


More Happiness or Less Comparison? Unpacking Associations Between Life Satisfaction, Negative Comparison and Mobile Social Networking Use Among Sojourning Students

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Hua Pang¹ , Yuxin Qiao¹, Yi Xiao¹, and Xiang Hu²

Abstract

Although the swift proliferation of mobile technology has attracted considerable scholarly attention during the past few decades, relatively few studies have been devoted specifically to the potential influence of life satisfaction on mobile social media engagement among sojourning students. To address this research gap, the current study proposed a conceptual model to empirically explore how overall life satisfaction was associated with social comparison, fear of missing out and mobile social networking engagement. In a web-based survey, a total of 335 Chinese international students aged between 18 and 32 years old completed a battery of online questionnaires. Utilizing structural equation modeling, the results demonstrated that overall life satisfaction was negatively associated with users' mobile social media use intensity. Additionally, overall life satisfaction positively and significantly predicted both fear of missing out and negative social comparison. Furthermore, fear of missing out and negative social comparison could conceivably mediate the relationships between overall life satisfaction and mobile social media engagement. Therefore, the current article study may shed light on new directions for deeper understanding the underlying psychological mechanisms of mobile technology communication among sojourners and also of the comparatively new phenomenon of fear of missing out and negative comparison in contemporary mobile-saturated society.

Keywords

fear of missing out, negative social comparison, mobile social networking, overall life satisfaction, international students

Introduction

Social networking sites (SNSs), such as Facebook, YouTube, and WeChat, have incontrovertibly become an indispensable component of individuals' routine lives at present, with a substantial and pervasive effect in on the manner they disseminate and exchange real-time information, establish and sustain interpersonal relationships, and participate in multifarious online activities (Schmuck et al., 2019; Shao & Pan, 2019; Shaw et al., 2015). Especially, college-aged young people are incrementally heavy and addicted users of mobile SNSs via smartphones in comparison to other general populations (Alt, 2015; Tang & Koh, 2017). Recently, fresh detailed statistics also further report that the overwhelming majority of young adults embrace mobile social media applications on their own initiative, and the number of them utilizing suchlike mobile apps multiple times

everyday has presently jumped from 34% to 70% (Galvin & Greenhow, 2020; Reer et al., 2019). Consequently, the massive popularity of burgeoning mobile SNSs has raised serious concerns and fresh attention about how and whether this newly emerging technology involvement could actually influence individual's life satisfaction from a mental health perspective.

Although high-speed mobile social media penetration has been evidently documented the unique and tremendous potential to provide a broader range of social and

¹Tianjin University, China

²University of Constance, Germany

Corresponding Author:

Xiang Hu, Department of Psychology, University of Constance, Constance 78464, Germany.
 Email: xiang.hu@uni-konstanz.de



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psychological effects and benefits (Cao et al., 2018; Hanna et al., 2017; Shao & Pan, 2019; J.-L. Wang et al., 2014), a battery of extant empirical researches have generally produced inconsistent and ambiguous conclusions. For instance, some survey-based investigations revealed that excessive or maladaptive usage of computer-mediated technologies might be correlated with elevated feelings of sociopsychological stressor and graver loneliness (Fox & Moreland, 2015; Jiang et al., 2018). While other studies confirmed the positive linkages between social media platforms usage and depressive symptomatology (Dhir et al., 2018; Frison & Eggermont, 2016), or declined subjective well-being and psychological satisfaction (Chai et al., 2019; J.-L. Wang et al., 2017), as well as mobile SNSs engagement (Pang, 2022; Roberts & David, 2020). Still others studies considered that social media applicant adoption is obviously unrelated to users' social connectedness and psychological status (Pollet et al., 2011; Utz & Breuer, 2017). Unfortunately, the majority of existing research has insufficiently and specifically accounted for how and why younger age groups adopt mobile SNSs, as well as diversiform psychological consequences of utilizing them.

Additionally, there are relatively few in-depth studies that have quantitatively explored the underlying mechanisms of association between mobile social media involvement and indicators of well-being among ethnic minority individuals, such as population of international student in a dynamic transcultural circumstance. Notably, since 2004, Chinese overseas students have constituted of the largest proportion of all the higher education population international students in Germany (Maeder-Qian, 2018; Pang, 2019). More specifically, the number of Chinese foreign students attending German universities has been increasing steadily over the past decade, reaching a vast population of roughly 36,915 and accounting for more than 10.1% of all international students in Germany (Goulard, 2020). Although the unprecedented influx of international sojourns may bring valuable talents and diversity to higher education in Germany, they inevitably encounter substantial challenges as they acclimate to the unacquainted social environment. These issues range from linguistic barriers, forge social connectedness, to sustain psychological balance and suffering discrimination and attacks (Cao et al., 2018; Guo et al., 2014). Especially for Chinese international students, as a racial minority in Europe countries experienced a wide range of race-based discrimination (Tsai & Wei, 2018). The discrimination has ushered in a conspicuous variety of challenges and negative effect for Chinese students such as isolated, anxiety, depression and low self-esteem (Heng, 2019). The foregoing investigations have consistently demonstrated that adoption of available computer-mediated communication technologies, including both

home and host countries originated SNSs, would heavily assist sojourning students establish cost-viable interaction linkages with others across borders (Aricat et al., 2015; Tang & Koh, 2017), which ultimately contribute to their psychosocial well-being and self-identification (L. Li & Peng, 2019; Schmuck et al., 2019).

Furthermore, the emerging studies highlighted that the relationship between mobile social apps participation and psychological and physical status might be mediated by specific experiences, such as rumination, passive mental attitude, as well as positive thoughts (Keles et al., 2020; Niu et al., 2018; Schmuck et al., 2019). Meanwhile, negative social comparison processes and fear of missing out have been further approved as the vital mechanism through which the consumption of social media influences individuals' psychological and physical consequences (Chai et al., 2019; Niu et al., 2018). Therefore, it is thoroughly indispensable to not only discover direct relationships between the use of SNSs on mobile devices and indicators of life satisfaction, but also simultaneously notarize the probable mediating or moderating variables. SNSs have social, physical and mental health benefits in terms of international students' adaptation process (L. Li & Peng, 2019). Billedo et al. highlighted that keeping social connection and gaining social support from acquaintances possess great significance in the adaptation process of cross-culture and underlined the significance of SNSs in this settings (Billedo et al., 2020). Under that circumstance, it is momentous to examine the impact of social media usage through specific group of international students. To address above-mentioned crucial research gaps, the present article devoted effort to systematically probe the extent to which Chinese international students' mobile SNSs use intensity would be related to their overall life satisfaction through the potential mediating factors of negative online comparison and the fear of missing out. In doing so, the study may offer a profound comprehending of the underlying psychological mechanisms between the examined hypothesized relationships in contemporary increasingly mediated social context.

Theoretical Perspectives and Hypotheses

The Association Between Overall Life Satisfaction and Mobile Social Networking Intensity

Life satisfaction is a key component of subjective well-being which is a multi-dimensional manifestation involving overall life satisfaction and domain satisfactions (Schnettler et al., 2017). According to theoretical perspectives on life satisfaction, overall life satisfaction is an integration of satisfaction in specific domains which include life environment, interpersonal relationship and physical or mental health (Amati et al., 2018). The

spillover model highlights that overall life satisfaction depends on the level of domain satisfactions and the domain satisfactions will influence each other (Schnettler et al., 2021). Actually, overall life satisfaction has been one of the most established and extensively studied social-psychological paradigms in the online social networking literature. Generally, overall life satisfaction refers to the holistic cognitive judgment and evaluation of personal living circumstance and quality, which could be either positive or negative (Graham et al., 2016; Kim et al., 2020). Traditionally, the conception is generally in connection with the quality of close and distant ties and the perception of social support received from the network as the result of interpersonal interaction that generates beneficial effect (Cao et al., 2018; Frison & Eggermont, 2016). In the era of digital media, the swift emergence of mobile-based social applications has rendered it feasible for users to engage in virtual communities and interact with others, with personal profiles such as families, relatives, and close friends, and also with non-personal profiles such as brands, companies, and organizations (Alt, 2015; Du & Lin, 2019; Pang et al., 2022). Additionally, the technological affordances of mobile social media have also dramatically reduced the cost to create, release, and access amounts of meaningful information, kept us informed of the latest news. These utilities permit individuals to articulate a range of relations of people with whom they anticipate to share access to multiple patterns content, consisting of private profile information, hot news events, as well as status updates (Boulianne & Theocharis, 2020; Pang, 2020). International students' adjustment pressure accompanied by studying in foreign country will yield grievous psychological distress, incorporating anxiety, aloneness, sense of emptiness and isolation, and depression in their initial transition period (Elemo & Türküm, 2019). Hence, international students are more inclined to using mobile social media, as they are distant from home country and their relatives and friends while coping with various transition stressors through online support (Chang et al., 2021).

An abundance of prior studies have explicitly concentrated on diverse positive psychological consequences from engaging in various mobile social networking on the innovative technology channels (Brunsting et al., 2018; Roberts & David, 2020; Shao & Pan, 2019; Wei & Gao, 2017). These empirical investigations suggested that some potential advantages of media-enabled interaction through mobile social media platforms especially Facebook and YouTube for the general public. For instance, Oh, et al. maintained that SNSs utilities can contribute to obtain supportive resources for individuals, alleviate personal perceived stress and induce positive affect, leading to an improved life satisfaction (Oh et al.,

2014). In a similar line, other studies indicated that on account of the mobility and availability for online interaction, utilizing mobile social apps could facilitate social capital, bolster social connectedness and decline perceived social isolation and loneliness, therefore acquiring a higher-level of life gratification (Zhan et al., 2016). Moreover, Raza, et al. demonstrated that the intensity of Facebook usage could significantly predict higher degrees of perceived bridging social capital and bonding social capital among university students in Karachi (Raza et al., 2017). Recently, a research has documented that possessing greater interaction with heterogeneous people via mobile SNSs is positively related to college students' gratification with present campus life (Kim et al., 2020).

While the majority of aforementioned exploratory studies asserted negative relationships between SNSs usage and well-being, others believed the opposite or nonsignificant associations among the similar constructs. Therefore, it remains unclear if international students' overall life satisfaction could predict their mobile social media use intensity in Germany. Considering that international students who are uncertain and worried about various aspects of their living situations in abroad may be more motivated to use mobile social media as it could offer them a tool to acquire information for a better comprehending about the host country (Hetz et al., 2015; L. Li & Peng, 2019). According to current research, the relationship between overall life satisfaction of college students and SNS usage has become a prevailing topic in sociological and psychological research (Basilisco & Cha, 2015; Kim et al., 2020; Wohn & LaRose, 2014) while studies that focus on specific group of international students have rarely been examined. Therefore, attempting to understand the mechanism of life satisfaction on social media usage by being focus on international students has great significance. Based on the conclusions of previous studies, the study proposed the following hypothesis:

H1: Overall life satisfaction will negatively predict international students' mobile SNS intensity.

The Association Between Overall Life Satisfaction and Negative Social Comparison

Social comparison theory is an extensively studied concept in social-psychological domain which is conceptualized as the tendency of using others' behavior or information as comparison targets to judge our own abilities and behaviors (Jang et al., 2016; M. Li et al., 2021; J.-L. Wang et al., 2017). Social comparison is ubiquitous in diverse groups of people, especially among young people (Butler, 2021; Hanna et al., 2017). Based on social comparison theory, negative social comparison

is widely conceptualized as the sensation that others are better off, would especially influence self-evaluations in the fields in which human beings deem others doing better than oneself (Festinger, 1954; Lup et al., 2015). Festinger proposed that identifying oneself as doing worse than other people may lead to deleterious influence on individuals' self-perceptions (Festinger, 1954). Individuals high in negative social comparison are inclined to have a chronic sensitivity and mind of vigilance to other people, and undergo more uncertainty and variability in terms of the self-concepts (Reer et al., 2019; Vogel et al., 2015). In ideal status, individuals depend on objective criteria when assessing or evaluating their own actions and opinions. Nevertheless, in most cases, negative social comparison is merely a natural process for self-evaluation and there is no objective and nonsocial norms in reality (Lup et al., 2015). In such circumstances, people incline to acquire valuable information by comparing their authentic selves to other people. Social media supplies a fertile ground for the application of social comparison theory due to the information is much easier to access at an unprecedented speed and scale (Verduyn et al., 2020). And it is noteworthy that negative social comparison is especially prominent in the online surrounding because multiple mobile SNSs could furnish more fertile ground for negative comparison with perceived superior others.

Accordingly, there is growing evidence that individuals on mobile social applications and comparing oneself to online versions of other users have significant implications for well-being status. More specifically, some investigations have claimed that SNSs users were more willing to participate in negative comparison processes while browsing others' pictures and postings (Feinstein et al., 2013; Hanna et al., 2017; Niu et al., 2018). Owing to individuals typically tend to selectively exchanging information, choosing flattering photos of themselves, and updating current status to display themselves on mobile social platforms in a positive and socially desirable manner (Bareket-Bojmel et al., 2016; Rozgonjuk et al., 2019), studies generally devoted attention on the crucial issue of how such positively biased content would result in a series of detrimental outcomes. For instance, some researchers have indicated that utilizing computer-mediated avenues and checking idealized, favorable profile photos was negatively associated with gratification with body image (Fardouly & Vartanian, 2015; Holland & Tiggemann, 2016). Additionally, recent studies have demonstrated that making social comparisons through prevalent mobile social apps such as Facebook or Instagram can ultimately lead to a sequence of adverse emotions, including jealousy, loneliness, depressed mood, and health-compromising symptoms (Rozgonjuk et al., 2019; Schmuck et al., 2019; Vidal et al., 2020), or

to negative self-perception of individual's personal charisma and social ability (Reer et al., 2019; Schmuck et al., 2019). Although psychological outcomes of certain social media-based comparison behaviors have already been probed recently, there is a lack of studies have specifically to the association between overall life satisfaction and negative social comparison among overseas sojourners. Since students' social media posts and photos display themselves as socially skilled and physically attractive in most cases (Schmuck et al., 2019), negative online comparison on this site via smartphones would have a significant effect on their life satisfaction. The article is therefore hypothesized:

H2: Overall life satisfaction will negatively predict international students' negative social comparison.

The Association Between Overall Life Satisfaction and Fear of Missing Out

Fear of missing out is a comparatively newly-developing construct that has provoked considerable scientific attention, discussion and controversy among sociological scholars during the past decades (Chai et al., 2019; Dhir et al., 2018; Hetz et al., 2015; Przybylski et al., 2013). And it is a concept referring to a pervasive apprehension toward absence from rewarding, memorable and meaningful moments experienced by contemporaries (Fang et al., 2020; Tandon et al., 2021). The phenomenon is characterized by the sense of perceived pervasive pressure that other individuals maybe own more stunning experiences from which people can perceive socially separated or rejected even be eliminated by the society (Jiang et al., 2018; Long et al., 2021). Consequently, individuals with greater levels of fear of missing out desire to permanently interact with others and constantly stay informed about others' present performance (Oberst et al., 2017; Roberts & David, 2020). According to the viewpoint of compensatory motivation based on self-determination theory, fundamental psychological demands satisfaction prompt individuals to make compensatory behaviors (Fang et al., 2020). Although fear of missing out is not solely a web-based phenomenon confined to SNSs members, fundamental psychological requirements (perception of affiliation, perceived intimacy and connection with others) would facilitate individuals to login social media platforms at a higher frequency so as to keep track of peer group's schedules and activities (Holland & Tiggemann, 2016; Oberst et al., 2017). Additionally, evidence seemed to indicate that fear of missing out is a pivotal factor in effective self-adjustment and mental health especially among international students (Kang & Ma, 2020).

With the explosive emergent of diversiform mobile social service platforms, a growing body of studies began to concentrate on the issue of how the phenomenon of fear of missing out is associated with psychological health and life satisfaction (Dhir et al., 2018; Roberts & David, 2020; Tunc-Aksan & Evin, 2019). Research has presented unambiguous evidence that reduced psychological outcomes, particularly, well-being status has been associated with increased feeling of fear of missing out. For instance, according to a large and nationally representative sample of young adults, Przybylski et al. discovered that deficits in gratifying the basic psychological demands for competence, connectedness, and autonomy as well as lower degrees of positive emotional state and general satisfaction with life were significantly associated with higher degrees of fearing of missing out (Przybylski et al., 2013). Similarity, Oberst, et al. utilized structural equation modeling and revealed that adolescents with psychopathological issues such as anxiety and depressed mood would develop greater fear of missing out because of their perception of social deficits (Oberst et al., 2017). In a recent study of college students, Roberts and David identified that fear of missing out have a negative correlation with individuals' social bond and subjective well-being (Roberts & David, 2020). In above-mentioned empirical studies, life satisfaction was discovered to be a significant predictor of self-reported fear of missing out in mobile SNS settings, that is, lower degrees of well-being were associated with higher degrees of fear of missing out. Accordingly, the present study put forward the third hypothesis:

H3: Overall life satisfaction will negatively predict international students' fear of missing out.

Negative Social Comparison, Fear of Missing Out and Mobile Social Networking Intensity

Self-determination theory as a guiding theoretical framework provides meaningful lens for empirically comprehending of fear of missing out (Deci & Ryan, 2008). On the basis of the motivation-based perspective, the fear of missing out phenomenon could be regarded as self-adjusting limbo deriving from environmental or long-term deficits in gratification of innate spiritual needs (Long et al., 2021). It has been asserted that the term may serve as a mediator linking deficits in inner demands to SNSs involvement, and fear of missing out could be also further identified as a mediator variable between dimensions of well-being (demand fulfillment, general emotion, and satisfaction with life) and SNSs adoption (Przybylski et al., 2013). Actually, heightened fear of missing out seeks an excellent channel in sorts of mobile social apps, such as Facebook, Instagram, and YouTube,

where users can update personal status, share the latest news, or send message to constantly stay in touch with peers and constantly inform other users about their own laudable daily events. Therefore, several empirical studies have demonstrated that individuals with higher fear of missing out incline to utilize SNSs more extensively (Dhir et al., 2018; Hetz et al., 2015; Roberts & David, 2020). International students who are experiencing more uncertainty of life would feel hard to accommodate to the new environment and perceive higher levels of anxiety. Hence, they will develop a strong desire to receive information instantaneously and impulsively through SNSs (Jiang et al., 2018). Additionally, fear of missing out has been confirmed to be a predictor of problematic online social interactions, including smartphone addiction (Wolniewicz et al., 2018), SNSs addiction (Blackwell et al., 2017), and computer-mediated communication disorder (Reer et al., 2019). Therefore, it is possible that fear of missing out could drive young people's mobile social media engagement.

Meanwhile, individuals tend to present a great deal of idealized and optimized information about themselves via mobile social media platforms, such as online activities, blueprint for future plans, relationship phase, or viewpoints and attitudes (Fardouly & Vartanian, 2015; Niu et al., 2018). For international students, being far away from home country renders social media and smart communication technology more significant as a channel of establishing and maintaining contact, so they will browse online content more frequently (Thomas et al., 2017). These polished online content may cause negative comparison among SNS users on diverse features such as appearance, popularity, as well as success (Feinstein et al., 2013). Hence, negative social comparison may influence individuals' tendency for SNS involvement. In an effort to make sense of the underlying association, recent studies have placed increasing concentration on investigating the links between negative social comparison and social media use behaviors (Lup et al., 2015; Rozgonjuk et al., 2019; Schmuck et al., 2019; J.-L. Wang et al., 2017). For instance, individuals high in social comparison incline to use SNSs more frequently (Reer et al., 2019). In the similar line, Facebook use intensity has been associated with comparing oneself negatively to other users on the sites (Roberts & David, 2020). Additionally, exposing to positive and aspirant contents on Facebook would result in negative social comparison and envy, generating self-depression and anxiety (Seo & Hyun, 2018). Considering the prevalence of mobile SNS use, and the truth that users typically self-present honestly (Bareket-Bojmel et al., 2016), such platforms are a potentially valuable source of negative information. Taken together, the aforementioned empirical studies argued that both negative social comparison and fear of

missing out could predict mobile SNSs involvement in the online environment. Based on these considerations an arguments, the study formulated the following hypothesis:

H4: Negative social comparison will positively predict international students' mobile SNS intensity.

H5: Fear of missing out will positively predict international students' mobile SNS intensity.

Methods

Sampling and Procedures

For the present research, an online survey was undertaken among Chinese overseas students in a public and comprehensive university located in the southeast of Germany in October and November 2019. The internet addresses for the electronic form of the questionnaire were sent and posted on online communities and mobile social media groups of Chinese international students in this university. Students were invited to participate in this web-based survey by clicking on this web addresses where they are ensured confidentiality and anonymity of this study. In total, 432 participants filled out the online questionnaire, while 97 surveys were rejected due to missing data, resulting in a sample of 335 respondents.

Measurements

Mobile Social Networking Intensity. Mobile social media intensity was gaged with an amended version of Facebook intensity scale developed by Ellison et al. (Ellison et al., 2007). The assessment includes two self-reported measurements of mobile social media usage behaviors by asking international students to indicate: the total number of friends and the time habitually spent on these sites daily. Additionally, this scale covers a five-point Likert scale attitudinal items varying from strongly disagree to strongly agree. Example statements consist of "mobile SNSs is part of my daily activity," "I feel out of touch when I haven't logged onto mobile SNSs for a while," and "I feel I am part of the mobile SNSs community." ($\alpha = .85$, $M = 2.90$, $SD = 0.89$)

Negative Social Comparison. Negative social comparison was assessed with two-item short version from the social comparison rating scale (de Vries & Kühne, 2015). The two statements selected for the investigation assessed how confident, attractive, desirable, as well as inferior people may feel in comparison to others. The study gaged this construct by requiring international students to report what extent they agreed with these two items: "When I read news feeds and see photographs of others, I often think that (1) others have better lives than I do;

(2) others are doing better than I am." Participants answered questions using a five-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). All the replies to all items were then combined to generate a total score, where higher scores suggested more negative self-perceptions in comparison with other people ($\alpha = .88$, $M = 3.07$, $SD = 1.05$).

Fear of Missing Out. Participants' fear of missing out was evaluated with a translated version of the statements created by Przybylski et al. (2013). The respondents were required to answer 10 questions about their daily experience based on a five-point study scale ranging from 1 = not at all true to 5 = extremely true of me. Examples of the measurement include "I get worried when I discover my friends are enjoying fun without me." and "I fear my friends own more rewarding experiences than myself." The assessment has suggested good reliability and validity, and is currently the key assessment in the field (Reer et al., 2019). All these statements were then averaged to produce the score of fear of missing out ($\alpha = .79$, $M = 2.9$, $SD = 0.54$).

Overall Life Satisfaction. Overall life satisfaction was assessed by utilizing the five-item satisfaction with life scale (Guo et al., 2014). Two example items are "In general I possess the sense that in most ways my life is close to my ideal." and "If I could live my time over, I would change almost nothing." The five items were introduced by requiring participants to report the degree to which they agree or disagree with questions according to a rating scale from "1 = totally disagree" to "5 = totally agree." These five statements were then calculated to form a total score. The higher scores reflect greater overall gratification with life ($\alpha = .84$, $M = 3.22$, $SD = 0.75$).

Demographic Characteristics

Participants were instructed to indicate their demographic information consisting of gender, age, educational background, and length of residency (see Table 1).

Analytical Strategy

The current study initially implemented preliminary analyses to obtain some descriptive statistics on the users of mobile social media among international students. Zero-order correlations were then implemented to assess the intertwined linkages among all scaled constructs after controlling for gender, age, educational background, and residence period. After that, structural equation modeling was carried out to empirically examine the present research hypotheses and to further explore the underlying relationships among overall life satisfaction, negative

Table 1. Descriptive Statistics for All Sample Included in Analysis ($N = 335$).

Item	Frequency	Percentage (%)	Mean	SD
Gender				
Male	166	49.6		
Female	169	50.4		
Age			2.39	0.87
18–21 years old	55	16.4		
22–25 years old	130	38.8		
26–29 years old	116	34.6		
30–33 years old	34	10.1		
Education background			1.92	0.57
Graduate students	70	20.9		
Postgraduate students	221	66.0		
PhD students	44	13.1		
Living in Germany			3.25	1.30
< 1 year	46	13.7		
1–2 years	49	14.6		
2–3 years	80	23.9		
3–4 years	96	28.7		
> 4 years	64	19.1		

social comparison, fear of missing out, and mobile social networking use intensity. This statistical technique was selected for the present research because it permits for simultaneous investigation of causal connections among multiple independent and dependent constructs, and assesses model parameters while considering estimation errors in latent constructs (Parker et al., 2008). Statistically, all data analyses were performed by adopting SPSS software version 23.0 and AMOS software version 23.0.

Results

Preliminary Analyses

The present research's final sample consisted of 355 international students who have utilized various types of mobile social media platforms. On average, the mean age of the participants was approximately 27 years

($SD = 0.87$). In addition, gender was approximately equally distributed with 49.6% male students ($n = 166$) and 50.4% female students ($n = 169$). More specifically, of the 355 participants, 70 were graduate students (20.9%), 221 were postgraduate students (66.0%), and 44 were doctoral students (13.1%). With respect to years of stay in Germany, the majority of international students reported their period of residence are more than 2 years ($M = 3.25$, $SD = 1.30$). Descriptive statistics for all sample included in this current analysis are presented in Table 1.

Hypotheses Testing

Prior to hypotheses examination, the study performed correlation analyses with all the scaled constructs. Zero-order correlations for the main variables are displayed in Table 2. As anticipated, overall life satisfaction was negatively associated with international students' negative social comparison ($r = -.89$, $p < .01$). Users' negative social comparison was positively correlated with their mobile SNS intensity ($r = .11$, $p < .01$). Moreover, overall life satisfaction was negatively correlated with users' perceived fear of missing out ($r = -.73$, $p < .01$), and fear of missing out was positively linked with users' mobile SNS intensity ($r = .36$, $p < .01$). Furthermore, overall life satisfaction was negatively associated with mobile social media intensity ($r = -.10$, $p < .01$). Living in Germany was negatively related to mobile social media intensity, $r = -.2537$, $p < .01$, and this correlation implied international students with the longer length of residence in Germany tended to use mobile SNS less intensity.

Research Model Assessment

To further investigate the possible associations among mobile social media involvement, negative social comparison, fear of missing out, and over life satisfaction, structural equation modeling was implemented by

Table 2. Zero-Order Correlations Among the Main Variables ($N = 335$).

Main variables	1	2	3	4	5	6	7	8
1. Overall life satisfaction	1							
2. Negative social comparison	–0.89**	1						
3. Fear of missing out	–0.73**	0.47**	1					
4. Mobile SNS intensity	–0.10*	0.11**	0.36**	1				
5. Living in Germany	0.04	–0.03	–0.12*	–0.25**	1			
6. Education background	–0.02	–0.13*	–0.01	–0.05	0.03	1		
7. Gender	–0.02	0.02	0.03	–0.06	–0.14**	–0.09	1	
8. Age	–0.05	–0.01	–0.07	–0.10	0.24**	0.05	–0.04	1

* $p < .05$. ** $p < .01$.

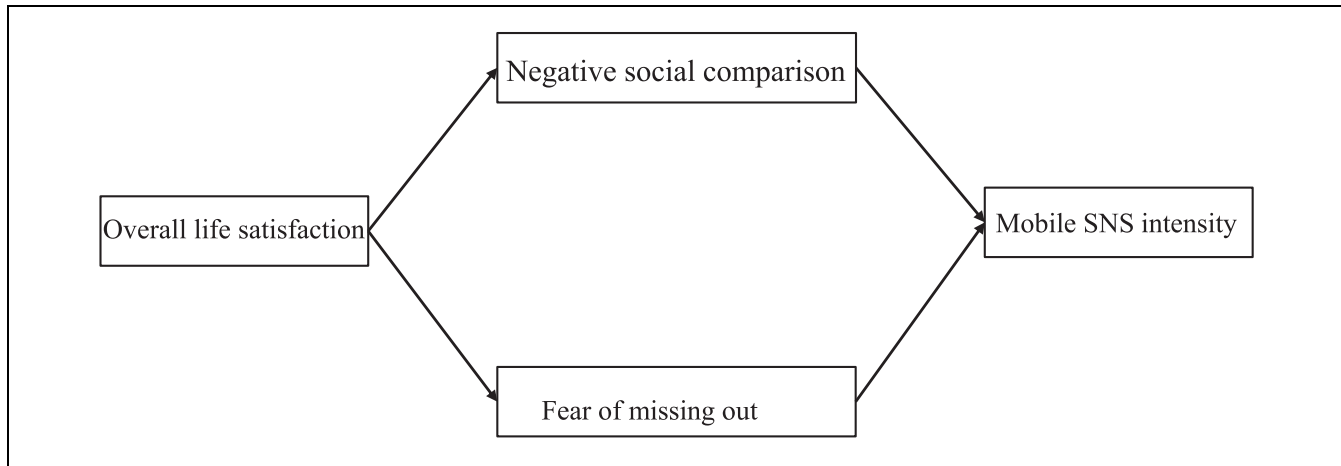


Figure 1. The hypothesized research model.

adapting the procedure analysis of moment structures (AMOS). According to a chi-square criterion, the findings generally showed an excellent fit for this hypothesized research model displayed in Figure 1. $p = .353$, $CMIN/DF = 1.93$, $GFI = 0.98$, $AGFI = 0.99$, $NFI = 0.91$, $RFI = 0.97$, $IFI = 0.99$, $TLI = 0.96$, $CFI = 0.99$, $RMSEA = 0.23$. This findings showed that overall degrees of life satisfaction was negatively associated with both negative social comparison ($b = -0.54$, $p < .01$) and fear of missing out ($b = -0.73$, $p < .01$). Therefore, H2 and H3 were confirmed. Negative social comparison was positively linked to mobile social networking intensity ($b = 0.21$, $p < .01$), supporting H4. The perception of fear of missing out was also positively related to mobile social media intensity ($b = 0.45$, $p < .05$), supporting H5. This conclusion indicated that overseas students high in fear of missing out were more liable to utilize mobile SNS during their study abroad. Next, so as to examine the indirect effects, the research employed the method suggested by previous studies (Niu et al., 2018; Oberst et al., 2017). More specifically, the significance testing outcomes indicate that the indirect influence of negative online comparison in the associations between overall life satisfaction and mobile SNS intensity was statistically significant ($b = 0.03$, $SE = 0.044$, $p < .05$), the direct influence is not significant ($b = 0.01$, $SE = 0.021$, $p = .24$), which could verify the mediating role of negative social comparison. Likewise, the indirect path from overall satisfaction with life via fear of missing out to mobile SNS intensity was also mediated by the sense of fear of missing out within the model ($b = 0.06$, $SE = 0.032$, $p < .05$). These outcomes indicated that overall life satisfaction was negatively associated with a higher level of perceived negative social comparison and fear of missing out, which in turn, was negatively associated with mobile

SNS intensity. Hence, the results generally supported the proposed hypotheses (see Figure 2).

Discussion

Key Findings

The overriding objective in this current research was to systematically and thoroughly explore the mechanism whereby overall life satisfaction could affect Chinese international students' negative social comparison, fear of missing out and mobile SNS use intensity in Germany, after controlling for demographic variables. Deriving from the self-determination theory (Alt, 2015; Reer et al., 2019), our research probably stimulate a fresh research area by identifying potential influence that overall life satisfaction of international students has potential influence on mobile social media involvement, exploring the mediational role of negative social comparison and fear of missing out, and offering another fresh piece of evidence to conduct a comprehensive evaluation of international students' life satisfaction and mental health in contemporary digital media age.

Firstly, the results in current study surveying international students obviously indicated that overall life satisfaction is negatively associated with the intensity of mobile SNSs, suggesting that international students with lower degrees of overall gratification with present life would utilize mobile social apps more extensively. Indeed, this discovery is in line with past research on life satisfaction and the mobile-based media (Oberst et al., 2017; Przybylski et al., 2013; Reer et al., 2019). More specifically, Oberst, et al. unraveled that appearance and progression of psychopathological symptoms such as depression and distraction were associated with incrementally social media engagement (Oberst et al., 2017) and Reer, et al. demonstrated that German internet users

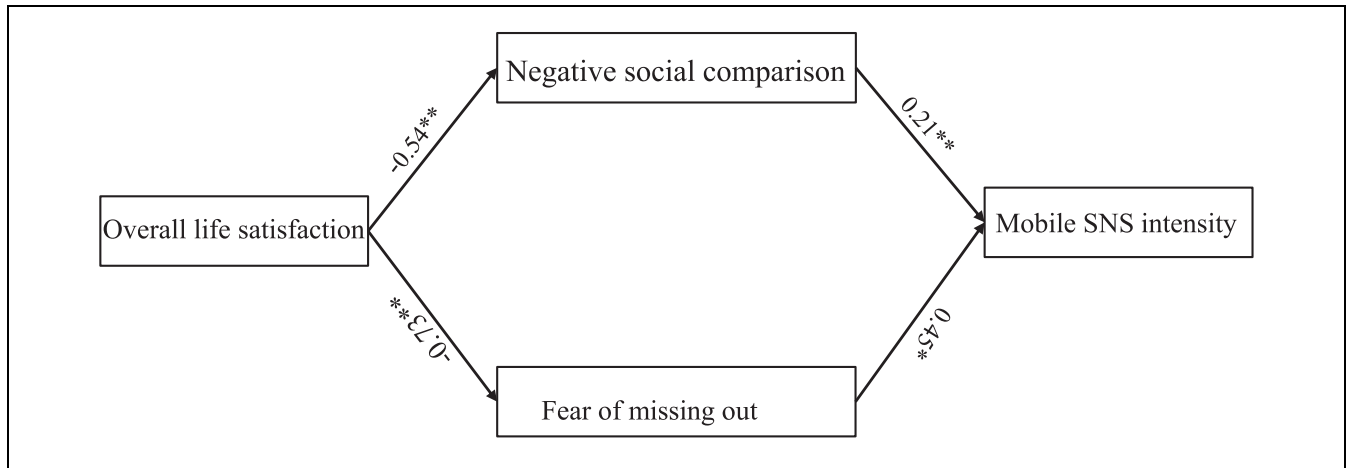


Figure 2. The results of structural equation model.

* $p < .05$. ** $p < .01$.

with higher degrees of psychosocial depression and unsatisfactory tend to occur higher usage of mobile SNSs-related behavior (Reer et al., 2019). Notably, this article explored particular group of overseas students who studied at an alien environment. Minority international students' suffering of discrimination could bring about harmful effects on life satisfaction (Sun et al., 2021). The digital social networks offer fresh channels for overseas students to keep in touch with both their home country and host country where they live now (Hofhuis et al., 2019). It might be possible that international students may have the feeling that adopting diversified social apps through smart devices could assist them to tackle encountered difficulties, adjust to campus life and obtain inner sense of belonging during transitional period in a foreign society. The higher host social connectedness may alleviate the harmful impacts of perceived discrimination and psychological consequence. Therefore, the linkage between life satisfaction and social media involvement was investigated further in all these empirical investigations, which also could reinforce the viewpoint that multiple mobile social platforms can address this significant demand by offering access to abundant contents about other individuals that may feed an instinctive requirement for information concerning social connections (Hetz et al., 2015; Roberts & David, 2020).

Secondly, our research supplies evidence to support the assumption that overall life satisfaction negatively affected both negative social comparison and fear of missing out. This findings also corroborate existing studies considering that the young who have evidenced unmet gratification of the fundamental psychological requirements for competence, autonomy, and interpersonal connectedness prone to indicate higher fear of missing out involvement (Pang & Ruan, 2023; Przybylski et al., 2013;

Schmuck et al., 2019). This relationship may be attributable to the fact that lower level of psychological need gratification, demonstrated by previous studies as a vulnerability element for behavioral malfunctioning in diverse fields, could also result in a detrimental element for the sense of fear of missing out. Especially for students studied abroad, facing even more conflicts and life pressure prompt them to make greater efforts to achieve self-psychological needs which generate an universal sensitivity to fear of missing out (Uram & Skalski, 2022). Meanwhile, the research also confirmed a negative relation between overall life satisfaction and negative social comparison. In other words, low levels of life satisfaction among international students more frequently compare themselves with others in communicate and access information process online. The negative association between overall life satisfaction and negative social comparison has been demonstrated in previous investigation (Oberst et al., 2017), which have deemed that especially adolescents with psychological health issues such as stressed and isolated typically experience lower levels of self-evaluation and incline to involve in negative comparison because they desire to decline self-uncertainty.

Thirdly, as hypothesized, the current study discovered a statistically significant association between international students' negative social comparison and mobile SNSs use intensity. Our finding indicated that participants who tend to believe that peers are having better living conditions than themselves may further reinforce the usage of mobile social media. The findings have yielded consistent results with previous extended studies on digital media interaction that indicated young generation which has the more intensive engagement in social media interaction is associated with more frequent negative comparison (de Vries & Kühne, 2015; Keles et al., 2020;

Rozgonjuk et al., 2019). A possible interpretation for this result might be that mobile SNSs seem to be more attractive to younger generation because they could supply a large amount of information about other individuals and thereby may be ideally suited for negative comparisons. International students experienced higher levels of study pressure due to the forceful motivation to achieve academic success in a new environment where Asian students are always discriminated against (Uram & Skalski, 2022). Therefore, they may be engaged in negative social comparison for self-improvement, which lead to more frequent SNSs usage. Furthermore, fear of missing out was also identified to be positively influence SNSs use intensity, which could be explained by the possibilities that social media channels have the capacity for individuals to permanently satisfy social relatedness needs and continually stay informed about other people's present current activities and experiences (Boulianne & Theocharis, 2020; Przybylski et al., 2013).

Finally, drawing insights from previous studies on social media use and psychological issues of overseas student and for deeper comprehending of relationship between mobile SNSs use intensity and psychological status, mediation analyses were employed to further unpack the underlying mechanism. The study discovered that negative social comparison and fear of missing out could jointly mediate the specific interaction between overall life satisfaction and mobile SNSs interaction. The results indicated that international students with psychological health problems would render to extensively use WeChat because the increased desire to compare with other people and because the higher degrees of fear of missing out they experience. Actually, in existing studies, fear of missing out was approved to be a crucial mediator for explaining the link of subjective well-being and SNSs usage (Oberst et al., 2017; Reer et al., 2019) and the association between motivational variables and SNSs involvement (Alt, 2015; Roberts & David, 2020). Therefore, the findings of this article may go beyond earlier demonstration and have a unique insight by confirming that fear of missing out and negative comparison could mediate the path between overall satisfaction with current life and mobile social media interaction among sojourning students in the transition period. And our fresh findings of the relationship outlined above contribute to fully understand the subjective well-being and psychological health issues have a stronger association with mobile social apps, which are understood as pivotal protective mechanisms for international students' development.

Limitations and Future Directions

Several limitations of the current study and further directions for following investigations should to be

cautioned. First, this research is implemented in one single university in Germany; thereby, the findings may could not necessarily be generalized to international students of other universities. Second, all of the assessments in the analyses are merely on the basis of self-reported data. Following studies could adopt distinct methodologies in evaluating the study variables, consisting of triangulating approaches to survey assessment and qualitative analysis techniques. Third, given the cross-sectional data analysis of this research, the study is unable to conduct further analysis of overall life satisfaction and social media use (Chen & Lee, 2013). It is not possible to judge whether the relationship between overall life satisfaction and mobile SNS intensity has changed with time elapsing. Hence, launching longitudinal studies with a certain span of time is necessary to further exactly unpack how mobile social media users' long-term usage unconsciously influence the feeling of gratification with life (Niu et al., 2018). Finally, because of the main focus of the article being whether or not particular psychology states and social media use intensity influence life satisfaction, this study does not further explore how other key variables might affect Chinese or Asian international students differently. Other significative factors, such as social support from home or host country (C. D. C. Wang et al., 2021), acculturative stress (Gebregergis et al., 2020), perceived discrimination (Dovchin, 2020) and homesickness (Sezer et al., 2021) and different type of SNSs use motivation (Ngai, 2019) still remain worthy of consideration and investigation. Future research should cluster the above-mentioned variables and investigate the relationships among these factors and life satisfaction.

Closing Conclusion

The study is among the first that strives to empirically probe the intricate associations between overall life satisfaction, negative social comparison, fear of missing out, as well as mobile social media use intensity among Chinese international students studying in Germany. The results discovered that overall life satisfaction probably related to oversea students' sense of negative comparison and fear of missing out, which in turn increase the likelihood that these sojourning students extensively use mobile social media technologies. Accordingly, the specific relations identified in this research could help better understand the mechanism and contributes to this ongoing discussion about emerging communication technology engagement and life satisfaction among international student population in the mobile media-mediated context.


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ORCID iD

Hua Pang  <https://orcid.org/0000-0001-6490-9035>

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