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The Influence of Social Exclusion on College Students' Sense of Gain: A Moderated Mediation Model

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ABSTRACT
In order to explore the relationship between social exclusion, Psychological capital, phubbing and sense of gain, 2,101 college students completed measures of demographic information, the Social Exclusion Scale, the Phubbing Scale, the Psychological Capital Scale, and the Sense of Gain Scale. Results showed that social exclusion significantly and negatively predicted college students' sense of gain; social exclusion also significantly reduced psychological capital, which in turn was positively associated with a sense of gain, indicating a partial mediating effect of psychological capital in the relationship between social exclusion and sense of gain; and moderated mediation analysis further revealed that phubbing moderated the effect of social exclusion on psychological capital. Specifically, phubbing served as a compensatory function, buffering the negative impact of social exclusion on psychological capital.

KEYWORDS
Social exclusion; Phubbing; Psychological capital; Sense of gain; College students

1 Introduction

"Sense of gain" refers to an individual's cognitive evaluation and psychological experience regarding the content, means, and conditions for fulfilling personal needs [1]. It used as an important evaluative standard for socio-economic development and citizen welfare [2]. Empirical studies have shown that, at the individual level, the sense of gain is a positive contributor to improving living standards and is closely related to subjective well-being [3-4]. At the societal level, it reflects social progress and justice, thereby fostering sustainable social development [5]. At the national level, it serves as a measure of the effectiveness of national governance in the new era and contributes to long-term national stability [6]. Previous research has primarily focused on the general status and influencing factors of the sense of gain among the broader population, with limited attention to the college student demographic and a lack of exploration into its underlying mechanisms. The university period is a critical stage for personality development and the cultivation of social competence. Effectively addressing interpersonal challenges and building positive relationships are essential for students' personal growth and for enhancing their sense of gain [7]. Research indicates that social exclusion is a common interpersonal issue that significantly affects college students' sense of gain [8]. Therefore, examining the impact of social exclusion on college students' sense of gain and identifying potential protective factors—such as phubbing—that may buffer these negative effects holds significant practical value for enhancing their social adaptation. To address these issues, the present study systematically investigated the relationships among social exclusion, psychological capital, and college students' sense of gain, and further explored whether phubbing could serve as a moderating factor, mitigating the adverse effects of social exclusion within this psychological pathway.

1.1 The Relationship Between Social Exclusion and Sense of Gain

Social exclusion refers to the experience of being rejected or ostracized by others, thereby hindering an individual's need for relatedness and belonging. It is a common stressor during adolescence [9]. According to self-determination theory, when basic psychological needs are fulfilled, individuals are more likely to experience positive psychological outcomes, such as a heightened sense of gain. Conversely, when these needs are thwarted, deprived, or unmet, individual development may be impaired, resulting in negative psychological consequences [10]. Individuals who experience exclusion often fail to establish close emotional connections with others, leading to unmet relational needs. This deprivation fosters a sense of emotional isolation and can trigger negative emotional states such as anxiety and depression [11], which in turn diminish their sense of gain. Social identity theory posits that when individuals are excluded by members of a group, they struggle to categorize themselves as part of that group, resulting in negative social identity [12], which is detrimental to psychological well-being and the enhancement of happiness [13]. Excluded individuals, due to the lack of group acceptance, experience unmet belonging needs and a strong sense of alienation, leading to decreased life satisfaction [14] and a reduced experience of gain. Empirical research further demonstrates that social exclusion significantly and negatively predicts various components of the sense of gain, including subjective well-being and life satisfaction [8,14]. Therefore, social exclusion is likely to exert a negative influence on the sense of gain. Hypothesis 1: Social

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exclusion negatively predicts college students' sense of gain(H1).

1.2 The Mediating Effect of Psychological Capital

As a socio-psychological phenomenon, the sense of gain is influenced not only by external environmental and objective factors but also by internal psychological and subjective factors [15]. Among these, psychological capital may serve as a key subjective factor. Psychological capital refers to the positive psychological resources that individuals develop and exhibit throughout their growth [16]. According to the Conservation of Resources Theory, individuals experience a depletion of psychological resources when facing stressful situations [17], and social exclusion is a major stressor that can negatively affect individuals' internal psychological states and resources, intensifying the depletion of psychological capital [18]. Empirical studies have also demonstrated that social exclusion can significantly reduce an individual' s psychological capital [19]. Moreover, psychological capital functions as an internal protective factor, fostering the development of adaptive behaviors and attitudes. It also enables individuals to adopt more positive cognitive and behavioral strategies in response to adverse events, thereby alleviating negative emotional states [20]. Consequently, in the face of stressful conditions such as social exclusion, psychological capital may influence emotional outcomes such as the sense of gain. Taken together, these findings indicate that psychological capital can positively impact factors closely associated with the sense of gain, such as happiness and life satisfaction. Hypothesis 2: Psychological capital mediates the relationship between social exclusion and college students' sense of gain(H2).

1.3 The Moderating Effect of Phubbing

Phubbing refers to the act of ignoring others or one's surroundings in social settings by focusing on one's smartphone [21]. On one hand, prior studies have indicated that smartphone dependence is a major predictor of phubbing [22]. Individuals who experience social exclusion may resort to smartphone use as a coping mechanism [23], which in turn may deplete their psychological capital [24]. On the other hand, social exclusion not only leads to feelings of isolation and helplessness but may also diminish self-worth, contributing to internalizing problems such as anxiety and depression [11] and further resource depletion. Phubbing, in this context, negatively affects relationship satisfaction and perceived social support [25], leading to a scarcity of psychological resources. The combined negative effects from both online and offline contexts may interact, intensifying the detrimental impact of social exclusion on psychological capital—creating a "double jeopardy" effect[26]. Based on this, individuals experiencing social exclusion may turn to virtual spaces to compensate for the lack of belongingness in the real world to mitigate the negative impact of exclusion on psychological resources. In such cases, phubbing is no longer a risk factor but rather a supportive factor that mitigates the adverse effects of social exclusion—aligning with the "timely assistance" model [26]. Empirical evidence shows that online social interactions can help individuals cope with the negative consequences of stressful events such as social exclusion [27]. Thus, the moderating role of phubbing under negative circumstances is not unidimensional. Hypothesis3: Phubbing moderates the relationship between social exclusion and psychological capital, though no specific direction of the moderating effect is proposed(H3).

2 Methods

2.1 Participants

In this study, a convenient sampling method was used to select college students for questionnaire survey. Finally, 2101 valid questionnaires were obtained, and the effective rate of the questionnaire was 91.35%. There were 812 boys and 1289 girls.

2.2 Measures

2.2.1 Social Exclusion Scale

Social Exclusion was measured by the Adolescent Social Exclusion Scale [28]. The scale consists of 11 items and includes two factors: neglect and rejection. It uses a 5-point scoring. Items under the rejection factor are reverse-scored. The total score from both factors represents the level of perceived social exclusion, with higher scores indicating greater perceived social exclusion. The reliability coefficients for the neglect and rejection subscales in this study were 0.94 and 0.89 respectively.

2.2.2 Phubbing Scale

Phubbing was measured by the Phubbing Scale [25]. There were a total of 10 items, including 2 factors: communication barriers and cell phone obsession, using 5-point scoring, the higher the score, the more serious the individual's cell phone apathetic behavior was. The reliability coefficients of the scale was 0.91.

2.2.3 Psychological Capital Questionnaire

Psychological capital was measured by the Psychological Capital Questionnaire [29]. A total of 22 items, including 4 factors of hope, optimism, self-confidence and resilience, were scored on a 6-point Likert scale, with 1 to 6 indicating "not at all" to "completely", of which items 3, 7, 11 and 15 were reverse scored. The higher the score, the higher the level of

individual psychological capital. The reliability coefficients of the questionnaire in this study was 0.93.

2.2.4 Sense of Gain Scale

Sense of Gain was measured by the Chinese Sense of Gain Scale [1]. It comprises 28 items and adopts a 7-point Likert scale ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree"). Higher scores reflect a higher level of sense of gain. The reliability coefficients of the scale in this study was 0.97.

2.3 Statistical Analysis

Descriptive statistics and correlation analyses for social exclusion, phubbing, psychological capital, and sense of gain were conducted using SPSS 26.0. The SPSS macro PROCESS was employed to examine the moderated mediation model among social exclusion, phubbing, psychological capital, and sense of gain.

3 Statistical Result

3.1 Common Method Deviation

The Harman' s single-factor test was conducted to assess common method bias [30]. The results indicated that ten factors had eigenvalues greater than 1, with the first factor accounting for 34.12% of the total variance, which is below the critical threshold of 40%. This suggests that common method bias is not a serious concern in the present study.

3.2 Description and Correlation Analyses

Correlation analysis revealed that social exclusion was significantly negatively correlated with psychological capital and sense of gain, and significantly positively correlated with phubbing. Sense of gain was significantly positively correlated with both psychological capital and phubbing. No significant correlation was found between psychological capital and phubbing. The detailed results are presented in Table 1.

Table 1 Description statistics and correlations analyses results pertaining to each variable

Variables	M	SD	1	2	3	4
1.social exclusion	30.61	4.82	1			
2.sense of gain	148.33	26.76	-0.35***	1		
3.psychological capital	90.05	13.99	-0.46***	0.61***	1	
4.phubbing	31.43	8.07	0.18***	0.11***	-0.03	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. These indications also apply below

3.3 Test of the Mediating Effects

The simple mediation model was tested using Model 4 to examine the mediating role of psychological capital in the relationship between social exclusion and sense of gain. The results in Tables 2 and 3 showed that, social exclusion negatively predicted psychological capital (β=-0.46, p<0.001), social exclusion also negatively predicted sense of gain (β= -0.09, p<0.001), and psychological capital positively predicted sense of gain (β=0.57, p<0.001). The indirect effect was ab= -0.26, with a bootstrapped standard error (Boot SE) of 0.02 and a 95% confidence interval of [-0.29, -0.23], which did not include zero, indicating a significant mediating effect of psychological capital in the relationship between social exclusion and sense of gain among college students. The total effect of social exclusion on sense of gain was -0.35 (Boot SE = 0.02, 95% CI = [-0.39, -0.31]), with the mediating effect accounting for 74.29% of the total effect.

Table 2 Regression analysis

Outcome variable	Predictive variable	R^2	β	p	95%CIs	
					Lower	Upper
sense of gain	social exclusion	0.12	-0.35***	＜0.001	-0.39	-0.31
psychological capital	social exclusion	0.21	-0.46***	＜0.001	-0.50	-0.42
sense of gain	social exclusion	0.38	-0.09***	＜0.001	-0.13	-0.05
	psychological capital		0.57***	＜0.001	0.53	0.61

Table 3 The mediating effect of psychological capital on the relationship between social exclusion and sense of gain

	Effect	p	LLCI	ULCI	Mediation effect
Direct effect	-0.09	＜0.001	-0.13	-0.05	25.71%
Indirect effect	-0.26	＜0.001	-0.29	-0.23	74.29%
Total effect	-0.35	＜0.001	-0.39	-0.31	-

Effect: Point estimate; LLCI=lower limit of the 95% confidence interval; ULCI=upper limit of the 95% confidence interval, the same below.

3.4 Test of the Moderated Mediation

Phubbing was introduced into the model to examine the moderated mediation effect (Model 7). As shown in Table 2, social exclusion significantly negatively predicted psychological capital (β =-0.43, p<0.001), and phubbing positively predicted psychological capital (β=0.08, p<0.001). Moreover, the interaction term between social exclusion and phubbing

also significantly predicted psychological capital(β= 0.11, p<0.001), with a 95% confidence interval of [0.07, 0.14]. These results indicate that phubbing moderates the relationship between social exclusion and psychological capital.

Table 4 Multiple regression analyses

Predictors	Eq.1 psychological capital			Eq.2 sense of gain					
	SE	β	*t*	*SE*	β	*t*			
social exclusion	0.02	-0.43***	-21.08	0.02	-0.09***	-4.69			
phubbing	0.02	0.08***	3.94						
social exclusion×phubbing	0.02	0.11***	6.20						
psychological capital	0.57	29.63***		0.02	0.57***	28.63			
R^2		0.23			0.38				205.06***
F		205.06***			649.86***				

SE=Standard Error; β=regression coefficient.

To more clearly illustrate the nature of the moderation effect, participants were divided into groups based on one standard deviation above and below the mean of phubbing. Those scoring one standard deviation above the mean were categorized as the high phubbing group, while those scoring one standard deviation below the mean were categorized as the low phubbing group. A simple slopes analysis was conducted, and the interaction effect was visualized (see Figure 1). The results indicated that when individuals exhibited a low level of phubbing, social exclusion significantly and negatively predicted psychological capital (β_{simple}=-0.54, t=-24.12, p<0.001). When individuals exhibited a high level of phubbing, the negative predictive effect of social exclusion on psychological capital was attenuated (β_{simple}=-0.33, t= -10.86, p<0.001). This demonstrates that as the level of phubbing increases, the negative impact of social exclusion on psychological capital gradually weakens.

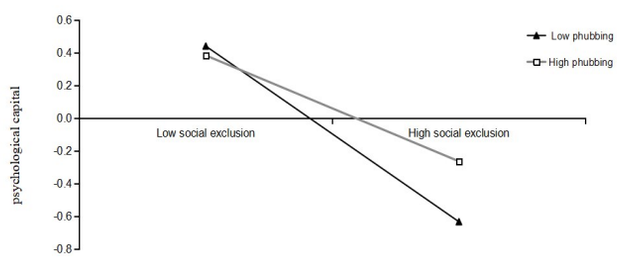


Figure 1 The moderating effect of phubbing on the relationship between social exclusion and psychological capital

4 Discussion

Based on previous studies and the relationships among social exclusion, psychological capital, sense of gain, and phubbing, this study constructed a moderated mediation model. It comprehensively examined the influence and underlying mechanisms of both individual and environmental factors on college students' sense of gain, thereby expanding the research scope in this field. The findings suggest that enhancing students' sense of gain requires attention not only to individual factors (e.g., psychological capital, phubbing) and environmental factors (e.g., social exclusion), but also to the interplay between them. This integrative perspective enriches and deepens the research on sense of gain and provides meaningful guidance for improving college students' sense of gain.

4.1 Social Exclusion and Sense of Gain Among College Students

The research findings indicate that, among university students, social exclusion significantly and negatively affects individuals' sense of gain, thereby supporting Self-Determination Theory and confirming Hypothesis 1. Social exclusion, a typical negative interpersonal experience frequently encountered in university students' daily lives, directly impedes the fulfillment of basic psychological needs. This obstruction can result in negative emotional experiences such as anxiety, loneliness, sadness, and anger [9]. The sense of gain, on the other hand, refers to the positive psychological feedback individuals experience through interactions with their external environment as material conditions improve and their inner world becomes enriched. This emotional experience includes not only satisfaction and affirmation of one's own state but also the accumulation of achievement and enhancement of well-being. However, when individuals experience social exclusion, their connection with the external world is weakened, resulting in a reduction of external support and recognition. This makes it difficult to maintain positive self-evaluation and emotional experiences, thus diminishing their sense of gain across various life domains. This impact is particularly salient for university students, who are in a critical stage of socialization and actively seek external recognition and support. Consequently, social exclusion is more likely to exert a negative influence on their psychological state, particularly their sense of gain. Furthermore, from the perspective of the "cognitive overload" theory, rejection from others or groups leads to painful internal experiences. Prolonged

emotional suppression can occupy valuable cognitive resources, disrupt emotional regulation systems, and result in maladaptive behaviors [30], ultimately undermining individuals' sense of gain.

4.2 The Mediating Effect of Psychological Capital

This study also found that psychological capital plays a mediating role in the relationship between social exclusion and sense of gain, which is consistent with Hypothesis 2. Social exclusion not only directly affects sense of gain but also indirectly influences it through psychological capital. This finding supports both the Conservation of Resources Theory and the Ego Depletion Theory. Social exclusion reduces individuals' psychological capital, thereby negatively impacting college students' sense of gain. There are several possible reasons for this. First, according to the Conservation of Resources Theory, individuals must mobilize internal resources to cope with adverse outcomes caused by external stressors [31]. For university students experiencing social exclusion, the process of dealing with external pressures inevitably consumes their positive psychological resources (e.g., psychological capital). This depletion may impair their psychological adaptability—manifesting in increased loneliness, heightened depressive symptoms, and decreased satisfaction and well-being—ultimately leading to a reduced sense of gain. Second, the Ego Depletion Theory posits that psychological resources are limited [32]. When the resources invested are not replenished, individuals under stress tend to draw on their internal resources to manage risks. If those internal resources are not adequately restored, the depletion process becomes obstructed, leading to compromised mental health [20]. As a negative life event, social exclusion consumes a substantial amount of psychological resources. Without sufficient internal and external support, the depletion of psychological capital may result in a diminished sense of gain.

4.3 The Moderating Effect of Phubbing

This study found that phubbing behavior moderates the first half of the mediation pathway in the chain "social exclusion → psychological capital → sense of gain." Notably, the findings reveal that under conditions of social exclusion, individuals with higher levels of phubbing behavior exhibit a stronger protective effect on psychological capital compared to those with lower levels. This result diverges somewhat from previous research, which has generally suggested that phubbing behavior negatively impacts psychological development—for example, by weakening the quality of interpersonal interactions, increasing feelings of loneliness, and even contributing to social adaptation difficulties [33]. However, in this study, phubbing behavior played an alleviating role. One possible explanation is that college students may use mobile phones and the internet as a means to escape stress-inducing events in real life, replacing real-world group rejection with online social interactions. In doing so, they compensate for unmet relational needs and mitigate the negative emotional impact of exclusion. This finding aligns with the "failed compensation" hypothesis, which posits that individuals may seek alternative forms of social connection when deprived of real-life belongingness. Related studies have also indicated that mobile phones, as digital social tools, can help individuals gain support from friends and family, enhance positive emotional experiences, and promote psychological well-being [34]. Moreover, the multimotive model suggests that individuals' immediate reactions to social exclusion tend to be similar [35]. Following exclusion events, individuals typically experience intense negative emotions and engage in negative self-evaluations [36]. Phubbing behavior may fulfill individuals' immediate gratification needs [37], and in the context of social exclusion, it may help reduce the immediate negative responses—such as negative emotions and low self-esteem—thereby serving a protective or buffering function for psychological capital. Therefore, among college students with lower levels of phubbing, social exclusion more strongly predicts lower psychological capital, whereas for those with higher phubbing behavior, this adverse effect is attenuated.

5 Conclusion

Social exclusion not only negatively predicts college students' sense of gain directly, but also exerts an indirect effect through psychological capital. Moreover, the relationship between social exclusion and psychological capital is moderated by phubbing. Specifically, phubbing attenuates the negative impact of social exclusion on psychological capital, suggesting a buffering effect.

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