Original Article

Designing a structural model for social media addiction based on the dark triad of personality: The mediating role of student social comparison

Shahla Salimi [1], Leila Khojastefar [2], Fatemeh Qazizadeh [3] and Moslem Abbasi [4*]

1. Ph.D. in Psychology, Department of Psychology, Faculty of Literature, Humanities and Social Sciences, Research Branch, Islamic Azad University, Tehran, Iran.
2. M.A.Department of Counseling and Guidance, Faculty of Literature and Human Sciences, Islamic Azad University, Arak, Iran.
3. Master of Clinical Psychology, Azad University, Shiraz Branch, Shiraz, Iran.
4. Assistant Professor, Department of Psychology, Kazerun Salman Farsi university, Fars, Iran.

Abstract

The use of the Internet and social media has become an integral part of our daily lives; however, excessive use of these tools can lead to many psychological and social consequences. This study aimed to design a structural model for social media addiction (SMA) based on the dark triad of personality (DTP) and through the mediating role of student social comparison. In this descriptive-correlational study, structural equation modeling (SEM) was used to collect the data. The population consisted of all second-year high school students studying in Kazerun County in the academic year of 2021-2022 (N=5200), of whom 384 individuals were selected as the sample using cluster sampling. The data were collected using the Short Dark Triad Scale (SD3; Jones & Paulhus, 2014), the Social Media Addiction Scale (Tutgun Ünal and Deniz, 2015), and the Adolescent Social Comparison Scale-Revised (ASCS-R; Xavier et al., 2014). The collected data were then analyzed in SPSS 26 and AMOS 24. The SEM results showed that the variable of DTP explains 21% of the variance of social comparison. In addition, variables of DTP and social comparison were found to explain 28% of the variance of SMA. The researchers offer suggestions for future studies based on the theoretical and practical findings on the concepts of SMA, DTP, and social comparison.

Introduction

Today, virtual social media, as an integral part of people's lives, play a key role in the relationships of people around the world (Demircioğlu & Göncü Köse, 2021). According to Chóliz and Marco (2012), social media are mostly used by adolescents and young people, as these tools help them expand their social circle and enable them to share their experiences and information with others through virtual communication (Haeri et al., 2021). Due to these features, social media are considered essential tools for establishing various interactions. These tools allow users to create personal profiles to upload their photos, chat about themselves and their contacts, discuss about their preferences and interests, and share their experiences and information with others (Andersen et al., 2017). In fact, social media bring numerous benefits by facilitating quick dissemination of

information across the world. They also provide quick access to large-scale news data, sometimes even before the mass media. In addition, they can serve as a medium to achieve a social goal through collaboration (Xu & Wu, 2020). In 2017, about 2.46 billion people were using social media worldwide, and the number was estimated to increase to nearly 3.09 billion by the end of 2021. However, despite the emergence of the COVID-19 pandemic, studies indicate that the number of social media users has exceeded 4.2 billion people in 2021 (Zhao, 2021). Despite the enormous benefits of social media, scholars have raised serious concerns about the potential adverse consequences of excessive use of these media (Muller et al., 2016). The purpose and duration of use play a decisive role in addiction to social media (Brailovskaia et al., 2019). Researchers have conceptualized compulsive and excessive use of online social media as a behavioral addiction (Andreassen &

Corresponding author: Assistant Professor, Department of Psychology, Kazerun Salman Farsi university, Fars, Iran.
E-mail: **moslem.abbasi92@gmail.com**

Pallesen, 2014). Social media addiction (SMA) is defined as inability of a person to control his/her use of social media to the extent that this excessive use disrupts his/her social and academic life (Ryan et al., 2014; Demircioğlu and Göncü Köse, 2021). In another definition, Andreassen (2015) defines SMA as being extremely concerned about social media, having a strong desire to subscribe to or use social media, and allocating too much time and effort to use social media in a way that disrupts a person's social activities, studies, job, interpersonal relationships, or psychological well-being. Although young adults in the 18–24 years-old age group are the main users of social media, both children and adolescents have increasingly incorporated new technologies into their daily lives (Leung & Zhang, 2017). Adolescence is a particularly vulnerable transitional period, and adolescents who use social media on a daily basis are at high risk of experiencing addiction symptoms (Kuss & Griffiths, 2017). The prevalence of SMA in adolescents has been estimated as 4.2% in recent studies (Bányai et al., 2017; Casale & Banchi, 2020). There is considerable evidence supporting the correlation between psychosocial problems, negative emotions, and chronic distress with vulnerability to addiction (Sinha, 2008). One of the most important factors in vulnerability and tendency to social networks are personality factors. In fact, personality determines how a person interacts with traumatic factors (Hostovesky & Prokop, 2018). Gott and Hetzel-Riggin (2018) showed that social comparison mediates the relationship between dark personality traits and tendency to social networks.

Demircioğlu and Göncü Köse (2021) observed that all components of DTP, especially psychopathy, have significant positive relationships with SMA. DTP involves some dark aspects of personality that have been in the focus of experimental and research attention in the last decade. These traits include narcissism, psychopathy, and Machiavellianism (Yousefi & Piri, 2016). Paulhus and Williams (2002) introduced the term DTP traits, and explained the similarities and differences between these three traits. The first component of DTP is narcissism, which refers to exaggerated feelings of grandeur, vanity, self-absorption, and entitlement. Narcissism interferes with different aspects of interpersonal functioning, as others often become frustrated and annoyed with the exploitative, self-centered, and grandiose tendencies of narcissists (Zeigler-Hill & Marcus, 2016). Psychopathy is the most malign component of DTP (Rauthmann & Kolar, 2013). This trait is characterized by features such as impulsivity, sensation seeking, callousness, insolence, and interpersonal aggression (Patrick et al., 2009). The term Machiavellianism, which is the third component of DTP, was named after the Italian diplomat, Niccolò Machiavelli. Machiavellianism reflects a highly selfish orientation that urges people to achieve their goals by any means such as deception, fraud, and exploitation (Zeigler-

Hill & Marcus, 2016). In a study entitled "predicting social media addiction in adolescent student based on depression and narcissistic personality considering the mediating role of self-disclosure", Haeri et al. (2021) found that variables of depression, narcissistic personality, and self-disclosure have significant relationships with SMA. Their proposed model fitted the data well, and their results indicated that self-disclosure mediates the relationships of narcissistic personality and self-disclosure with SMA.

Social relationships substantially affect psychological and social well-being of people; however, these relationships can also motivate competition in some situations. Social competition can create high levels of stress, especially in adolescents, since they often seek to establish relationships with peers, and try to fit in and draw the attention of others. After comparing themselves with others in different aspects of life, they will become highly vulnerable to rejection if the outcome of comparison is unfavorable. This vulnerability may in turn lead to psychological disorders and health conditions (Xavier et al., 2014).

The social comparison theory, which was first proposed by the social psychologist Leon Festinger in 1954, emphasizes that people are innately motivated to make accurate self-evaluations. The theory explains how people evaluate their opinions and abilities and learn how to define themselves by comparing themselves with others. The social comparison theory refers to the upward and downward comparison of people with existing sociocultural ideals (Sharmaa et al., 2022). Social comparison is sometimes considered as a two-step process (Buunk and Gibbons, 2007). The first step is an automatic process of instinctively comparing oneself with others and negatively responding to better information of others. The second step is a conscious process of "decomparison", in which people "ignore" the unpleasant effects of comparison by focusing on the advantages of their goal and providing justifications for their behavior (Gilbert et al., 1995). For example, people tend to reinterpret the situation and ignore their comparative goals in order to maintain high self-esteem when perceiving a threat to their self-image (Fein and Spencer, 1997). Although numerous empirical studies support the automatic and unconscious point of view, only a handful of studies have been conducted on the second step (i.e., the adjustment, justification, and reasoning process) (Bocage-Barthélémy et al., 2018). Previous studies implied that individual differences may affect the identification or contrast of people with others (de Vries et al., 2018); accordingly, Yue et al. (2022) investigated whether individual traits contribute to the development of the social comparison process. After formulating the initial theory, research focused on social comparison as a mechanism to promote individual development. This process ultimately led to the introduction of downward

and upward concepts and expansion of social comparison motivations (Yue et al., 2022). In their study on the role of social comparison and emotional regulation in passive use of social media and psychological well-being of people during the COVID-19 pandemic, Yue et al. (2022) concluded that passive use of social media positively affects upward contrast and downward identification, which in turn predict higher levels of stress. In addition, cognitive reappraisal was negatively related to unhealthy social comparison (e.g., upward contrast and downward identification) but positively associated with healthy social comparison (e.g., upward identification).

Despite the widespread use of social media by adolescents and young people and their advantages and disadvantages, only a few researchers have examined this subject. This is probably due to the novelty of this social phenomenon. The fact that researchers have not considered issues such as personality structure and social psychology in previous studies doubles the necessity of carrying out such research during the COVID-19 pandemic. However, the number of researchers addressing this subject has been increasingly growing in recent years. Therefore, to extend the existing knowledge, this study was conducted to design a structural model for SMA based on DTP and through the mediating role of student social comparison.

Method

Participants

The descriptive-correlational research method was structural equation modeling (SEM), specifically structural regression equations (a combination of path analysis and factor analysis) (Byrne, 2016). The population of this research consisted of all the students of the second secondary level of Kazerun city in the academic year of 2021-2022. 384 of these people were selected from the above population by multi-stage cluster sampling and participated in the research. In this way, one region was randomly selected among four geographical directions (North, South, East and West). Then, two schools were selected from each region, and at the end, one class was selected from each school by a simple random method. According to Klein (2011), for path analysis, at least 10 to 20 people are needed for each parameter, which by taking into account the paths in the present study and considering 20 samples for each path and 20% drop-off of subjects, the number of 384 people for the sample group, it was considered that after considering the entry and exit criteria and outlying data, the data of 14 people were removed and the data of 370 participants were used in the analysis of the present study. The entry criteria include students who are between the ages of 14 and 18, living in Kazerun and consenting to participate in the research, being alive and living with both parents, as well as the exit criteria including the participant's addiction to drugs, the history

of mental problems in the participant and parents, and the level of education was lower than the parents' diploma (based on the students' files).

Instrument

The Adolescent Social Comparison Scale-Revised (ASCS-R):

This 10-item scale was developed by Irons and Gilbert (2005), and then revised by Xavier et al. (2014). Irons and Gilbert (2005) and Xavier et al. (2014) confirmed goodness of fit of both ASCS and ASCS-R using confirmatory factor analysis (CFA). The items of this unidimensional scale are scored on a ten-point Likert scale from less confident (score 1) to more confident (score 10). The total score ranges from 10 to 100. Higher total scores indicate more favorable social comparison (i.e., the participants feel more popular, attractive, and accepted than their friends). Using Cronbach's alpha method, Lang (1994; quoted by Irons & Gilbert, 2005) obtained an internal consistency of 0.78 for this questionnaire. In addition, in a study on 220 boys and 230 girls (Mean age = 14.38), Xavier et al. (2014) obtained a reliability coefficient of 0.81 for ASCS-R using Cronbach's alpha method. The discriminant validity results for gender showed that boys report a more positive social comparison with their peers than girls. Examples of the ASCS-R items include "How smart do you think you are compared to your friends?" and "How attractive do you think you are compared to your friends?" Using Kline's (2011) method, the following goodness of fit indices were obtained: the chi-square statistic to the degree of freedom (χ^2/df) = 2.018, goodness of fit index (GFI) = 0.94, adjusted goodness of fit index (AGFI) = 0.92, Tucker-Lewis index (TLI) = 0.95, incremental fit index (IFI) = 0.94, comparative fit index (CFI) = 0.92, root mean square error of approximation (RMSEA) = 0.06, and RMSEA p-value (PCLOCE) = 0.86. Therefore, the research model fits the data well. The reliability of the whole scale was assessed and confirmed using Cronbach's alpha method (α = 0.81).

The Short Dark Triad Scale (SD3):

This tool was created by Jonasson and Webster (2010) in order to prepare a short version to measure dark personality traits and has 12 items and three components. These three components are narcissism (example: I tend to ask others to admire me), antisocial personality (example: I tend to be callous and callous), and Machiavellianism (example: I tend to force others to do things). lead me). In the implementation of this test, the respondents are asked to rate the suitability of the items with their situation on a 5-point scale (very low, low, medium, high, very high). In addition, in this scale, each of the three dark personality traits is measured by 4 items (cited by Yousefi and Piri, 2015). Jonason and Webster (2010) have investigated the psychometric properties of this scale using construct

validity, differential validity, concurrent validity and retest methods. The retest coefficient for the whole scale as well as subscales was obtained by the original creators in the range of 0.76 to 0.87. In Iran, this scale has been standardized by Yousefi and Piri (2015) and the retest coefficient for the whole scale and its components has been reported in a range between 0.66 and 0.80. Cronbach's alpha coefficients for evaluating internal consistency were between 0.68 and 0.77. Thus, the internal consistency coefficients of the questionnaire were 0.77, Machiavellianism 0.72, antisocial personality 0.68 and for the whole scale 0.76. Hajlo, Ghaseminejad and Ansar Hossein (2014) also reported Cronbach's alpha of this tool as 0.74 for Machiavellianism, 0.63 for antisocial personality and 0.83 for narcissism. In the current study, Cronbach's alpha coefficient was calculated for the sub-scales of this test, which is in the range of 0.62 to 0.76.

The Social Media Addiction Scale:

Tutgun Ünal and Deniz (2015) designed this 41-item tool to measure levels of addiction to social media. The items are scored on a five-point Likert scale from never (score 1) to always (score 5). Its subscales include preoccupation (12 items; e.g., "When I am not connected to the Internet, I extremely think about using the social media"), mood modification (5 items; e.g., "I prefer to spend time on social media in order to get rid of my negative thoughts"), relapse (5 items; e.g., "I do my best to spend less time on social media, but I cannot"), and conflict/problems (19 items; e.g., "Excessive use of social media creates problems in my relationships with people who are important to me"). The total score ranges from 41 to 205, and higher total scores indicate more severe addiction to social media.

Demircioğlu and Göncü Köse (2021) obtained a Cronbach's alpha value of 0.96 for the whole scale, and Cronbach's alpha values of 0.92, 0.84, 0.87, and 0.93, for the subscales of preoccupation, mood modification, relapse, and conflict/problems, respectively (Demircioğlu and Göncü Köse, 2021). Based on the findings of Tutgun Ünal and Deniz (2015), these four factors explain about 59.316% of the total variance of the questionnaire, indicating desirable construct validity of the scale. Using Kline's (2011) method, the following goodness of fit indices were obtained: $\chi^2/df = 1.654$, GFI = 0.92, AGFI = 0.91, 96 TLI = 0.95, IFI = 0.96, CFI = 0.96, RMSEA = 0.04, PCLOCE = 0.89. Therefore, it can be said that the research model fits the data well. The reliability of the whole scale was confirmed using Cronbach's alpha method ($\alpha = 0.89$). In addition, Cronbach's alpha values of 0.88, 0.82, 0.74, and 0.89 were obtained for the subscales of preoccupation, mood modification, relapse, and conflict/problems, respectively. In this research, SPSS version 22 software will be used for the primary data analysis, statistical presumptions and descriptive index calculation, and path analysis in the structural equation model will be used in AMOS version 22 software to test the model.

Results

370 students with an average age of 15.05 and a standard deviation of 0.75 participated in this study. 102 people (27.56 percent) are single children; 96 people (25.94) first child; 70 people (18.91 percent) second child; 40 people (10.81 percent) third child; 38 people (10.27) were the fourth child and 24 people (6.48) were the fifth child or above.

Table 1. Mean and standard deviation of research variables

Variable	M	SD	Skewness	SD	Kurtosis	SD	Min	Max
Machiavellianism	20.74	3.78	1.74	0.146	2.956	0.294	6	30
Narcissism	21.69	4.19	0.196	0.146	0.501	0.294	9	32
Psychopathy	17.88	2.41	0.741	0.146	-0.379	0.294	7	26
DTP	60.31	8.01	0.897	0.146	0.312	0.294	22	88
Social comparison	45.83	63.6	0.921	0.146	-0.384	0.294	30	80
Preoccupation	26.74	41.4	0.588	0.146	0.541	0.294	15	35
Mood modification	15.08	3.44	0.121	0.146	-0.788	0.294	5	20
Relapse	13.21	2.39	1.64	0.146	0.212	0.294	5	17
Conflict/problems	46.63	6.89	0.563	0.146	-0.969	0.294	30	70
SMA	101.66	12.35	0.341	0.146	-0.978	0.294	55	142

The mean (SD) DTP, social comparison, and SMA score of the participants was 60.31 (8.01), 45.83 (6.63), and 101.66 (and 12.35), respectively (Table 1).
Based on Kline's (2016) approach, skewness and kurtosis values were calculated to assess the normality of the data, and obtained results showed that the data have a normal distribution. A total of 380 out of the initial 384 questionnaires were selected after detecting 4 outliers using a boxplot. In the next step, 10 questionnaires (including 6 questionnaires on the upper limit and 4 on the lower limit) were omitted and 370

questionnaires were selected for final analysis. The scatter plot results showed that the relationships among the research variables are all linear. The variance inflation factor (VIF) and tolerance were used to detect collinearity between independent variables. All the tolerance values were larger than 0.1 and the obtained VIF values for all the variables were smaller than 10; hence, no collinearity was observed between the predictor variables. The Durbin-Watson (DW) statistic was used to detect autocorrelations in residuals. The obtained DW values ranged from 1.94 to 2.02;

therefore, the residuals are completely independent from each other.

The structural model of the present research (consisting of variables of DTP, SMA, and social comparison) was assessed using the two-step method of Anderson and Gerbing (1988). To this end, the validity and reliability of the research questionnaires were first assessed using CFA. Then, the proposed structural research model was examined using SEM. According to this process, before analyzing a model, researchers first need to confirm the validity and reliability of research tools and the relationships between observed and latent variables using CFA. Then, they can assess structural relationships in the model. Since the conceptual research model is designed based on the academic enthusiasm literature, first the variables of DTP, SMA, and social comparison were considered as the observed exogenous, latent, and endogenous mediating variables, respectively. The goodness of fit of the model was then confirmed using the maximum likelihood estimation (MLE) method. After confirming the construct validity of all questionnaires, goodness of fit of the multivariate structural model was assessed.

Table 2. Correlation coefficients of research variables

Variable	Preoccupation	Mood modification	Relapse	Conflict/problems	SMA
Machiavellianism	0.38**	0.44**	0.40**	0.46**	0.44**
Narcissism	0.47**	0.47**	0.41**	0.51**	0.41**
Psychopathy	0.41**	0.49**	0.39**	0.48**	0.46**
DTP	0.42**	0.46**	0.38**	0.47**	0.42**
Social comparison	-0.46**	-0.52**	0.11	-0.37**	-0.41**

$P < 0.01$**

As shown in Table 2, most of the correlation coefficients obtained for the relationships among the research variables and their subscales were significant ($p < 0.001$ and $p < 0.05$). In other words, DTP had significant positive relationships with SMA and its subscales including preoccupation, mood modification, relapse, and conflict/problems ($p < 0.001$). In addition, social comparison had significant negative relationships with SMA and its subscales including preoccupation, mood modification, relapse, and conflict/problems ($p < 0.001$).

Table 3. Goodness of fit indices for the measurement model

Goodness of fit index	Value	Cut-off point
$\chi 2$	124.369	-
Level of significance	$P \leq 0.001$	-
$\chi 2/df$	2.478	-
GFI	0.91	< 0.90
AGFI	0.90	< 0.85
NFI	0.94	< 0.90
CFI	0.95	< 0.90
IFI	0.95	< 0.90
TLI	0.92	< 0.90
RAMSE	$P \leq 0.08$	> 0.08

The obtained absolute, comparative, and parsimonious fit indices indicated that the proposed model fits the data well. The calculated chi-square (χ^2) value for the final confirmatory model is significant; however, this index is usually significant in large samples; therefore, it cannot be regarded as a reliable criterion for assessing the fit of the proposed model with the data. However, given the following goodness of fit indices, it can be said that the final model fits the data very well: χ^2/df = 2.478, IFI = 0.95, CFI = 0.95, GFI = 0.91, non-normed fit index (NNFI) = 0.92, AGFI = 0.90, normed fit index (NFI) = 0.94, and RMSEA = 0.08.

Table 4. Parameters of the measurement model in CFA

Latent-observed variable	B	β	Standard error (SE)	Critical ratio (CR)
Machiavellianism → DTP	1	0.821	-	-
Narcissism → DTP	0.459	0.840	0.031	14.806
Psychopathy → DTP	0.384	0.755	0.039	9.846
Preoccupation → SMA	1	0.812	-	-
Mood modification → SMA	0.377	0.731	0.041	9.195
Relapse → SMA	0.518	0.877	0.033	15.696
Conflict/problems → SMA	0.394	0.740	0.041	9.609
DTP → Social comparison	-0.284	-0.431	0.036	-7.888
Social comparison → SMA	-0.268	-0.401	0.039	-6.871
DTP → SMA	0.290	0.412	0.037	7.837

No standard error or critical ratio was calculated for the variables of Machiavellianism and preoccupation because their unstandardized coefficients (B) were calculated as 1. As presented in Table 3, variables of relapse (β = 0.877) and mood modification (β = 0.29) had the largest and smallest factor loadings, respectively. Factor loadings obtained for all research variables were > 0.60; hence, all the factor loadings were desirable for conducting factor analysis. In addition, the results indicated that the direct paths from DTP to social comparison (β = -0.431), social comparison to SMA (β = -0.401), and DTP to SMA (β = 0.412) were all significant.
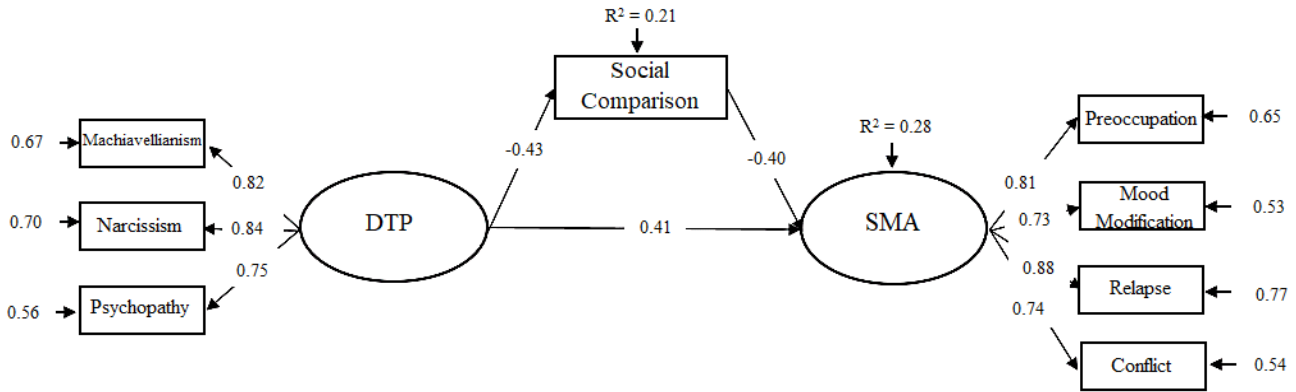

Figure 1. Goodness of fit of the final model (MLE method)

According to Figure 1, DTP explains 21% of the variance of social comparison. On the other hand, variables of DTP and social comparison explain 28% of the variance of SMA.

Table 5. Bootstrapping results for the indirect effect of DTP on SMA through social comparison

Variable	Indirect effect	Lower limit	Upper limit	Bias	S.E.	P
DTP → Social comparison → SMA	0.341	0.289	0.456	0.001	0.089	P ≤ 0.008

Table 5 presents the indirect effect of DTP on SMA and their lower limit, upper limit, standard error, and significance level. Obviously, DTP has a significant indirect effect on SMA through social comparison of students.

Discussion

The study aimed to design a structural model for social media addiction (SMA) based on the dark triad of personality (DTP) and through the mediating role of student social comparison. DTP had a direct negative effect on the variable of social comparison and a direct positive effect on SMA. DTP also had an indirect positive effect on SMA through social comparison. These findings are consistent with the results of other researches such as Haeri et al. (2021) and Demircioğlu and Göncü Köse (2021). Siah et al. (2021) investigated the relationship between DTP and SMA among students through the mediating role of coping strategies. Unlike the present findings, they found that only the variable of narcissism is significantly associated with SMA. Moreover, they concluded that only avoidance coping strategies can mediate the relationship between DTP and SMA.

In this regard, it can be argued that people with dark personality traits (e.g., narcissism) do not focus on interpersonal intimacy, warmth, or other long-term positive relationship outcomes. However, they are very skilled in initiating relationships and using them to reach fame, success, and high social position in the short term (Hughes et al., 2012). The most important theoretical models of narcissism in social psychology and personality use social relationships to regulate self-esteem and self-concept (Campbell et al., 2006). Narcissists often use self-regulation strategies (e.g., relationship management and identity building) in order to feel special, important, effective, and successful (Jenkins-Guarnieri et al., 2013). These people are very eager to establish relationships and use social relationships as tools for showing off and bragging about themselves and their performance in public places (Buffardi and Campbell, 2008). Accordingly, today's virtual social media serve as a fertile ground for narcissists to enhance their self-promotion and self-esteem. In other words, public display of social relationships in virtual media allows narcissists to observe their social media and interactions, stay friends with a large number of people, and feel superficially popular for a short period of time (Buffardi & Campbell, 2008). On the other hand, characteristics such as malicious social style, rule violation, incompatibility, and anti-social behaviors seem to be common features of Machiavellianists, psychopaths, and narcissists. Such characteristics influence social relationships of people, and those with such features often abuse others, ridicule others, show off, and use social media to negatively promote their behaviors. Therefore, possessing these characteristics along with indifference, callousness, and lack of empathy prepares the ground for continuous presence of Machiavellianists, psychopaths, and narcissists in social

media to harm others, brag about their abilities, and show off. In fact, Machiavellianists adopt a social attitude based on self-interest, and use inappropriate methods to achieve their goals in social media. In addition, SMA, as an ineffective coping strategy, is influenced by Machiavellian tendencies (Wong et al., 2020).

The SEM results indicated that social comparison has a direct negative effect on SMA. This result is in line with the findings of other studies such as Yue et al. (2022). It is also consistent with the findings of Vogel et al. (2014) who investigated the mediating role of upward and downward social comparison in the relationship between social media usage and self-esteem.

Social comparison has upward and downward aspects. Upward comparison of students with their peers in terms of attractiveness, intelligence, height, competencies, individual differences, capabilities, and acceptance by peers negatively affects their self-esteem, self-efficacy, and socio-economic status, as well as their psychological, social, academic, and family competencies. Upward comparison can also predispose students to various psychological problems such as anxiety, isolation, depression, and poor academic performance (Vogel et al., 2014). Therefore, upward comparison is a harmful factor disturbing various aspects of human life. On the other hand, in downward comparison, people or groups compare themselves with those perceived to be inferior to them in terms of the abovementioned features. This form of comparison leads to lack of motivation and false self-esteem because if individuals and groups perceive themselves to be superior to others in psychological, occupational, academic, family, and social aspects, they may not try enough to achieve their goals. According to parents of students with downward comparison, these behaviors and educational deficiencies lead to feelings of hatred, anger, disturbance, and identity problems, which all stem from their false self-esteem and temporarily social, psychological, and academic competencies (Pulford et al., 2018). However, students who focus on their strengths and weaknesses through positive comparison try to use self-promotion programs to overcome their weaknesses and increase their strengths through daily practice. Therefore, SMA can affect students in two ways. Upward comparison influences their self-esteem and prepares the ground for isolation and mood swings, while downward comparison gives them false self-esteem, reduces their self-assessment abilities, and increases their activities in social media such as sharing photos, receiving feedbacks, and posting comments. On the other hand, positive comparison helps people use social media to access new resources and increase their knowledge and awareness while taking into account their resources, limitations, and abilities (Vogel et al., 2014).

Conclusion

The present research had several limitations. The study was conducted on all female and male second-year high school students studying in Kazerun County in the academic year of 2021-2022 during the COVID-19 pandemic; therefore, the results should be carefully generalized to people in other temporal and geographical situations. Researchers are suggested to carry out similar studies on different populations in future and compare the results of female and male participants to increase the generalizability of the final results. They can also compare their findings with the present results. Given the correlational nature of the research, one should not draw casual inferences from the relationships between the variables. Researchers also need to take into consideration the limitations of SEM as a data analysis method. Furthermore, researchers are suggested to conduct similar studies on different populations in future to increase the generalizability of the results, and compare their findings with the present results. The use of psychological interventions and more longitudinal and qualitative studies can also improve the accuracy and quality of results in future research. Researchers can examine the mediating role of variables such as emotion regulation strategies, self-esteem, disturbance tolerance, psychological needs, etc. in their future works. In addition to DTP and social comparison, future studies can investigate the effect of other psychological variables on SMA. Given the widespread use of social media, especially by adolescents, authorities of counseling centers and relevant organizations are suggested to deeply examine issues such as attachment styles, self-concepts, personality traits, vulnerability to rejection, communication skills, and comparison approaches of people in online environments in order to prevent serious complications associated with SMA. Finally, future studies can investigate the relationship between basic psychological needs and SMA with regard to various types of parent-child relationships and identity styles.

Conflict of interest

No potential conflict of interest was reported by the authors.

ORCID

Moslem Abbasi:
https://www.orcid.org/0000-0002-6402-5640

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