Research Paper: The Role of Psychological Needs and Dark Triad Traits of Personality in Selfie-taking Behavior

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Abstract

The spread of the selfie phenomenon and sending it to virtual social networks can be due to various causes and contexts, including psychological and personality factors. There is limited and conflicting research evidence in this area that requires further research. Therefore, this study aims to investigate the role of psychological needs and dark triad traits of personality in selfie-taking behavior. The present study is a causal-comparative study. A total of 300 students (in the age range of 18 to 30 years) are selected by cluster sampling from the faculties of Guilan University. They responded to a researcher-made selfie checklist, the General Health Questionnaire, the Maslow's Needs Questionnaire, and the dark triad traits Scale. Finally, data from 202 participants (103 female students) are analyzed. The multivariate analysis of variance reveals that the two groups of selfie-taker and non-selfie-taker are significantly different in psychological needs, including safety, belonging, and esteem and personality traits, including narcissism and Machiavellianism. It seems that the needs of unsatisfied safety, belonging, and esteem and the traits of narcissism and Machiavellianism can justify the phenomenon of taking selfies and sending them on virtual social networks.

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1. Introduction

Compared to the past, making use of cyberspace and communication has increased and it is expanding in the last decade, due to the increasing growth of virtual social networks and free membership in them, as well as the facilitation of smart communication devices such the seen increase in the number of advanced mobile phones leading to gradual surge in the number of their users. As of early 2017, about 2.8 billion people in the world were members of at least one of these virtual social networks, while in 2010, only 0.97 billion of the world's population were members of one of these networks. It is also estimated that by 2020, the number of users of these social networks will increase to 2.95 billion (Hutchinson, 2017). These networks have provided more facilitators in increasing the selfie phenomenon for the users. For example, after the first Instagram selfie Hashtag (# selfie) in 2011, the volume of selfies between 2012 and 2013 significantly increased to 17,000%, i.e., about 93 million selfies taken by users' smartphones every day (Kim, Lee, Sung & Choi, 2016). This increase in selfies and postings on virtual social networks led to the introduction of selfies in the Oxford Dictionary as the International Word of the Year in 2013 (Weiser, 2015). According to the definition, a selfie is a photo that a person usually takes with a smartphone or webcam and shares it through virtual social networks (Oxford Dictionaries, 2013). Although American amateur photographer Robert Cornelius took the first selfie in 1839 (Wade, 2014), it can be traced back to the Greek myth of Narcissus, who fell in love with a picture of his face in the water.

Advances in technology, including the rise of virtual social networks, the facilitation of virtual communication devices, easy internet access, free membership in networks, and the increase in the number of smartphones, undoubtedly play a prominent role in increasing selfies and facilitating their sending to virtual social networks. However, it seems that some people are more inclined than others to the phenomenon of taking selfies and sharing them on social networks. Therefore, it can be said that some psychological and personality factors of individuals may affect this phenomenon; also, the phenomenon of taking selfies has a psychological effect on individuals. On the one hand, research in this area suggests the involvement of individual and personality differences, especially narcissism in taking selfies and sending them on virtual social networks (Boursier, Gioia & Griffiths, 2020; Shane-Simpson, Schwartz, Abi-Habib, Tohme & Obeid, 2020; Arpaci, Yalçın, Baloğlu & Kesici, 2018; Wang et al., 2018; Kim & Chock, 2017; McCain et al., 2016). On the other hand, selfie-taking behavior feedback and its perception through social comparison and the comments of others can affect people's physical perception, self-esteem, and sense of narcissism (Rousseau, 2021; Chang, Li, Loh & Chua, 2019; Yellowlees, Dingemans, Veldhuis & de Vaate, 2019; Mills, Musto, Williams & Tiggemann, 2018; Cohen, Newton-John & Slater, 2018; Wang, Yang & Haigh, 2016; Halpern, Katz & Carril, 2017; Chae, 2017). In general, these studies reveal a two-way relationship between taking selfies and posting them on virtual social networks with personality traits and psychological motivations. Additionally, these psychological traits and motivations lead to taking selfies and

sending them on the networks; this results in the feedback received from this action leading to its perception for the selfie-taker person who has a tendency and reinforcing characteristics used to achieve poor goals resulting in selfie behavior to be repeated. Psychological needs and the dark triad traits of personality seem to play a prominent role in this.

According to Maslow's theory, basic psychological needs include three types: the need for safety, the need for belonging, and the need for esteem (Noltemeyer et al., 2021). No study has been done on the relationship between these needs and taking selfies and sending them on virtual networks. However, based on the side findings of the existing studies, it is found that there is no relationship between taking selfies and posting them on social media with self-esteem (MaCain et al., 2016; Wang et al., 2016) and belonging (Kim & Chock, 2017). However, the need for popularity and extraversion and social expression are related to taking and sending selfies (Kim & Chock, 2017; Wang et al., 2016; Sorokowska et al., 2015). On the other hand, unsecure people with low self-esteem (Chua & Chang, 2016) and narcissists (Kim & Chock, 2017; Fox & Rooney, 2015) share edited photos to get the attention and approval of others. Also, people with low self-esteem and high feelings of loneliness (Liu & Baumeister, 2016) and people who need belonging and self-presentation (Nadkarni & Hofmann, 2012) use virtual social networks more. People with low self-esteem prefer cyber self-disclosure to face-to-face meetings (Forest & Wood, 2012). Abolghasemi and Soleimani Rad (2018) also show a significant negative relationship between the psychological well-being of selfie-

takers people and all three psychological needs. Taking selfies and sharing them can also lead to greater social sensitivity and decreased self-esteem (Shin, Kim, Im & Chong, 2017). Therefore, there seems to be an ambiguous relationship between taking selfies and psychological needs, which requires further investigation in this area.

The dark triad traits include the three personality traits of Machiavellianism, narcissism, and psychopathy, which are socially disturbing. Despite belonging to different origins, these traits have some characteristics in common, including selfishness, callousness, lack of interpersonal affect, remorselessness, superficial charm, self-promotion, emotional coldness, duplicity, and aggressiveness (Jakobwitz & Egan, 2006; Paulhus & Williams, 2002). Machiavellian beliefs in the naivete of others and a lack of respect for their rights lead to manipulative behavior (O'Boyle, Forsyth, Banks & McDaniel, 2012). Narcissists are self-centered people with a sense of grandeur, domination, and worth who perceive themselves as more intelligent, more attractive, and better than others (Fox & Rooney, 2015). Psychopathy focuses on apathy and lack of emotion or remorse and is characterized by a hostile interpersonal style that includes subtle forms of humiliation, retaliation, and ridicule (Smoker & March 2017). Considerable research evidence shows that there is a strong relationship between narcissism and selfie taking and sharing so that narcissism can predict it (Wang et al., 2018; Lowe-Calverley & Grieve, 2017; Moon, Lee, Lee, Choi & Sung, 2016; Halpern, Valenzuela & Katz, 2016; Kim & Chock, 2017; Sung, Lee, EuniceKim & Choi, 2016; MaCain et al., 2016; Kim et al., 2016; Sorokowski et

al., 2015; Weiser, 2015; Fox & Rooney, 2015). Thus, narcissism is one of the characteristics that leads to taking selfies and sharing them. Moreover, people with high narcissism use virtual social networks more (Liu & Baumeister, 2016). There is limited and contradictory evidence regarding selfie-taking and sharing it with psychopathy and Machiavellian traits. McCain et al. (2016) reveals that Machiavellianism and psychopathy are associated with taking and sending selfies. While Fox and Rooney (2015) only illustrate the relationship between psychopathy and taking and sending selfies, Machiavellianism bears no relation to selfie taking and sharing. Abolghasemi and Soleimani Rad (2018) also show a significant negative relationship between the psychological well-being of selfie-takers and psychopathy and Machiavellianism traits, but no relationship was seen with narcissism.

In general, due to the increasing spread of taking selfies and sending them on virtual social networks, identifying the psychological and personality factors underlying it is of great importance; additionally, the existence of limited and inconsistent research in this area of study and the existence of cultural differences make conduction of the present study necessary. Therefore, this study aimed to investigate the role of psychological needs and the dark triad traits of personality in selfie-taking behavior.

2. Method

The present study was a causal-comparative study. The participants were about 300 undergraduate students selected by cluster sampling from the faculties of Guilan University who completed the questionnaires. In the initial review of the data, 92 participants were excluded from the analysis due to deficiencies in completing the questionnaires, general health problems, and outlier data; therefore, the data of 202 participants were reviewed. Participants were divided into three groups based on the researcher-made selfie checklist with three groups including selfie-takers (n = 59, 33 girls), the middle (n = 71, 35 girls) and non-selfie-takers (n = 72, 35 girls). The selfie-taker group included people who had a strong desire to take selfies and share them daily and weekly. The non-selfie-taker group included people who were less inclined to taking selfies; they also took selfies infrequently or once a year, and did not post their photos on virtual social networks. About 51% of the participants were female, and 49% of the students were native. The participants' mean (and standard deviation) age was 22 (4.12) in the age range of 18 to 30 years. Participants were members of at least one virtual social network. Telegram, Instagram, and later Facebook were the most popular networks with the most members, respectively. The following three questionnaires were employed for data collection.

Selfie-taking checklist. This researcher-made checklist included five questions to measure the number of posted selfies on social media. The questions were about membership in one of the social networks such as Instagram, Telegram, Facebook (yes or no), the desire to take a selfie (1 = very low to 5 = very high), the frequency of taking selfies (every day, every two days, every week, every month, once a month/year), others' visit from the person's page on social networks (1 = very

little to 5 = very much) and sharing their selfies (several times a day, once a day, once every two days, once a week, once a month and Once a year). In the present study, the Cronbach's alpha coefficient of this checklist was 0.72.

General Health. The General Health Questionnaire (GHQ-28; Goldberg, 1972) is a self-report instrument widely used to diagnose mild health symptoms. The 28 items form four subscales that assess physical symptoms, anxiety symptoms, social functioning, and depressive symptoms, each with seven items. Participants answered each item on a 4-point scale from none at all (0) to more than usual (3). The total score for general health was obtained by summing the subscales' scores. In this study, a cut-off point of 23 was considered for initial screening. This GHQ-28 had good validity, with an alpha coefficient of 0.94 (Goldberg & Williams, 1998). In the present study, Cronbach's alpha coefficient for this questionnaire was 0.96.

Maslow's Needs. The Maslow's Needs Satisfaction Questionnaire (MHNP-50; Lester, 1990) has 50 items that include five components. In the present study, only three needs related to safety, belonging, and esteem was used. Each item is measured on a four-point scale (never, sometimes, often, and always). This questionnaire had acceptable validity and reliability with an alpha coefficient of 0.91 (Lester, 1990). In the present study, Cronbach's alpha coefficient was 0.82.

Dark Triad Traits. The Dark Triad Traits of Personality Scale (DT-22; Jonason & Webster, 2010) is a 22-item form with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) that includes three

subscales of narcissism, psychopathy, and Machiavellianism. This questionnaire had acceptable validity and reliability with an alpha coefficient of 0.83 (Jonason & Webster, 2010). In the present study, Cronbach's alpha was 0.77.

In order to carry out the present study at first, ethical considerations were taken into account and the permission was obtained from the University of Guilan; during two weeks in 5 faculties, all the available students in the faculties were asked to fill in the questionnaires voluntarily if they desired and had time. At the same time, the instructions for completing the questionnaires were given. All paper-based questionnaires were given to 300 subjects on three A4 sheets legibly and regularly. After answering the questions in 20 to 30 minutes time, the respondents were thanked, and their questions were answered; we collected the completed questionnaires on the same day. 34 out of 300 questionnaires of the participants were excluded from the study due to general health problems based on GHQ-28 results, 51 were removed due to incompleteness, and seven due to outlier data. Finally, the data of 202 participants were analyzed.

SPSS software version 24 was employed for statistical analysis. Mean and standard deviation was calculated to report descriptive data indices. Multivariate analysis of variance was assessed due to the design used to examine the differences of the middle groups. The accepted significance level was considered to be equal to 0.05.

3. Results

Table 1 tabulates the means and standard deviations of the psychological needs and personality traits scores for the three groups of selfie-takers, the middle and non-selfie-takers.

Data were tested for normality and the result showed normal distribution.

Table 1

Descriptive indices (n = 202)

Components	Group 1 M (S)	Group 2 M (S)	Group 3 M (S)
The Maslow's Needs			
Safety	24.56 (3.54)	25.81 (3.60)	26.56 (4.11)
Belonging	26.69 (3.99)	28.65 (4.35)	29.28 (4.30)
Esteem	25.71 (3.36)	30.05 (3.80)	43.29 (3.35)
The Dark Triad Traits			
Narcissism	33.72 (5.70)	31.13 (5.68)	30.59 (5.24)
Psychopathy	14.25 (2.84)	13.22 (3.59)	13.64 (3.25)
Machiavellianism	8.97 (3.45)	8.15 (3.29)	7.84 (2.87)

Note. Group 1 = Selfie-taker Group; Group 2 = The Middle Group; Group 3= Non-Selfie-Taker group

The results related to the credit indicators of multivariate analysis of variance indicated that the effect of the group on the composition of the components was significant (Wilks's lambda = .667; F = 6.20, p <.001). The square of Eta revealed that the difference between groups in the components was significant, and the amount of this difference for all components as a group composition was 0.667. That is, 66.7% of the variance related to the differences between the groups was due to the studied variables, the Maslow's needs and the dark triad traits.

In Table 2, the multivariate analysis of variance results for each variable is reported to compare the differences between groups in each component.

Table 2

Results of multivariate analysis of variance

Components	SS	Df	MS	F	*P*	PES	OP
The Maslow's Needs							
Safety	131.51	2	65.75	4.62	.011	0.644	0.990
Belonging	229.58	2	114.79	6.42	.002	0.661	0.988
Esteem	690.83	2	345.42	27.89	.001	0.759	0.989
The Dark Triad Traits							
Narcissism	353.70	2	176.85	5.78	.004	0.655	0.999
Psychopathy	33.95	2	16.98	1.59	.206	0.016	0.056
Machiavellianism	43.50	2	21.75	2.13	.122	0.021	0.094

Note. SS = Sum of Squares; MS = Mean Square. PES = Partial Eta Squared; OP = Observed power.

As can be seen in Table 2, there was a significant difference between the groups in all components except for the two components of psychopathy and Machiavellianism (P <.05).

In order to investigate how these differences were, the multiple comparison test of LSD was run. The results of LSD test are reported in Table 3.

Table 3

LSD test results

Components	Groups	MD	*p*
The Maslow's Needs			
	1-2	-1.25	.162
Safety	1-3	-2	.003
	2-3	-0.76	.232
	1-2	-1.96	.009
Belonging	1-3	-2.58	.001
	2-3	0.63	.377
	1-2	-4.34	.001
Esteem	1-3	-3.72	.001
	2-3	0.62	.294
The Dark Triad Traits			
	1-2	1.02	.076
Narcissism	1-3	0.61	.286
	2-3	0.41	.452
	1-2	0.82	.146
Psychopathy	1-3	1.13	.045
	2-3	0.31	.561
	1-2	2.59	.008
Machiavellianism	1-3	3.14	.001
	2-3	0.54	.558

Note. Group 1 = Selfie-taker Group; Group 2 = The Middle Group; Group 3= Non-Selfie-Taker group; MD = Mean Difference

According to Table 3, the selfie-taker group had less safety, belonging, and esteem needs than the non-selfie-taker group and the middle group, indicating the lack of satisfactory satisfaction of these needs. These people also had more narcissistic and Machiavellian traits. As can be seen in Table 3, the selfie-taker group had a lower average score in safety needs than the middle and non-selfie-taker groups, but no significant difference was observed between the middle group and non-selfie-taker group. In the belonging and esteem needs, the selfie-taker group also had a lower average than the middle and non-selfie-taker groups, but no significant difference was seen between the middle and non-selfie-taker groups. In the narcissistic trait, the selfie-taker group had a higher mean than the middle and non-selfie-taker group, but there was no significant difference between the middle and non-selfie-taker groups.

Based on Table 3, there was no significant difference in psychopathy between the three groups in pairs. The selfie-taker group had a higher mean in Machiavellianism than the non-selfie group, but there was no significant difference seen in the middle group. There was no significant difference between the middle group and the non-selfie-taker group in this trait.

4. Discussion

The present study aimed to investigate the role of psychological needs and the dark triad traits of personality in selfie-taker behavior. Comparing the two groups in the psychological needs and the dark triad traits illustrated a significant difference. Nevertheless, there was no difference between the two groups in psychopathy trait.

According to the present study's results, selfie-takers in the needs of safety, belonging, and esteem, especially the need for esteem, scored lower than the non-selfie-taker group. That is to say, these people have unsatisfied safety, belonging, and esteem needs. These findings are in contradiction with MaCain et al. (2016) and Wang et al. (2016), who did not find a relationship between self-esteem and taking and sending selfies. Also, Kim & Chock (2017) did not see a relationship between the need for belonging and taking selfies and sharing them; our results do not support their findings , too. Cultural differences may be the answer to this discrepancy. Given that the popularity of virtual social networks in the society in Iran is increasing day by day and virtual communication has become a way for social interactions in this society more than before, it can be

explained that people in this new environment seek to express themselves and also, indirectly seek to satisfy their needs. Therefore, taking selfies and sending them on virtual networks and receiving feedback may be due to the lack and unsatisfactory satisfaction of the needs of safety, belonging, and esteem. Students, who are said to be the largest segment of society in using cyberspace, use this space to achieve academic and information goals and other purposes, for example, to expand social interactions, to express their views on academic and social issues and self-presentation, they are increasingly using these spaces to be known in a specific group. In this regard, they create virtual groups for a class, an educational group, a faculty, and even a university that no foreigner has the right to join, except for the members of that group. Although these groups are initially formed for learning purposes, they are also used to expand social interactions beyond the classroom, in which self-presentation is to be recognized and introduced. Therefore, taking and sending selfies can also facilitate the achievement of these goals, especially self-presentation. Since unsecure people feel anxious, scared, and chaotic, and people with love and belonging needs feel lonely (Maslow, 1954), taking selfies and sharing them, and receiving feedback from others in cyberspace can be a way to connect with others (Sung et al., 2016) which is consequently a relief from safety anxiety and low self-esteem. It has been found that the psychological well-being of these people has a significant negative relationship with these psychological needs (Abolghasemi & Soleimani Rad, 2018).

Sharing photos, waiting for feedback in cyberspace and making short conversations

with other people in this space can be a way to satisfy social needs (Yang & Li, 2014). Therefore, to get rid of loneliness and feel safe in the community, even virtually, joining social networks and sharing selfies may be a compatible with justifiable. People with unmet self-esteem needs have low self-esteem that lacks several components, including self-confidence, value, capability, and adequacy (Maslow, 1954). Therefore, taking selfies and sharing them, and viewing the edited photos in cyberspace (Chua & Chang, 2016) can be a way to increase self-esteem with some extra benefits (Huang, 2018). Given that taking selfies and sharing them is a kind of expression and ostentation to attract attention and achieve self-esteem, it can also be a way to confirm and validate self-concept (Sung et al., 2016). Hence, taking selfies and sharing them can be done to attract attention and increase self-esteem. It is possible that creating different virtual groups of students in Telegram networks is also for these reasons, and putting all kinds of photos on a personal profile is a way to attract attention and thus feel superficial satisfaction; considering attracting attention it can be said that sharing photos of various situations on Instagram is determined to reflect the unsatisfactory fulfilment of these needs.

Regarding the dark triad traits of personality, the results illustrated that selfie-taker individuals have higher scores on narcissism and Machiavellianism than non-selfie-takers. These differences indicated that selfie-takers have more narcissistic and Machiavellian traits than non-selfie-takers. However, no significant difference was observed in the psychopathy trait. All researches in this area revealed that taking selfies and sharing them on

virtual networks has a significant positive relationship with narcissism; This substantiates previous findings in the literature (Wang et al., 2018; Lowe-Calverley & Grieve, 2017; Moon et al., 2016; Halpern et al., 2016; Kim & Chock, 2017; Sung et al., 2016; MaCain et al., 2016; Kim et al., 2016; Sorokowski et al., 2015; Weiser, 2015; Fox & Rooney, 2015). Based on this evidence the relationship between repeated taking and sharing selfies with narcissism was observed. It can be said that taking selfies and sharing them is closely related to narcissism and is a way to attract the attention and admiration of others (Sorokowski et al., 2016; Fox & Rooney, 2015), which in part satisfies the narcissistic needs of individuals as well. These people who consider themselves attractive and better than others (Fox & Rooney, 2015) take headshots and share them on virtual social networks to show that they want others to realize their attractiveness and beauty which is the result of this narcissistic image. Among the participants, with the social status of being a student, which is an attractive and valuable characteristic in the Iranian society, this widespread attention may create a feeling of narcissism in students. That is why most male students and some female students share their photos on their personal social media profiles, while in Iranian religious and customary culture, showing one's photo is not very much approved, especially for a girl, and is less common among non-students. Although it can be speculated that it might be due to education resulting in increasing self-esteem, it seems to be justified when the trait of narcissism is accompanied by it.

Regarding Machiavellianism, the personality traits of the people is based on

the fact that the purpose justifies the means and speaking should be based on the person's own will (Gunnthorsdottir, McCabe & Smith, 2002); this is known in Iranian culture to be the characteristics of instability and hypocrisy. Therefore, taking selfies and sharing them in different situations can probably be a way to show themselves off according to their goals to attract other people's attention. Taking a selfie and sending it is a kind of expression and ostentation which can be a kind of indication of consumerism and also happiness but not consumerism and happiness itself; it can also be explained as the tendency of the people to belong to a specific class or group or to appear in a particular way because there is no other way to express themselves. This feature seems to be somewhat common in Iran. It is also observed among students that they display at least one of their posted selfies with a background of a specific university logo or campus and even adjust their profile pictures to be relevant to their field and university. Thus, showing oneself in different ways to be ideal can explain why in the present example, taking selfies and sharing them is related to Machiavellianism.

Cultural differences may be involved in the lack of a relationship between the psychopathy trait and taking selfies and sharing them in the current study which does not support previous research in this area (McCain et al., 2016; Fox & Rooney, 2015). Given that the psychopathy trait focuses on apathy and lack of emotion or remorse and is characterized by a hostile interpersonal style that includes subtle forms of acts of humiliation, retaliation, and ridicule (Smoker & March, 2017), it can be said that others' feedback for these people

are not essential and do not create excitement in them. Besides, since the feedback of others on virtual social networks is a factor for taking selfies and sharing them (Yang & Li, 2014) which is important for the person taking the selfie, perhaps this lack of attention to feedback in psychopathic people cause indifference to taking selfies and sharing them. On the other hand, due to their characteristics such as humiliation and ridicule, in virtual social networks, these people may engage in ridiculing and humiliating of others, especially their shared selfies, for example, by writing negative comments. comments about their selfies.

5. Conclusion

Overall, the present study aimed to investigate the psychological needs and personality traits of selfie-takers that lead to selfie-taking and sending it on virtual social networks. The results revealed that selfie-takers have safety, belonging, and esteem needs compared to non-selfie-takers. They also have narcissistic and Machiavellian personality traits. Therefore, each of these factors can be an underlying cause to justify taking selfies and sending them on virtual social networks and to clarify this phenomenon. Working in the native culture of Iran, considering the basic needs, and paying attention to cultural explanations are the strengths of this research. The small number of samples, the lack of generalization of results, and the lack of review of respondents' virtual social networks to ensure the number of selfies sent and the number of member networks was among the present study's limitations. It is suggested that a study should be conducted regarding taking selfies and sending them on social media while

considering other factors such as personality traits, excitement, extroversion/introversion, self-perception, gender, and mainly social and cultural factors such as fashion and imitation and the identification with different participants.

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Conflict of interest

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