



Socioemotional Adjustment and Identity Styles in Adolescents with Internet Addiction: The Mediating Role of Coping Strategies

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ABSTRACT

Aims Access to the Internet is a growing phenomenon and every day more adolescents are becoming Internet users. As a result, the number of male adolescents with Internet addiction problem is increasing. Regarding this issue, the present study was conducted with the aim of the investigating of mediating role of coping strategies in the relationships of identity styles and social and emotional adjustment with Internet addiction in male adolescent students in Isfahan City.

Materials & Methods The study design was correlation. The statistical population of this study was all male adolescent students of Isfahan City that among them 250 were selected by convenience sampling. Measurement tools included the questionnaires of coping strategies, identity styles, social adaptation, and Internet addiction.

Findings The results of hypothesis testing through modeling-path analysis showed that the conceptual model of the study had a good fitting. Therefore, the informational identity style had a direct negative and significant effect on Internet addiction. In addition, the avoid confusion identity style had a direct positive and significant effect on Internet addiction and the social and emotional adaptation had a direct negative and significant effect on it. The informational identity style and social and emotional adaptation had an indirect negative and significant effect on Internet addiction by mediating the variable of emotional coping strategies.

Conclusion Identity styles and social and emotional adaptation were identified as the most important predictor of Internet addiction among adolescent students by mediation the variable of coping strategies.

Keywords Coping Strategies; Identity Styles; Socioemotional Adjustment; Internet Addiction; Adolescence

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Introduction

Nowadays, many individuals are using the Internet to resolve their problems, issues, and unsatisfied needs. Over the last 20 years, Internet use has grown very quickly and approximately 40% of the world population is connected to this network. Due to this rising phenomenon, most researchers have shown interest in problems related to excessive use of Internet and proposed that the reasons causing such a behavior should be explored scientifically [1]. Scholars of the field do not agree over whether such problems shall be considered as mental disorders. On the other hand, increasing Internet usage led to the emergence of significant clinical symptoms [2]. Besides, being known as a psychological disorder or a social problem, Internet addiction is defined as a chronic, pervasive and recurrent phenomenon accompanied by several physical, financial, familial, social, and psychological harms [3, 4]. Generally, the Problematic Internet Use (PIU) or Internet Addiction Disorder (IAD) can be defined as “excessive or poorly controlled preoccupations, urges, or behaviors regarding computer use and Internet access that lead to impairment or distress” [5]. The most common symptoms of IAD are as follows: Daily increasing costs of the Internet and the issues related thereto, unpleasant emotions (like anxiety, depression, and social problems) when the individual is not in contact with the Internet, tolerance, and getting accustomed to the effects of being on the Internet and denial of the problematic behaviors [6]. From this perspective, IAD is considered by some researchers as a stress or impulse control disorder such as pathological gambling [7]. Some scholars propose that the IAD shall be considered as a behavioral disorder being used as a confrontation mechanism that is enumerated amongst the dependency indicators in DSM [8].

In recent studies, the formation of identity has been proposed as a risk factor for Internet addiction in adolescents and youngsters [9, 10]. As an example, Yang and Tung considered tendencies towards the creation and development of identity as well as meaningful and sincere communications as the predictor of Internet addiction [11]. Moreover, the results of the study by Arabzadeh *et al.* showed that there was a positive relationship between Internet addiction and diffuse/avoidant identity style and there was a negative relationship between Internet addiction and informational/normative identity styles [12].

As for identity styles, Berzonsky *et al.* inspired by Ericson's theory and Marcia's identity status model, offered his own model of identity styles [13]. He believed that individuals use different methods to process information related to identity formation. In other words, the individuals' processes and strategies for the recognition of themselves and resolving the issues related to them differed from each other. Berzonsky classified these processes and

strategies within the format of three identity styles, named informational, normative, and diffuse/avoidant identity styles [14].

Adolescence is the period during which social growth is accompanied by a mass of pressures coming from the study, communication, affection, and self-recognition in social settings. It is proposed that another variable related to Internet addiction during adolescence is a social adjustment [15]. Social adjustment is described as synonymous with social skill and includes the ability to establish mutual relationships with others in a given way accepted by the society's morals [16]. Moreover, social adjustment is considered as a process enabling an individual to predict and perceive the others' behaviors, on the one hand, and control his or her own behaviors, on the other, so as to finally regulate his or her own social interactions. Previous studies have shown that social adjustment as measured by subscales of academic performance, school attitude and interaction, school social problems is impaired in Internet addicts [17, 18]. The adolescents' coping strategies in the face of the related pressures of this critical period, as well, contribute to the addiction to the Internet [19, 20]. From the perspective of Lazarus and Folkman, the methods of coping with stress are implemented through an active and purposive process determining the internal and external requirements and want for responding to a stimulus of a threatening type or entailing the use of unperceived resources [20]. In fact, coping style is not a fixed individual state, rather it is an interactional process that is always changed and revised based on prior experiences. In this regard, two coping strategies, namely problem-solving and emotional strategies have been proposed [20]. In the former strategy, the individuals try to precisely define and evaluate the problem and investigate the feasibility of changing or overcoming it thereby to alleviate the unfavorable effects of psychological stress. On the other hand, in emotional coping style, the individuals try mitigating their anxiety and worry through forgetting the problem and/or by acquiring affective support [21].

Studies have shown that adolescents with successful identity style mostly used problem-based coping strategy entailing acquisition of confidence about the stressful success and its contingent outcomes. On the other hand, since individuals utilize different methods in fighting the problems, the coping strategy is associated with the degree of social adjustment, stress level, aggression, social support, and cognitive levels of the individuals [22]. It also has been shown that the higher the adolescents' social adjustment in confrontation with problems, the more they would make use of emotion-oriented coping strategies, i.e. they have more control over their own emotions and seek more emotional supports from the others for removing their stress [23].

According to the recent research, there was a positive and significant relationship between the normative

and diffuse/avoidant identity styles and Internet addiction [12, 24]. Moreover, there was a negative and significant relationship between informational identity style and Internet addiction because the reduction in informational identity caused an increase in Internet addiction and dependency. Additionally, based on the results of some studies, the individuals who were Internet addicts exhibited such behaviors as introversion and social phobia, which led to lower levels of social adjustment. Hence, as mentioned before social adjustment was negatively associated with Internet addiction [25].

On the other hand, researchers have shown that there was a positive relationship between the emotion-oriented and avoidant coping styles and Internet addiction and there was also a negative relationship between problem-oriented coping styles and Internet addiction [26].

According to the studies mentioned above and since the recognition of the factors related to Internet addiction amongst the young students is a very important psychological issue, the present study sought to find an answer to the question as to whether the coping strategies of adolescents played an intermediary role in the relationship between identity styles and social and affective adjustment with Internet addiction.

Materials and Methods

The present study was a cross-sectional research of an applied type that aimed at determining the correlation between the studied variables using path analysis. The study population included adolescent students who were addicted to the Internet as measured by Internet Addiction Test (IAT) in Isfahan, Iran. Out of 14 Isfahan City boys' first and second high school, 7 schools were selected based on a convenience method, and finally, 500 students aged 12 to 18 were evaluated by Internet addiction test, 280 of whom were based on scores, acquired Internet addiction test and interview over the past two years have got severe symptoms of Internet addiction and the same number of the students was selected as the study sample. The study inclusion criteria were as follows: Aged between 12 and 18 years old and having Internet addiction for at least two years and announcement of consent by themselves, their parents and school headmasters for participation in the study. After collecting the related data, structural equation modeling (path analysis) was employed in SPSS 18, and the indirect effects were estimated through bootstrap test in AMOS software. Overall, 30 of the questionnaires were found imperfectly completed for possibly the imprecision of the respondents or any other reason, so these were discarded and the study was carried out on 250 individuals.

In this study some tools are used as follows:

1- Internet Addiction Test (IAT): The Internet addiction test by Young (1996) is comprised of 20 expressions that are scored based on Likert's five-point scale (rarely to always). It is used for assessing the individuals' Internet or computer dependency [27]. The test was normalized by Alavi *et al.* [28]. In the study conducted by Widyanto and McMurrin, high reliability and validity was reported for this test [29]. Furthermore, content and convergent validity of $r = 0.82$ and a Cronbach's alpha coefficient of 0.88 were calculated [28]. Also, the total Cronbach's alpha coefficient of the questionnaire was obtained equal to 0.86 in this study.

2- Identity Style Inventory (G-ISI): Identity style inventory by Berzonsky (1992) has been designed for assessing the informational, normative, and diffuse/avoidant identity styles. The inventory consisted of 40 items and the participant is asked to rate each expression based on a five-point scale (from 5 to 1). Berzonsky calculated Cronbach's alpha coefficients equaled to 0.71, 0.65, and 0.75 for informational, normative, and diffuse/avoidant identity styles, respectively [14]. In addition, a high construct validity rate was reported for both of the versions, i.e. version 6 and the original ISI version (0.79-0.84) [30]. In a normalization study conducted by Ghazanfari on an Iranian society, Cronbach's alpha coefficients were obtained equal to 0.67, 0.52, and 0.62 for informational, normative, and diffuse/avoidant identity styles, respectively. Additionally, Ghazanfari reported a high validity rate for the inventory and obtained a total Cronbach's alpha coefficient of 0.77 for this questionnaire [31].

3- Sinha social adjustment questionnaire: The questionnaire has been constructed for determining the social, affective and educational adjustment of the high school and higher grade students containing 55 double-choice (yes-no) questions. In the present study, the subscales of social and affective adjustment (35 items) were used. The test validity was reported to be 0.90 by Sinha and it was found equal to 0.94 in Iran based on Coder Richardson method [32]. Moreover, the total Cronbach's alpha of the questionnaire was obtained equal to 0.83 in the present study.

4- Stress coping styles questionnaire: The questionnaire was designed by Billings and Moos (1984) for investigating the individuals' ways of responding to stressful events. It contains 19 questions. The options of each test item have been arranged based on a Likert scale from never (0) to always (3). The questionnaire assesses the problem-oriented coping method in eight sentences (questions 1, 2, 5, 8, 10, 13, 14, and 19) and emotion-oriented coping method in 11 statements (questions 3, 4, 6, 7, 9, 11, 12, 15, 16, 17, and 18). The maximum attainable score by each participant for this questionnaire is 57

that is comprised of a maximum score of 33 for choices related to problem-oriented coping method and a maximum score of 24 for the choices related to emotion-oriented coping method. The questionnaire's reliability coefficient was found 78% based on Cronbach's alpha method and the internal consistencies of the two subscales were correspondingly obtained equal to 44 and 88%. In addition, the content validity of the test for the questionnaire was reported to be 88% [33]. Additionally, a Cronbach's alpha coefficient of 0.78 was obtained for the questionnaire.

Findings

In the present study, the intermediary role of the coping strategies in the relationship between identity styles and social adjustment was investigated in a sample volume consisted of 250 adolescent young students with Internet addiction. The average age of the participants was 15.53 ± 5.04 years. Table 1 represents the findings related to the mean and standard deviation values of the studied variables amongst adolescent students. The average Internet addiction in 250 adolescent boys is 87.31, which indicates a high rate of Internet addiction. Among the identity styles, the avoidant identity style with an average of 14.58 is the highest identity style among the adolescent boys in the present study. Emotion-oriented coping strategies with an average of 16.33 indicates the greater use of emotional solutions by adolescent boys. Also, the social adjustment of these students with an average of 10.51 has a higher rate than emotional compatibility.

Table 2 represents the coefficients of the correlation between Internet addiction, identity styles, adjustment types, and coping strategies. The majority

of the coefficients of the correlation between Internet addiction, identity styles, adjustment types, and coping methods were significant at $p < 0.05$.

Table 2 depicts the fit indices of the proposed and revised model. According to the results, the fit indices of the proposed model signified the weak fit of the proposed or hypothetical model and were reflective of the idea that the proposed model needed corrections. Thus, in order to improve the model, four revisions were made as suggested by AMOS software in such a way that the added error paths were placed between the variables for which high correlation coefficients had been obtained. After exerting the changes, the model was tested twice. The final results were suggestive of the idea that the fit indices signified the desirable fit of the revised model.

Table 3 shows fit indices of the proposed and revised models.

Figure 1 depicts the final revised model of the intermediary role of the coping strategies in the relationships between identity styles and social adjustment with Internet addiction.

Table 4 represents direct paths with and without intermediary variables and the bootstrapping test results for the intermediary paths and the coping strategies' intermediation rates.

Table 1) Mean and SD of the Internet addiction, identity styles, adjustment types, and coping methods (n= 250)

Variables	Mean \pm SD
Internet addiction	87.31 \pm 10.13
Informational identity style	13.38 \pm 3.17
Normative identity style	10.21 \pm 1.60
Confused-avoidance identity style	14.58 \pm 3.22
Emotional compatibility	9.81 \pm 4.52
Social adjustment	10.51 \pm 2.73
Problem-oriented coping strategies	14.38 \pm 3.94
Emotion-oriented coping strategies	16.33 \pm 2.67

Table 2) Correlation coefficients of Internet addiction, identity styles, adjustment types, and coping strategies

Row	Variables	1	2	3	4	5	6	7	8
1	Internet addiction	1							
2	Informational identity style	-0.193**	1						
3	Normative identity style	0.223	-0.178*	1					
4	Confused-avoidance identity style	0.356**	-0.099*	-0.134*	1				
5	Emotional compatibility	-0.221**	0.339**	0.186	-0.119*	1			
6	Social adjustment	-0.145*	0.213**	0.209	-0.235*	0.371**	1		
7	Problem-oriented coping strategies	-0.188**	0.317*	0.126	-0.217*	0.324**	0.561**	1	
8	Emotion-oriented coping strategies	0.262**	-0.108*	-0.011	0.229**	-0.149*	-0.215*	-0.261*	1

* $p < 0.05$; ** $p < 0.01$

Table 3) Fit indices of the proposed and revised models

Indices	GFI	AGFI	CFI	NFI	RMSEA	p
Primary proposed model	0.91	0.74	0.88	0.89	0.155	0.001
Final revised model	0.99	0.98	0.99	0.98	0.044	0.211

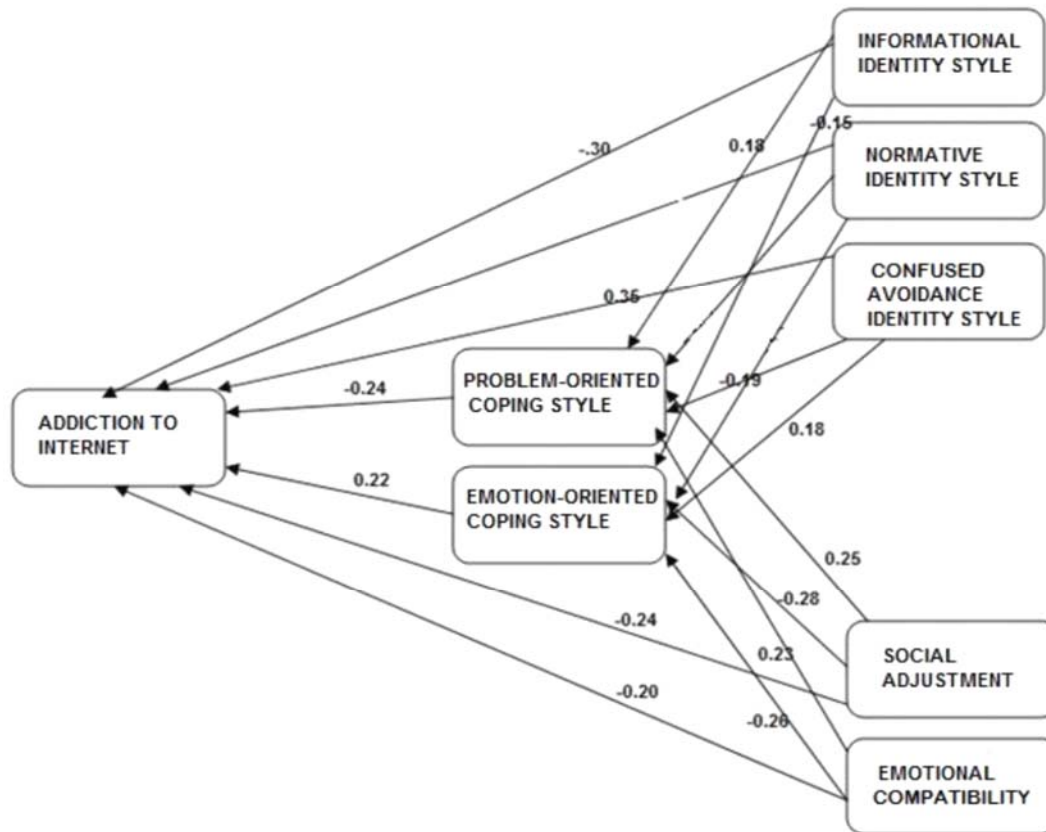


Figure 1) The final revised model of the intermediary role of the coping strategies in the relationships between identity styles and social adjustment with Internet addiction

Table 4) Direct paths with and without intermediary variables and the bootstrapping test results for the intermediary paths and the coping strategies' intermediation rates

Interface path	Direct route without mediator; β (sig)	Direct route with mediator; β (sig)	Indirect route; β (sig)	Mediation rate
Informational-problem oriented identity-Internet addiction	-0.31 (0.0001)	-0.22 (0.012)	-0.043 (0.034)	Minor
Informational-emotion oriented identity-Internet addiction	-0.31 (0.0001)	-0.22 (0.012)	-0.41 (0.012)	Minor
Confused identity-problem oriented-Internet addiction	0.36 (0.0001)	0.32 (0.0001)	0.062 (0.002)	Full
Confused identity-emotion oriented-Internet addiction	0.36 (0.0001)	0.32 (0.0001)	0.069 (0.004)	Full
Social adjustment-problem oriented-Internet addiction	-0.25 (0.0001)	-0.14 (0.015)	-0.052 (0.004)	Full
Social adjustment-emotion oriented-Internet addiction	-0.25 (0.0001)	-0.14 (0.015)	-0.050 (0.002)	Full
Emotional compatibility-problem oriented-Internet addiction	-0.21 (0.0001)	-0.12 (0.0001)	-0.028 (0.014)	Minor
Emotional compatibility-emotion oriented-Internet addiction	-0.21 (0.0001)	-0.12 (0.0001)	-0.013 (0.005)	Full

Discussion

The present study aimed to determine the intermediary role of the coping strategies in the relationships between identity styles and social adjustment with Internet addiction in adolescent students. The study results indicated that there was an indirect and significant relationship between identity styles, social and emotional adjustment with Internet addiction in the participants. The results

were consistent with the results obtained in previous studies [12, 26, 28, 34-36].

The results of the present study also showed that there was a direct and significant relationship between Internet addiction and diffuse/avoidant identity styles. To elaborate this finding, we shall refer to the definition of diffuse/avoidant orientations as viewed by Berzonsky [13, 14]. According to his studies, individuals with diffuse/avoidant

identity style tend to postpone the confrontation with conflicts and identity issues. When forced to make a choice, their behaviors were influenced by instantaneous and momentary external requirements. Moreover, it has been shown that individuals with such an identity style had weak commitments, external control locus, impulsiveness, self-cause and diffuse identity status (without experiencing the identity crisis and with no commitment to certain goals. These individuals with the aforesaid properties were expected to spend more time on the Internet and less time in social situations for preventing the identity conflicts and issues. Hence, these individuals avoid evaluating and investigating the information related to identity in the real world so as not to succeed in forming the identity. On the other hand, based on the present study's results, informational style played an inverse role in Internet addiction prevention. In conformity with Berzonsky's idea, individuals with informational identity style, searched in their thoughts and contemplations, processed and evaluated their related information before removing the identity conflicts and formation of commitments. They were introversive, doubtful about their perspectives, enjoyed an open mind, were interested in learning new things about themselves, and were willing to evaluate and correct their identity according to inconsistent feedbacks. Furthermore, individuals with informational identity styles enjoyed a high commitment level and an acquired identity status^[13]. Moreover, the results related to the relationship between social and emotional adjustment with the Internet showed that there was a significant but negative correlation between these two variables. In other words, higher degrees of Internet addiction brought about a reduction in social adjustment and vice versa. The other researchers have found out that individuals with Internet addiction had various degrees of psychological-social behaviors like self-alienation, feeling of weakness and inability in doing things, abnormal social behaviors, social phobia, introversion, and sentimental behaviors^[37].

Another finding of the present study depicted that there was a negative but significant relationship between problem-oriented coping strategy and Internet addiction. Besides, there was a positive and significant relationship between emotion-oriented coping strategy and Internet addiction. In light of the said findings, it can be argued that adolescents using problem-oriented coping strategy were less attracted to Internet. Therefore, it is advisable that many psychological and behavioral problems related to Internet addiction were rooted in individuals' inability in correcting self-appraisal and evaluating the situation as well as their inadequacy in confronting difficult situations. Hence, it can be expected that the individuals benefiting from problem-oriented coping strategy acted realistically, were ready to face their daily issues and problems,

and were less inclined towards addictive behaviors. Amongst the other features of the individuals employing efficient coping strategies, low stress level could be pointed out. Decreased emotional stress level assisted individuals to be able to make a better use of cognitive and dynamic skills for confronting with the problems in the light of psychological tranquility and not to be pulled towards Internet and narcotics upon the emergence of problems in life, hence become better capable of employing more effective skills for more efficient confrontation^[38].

Another finding of the present study was the direct and significant relationship between identity styles and coping styles. It can be stated in clarifying this finding that adolescents with informational identity styles tended to exhibit higher levels of cognitive complexity, consciousness in decision-making, need for recognition, problem-oriented confrontation, independence and cognitive continuance. These individuals had certain and clear occupational and educational goals and enjoyed more autonomy, self-monitoring, academic progress expectations, educational involvement and interpersonal relationships' growth in the educational environment as compared to the individuals with diffuse/avoidant coping style. In addition, the adolescents with diffuse/avoidant identity style tended to avoid the individual conflicts and the identity-related problems. These individuals delayed decision-making did not require a series of interventions and they constantly regulated their behaviors and perspectives in respect to the present time's social expediences without making long-term revisions in the structure of their identity. Such strategies might have resulted in a scattered and non-coherent identity structure. The previous studies have shown that adolescents with diffuse/avoidant identity style did not have fixed and vivid educational and occupational goals, enjoyed lower levels of academic skills and educational autonomy, had academic problems and inconsistency and usually expected failure and frustration^[30]. Therefore, as Piri (2005) stated, the present study also shows that the students with informational identity style tended to make more frequent use of problem-oriented coping styles and the students with diffuse/avoidant identity style used avoidant coping styles to face the psychological pressures^[39].

On the other hand, in the present study, there was a direct and significant relationship between social adjustment and coping strategies. In fact, the results indicated that the adolescents enjoying higher social adjustment could better engage in alleviating their problems. The obtained results could be elaborated as stated in the following sentence: Social adjustment positively influenced the inter-individual communications that would be accompanied by social acceptance and psychological comfort. This played a substantial and essential role in elevating the internal satisfaction. Hence, the adolescents with

high social adjustment could control their emotions and use problem-oriented coping styles to fight with environment-driven stress, thereby could be less frequently attracted to Internet become addicted. Despite evaluating a correlation analysis which has not been carried out previously, the present study had some limitations which might be considered in future research. First, the sample included only male participants in Iran and the results cannot be extended to other gender or cultures. On the other hand, the method of sampling and investigating the levels of Internet addiction might have contributed to the results. Therefore, it is proposed that future studies consider said limitations.

Conclusion

According to the present study's findings and the elucidations presented above, the coping strategies played a significant intermediary role between identity styles, social and emotional adjustment with the Internet. It is suggested that teaching the adolescent students problem-oriented coping strategies as a temporary solution for overcoming the problems can bring about reduction in their tendencies towards the Internet.

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