience between social support and compassion fatigue among intern nursing and midwifery students during COVID-19: a cross-sectional study. BMC Nurs. 2023;22(1):42. https://doi.org/10.1186/s12912-023-01185-0.

49. Lin N, Ensel WM, Simeone RS, Kuo W. Social support, stressful life events, and illness: A model and an empirical test. J Health Soc Behav. 1979;20(2):108. https://doi.org/10.2307/2136433.

50. Lök N, Bademli K. The relationship between the perceived social support and psychological resilience in caregivers of patients with schizophrenia. Commun Ment Health J. 2021;57(2):387–91. https://doi.org/10.1007/s10597-020-00665-w.

51. Longest K, Kang J-A. Social media, social support, and mental health of young adults during COVID-19. Front Communication. 2022;7. https://doi.org/10.3389/fcomm.2022.828135.

52. Luo Q, Huang L, Wu N. The relationship between internet use preference and loneliness among college students during COVID-19: the chain mediating effect of online social support and self-esteem. Front Psychol. 2022;13. https://doi.org/10.3389/fpsyg.2022.1058944.

53. Mackenzie E, McMaugh A, Van Bergen P, Parada R. H. Online support seeking, co-rumination, and mental health in adolescent girls. Front Psychiatry. 2023;14. https://doi.org/10.3389/fpsyt.2023.1040636.

54. Massar B, Ali A, Banerjee I. Prevalence of facebook addiction and its association with personality traits and psychological distress- a study from North East part of India. Int J Indian Psychology. 2020;8(3). https://doi.org/10.25215/0803.078.

55. McLean CL, Chu GM, Karnaze MM, Bloss CS, Lang AJ. Social support coping styles and psychological distress during the COVID-19 pandemic: the moderating role of sex. J Affect Disord. 2022;308:106–10. https://doi.org/10.1016/j.jad.2022.04.036.

56. Mei X, Wang H, Wang X, Wu X, Wu J, Ye Z. Associations among neuroticism, self-efficacy, resilience and psychological distress in freshman nursing students: a cross-sectional study in China. BMJ Open. 2022;12(6):e059704. https://doi.org/10.1136/bmjopen-2021-059704.

57. Nabi RL, Prestin A, So J. Facebook friends with (Health) benefits?? Exploring social network site use and perceptions of social support, stress, and Well-Being. Cyberpsychology Behav Social Netw. 2013;16(10):721–7. https://doi.org/10.1089/cyber.2012.0521.

58. Najafi A, Ebrahimi Belil F. Investigating the predictability of social support and self-esteem on the resilience of students with chronic illness in the family. J Educ Health Promotion. 2023;12(1):282. https://doi.org/10.4103/jehp.jehp_420_22.

59. Nguyen HT, Ho TTQ. Online self-disclosure and well-being among Vietnamese adolescents: online social support as a mediator. Mental Health Social Inclusion. 2022;26(4):339–46. https://doi.org/10.1108/MHSI-01-2022-0003.

60. Oh HJ, Ozkaya E, LaRose R. How does online social networking enhance life satisfaction? The relationships among online supportive interaction, affect, perceived social support, sense of community, and life satisfaction. Comput Hum Behav. 2014;30:69–78. https://doi.org/10.1016/j.chb.2013.07.053.

61. Pavot W, Diener E. The satisfaction with life scale and the emerging construct of life satisfaction. J Posit Psychol. 2008;3(2):137–52. https://doi.org/10.1080/17439760701756946.

62. Qian L, Hu W, Jiang M. The impact of online social behavior on college student's life satisfaction: Chain-Mediating effects of perceived social support and core Self-Evaluation. Psychol Res Behav Manage. 2023;16:4677–83. https://doi.org/10.2147/PRBM.S433156.

63. Satici B, Kayis AR, Griffiths MD. Exploring the association between social media addiction and relationship satisfaction: psychological distress as a mediator. Int J Mental Health Addict. 2021. https://doi.org/10.1007/s11469-021-00658-0.

64. Satici SA, Uysal R. Well-being and problematic Facebook use. Comput Hum Behav. 2015;49:185–90. https://doi.org/10.1016/j.chb.2015.03.005.

65. Shakespeare-Finch J, Obst PL. The development of the 2-Way social support scale: A measure of giving and receiving emotional and instrumental support. J Pers Assess. 2011;93(5):483–90. https://doi.org/10.1080/00223891.2011.594124.

66. Sun Y, Zhu S, G. ChenHuang, L. Zhu, Yang S, Zhang X, Zheng Z. COVID-19 burnout, resilience, and psychological distress among Chinese college students. Front Public Health. 2022;10. https://doi.org/10.3389/fpubh.2022.1009027.

67. Tran MAQ, Khoury B, Chau NNT, Van Pham M, Dang ATN, Ngo TV, Ngo TT, Truong TM, Le Dao AK. The role of Self-Compassion on psychological Well-Being and life satisfaction of Vietnamese undergraduate students during the COVID-19 pandemic: hope as a mediator. J Rational-Emot Cognitive-Behav Ther. 2022. https://doi.org/10.1007/s10942-022-00487-7.

68. Vieira YP, Viero VdosF, Saes-Silva E, da Silva PA, da Silva LS, de O. Saes M, Demenech LM, Dumith SC. Excessive use of social media by high school students in Southern Brazil. Revista Paulista De Pediatria. 2022;40. https://doi.org/10.1590/1984-0462/2022/40/2020420in.

69. Viertiö S, Kiviruusu O, Piirtola M, Kaprio J, Korhonen T, Marttunen M, Suvisaari J. Factors contributing to psychological distress in the working population, with a special reference to gender difference. BMC Public Health. 2021;21(1):611. https://doi.org/10.1186/s12889-021-10560-y.

70. Wang ES-T, Wang MC-H. Social support and social interaction ties on internet addiction: integrating online and offline contexts. Cyberpsychology Behav Social Netw. 2013;16(11):843–9. https://doi.org/10.1089/cyber.2012.0557.

71. Wang L-Y, Li M-Z, Jiang X-J, Han Y, Liu J, Xiang T-T, Zhu Z-M. Mediating effect of Self-Efficacy on the relationship between perceived social support and resilience in patients with recurrent schizophrenia in China. Neuropsychiatr Dis Treat. 2022;18:1299–308. https://doi.org/10.2147/NDT.S368695.

72. Wang Y, Bao S, Chen Y. How does social media use influence the mental health of pancreatic cancer patients: a chain mediating effect of online social support and psychological resilience. Front Public Health. 2023;11. https://doi.org/10.3389/fpubh.2023.1166776.

73. Westmaas JL, Fallon E, McDonald BR, Driscoll D, Richardson K, Portier K, Smith T. Investigating relationships among cancer survivors' engagement in an online support community, social support perceptions, well-being, and moderating effects of existing (offline) social support. Support Care Cancer. 2020;28(8):3791–9. https://doi.org/10.1007/s00520-019-05193-2.

74. Wu N, Ding F, Zhang R, Cai Y, Zhang H. The relationship between perceived social support and life satisfaction: the chain mediating effect of resilience and depression among Chinese medical staff. Int J Environ Res Public Health. 2022;19(24):16646. https://doi.org/10.3390/ijerph192416646.

75. Yang C, Xia M, Zhou Y. How is perceived social support linked to life satisfaction for individuals with substance-use disorders? The mediating role of resilience and positive affect. Curr Psychol. 2022;41(5):2719–32. https://doi.org/10.1007/s12144-020-00783-4.

76. Ye ZJ, Qiu HZ, Li PF, Chen P, Liang MZ, Liu ML, Yu YL, Wang SN, Quan XM. Validation and application of the Chinese version of the 10-item Connor-Davidson resilience scale (CD-RISC-10) among parents of children with cancer diagnosis. Eur J Oncol Nurs. 2017;27:36–44. https://doi.org/10.1016/j.ejon.2017.01.004.

77. Yıldırım M, Çelik Tanrıverdi F. Social support, resilience and subjective Well-being in college students. J Posit School Psychol. 2020;5(2):127–35. https://doi.org/10.47602/jpsp.v5i2.229.
78. Zhou G-Y, Yang B, Li H, Feng Q-S, Chen W-Y. The influence of physical exercise on college students' life satisfaction: the chain mediating role of self-control and psychological distress. Front Psychol. 2023;14. https://doi.org/10.3389/fpsyg.2023.1071615.
79 Zhou Z, Cheng Q. Relationship between online social support and adolescents' mental health: A systematic review and meta-analysis. J Adolesc. 2022;94(3):281–92. https://doi.org/10.1002/jad.12031.

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