



# Basic Psychological Needs and Psychological Well-being: The Mediating Role of Instagram Addiction

Sayed Ali Sharifi Fard<sup>1</sup> · Mark D. Griffiths<sup>2</sup> · Farnaz Mohseni<sup>3</sup> · Safdar Nabi Zadeh<sup>4</sup> · Golnaz Ali Babaei<sup>1</sup>

Received: 4 May 2022 / Revised: 5 March 2023 / Accepted: 10 March 2023  
© The Author(s) 2023

## Abstract

Instagram is a popular social network platform that brings benefits to many. However, for a small minority, problematic use may be an issue of concern (i.e., Instagram addiction). This addiction appears to originate from various contexts and can also have psychosocial consequences. The present study investigated the basic psychological needs and psychological well-being and the mediating role of Instagram addiction. The sample comprised 660 participants who completed a number of psychometric scales including the: Instagram Addiction Scale (15 questions), Basic Psychological Needs Scale (21 questions), and Psychological Well-being Scale (18 questions). The results confirmed the fit of the model, and showed the direct adverse and significant effects of basic psychological needs on Instagram addiction, Instagram addiction on psychological well-being, and the positive and significant direct impact of basic needs on psychological well-being. There were also significant indirect effects of basic needs (autonomy, competence, and relatedness) in well-being via Instagram addiction. The failure to satisfy basic psychological needs appears to play an important role in the addictive use of Instagram, leading to a decrease in psychological well-being.

**Keywords** Social media addiction · Instagram addiction · Basic psychological needs · Psychological well-being · Iranian students

## Introduction

Instagram is an image-based social network for sharing personal photos and videos (Omnicores, 2020). This platform allows users to take pictures, apply filters, chat, and share virtual content with fans who can ‘like’ and comment on them (Kim et al., 2017). Instagram is one of the fastest-growing social network platforms among adults worldwide (Omnicores, 2019). Also, approximately 59% of its users are aged between 18 and 29 years (Alhabash & Ma, 2017; Omnicores, 2019). For a minority of users, this popularity carries the risk of addiction (Kuss & Griffiths, 2017). Although addiction to social networks such as Instagram is not officially recognized as a diagnosis (Moqbel & Kock, 2018), various scholars have classified social media addiction as a subset of behavioral addictions.

For instance, using a biopsychosocial framework, Griffiths (2005) claims that any behavior that features six core components (i.e., salience, mood modification, tolerance, withdrawal, conflict, and relapse) can be operationally defined as an addictive behaviors (including Instagram addiction if all six consequences are endorsed by Instagram user). Andreassen and

---

✉ Mark D. Griffiths  
mark.griffiths@ntu.ac.uk

Sayed Ali Sharifi Fard  
sharififard68@gmail.com

Farnaz Mohseni  
F\_mohseni70@yahoo.com

Safdar Nabi Zadeh  
nabizadeh.safdar@yahoo.com

Golnaz Ali Babaei  
g.babaei1991@gmail.com

<sup>1</sup> Clinical Psychology, Mohaghegh Ardabili University, Ardabil, Iran

<sup>2</sup> International Gaming Research Unit, Psychology Department, Nottingham Trent University, 50 Shakespeare Street, Nottingham NG1 4FQ, UK

<sup>3</sup> General Psychology, Alborz Branch, Azad University, Alborz, Iran

<sup>4</sup> Educational Psychology, Bu Ali Sina University, Hamedan, Iran

Pallesen (2014) reviewed various studies and in a review paper concluded that social network users who become addicted need to spend a lot of time on social media platforms and use the activity as a tool to reduce negative feelings such as guilt, anxiety, restlessness, and depression. They also noted that when such users are unable to access their social media accounts, they become stressed, restless, and irritable and are unable to reduce the duration of their use of their network use. Addictive use of social media can also interfere with other important activities in life including interpersonal relationships, as well as occupational and/or educational tasks (Serenko & Turel, 2015; Ponnusamy et al., 2020; Karimi et al., 2021).

Social networks (SNs) have become an important part of people's daily life, and the consequences of using SNs need to be investigated. Reviews have shown that more studies and different strategies are needed to understand the relationship between SN use and the well-being and health of users (Devine & Lloyd, 2012). One of the perspectives used to explain addiction to social networks is motivational theories. Here, it is posited that individuals who are driven by specific motivations (e.g., entertainment, self-presentation, socializing) and psychological needs (e.g., autonomy, competence, relatedness) may end up using social media excessively (Masur et al., 2014). Some studies have been influenced by theories related to motivation, such as the theory of uses and gratifications (Katz et al., 1974) and the theory of self-determination (Deci & Ryan, 2000). In these studies, satisfaction (such as maintaining relationships, interacting with others, and receiving social support) and social psychological needs are different motives that predict addictive use of social media (e.g., Gao et al., 2017). Using social media is fun and relaxing, but excessive use of it may be addictive (Klobas et al., 2018). The use of these networks can become a maladaptive mechanism that individuals use to temporarily escape from negative pressures and attitudes, which can lead to addictive use of social networks in the long-term for a minority of users (Walburg et al., 2016).

According to recent studies, Instagram users can devote a lot of time on this social media application, and most of their use of it is personal (Korkmaz & Dilmaç, 2021). Some behavioral habits like uploading the best photo and being praised are very important to individual users. Therefore, users often tend to feel good about themselves and are very sensitive to criticism, and this special sense of satisfaction affects the individual's motivations for increased use and potentially addictive behavior (Sheldon et al., 2017). Environmental and cultural changes affect people's behaviors and feelings. In the context of new changes and the effects of social interactions, the individual's psychological needs also play an important role in online behavior (Li et al., 2016a, b). A low level of well-being affects psychological needs and can result in activities that expose individuals to the risk of behavioral addiction (Chen & Nath, 2016). Various

studies have investigated the relationship between internet addiction and psychological needs (e.g., Li et al., 2016a, b; Yu et al., 2013). Psychological needs are affected by various life events, and changing conditions can cause behavioral and emotional problems among some individuals, and these changes affect addiction to online behaviors (Gao et al., 2021). Numerous environmental and personal factors are involved in learning and motivating human behaviors. Among these factors are the basic needs that exist inherently and universally within all individuals and play an essential role in guiding behaviors and providing the necessary motivation for active engagement with the environment, healthy psychological functioning, and skills development (Talley et al., 2012). In the context of self-determination theory, Deci and Ryan (2000) showed that the basis of all human motivations lies in the three universal needs (i.e., autonomy, competence, and relatedness). The need for independence means the desire to choose, initiate, and regulate behavior (Deci & Ryan, 2000; Luyckx et al., 2009) to feel oneself directing one's behavior and choosing one's values and goals at will. Moreover, these are meaningful to individuals (Kaplan & Assor, 2012). Competence reflects an individual's desire to control their actions, environment, and sense of accomplishment (Deci & Ryan, 2000; Martela et al., 2017). The need for relatedness also means that individuals have mutual respect and a sense of belonging to others (Luyckx et al., 2009). Satisfaction of basic needs is essential for optimal psychological development, personality integration, and well-being (Deci & Ryan, 2000; Jang et al., 2016; Ryan & Deci, 2017).

Therefore, and related to the present study, although no previous study has examined the role of basic psychological needs in Instagram addiction, research by Özteke Kozan et al. (2019) showed that basic psychological needs have a negative and significant relationship with problematic use of the internet and social networks. Research also shows that the use of the internet more generally, is a context for individuals' satisfying their psychological needs (Lin et al., 2014; Greitemeyer et al., 2014; Neufeld & Malin, 2019; Karimi et al., 2021). One study also found that the personality traits of agreeableness, conscientiousness, and self-liking are negatively and significantly correlated with Instagram addiction (Kircaburun & Griffiths, 2018).

Therefore, addiction to social networks such as Instagram can have detrimental consequences on various aspects of life and mental health, including the psychological well-being of individuals (D'Souza & Hemamalini, 2018; Ponnusamy et al., 2020). Psychological well-being is a concept derived from positive psychology and refers to striving to develop potential talents and abilities that demonstrate an individual's understanding and capacity for overall life quality (Wu et al., 2020). Also, individuals with good well-being often experience positive emotions, are optimistic about events (even stressful ones), and use more healthy coping

strategies (Heintzelman & Diener, 2019; Satici et al., 2021). In this regard, studies show that social media addiction has a negative and significant relationship with psychological well-being (De Lenne et al., 2018; Sharma & Sharma, 2018; Arabi et al., 2021). A study also showed that Instagram addiction negatively and significantly affected psychological well-being (Sharifi Fard et al., 2022). Also, Instagram addiction significantly and negatively correlates with students' sense of happiness and self-confidence (Zargar, 2020).

In general, empirical studies have shown that underlying factors (personality and needs) contribute to social network addiction. However, socio-cultural and behavioral reinforcement factors can maintain this dependence (Andreassen & Pallesen, 2014). Moreover, social network use is a growing trend among individuals in many societies, especially adolescents and young people. Problematic use of social networks can also cause damage and interfere in individuals' lives such as interpersonal problems in the family and academic problems (e.g., D'Souza & Hemamalini, 2018; Ponnusamy et al., 2020; Sharifi Fard et al., 2022). Consequently, over the past decade, empirical research examining problematic use of social networks has increased in this area (Kuss & Griffiths, 2017). It is essential to examine the possible factors associated with problematic use of social media networks and their consequences (Yu et al., 2013). Therefore, it is assumed that not satisfying basic human needs can lead individuals to try and satisfy their needs in different ways such as using Instagram (a social media platform that is very popular in Iran, where the present study was carried out). It is also assumed that problematic use of Instagram can lead to harmful consequences (Zargar, 2020) such as reduced well-being. According to Li et al. (2016a, b), psychological needs are not only influenced by the social context, but also variables such as motivation, attitudes and different values, and can cause different online behaviors such as addiction to social media if a necessary experience is lacking. Satisfying these needs can be effective in increasing well-being but addictive behavior could lead to low well-being. At this point, it should be noted that psychological needs are not the sole determinant of well-being without other factors such as online addiction behavior. For this reason, online addiction behavior (in particular Instagram addiction) may be a mediator between psychological needs and well-being. Therefore, the present study investigated the relationship between basic psychological needs and psychological well-being, and the mediating role of Instagram addiction.

## Method

### Participants and Procedure

The present research study comprised an online cross-sectional survey. The target population was university students

in Mashhad City. The sample initially included 681 students using a four-stage cluster sampling method and 663 participants remained for analysis after the elimination of those with incomplete data ( $n=18$ ). The participants were selected in four stages. First two universities were selected. From these, one faculty from each university was selected. From these, two departments from each faculty was selected. Finally, four classes from each department at three levels (Bachelor, Masters, and doctorate) were selected (all steps comprised random sampling at each step conducted using a lottery draw). There were also three outliers that were removed from the dataset and the final sample comprised 660 participants (476 females; 72.1%) and (184 males; 27.9%). The mean ages for females and males were 23.41 years and 24.11 years, respectively. The distribution of students by graduate level was: Bachelor students = 478 (72.4%); Master's students = 138 (20.9%), and doctoral students = 44 (6.7%).

## Measures

**Basic Psychological Needs Scale (BPNS-21)** The BPNS-21 comprises 21 items and was developed by Gagne (2003; Persian version: Besharat, 2013) to assess basic psychological needs satisfaction at the general level. The scale comprises three factors: autonomy, competence, and communication. Items (e.g., "People generally treat me relatively friendly") are scored from 1 (not true at all) to 7 (absolutely true) and the scoring range for each component is 7 to 21. A higher score on each component indicates a higher level of satisfaction of the specific need. Cronbach alphas in the present study were 0.70 (autonomy), 0.68 (competence), and 0.72 (communication) and 0.87 for the whole scale.

**Instagram Addiction Scale (IAS-15)** The IAS-15 comprises 15 items and was developed by Kircaburun and Griffiths (2019; Persian version: Sharifi Fard et al., 2022) by modifying the Internet Addiction Scale (Young, 1998). Items (e.g., "How much do you prefer Instagram excitement over being with close friends?") are scored from 1 (never) to 6 (always) and the scoring range is 15 to 90. The scale comprises two factors (i.e., social effect and coercion). Cronbach alphas in the present study were 0.74 for social effect, 0.84 for coercion, and 0.87 for the whole scale.

**Ryff Psychological Well-Being Scale (RPWS-18)** The RPWS-18 comprises 18 items and was developed by Ryff (1989, Ryff & Singer, 2006; Persian version: Khanjani et al., 2014). This scale has six factors: independence, mastery on environment, personal growth, positive relationship with others, purposefulness in life, and self-acceptance. Items (e.g., "Life is a continuous process of learning, change, and growth for me") are scored from 1 (strongly disagree) to 6 (strongly agree) and the scoring range is 3 to 18 for each factor. The

**Table 1** Sociodemographic information of study participants ( $n = 660$ )

Variable	N	%	Between-group tests				
			Autonomy	Competence	Relatedness	Instagram addiction	Well-Being
Age	23.75	2.11	$r = 0.07$	$r = 0.08$	$r = 0.11$	$r = 0.05$	$r = 0.01$
Gender			$t = 0.98$	$t = 1.38$	$t = -0.85$	$t = 1.92$	$t = 0.03$
Male	184	27.9					
Female	476	72.1					
Marital status			$t = 1.23$	$t = 1.10$	$t = -1.74$	$t = 0.32$	$t = -0.89$
Single	616	93.3					
Divorced	44	6.7					
Income (per month)			$F = 3.04$	$F = -1.52$	$F = 0.22$	$F = 2.41$	$F = 2.66$
≥\$1000	15	2.3					
\$500–1000	57	8.6					
\$200–500	217	32.9					
≤\$200	371	56.2					
Occupational status			$F = 1.68$	$F = 0.81$	$F = 2.47$	$F = 1.93$	$F = 4.78^*$
Unemployed	45	6.8					
Freelance	72	10.9					
Employed	39	5.9					
Part-time job	504	76.4					

\*  $p < 0.05$ 

sum of the scores of these six factors is calculated as the overall score of psychological well-being. Cronbach alphas in the present study were 0.69 for independence, 0.73 for mastery on environment, 0.70 for personal growth, 0.66 for positive relationships with others, 0.65 for purposefulness in life, 0.78 for self-acceptance, and 0.71 for the whole scale.

**Sociodemographic Information** The survey also included questions relating to sociodemographic information including age, gender, marital status, income, and occupation. These characteristics are shown in Table 1.

### Statistical Analysis

Variables were examined for violations of normality and the presence of outliers. Descriptive analyses were then conducted. Pearson correlations and path analysis were used

**Table 2** Mean, standard deviation and normality of basic psychological needs, Instagram addiction and psychological well-being

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Autonomy	25.17	8.04	0.32	-0.06
Competence	21.05	6.75	0.08	-0.20
Relatedness	25.43	6.95	0.18	0.15
Instagram addiction	72.07	11.69	-0.86	0.33
Well-Being	52.20	10.63	0.48	0.16

to test the model. Path analysis was used to examine the relationships between variables in the model. The present study investigated the effect of basic psychological needs on wellbeing by considering the mediating role of Instagram addiction, so path analysis was used to examine the direct and indirect effects of study variables.

### Results

Descriptive indicators (means and standard deviations) of basic psychological needs, Instagram addiction, and psychological well-being are shown in Table 2 alongside the statistics relating to skewness and kurtosis.

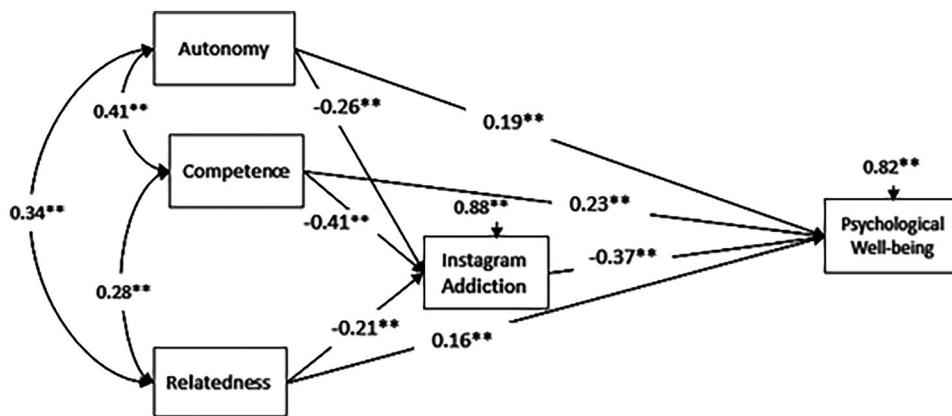
Table 2 shows the mean and standard deviation of the research variables. The skewness and kurtosis statistics between +1 and -1 were obtained, indicating the normal

**Table 3** Correlation matrix of research variables

Variable	1	2	3	4	5
1 Autonomy	–				
2 Competence	0.44**	–			
3 Relatedness	0.52**	0.38**	–		
4 Instagram Addiction	-0.33**	-0.34**	-0.16**	–	
5 Psychological well-being	0.55**	0.68**	0.49**	-0.39**	–

\*  $p < 0.05$ , \*\*  $p < 0.01$

**Fig. 1** Proposed mediation model (\* $p < 0.05$ , \*\* $p < 0.01$ )



distribution of research variables. The correlations between the variables were then calculated, and are presented in Table 3.

Table 3 shows the correlations between all the main variables. As shown in the table, there were significant correlations between all variables ( $p < 0.01$ ). Path analysis was used to investigate the mediating role of Instagram addiction in the relationship between basic psychological needs and well-being. In the default study of independence of observations, the Durbin-Watson test was used, equal to 1.88 (appropriate value between 1.5 to 2.5). The default study examined the non-collinearity between the independent variables, tolerance indices, and VIF (variance inflation factor). The results showed that VIF values were less than 3 and tolerance values higher than 0.3, indicating no multicollinearity. Path analysis was used to examine the relationships between variables in the developed model, the results of which are presented in Fig. 1.

The chi-square ratio to the degrees of freedom ( $\chi^2/df$ ) was 2.82 where values below 3 are good ( $p < 0.05$ ). The goodness of fit index (GFI) was 0.92, the comparative fit index (CFI) was 0.95, and the normed fit index (NFI) was 0.94 (values above 0.9 are appropriate for all fit indices). Also, the root means a square error of approximation (RMSEA) was 0.054, where values less than 0.05 are good, and values above 0.05 to 0.08 are acceptable. In general, the model fit results in Fig. 1 show that the relationship between

basic needs and well-being with the mediation of Instagram addiction had a good fit. The standard relationships and significant levels of the variables in the model based on Fig. 1 were then examined, the results of which are presented in Table 4.

The results of Table 4 show that the direct effects were all significant (positive or negative). The negative direct effects comprised (i) autonomy need on Instagram addiction ( $\beta = -0.26, p < 0.01$ ), (ii) competency need on Instagram addiction ( $\beta = -0.41, p < 0.01$ ), (iii) relatedness need on Instagram addiction ( $\beta = -0.21, p < 0.01$ ), and (iv) Instagram addiction on well-being ( $\beta = -0.37, p < 0.01$ ). The positive direct effects comprised (i) autonomy need on well-being ( $\beta = 0.19, p < 0.01$ ), (ii) competency need on well-being ( $\beta = 0.23, p < 0.01$ ) and (iii) relatedness need on well-being ( $\beta = 0.16, p < 0.01$ ). To investigate the mediating role of Instagram addiction in the relationship between basic psychological needs and well-being, the bootstrap method using Macro program (Preacher & Hayes, 2008) in SPSS-22 software was utilized. The results are presented in Table 5.

Table 5 shows the bootstrap results and 95% confidence intervals and bootstrap re-sampling for 5000 samples are considered. According to Preacher and Hayes (2008), the role of the mediator variable is significant if the upper and lower limit values (confidence intervals) do not include zero. The indirect effects of basic psychological needs on

**Table 4** Standard coefficients and significant levels of relationships between research variables

Variable	Direct effect	p	95 %CI	
			(Lower)	(Upper)
The effect of autonomy on Instagram addiction	-0.26	0.01	-0.115	-0.325
The effect of competence on Instagram addiction	-0.41	0.01	-0.161	-0.508
The effect of relatedness on Instagram addiction	-0.21	0.01	-0.078	-0.235
The effect of autonomy on well-being	0.19	0.01	0.052	0.184
The effect of competence on well-being	0.23	0.01	0.153	0.297
The effect of relatedness on well-being	0.16	0.01	0.018	0.104
The effect of Instagram addiction on well-being	-0.37	0.01	-0.136	-0.448

Abbreviations: CI confidence interval

well-being were investigated. Based on the results of bootstrapping (95% confidence interval), the indirect impact of the autonomy need on well-being via Instagram addiction ( $\beta=0.10$ ) with a confidence interval ranging 0.001 to 0.044 was significant. The indirect effect of competency needs on well-being via Instagram addiction ( $\beta=0.15$ ) with a substantial confidence interval ranging 0.011 to 0.039 was significant. Finally, the indirect impact of relatedness need on well-being via Instagram addiction ( $\beta=0.08$ ) with a confidence interval ranging 0.008 to 0.031 was significant.

## Discussion

With the advancement of technology and the availability of the internet, most young people spend many hours every day on social networks. The present study was conducted to investigate the relationship between basic psychological needs and psychological well-being, and the mediating role of Instagram addiction. The results confirmed the fit of the basic needs and well-being model mediated by Instagram addiction. The results also show the direct effects of basic psychological needs (autonomy, competence, and relatedness) on Instagram addiction. Although there have been no previous studies examining basic psychological needs and Instagram addiction, there are many studies showing that there is an association with other types of social media platforms (e.g., Devine & Lloyd, 2012; Gao et al., 2021; Liu et al., 2020; Yu et al., 2013), Instagram Addiction on well-being (De Lenne et al., 2020) and basic needs on well-being (Neufeld & Malin, 2019).

Failure to satisfy basic psychological needs leads to numerous harms, including poorer health and reduced mental well-being (Deci & Ryan, 2000). In this regard, not meeting basic needs usually leads to a serious effort to satisfy such needs. Under these circumstances, the overcompensation mechanism is taken as a serious approach to satisfying needs. Due to the feeling of deprivation and severe lack of autonomy, competence, and relatedness, individuals try to achieve their independence in different ways, prove their competence, and establish new interpersonal relationships. Social networking platforms such as Instagram – given its widespread popularity in Iran, as recently shown by Sharifi Fard et al. (2022) – are an ideal opportunity to engage in

behaviors that make up for these shortcomings because the features and facilities available on Instagram overlap with the requirements to satisfy basic needs.

Regarding autonomy, due to the lack of restrictions and rules on Instagram compared to the real world, the lack of parental controls (at home), less fear and anxiety about behavioral actions than the real world and the absence of socio-cultural rules like the real world, a more favorable environment is provided for autonomy. In this regard, Instagram allows users to have behavioral and thinking freedom. When users post photos and videos of themselves and their talents (for example, sporting performances or playing music) on a personal page and are liked by others and receive positive comments, they experience feelings of competence. This process becomes a reinforcement (Skinner, 1958, 1969) for more activity on Instagram which for some may lead to the problematic or addictive use of Instagram. In terms of communication, the Instagram platform has an excellent capacity to build new interpersonal relationships (Omnicores, 2020). On the other hand, due to the cultural limitations of girl-boy relationships in Iran, Instagram has a significant capacity for forming relationships, making friends, and having romantic dates. Therefore, according to what has been aforementioned, in all three needs components, the overcompensation is a defence mechanism (i.e., a psychoanalytic and underlying factor or a process to compensate for a deficiency or defect that is felt) because unsatisfied needs, such as latent energies, are trying to be satisfied as explained above (Deci & Ryan, 2000). Instagram, with its available features and facilities, makes this situation more accessible and time-efficient. Also, meeting the needs on Instagram can increase the desire to use it as favorable reinforcement.

It seems spending too much time on Instagram also limits the opportunity for goals and personal growth (which are components of well-being) because the content on Instagram, in addition to being very diverse and extensive, can interfere with other aspects of life such as academic performance (Lin et al., 2014). In terms of self-acceptance, the present authors speculate that an individual may be looking for faces of ideal self on Instagram due to not achieving the perfect self, which, of course, can be both a source of motivation as well as recover their forgotten desires and wants, which can eventually lead to a rejection of the present authentic self.

**Table 5** Results of examining the mediating role of Instagram addiction in the relationship between basic psychological needs and well-being using the bootstrap method

Direction	Indirect effect	Standard error	95 %CI	
			(Lower)	(Upper)
The effect of autonomy on well-being	0.10**	0.013	0.001	0.044
The effect of competence on well-being	0.15**	0.009	0.011	0.039
The effect of relatedness on well-being	0.08*	0.011	0.008	0.031

\* $p < 0.05$ , \*\* $p < 0.01$

Therefore, based on definition of behavioral addiction (Griffiths, 2005), problematic Instagram use can deprive an individual of inner freedom and affect their independence for healthy behavior in the real world as well as on social networks (Ponnusamy et al., 2020). Moreover, the well-being components are psychologically interconnected (Neufeld & Malin, 2019) which can become another way to reduce an individual's well-being. Therefore, it seems that the core of reducing well-being through Instagram addiction, on the one hand, is the transfer of time and energy from the real world to the Instagram space, and on the other hand, disturbs the cognitive and emotional balance by impact of very diverse content with an influx of emotions and opinions about various issues that are expressed in the form of comments, stories, and likes.

In the case of explaining needs and well-being, needs are considered as the basis of well-being. For example, an individual whose relatedness basic needs are not satisfied may in relationships be avoidant or dependent, both of which negatively affect relationships with others, or a lack of competency can lead to interference with personal growth, purpose in life, and even environment mastery, because providing a feeling of competence is considered as the foundation of these three components of well-being.

Overall, the results showed that Instagram addiction had an effective mediating role in the relationship between basic needs and well-being. This means that in the case of the association (see correlation matrix in Table 3), the direct relationship between basic needs and well-being was stronger than the relationship between these variables in the model, which shows that Instagram addiction played a partial mediating role. In explaining these findings, it should be noted that the development of basic needs such as autonomy, competence, and relatedness have a positive effect on improving personal growth and interpersonal relationships, and individuals who have higher basic needs that are met are less likely to engage in addictive behaviors (such as addiction to social media networks) and that their well-being is also better.

### Limitations and Future Research

The present study has several limitations. The sample was young and comprised only university students from two universities. Therefore, the model did not represent all Iranian universities or the Iranian population more generally. Future research needs to be carried out with non-student samples and other age groups. Also, the use of self-report data is another limitation of this study. Therefore, research with other methods such as semi-structured interviews and non-participant observation is recommended. Education regarding the proper use of social networking platforms (and Instagram more specifically) as well as the harmful

effects of problematic and addictive use of Instagram (for example, reduced well-being) may reduce the risk of addiction. Considering the results and the negative relationship between basic needs with Instagram addiction, training and improvement in the field of basic psychological needs such as autonomy, competence and relatedness among university and college student groups would likely reduce the incidence of Instagram addiction. More specifically, the high level of the basic needs being met causes the individuals to experience fewer problems including addictive behavior tendency (such as addiction to social media platforms).

### Conclusion

The present study was conducted to investigate the relationship between basic psychological needs and psychological well-being, and the mediating role of Instagram addiction. The results confirmed the fit of the basic needs and well-being model mediated by Instagram addiction. The results also showed the direct effects of basic psychological needs (autonomy, competence, and relatedness) on Instagram addiction, Instagram addiction on well-being, and basic needs on well-being.

**Data Availability** The data that support the findings of this study are available from the first author upon reasonable request.

### Declarations

**Ethics Approval** The study was approved by the first author's university ethics committee.

**Ethics and Informed Consent** All procedures followed were in accordance with the ethical standards of the ethics committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all participants in the study.

**Conflict of Interest** On behalf of all authors, the corresponding author declares that there are no conflicts of interest.

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References

- Alhabash, S., & Ma, M. (2017). A tale of four platforms: Motivations and uses of Facebook, Twitter, Instagram, and Snapchat among college students? *Social Media+ Society*, 3(1), 1–13. <https://doi.org/10.1177/2F2056305117691544>
- Andreassen, S. C., & Pallesen, S. (2014). Social network site addiction—an overview. *Current Pharmaceutical Design*, 20(25), 4053–4061. <https://doi.org/10.2174/13816128113199990616>
- Arabi, P., Bagheri, N., & Mir Hashemi, M. (2021). The prediction dependency on virtual social networks Based on alexithymia, attachment styles, well-being psychological and loneliness. *Iranian Journal Psychiatry Nursing*, 9(1), 66–76. Retrieved March 29, 2023, from <http://ijpn.ir/article-1-1711-fa.html>
- Besharat, M. (2013). The basic needs satisfaction in general scale: Reliability, validity, and factorial analysis. *Quarterly of Educational Measurement*, 4(14), 147–168.
- Chen, L., & Nath, R. (2016). Understanding the underlying factors of internet addiction across cultures: A comparison study. *Electronic Commerce Research and Applications*, 17, 38–48. <https://doi.org/10.1016/j.elerap.2016.02.003>
- D'Souza, L., & Hemamalini, M. J. (2018). Instagram addiction and depression among college students. *International Journal of Indian Psychology*, 6(4), 96–102. <https://doi.org/10.25215/0604.091>
- De Lenne, O., Vandenbosch, L., Eggermont, S., Karsay, K., & Jolien, T. (2020). Picture-perfect lives on social media: A cross-national study on the role of media ideals in adolescent well-being. *Media Psychology*, 23(1), 1–27. <https://doi.org/10.1080/15213269.2018.1554494>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. [https://doi.org/10.1207/s15327965pli1104\\_01](https://doi.org/10.1207/s15327965pli1104_01)
- Devine, P., & Lloyd, K. (2012). Internet use and psychological well-being among 10-year-old and 11-year-old children. *Child Care in Practice*, 18(1), 5–22. <https://doi.org/10.1080/13575279.2011.621888>
- Gagne, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, 27(3), 199–223. <https://doi.org/10.1080/714044203>
- Gao, Q., Li, Y., Zhu, Z., Fu, E., Bu, X., Peng, S., & Xiang, Y. (2021). What links to psychological needs satisfaction and excessive WeChat use? The mediating role of anxiety, depression and WeChat use intensity. *BMC Psychology*, 9(1), 9–11. <https://doi.org/10.1186/s40359-021-00604-8>
- Gao, W., Liu, Z., & Li, J. (2017). How does social presence influence SNS addiction? A belongingness theory perspective. *Computers in Human Behavior*, 77, 347–355. <https://doi.org/10.1016/j.chb.2017.09.002>
- Greitemeyer, T., Mügge, D. O., & Bollermann, I. (2014). Having responsive Facebook friends affects the satisfaction of psychological needs more than having many Facebook friends. *Basic and Applied Social Psychology*, 36(3), 252–258. <https://doi.org/10.1080/01973533.2014.900619>
- Griffiths, M. D. (2005). A “components” model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10(4), 191–197. <https://doi.org/10.1080/14659890500114359>
- Heintzelman, S. J., & Diener, E. (2019). Subjective well-being, social interpretation, and relationship thriving. *Journal of Research in Personality*, 78, 93–105. <https://doi.org/10.1016/j.jrp.2018.11.007>
- Jang, H., Reeve, J., & Halusic, M. (2016). A new autonomy-supportive way of teaching that increases conceptual learning: Teaching in students' preferred ways. *Journal of Experimental Education*, 84(4), 686–701. <https://doi.org/10.1080/00220973.2015.1083522>
- Kaplan, H., & Assor, A. (2012). Enhancing autonomy-supportive I-Thou dialogue in schools: Conceptualization and socio-emotional effects of an intervention program. *Social Psychology of Education*, 15(2), 251–269. <https://doi.org/10.1007/s11218-012-9178-2>
- Karimi, B., Delavar, A., & Farhangi, A. (2021). Instagram: A new way of seeing and being seen and its consequences. *Rasaneh*, 32(1), 29–51. <https://doi.org/10.22034/bmsp.2021.132232>
- Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Uses and gratifications research. *The Public Opinion Quarterly*, 14, 419–442.
- Khanjani, M., Shahidi, S., Fathabadi, J., Mazaheri, M., & Shokri, O. (2014). Factor structure and psychometric properties of the Ryff's scale of Psychological Well-Being, Short Form (18-item) among male and female students. *Thoughts and Behavior in Clinical Psychology*, 9(32), 27–36.
- Kim, D. H., Seely, N. K., & Jung, J. H. (2017). Do you prefer, Pinterest or Instagram? The role of image-sharing SNSs and self-monitoring in enhancing ad effectiveness. *Computers in Human Behavior*, 70, 535–543. <https://doi.org/10.1016/j.chb.2017.01.022>
- Kircaburun, K., & Griffiths, M. D. (2018). Instagram addiction and the Big Five of personality: The mediating role of self-liking. *Journal of Behavioral Addictions*, 7(1), 158–170. <https://doi.org/10.1556/2006.7.2018.15>
- Klobas, J. E., McGill, T. J., Moghavvemi, S., & Paramanathan, T. (2018). Compulsive YouTube usage: A comparison of use motivation and personality effects. *Computers in Human Behavior*, 87, 129–139. <https://doi.org/10.1016/j.chb.2018.05.038>
- Korkmaz, H., & Dilmaç, B. (2021). Predictive relations between psychological well-being, Instagram addiction and values in university students. *Research on Education and Psychology (REP)*, 5(1), 71–82. Retrieved March 29, 2023, from <https://dergipark.org.tr/en/pub/rep/issue/63330/929531>
- Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, 14(3), 311. <https://doi.org/10.3390/ijerph14030311>
- Li, D., Zhang, W., Li, X., Zhou, Y., Zhao, L., & Wang, Y. (2016a). Stressful life events and adolescent internet addiction: The mediating role of psychological needs satisfaction and the moderating role of coping style. *Computers in Human Behavior*, 63(5), 408–415. <https://doi.org/10.1016/j.chb.2016.05.070>
- Li, D., Zhou, Y., Li, X., & Zhou, Z. (2016b). Perceived school climate and adolescent internet addiction: The mediating role of deviant peer affiliation and the moderating role of effortful control. *Computers in Human Behavior*, 60, 54–61. <https://doi.org/10.1016/j.chb.2016.02.015>
- Lin, H., Tov, W., & Qiu, L. (2014). Emotional disclosure on social networking sites: The role of network structure and psychological needs. *Computers in Human Behavior*, 41, 342–350. <https://doi.org/10.1016/j.chb.2014.09.045>
- Liu, Z., He, K., Wang, R., & Jiang, J. (2020). Do you manage self-image on wechat moments? Causality orientations, basic psychological needs and self-presentation. *Current Psychology*. <https://doi.org/10.1007/s12144-020-00915-w>. Advance online publication.
- Luyckx, K., Vansteenkiste, M., Goossens, L., & Duriez, B. (2009). Basic need satisfaction and identity formation: Bridging self-determination theory and process-oriented identity research. *Journal of Counseling Psychology*, 56(2), 276–288. <https://doi.org/10.1037/a0015349>
- Martela, F., Ryan, R. M., & Steger, M. F. (2017). Meaningfulness as satisfaction of autonomy, competence, relatedness, and beneficence: Comparing the four satisfactions and positive affect as



- predictors of meaning in life. *Journal of Happiness Studies*, 19(5), 1261–1282. <https://doi.org/10.1007/s10902-017-9869-7>
- Masur, P. K., Reinecke, L., Ziegele, M., & Quiring, O. (2014). The interplay of intrinsic need satisfaction and Facebook specific motives in explaining addictive behavior on Facebook. *Computers in Human Behavior*, 39, 376–386. <https://doi.org/10.1016/j.chb.2014.05.047>
- Moqbel, M., & Kock, N. (2018). Unveiling the dark side of social networking sites: Personal and work-related consequences of social networking site addiction. *Information & Management*, 55(1), 109–119. <https://doi.org/10.1016/j.im.2017.05.001>
- Neufeld, A., & Malin, G. (2019). Exploring the relationship between medical student basic psychological need satisfaction, resilience, and well-being: A quantitative study. *BMC Medical Education*, 19, 405. <https://doi.org/10.1186/s12909-019-1847-9>
- Omnicores. (2019). Instagram by the numbers: Stats, demographics & fun facts. Retrieved March 29, 2023, from <https://www.omnicoreagency.com/instagramstatistics/>
- Omnicores. (2020). Instagram by the numbers: Stats, demographics & fun facts. Retrieved March 29, 2023, from <https://www.omnicoreagency.com/instagram-statistics/>
- ÖztekeKozan, H. İ., Baloğlu, M., Kesici, Ş., & Arpacı, İ. (2019). The role of personality and psychological needs on the problematic Internet use and problematic social media use. *Addicta: The Turkish Journal on Addictions*, 6(2), 203–219. <https://doi.org/10.15805/addicta.2019.6.2.0029>
- Ponnusamy, S., Iran Manesh, M., Foroughi, B., & Hyun, S. S. (2020). Drivers and outcomes of Instagram addiction: Psychological well-being as moderator. *Computers in Human Behavior*, 107, 106294. <https://doi.org/10.1016/j.chb.2020.106294>
- Preacher, K. J., & Hayes, A. F. (2008). Contemporary approaches to assessing mediation in communication research. In A. F. Hayes, M. D. Slater, & L. B. Snyder (Eds.), *The Sage sourcebook of advanced data analysis methods for communication research* (pp. 13–54). Sage.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications. <https://doi.org/10.7202/1041847ar>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Ryff, C. D., & Singer, B. H. (2006). Best news yet on the six-factor model of well-being. *Social Science Research*, 35(4), 1103–1119. <https://doi.org/10.1016/j.ssresearch.2006.01.002>
- Satici, B., Kayis, A. R., & Griffiths, M. D. (2021). Exploring the association between social media addiction and relationship satisfaction: Psychological distress as a mediator. *International Journal of Mental Health and Addiction*. Advance online publication. <https://doi.org/10.1007/s11469-021-00658-0>
- Serenko, A., & Turel, O. (2015). Integrating technology addiction and use: An empirical investigation of Facebook users. *AIS Transactions on Replication Research*, 1(2), 1–18. <https://doi.org/10.2307/41409972>
- Sharifi Fard, S. A., Griffiths, M. D., Ali Babaei, G., Nabi Zadeh, S., Majidi, A. H. (2022). Validation of the Persian version of the Instagram Addiction Scale among Iranian students. *Journal of Concurrent Disorders*, 4(3), 53–70. Retrieved March 29, 2023, from <https://b2n.ir/InstagramAddiction>
- Sharma, A., & Sharma, R. (2018). Internet addiction and psychological well-being among college students: A cross-sectional study from central India. *Journal of Family Medicine and Primary Care*, 7(1), 147–151. [https://doi.org/10.4103/2fjfmprc.jfmprc\\_189\\_17](https://doi.org/10.4103/2fjfmprc.jfmprc_189_17)
- Sheldon, P., Rauschnabel, P. A., Antony, M. G., & Car, S. (2017). A cross-cultural comparison of Croatian and American social network sites: Exploring cultural differences in motives for Instagram use. *Computers in Human Behavior*, 75, 643–651. <https://doi.org/10.1016/j.chb.2017.06.009>
- Skinner, B. F. (1958). Reinforcement today. *American Psychologist*, 13(3), 94–99. <https://doi.org/10.1037/h0049039>
- Skinner, B. F. (1969). *Contingencies of reinforcement*. Appleton-Century-Crofts.
- Talley, A. E., Kocum, L., Schlegel, R. J., Molix, L., & Bettencourt, B. A. (2012). Social roles, basic need satisfaction, and psychological health. *Personality and Social Psychology Bulletin*, 38(2), 155–173. <https://doi.org/10.1177/0146167211432762>
- Walburg, V., Mialhes, A., & Moncla, D. (2016). Does school-related burnout influence problematic Facebook use? *Children and Youth Services Review*, 61, 327–331. <https://doi.org/10.1016/j.childyouth.2016.01.009>
- Wu, X., Gai, X., & Wang, W. (2020). Subjective well-being and academic performance among middle schoolers: A two-wave longitudinal study. *Journal of Adolescence*, 84, 11–22. <https://doi.org/10.1016/j.adolescence.2020.07>
- Young, K. S. (1998). *Caught in the net: How to recognize the signs of internet addiction – and a winning strategy for recovery*. John Wiley & Sons.
- Yu, J., Kim, H., & Hay, I. (2013). Understanding adolescents' problematic internet use from a social/cognitive and addition research framework. *Computers in Human Behavior*, 29, 2682–2689. <https://doi.org/10.1016/j.chb.2013.06.045>
- Zargar, S. (2020). Modeling the effect of Instagram addiction on self-confidence and students' sense of happiness (Case: Students of Islamic Azad University, Science and Research Branch, 2019). *Communication Research*, 27(101), 75–94. <https://doi.org/10.22082/cr.2020.117332.1957>

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.