

Hooked on Facebook: The Role of Social Anxiety and Need for Social Assurance in Problematic Use of Facebook

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Abstract

There is a growing concern that excessive and uncontrolled use of Facebook not only interferes with performance at school or work but also poses threats to physical and psychological well-being. The present research investigated how two individual difference variables—social anxiety and need for social assurance—affect problematic use of Facebook. Drawing on the basic premises of the social skill model of problematic Internet use, we hypothesized that social anxiety and need for social assurance would be positively correlated with problematic use of Facebook. Furthermore, it was predicted that need for social assurance would moderate the relationship between social anxiety and problematic use. A cross-sectional online survey was conducted with a college student sample in the United States ($N=243$) to test the proposed hypotheses. Results showed that both social anxiety and need for social assurance had a significant positive association with problematic use of Facebook. More importantly, the data demonstrated that need for social assurance served as a significant moderator of the relationship between social anxiety and problematic Facebook use. The positive association between social anxiety and problematic Facebook use was significant only for Facebook users with medium to high levels of need for social assurance but not for those with a low level of need for social assurance. Theoretical and practical implications of these findings were discussed.

Introduction

WITH MORE THAN 1.44 BILLION monthly active users and approximately 82.8% of daily active users outside United States and Canada,¹ Facebook stands as one of the most popular social network sites (SNSs) worldwide. Facebook offers numerous psychological benefits by fostering social capital^{2,3} and facilitating social support exchange.^{4,5} At the same time, Facebook has deeply penetrated into everyday life to the extent that a deliberate effort to stay away from the medium is considered an act of “self-sacrifice”^{6,7} or even “detoxification.”⁸

In fact, there is a growing concern that excessive and uncontrolled use of Facebook not only interferes with performance at school or work but also poses threats to physical and psychological well-being.^{9–13} Given this, identifying the types of individuals who are vulnerable to problematic use is important. To contribute to the literature, this study investigated the role of social anxiety and need for social assurance in problematic use of Facebook by drawing on the basic premises of the social skill model of problematic Internet use.¹⁴

Application of the social skill model

According to the social skill model of problematic Internet use, need for self-presentation—a fundamental human motivation to form and maintain positive impressions of the self on other people¹⁵—is central to understanding problematic use of online media.¹⁴ Social interactions on the Internet largely involve text-based asynchronous/synchronous communication and thereby afford strategic and selective self-presentation to a greater extent than face-to-face contexts.¹⁶ Therefore, people with social skill deficits may perceive Internet-based interaction as relatively more comfortable and safe compared to face-to-face interaction.¹⁷ Building on this view, the social skill model posits that individuals who perceive themselves as deficient in social skills are prone to develop a preference for online social interaction over face-to-face interaction in their pursuit of a communication channel that can minimize social risks associated with self-presentation.¹⁴ The model further predicts that such a preference can lead these individuals to invest a disproportionate amount of attention, time, and effort in online socializing and

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to experience difficulties in exercising control over their reliance on the Internet.¹⁴

In particular, the social skill model has identified *social anxiety* as a significant predictor of problematic Internet use.^{18,19} Social anxiety, which refers to self-presentational apprehension about being negatively evaluated by others in social interactions,²⁰ primarily arises from lack of confidence in self-presentational skills.²¹ Therefore, socially anxious individuals are more likely than others to become dependent on communication channels that can maximize their self-presentation performance while minimizing risks.^{14,19} Confirming this view, research on the social skill model has demonstrated that (a) socially anxious individuals perceive self-presentation and social interaction on the Internet as more controllable and less threatening compared with face-to-face interaction,^{22–24} and that (b) social anxiety is a significant predictor of problematic Internet use.^{19,24,25}

One of the key affordances of Facebook is that it allows users to engage in self-presentation through various text-based communication functions such as status updates and wall posts as well as photograph-based features (e.g., profile pictures and photo albums).²⁶ With these features facilitating strategic and selective self-presentation,²⁷ users may perceive greater controllability in self-presentation and social interaction on Facebook than in face-to-face contexts.²⁴ In light of the social skill model, we predicted that individuals high in social anxiety would be more reliant on Facebook and thereby show higher levels of problematic use of it. Therefore, it was hypothesized:

H1: Social anxiety will have a positive association with problematic use of Facebook.

The role of need for social assurance

One of the fundamental human needs that drive people to seek communication channels is need for belongingness—a psychological need to form and maintain positive and enduring interpersonal relationships.^{28,29} Need for belongingness is a multifaceted and complex construct,³⁰ which encompasses not only the more general dimension of social inclusion and acceptance^{28,31} (e.g., “I want other people to accept me”³²) but also the more specific dimension associated with affiliation and companionship.³¹ In the SNS literature, while the general inclusion and acceptance dimension of belongingness needs has been noted as a significant predictor of addictive tendencies toward SNSs,^{33,34} the more specific affiliation and companionship dimension has received little attention. Need for social assurance (NSA), which specifically captures the desire for affiliation, and in-the-moment companionship,³⁰ may help to bridge the gap.

NSA, defined as the tendency to rely on others for affiliation and companionship as a way to maintain a sense of belonging (e.g., “I feel more comfortable when someone is constantly with me”),³⁰ may be particularly relevant to understanding problematic Facebook use, for the Facebook interface offers various features that allow users to satisfy their desire for affiliation and companionship with relative ease and immediacy. For example, News Feed provides instant status updates from one’s Facebook friends; the Chat window displays Friends who are online and may be available to talk to, providing an easy-to-access source of affiliation and companionship.

Attempting to sustain the feelings of comfort and security through the features that allow them to feel that others are “around,” individuals high in NSA may be at a greater risk of becoming “tethered” to Facebook. A recent experiment³⁵ showed that simple priming of affiliation needs led participants to allocate their cognitive resources instantly to thinking about online social networking tools. Although the experiment did not directly examine the role of NSA, its finding suggests that those high in need for affiliation and companionship are more likely to become preoccupied with Facebook and develop problematic use. Thus, it was hypothesized:

H2: NSA will show a positive association with problematic Facebook use.

Furthermore, the possible moderating role of NSA in the relationship between social anxiety and problematic Facebook use merits examination. As social anxiety centers around the fear of negative social evaluation that can disrupt one’s need for affiliation and companionship,³⁶ socially anxious individuals are prone to experience the tension between two conflicting motives: the motive to approach and the motive to avoid social interactions.^{36,37} Because the discomfort stemming from the tension could be greater for those high in NSA than for those low in NSA, socially anxious individuals high in NSA might seek to resolve the tension through Facebook and engage in uncontrolled use of it to a greater extent when compared with their low-NSA counterparts. Given this, the influence of social anxiety on problematic Facebook use may vary depending on the level of NSA. It was therefore predicted:

H3: The hypothesized positive association between social anxiety and problematic Facebook use will be more pronounced among individuals with a high level of NSA than among those low in NSA.

Method

Participants and procedure

An online survey was conducted at a 4-year college in the Midwestern United States, with the consideration that college students are relatively a highly wired population³⁸ with ready access to SNSs.^{3,39,40} A URL for the survey was circulated through e-mailing lists of various on-campus student organizations. The link provided the e-mail recipients with an online consent form. After providing consent, participants were directed to the survey content. The completion rate was approximately 75.3%, with 243 respondents (71.6% female) completing the survey. All participants indicated that they had a Facebook account. The race/ethnicity distribution was: white (91.8%), African/African American (1.6%), Asian/Asian American (2.1%), Hispanic American (1.2%), Native American (1.2%), and multiracial (2.1%). Participants received compensation of US\$5.

Measurement of key variables

Social anxiety was measured with the social anxiety scale developed by Fenigstein et al.⁴¹ Six items (e.g., “I feel anxious when I speak in front of a group”) were rated on a 5-point scale (1 = “strongly disagree” to 5 = “strongly agree”) and were averaged ($\alpha = 0.79$).

NSA was measured with the NSA scale developed by Lee and Robbins.³⁰ Eight items (e.g., “I wish to find someone who can be with me all the time”) were rated on a 5-point scale (1 = “strongly disagree” to 5 = “strongly agree”) and were averaged ($\alpha=0.76$).

Problematic Facebook use was measured with eight items adapted from the scale developed and validated by Koç and Gulyagci⁴⁰ for the measurement of problematic Facebook use among college students (e.g., “I have difficulties in focusing on my academic work due to my Facebook use”; “My Facebook use interferes with doing social activities”). The items were rated on a 5-point scale (1 = “never” to 5 = “very often”) and were added to form a composite index ($\alpha=0.77$), with higher scores indicating greater intensity of problematic use.

Statistical analyses

Socio-demographics. Socio-demographic control variables included age, sex, race/ethnicity, and household income. Age of the participants ranged from 18 to 24 years ($M=19.69$ years, $SD=1.12$ years). Sex (female 71.6%) and race/ethnicity (white 91.8%) were dummy coded. Household income was measured with response categories from past research conducted with college student samples²: 1 = “<\$20,000”; 2 = “\$20,000–34,999”; 3 = “\$35,000–49,999”; 4 = “\$50,000–74,999”; and 5 = “≥\$75,000.”

Personality traits. Four personality traits were controlled for (agreeableness, conscientiousness, extraversion, and neuroticism) that have been found to influence problematic SNS use significantly.^{42–45} The four traits were assessed on a 7-point scale (1 = “strongly disagree” to 7 = “strongly agree”) with items from the 10-item Big Five Personality Inventory,⁴⁶ which has demonstrated adequate levels of validity and reliability.⁴⁶ Agreeableness was assessed with “sympathetic-warm” and “critical-quarrelsome (reversed)” ($r=0.303$, $p<0.001$). Conscientiousness was measured with “dependable-self-disciplined” and “disorganized-careless (reversed)” ($r=0.522$, $p<0.001$). Extraversion was measured with “extraverted-enthusiastic” and “reserved-quiet (reversed)” ($r=0.523$, $p<0.001$). Neuroticism was measured with “anxious-easily upset” and “calm-emotionally stable (reversed)” ($r=0.556$, $p<0.001$). The scores were averaged across the two items for each category.

Amount of Facebook use. Past research on problematic Internet use has noted that amount of use should not be confounded with problematic use.^{47,48} Considering this, this study controlled for the amount of time participants spent on Facebook. This variable was measured by asking, “Approximately, how much time do you spend on Facebook on an average day?” The answer choices were: 1 = “≤10 minutes”; 2 = “>10 minutes, <30 minutes”; 3 = “>30 minutes, <1 hour”; 4 = “>1 hour, <2 hours”; 5 = “>2 hours, <3 hours”; 6 = “>3 hours.”

Results

Descriptives

Bivariate correlation coefficients with means and standard deviations of all variables are presented in Table 1. No

TABLE 1. MEANS, STANDARD DEVIATIONS, AND BIVARIATE CORRELATION COEFFICIENTS OF THE VARIABLES

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	19.69	1.12	1	0.08	-0.07	0.06	0.07	0.13*	0.13*	-0.05	-0.21**	-0.19**	-0.07	-0.11
2. Sex (female = 1)	0.72	0.45	1	1	-0.06	0.12	0.14*	0.22**	0.08	0.11	0.05	0.10	-0.11	0.06
3. Race/ethnicity (white = 1)	0.92	0.28			1	0.20**	-0.07	-0.12	-0.02	0.13*	0.09	0.03	0.08	0.08
4. Household income	3.23	0.92				1	0.09	0.01	0.10	0.04	-0.14*	-0.10	0.02	-0.09
5. Agreeableness	5.21	1.17					1	0.31***	0.11	-0.30***	-0.01	-0.07	-0.08	0.03
6. Conscientiousness	5.53	1.23						1	-0.03	-0.19**	-0.13*	-0.05	-0.16*	-0.18**
7. Extraversion	4.75	1.41							1	0.07	0.03	-0.61***	0.08	-0.02
8. Neuroticism	3.22	1.43								1	0.07	0.13*	0.19**	0.08
9. Amount of Facebook use	3.36	1.21									1	-0.03	0.22**	0.45***
10. Social anxiety	2.84	0.84										1	0.08	0.18**
11. Need for social assurance	2.67	0.65											1	0.30***
12. Problematic Facebook use	16.03	4.95												1

N=243.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$.

TABLE 2. HIERARCHICAL MULTIPLE REGRESSION ON PROBLEMATIC FACEBOOK USE

	Block 1		Block 2		Block 3		Block 4		Block 5						
	b	(SE)	β	b	(SE)	β	b	(SE)	β	b	(SE)	β			
Block 1															
Age	-0.45	(0.28)	-0.10	-0.35	(0.29)	-0.08	0.01	(0.27)	0.01	0.12	(0.26)	0.03	0.15	(0.25)	0.03
Sex ^a	0.90	(0.71)	0.08	1.15	(0.73)	0.11	0.67	(0.67)	0.06	0.55	(0.66)	0.05	0.59	(0.66)	0.05
Race/ethnicity ^b	1.82	(1.18)	0.10	1.47	(1.18)	0.08	0.69	(1.08)	0.04	0.58	(1.04)	0.03	0.55	(1.02)	0.03
Household income	-0.60	(0.35)	-0.11 [†]	-0.65	(0.35)	-0.12 [†]	-0.26	(0.33)	-0.05	-0.22	(0.32)	-0.04	-0.22	(0.31)	-0.04
Block 2															
Agreeableness				0.50	(0.30)	0.12 [†]	0.42	(0.27)	0.10	0.36	(0.26)	0.08	0.40	(0.26)	0.09
Conscientiousness				-0.82	(0.28)	-0.20 ^{**}	-0.62	(0.26)	-0.15 [*]	-0.50	(0.25)	-0.12 [*]	-0.52	(0.24)	-0.13 [*]
Extraversion				-0.09	(0.23)	-0.03	-0.16	(0.21)	-0.05	0.27	(0.26)	0.08	0.25	(0.26)	0.07
Neuroticism				0.19	(0.24)	0.06	0.15	(0.22)	0.04	-0.08	(0.21)	-0.02	-0.07	(0.21)	-0.02
Block 3															
Amount of Facebook use				1.69	(0.25)	0.42 ^{***}	1.60	(0.24)	0.39 ^{***}	1.54	(0.24)	0.38 ^{***}	1.54	(0.24)	0.38 ^{***}
Block 4															
Social anxiety							1.30	(0.44)	0.22 ^{**}	1.39	(0.44)	0.23 ^{**}	1.39	(0.44)	0.23 ^{**}
NSA							1.40	(0.45)	0.19 ^{**}	1.67	(0.46)	0.22 ^{***}	1.67	(0.46)	0.22 ^{***}
Block 5															
Social anxiety × NSA							1.34	(0.51)	0.15 [*]	1.34	(0.51)	0.15 [*]	1.34	(0.51)	0.15 [*]
R ² (R ² _{adj}) %	3.4	(1.8)		7.6	(4.4)		23.1	(20.1)		29.8	(26.5)		31.9	(28.3)	
ΔR^2 %	3.4			4.2			15.5			6.8			2.0		
ΔF	2.08 [†]			2.68 [*]			46.93 ^{***}			11.12 ^{***}			6.89 ^{**}		

Note. *b* values denote unstandardized regression coefficients and standard errors are shown in parentheses; β values denote standardized coefficients. Social anxiety and NSA were mean centered.
^aSex: 0 = "male," 1 = "female."
^bRace/ethnicity: 0 = "nonwhite," 1 = "white."
[†] $p < 0.10$; ^{*} $p < 0.05$; ^{**} $p < 0.01$; ^{***} $p < 0.001$.
NSA, need for social assurance.

serious multicollinearity-related problems were detected among the variables (all tolerance values >0.56⁴⁹ and all variance inflation factor values [VIFs] <1.85⁵⁰).

Regression analysis

The proposed hypotheses were tested with hierarchical multiple regression. The model sequentially introduced socio-demographic controls in Block 1, personality controls in Block 2, amount of Facebook use in Block 3, and the focal predictor (social anxiety) and the moderator (NSA) in Block 4. To test H3 on the possible moderating role of NSA in the relationship between social anxiety and problematic Facebook use, the social anxiety × NSA interaction term was included in Block 5. Social anxiety and NSA were mean centered.⁵¹ The final model accounted for 31.9% of the total variance in problematic Facebook use (Table 2).

Among the control variables, conscientiousness ($b = -0.52$, $\beta = -0.13$, $p < 0.05$) and amount of Facebook use ($b = 1.54$, $\beta = 0.38$, $p < 0.001$) showed a significant association with problematic use. In line with past findings,^{43,44,52} Facebook users higher in conscientiousness engaged in lower levels of problematic Facebook use. Also consistent with recent findings on problematic use of SNSs,^{48,53,54} those who spent more time on Facebook tended to exhibit higher levels of problematic Facebook use.

After statistical controls, both social anxiety ($b = 1.39$, $\beta = 0.23$, $p < 0.01$) and NSA ($b = 1.67$, $\beta = 0.22$, $p < 0.001$) showed a significant positive association with problematic Facebook use. Therefore, the data supported H1 and H2. The social anxiety × NSA interaction was also significant ($b = 1.34$, $\beta = 0.15$, $p < 0.01$). H3 was tested by probing this interaction. Three values (“low” vs. “medium” vs. “high”) were set for social anxiety and NSA: low at one SD below the mean, medium at the mean, and high at one SD above the mean. Simple slope tests revealed that the positive slopes for the medium NSAs ($b = 1.39$, $t = 3.17$, $p < 0.001$) and the high NSAs ($b = 2.26$, $t = 3.97$, $p < 0.001$) were significantly different from zero. However, the slope for the low NSAs ($b = 0.51$, $t = 0.96$, $p = n.s.$) did not significantly differ from zero (Fig. 1).

The interaction was probed further with the Johnson–Neyman technique to determine the complete range of NSA values in which social anxiety significantly predicted problematic Facebook use.⁵⁵ The results revealed that social anxiety became a stronger predictor of problematic Facebook use as participants’ NSA level increased, turning significant when the NSA value reached -0.36 (Table 3). Taken together, the data were consistent with H3.

Discussion

Theoretical and practical implications

It was found that social anxiety significantly predicted problematic Facebook use. In line with past research based on the social skill model,^{14,19} this finding suggests that social anxiety plays a major role in problematic use of Facebook. At the same time, the study revealed that the positive association between social anxiety and problematic Facebook use was significant for medium and high NSAs but not for low NSAs. By specifying NSA—the desire to sustain a sense of belonging by seeking companionship and affiliation with

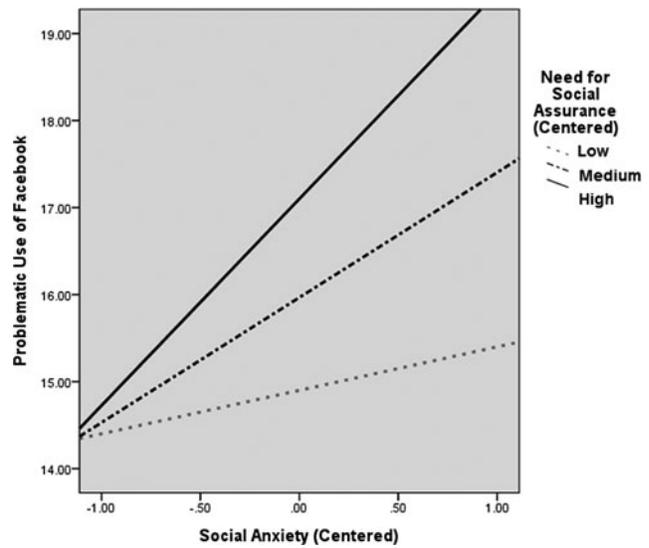


FIG. 1. Need for social assurance (NSA) as the moderator of the relationship between social anxiety and problematic use of Facebook.

others—as a possible boundary condition, this study extends the social skill model in important ways.

First, the present findings show that social anxiety may not be exerting a monolithic effect on problematic Facebook use. Rather, the influence of social anxiety on problematic use varied depending on Facebook users’ NSA levels. This speaks to the importance of understanding how problematic Facebook use may be shaped by the subtle tension involving two competing social motives—the motive to avoid versus

TABLE 3. REGIONS OF SIGNIFICANCE FOR THE CONDITIONAL EFFECT OF SOCIAL ANXIETY ON PROBLEMATIC FACEBOOK USE AS MODERATED BY NSA

NSA (mean centered)	b	t	p
-1.54	-0.68	-0.78	0.43
-1.39	-0.47	-0.59	0.56
-1.23	-0.26	-0.36	0.72
-1.07	-0.05	-0.08	0.94
-0.92	0.16	0.25	0.80
-0.76	0.37	0.65	0.52
-0.60	0.57	1.11	0.27
-0.45	0.78	1.64	0.10
-0.36	0.91	1.97	0.05
-0.29	0.99	2.20	0.03
-0.14	1.20	2.75	0.007
0.02	1.41	3.22	0.002
0.18	1.62	3.58	0.0004
0.33	1.83	3.81	0.0002
0.49	2.04	3.93	0.0001
0.65	2.25	3.97	0.0001
0.80	2.46	3.96	0.0001
0.96	2.67	3.92	0.0001
1.11	2.88	3.87	0.0001
1.27	3.09	3.82	0.0002
1.43	3.30	3.76	0.0002
1.58	3.51	3.70	0.0003

Values shown in boldface indicate that the conditional effect of social anxiety on problematic Facebook use was significant.

the motive to approach (pursue) social interactions with others³⁶—and the attempt to resolve the tension through communication channels perceived as comfortable and effective for satisfying one's psychological needs.

Second, the nonsignificant association between social anxiety and problematic Facebook use among low NSAs is noteworthy. This pattern may be attributed to the interaction environment on Facebook, which is distinct from other Internet-based social venues. Broadly put, the interaction environment provided by Facebook has two key elements: (a) messaging features and (b) social connections. The messaging features, like other means of computer-mediated communication, greatly afford strategic and selective self-presentation and may be appealing to socially anxious users. On the other hand, the social connections on Facebook (Facebook friends), who are largely based on users' extant offline ties and extended networks,⁵⁶ serve as audiences that can view the content publicly shared by the user.⁵⁷ Whereas high NSAs may be strongly attracted to the presence of these "audiences" as ever-present companions, low NSAs may be less so. Furthermore, the presence of these audiences who can view (and evaluate) the content created by users may actually heighten self-presentational concerns⁵⁸ for the socially anxious individuals. Given these aspects, it is speculated that the audience-associated self-presentational concerns might have prevented the users high in social anxiety but low in NSA from engaging in excessive and uncontrolled use of the platform. Taken together, the present findings speak to the importance of taking a more nuanced approach to studying problematic SNS use in consideration of the interaction environment that a particular SNS platform provides.

The present research also has important practical implications. As the saying goes, "knowing is half the battle." The present findings suggest that those who are high in social anxiety and NSA may be high-risk individuals, and this information could contribute to preventing or curtailing problematic use. In particular, socially anxious individuals high in NSA should be encouraged to become more mindful about their Facebook use and to seek companions beyond the Facebook "nest." To make these efforts more fruitful, the following approaches should be considered. First, social anxiety often arises from negative misperceptions of one's social skills.²¹ Therefore, to overcome social anxiety, users should gain a more accurate understanding of their own social skills, learn specific ways for improvement, and increase self-confidence. Second, it will be important to guide Facebook users to understand that their need for affiliation and companionship may be met in a more sustainable way if their social activities can achieve a healthy balance between the offline (face-to-face) and the online realms.³³

Limitations and directions for future research

This research has several limitations to note. First, as the data were based on a cross-sectional survey and thus were correlational, causality could not be established. Future investigations should tap into longitudinal approaches to corroborate causal explanations better.

Another limitation concerns the college student sample. On the one hand, college students constitute one of the most active Facebook user populations^{3,39,40} and therefore can provide helpful insight into problematic use of Facebook. On

the other hand, it should be noted that NSA is particularly influential among adolescents and young adults, with its influence diminishing with age.^{59,60} Thus, NSA may not likely play a prominent role in problematic SNS use among older adults. With these considerations, it will be important to study the role of social anxiety and NSA in problematic use across different age groups.

In addition, the low-to-moderate R^2 values obtained by the regression model may indicate that the model did not include variables crucial to predicting problematic use of Facebook. Future research should further identify additional key predictors to achieve a more comprehensive understanding of the phenomenon.

Future research should also investigate problematic use across different SNS platforms. Facebook is just one of numerous SNSs that offer opportunities for online social networking.⁶¹ The present findings are confined to the context of Facebook use and may not be generalizable to those of other SNSs. Cross-platform analyses or multiplexity-oriented approaches considering multiple channels of online social networking⁶² will constitute an important agenda for future research.

Author Disclosure Statement

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