Relationship between parenting styles, identity styles and students’ internet addiction in Kerman University of Medical Sciences

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Abstract
Introduction: Improper use of the internet and its subsequent effects has recently started to be considered as an important issue. Students are among the most vulnerable groups regarding this phenomenon. Although internet addiction can be related to different parenting styles, but the use of internet provides an opportunity to seek individual’s identity. Therefore, the present study aimed to investigate the relationship between parenting styles, identity styles and students’ internet addiction in Kerman University of Medical Sciences.

Methods: In this descriptive correlational type of research, the study population included all students who were addicted to the internet at Kerman University of Medical Sciences in 2014. The research sample consisted of 375 subjects selected through multi-stage cluster sampling method. All participants completed the questionnaires on internet addiction, parenting and identity styles.

Results: Findings showed that among different identity styles, there was a negative correlation between informational identity style and internet addiction. Moreover, there was a positive significant correlation between diffuse/avoidant identity style and internet addiction. Concerning different parenting styles, we could observe a positive significant correlation between permissive parenting style and internet addiction, while there was a negative significant correlation between authoritative parenting style and internet addiction. Additionally, regression analysis results illustrated that students’ internet addiction level could be predicted regarding their identity styles and their parents’ parenting styles.

Conclusion: It seems that applying proper parenting styles and providing the requirements of successful identity achievement can lower the incidence of internet addiction.

Keywords: Parenting styles, Identity styles, Internet addiction

Introduction
Prior to its popularity for the public, the internet technology used to be applied as a tool for confidential correspondence to establish relations. Currently its widespread use by the public has attracted many researchers to this novel and amazing phenomenon (1). Ivan Goldburg, a psychiatrist at Colombia University, coined the term “internet addiction” and recorded its diagnostic criteria (2). Generally, this term manifests an improper use of the internet which can result in remarkable problems in individual’s social, educational or professional life (3). Excessive use of the internet and the resulting addiction has become a global issue (4). Body of researches conducted in different societies indicate that students’ internet addiction is a prevalent phenomenon (5,6). In a research conducted in China, researchers found that 19.1% of Chinese youths were addicted to the internet (7). In a research conducted by Moiedfar et al on Tehran internet users, it was found that 26.8% of users were addicted to the internet, among which 26.6%, 34.9%, and 22.6% of the users had emotional, behavioral, and cognitive internet addiction respectively (8). Excessive and unplanned use of the internet has an impact on the quality of personal and social life of young people (9). Moreover, it damages individual’s social relationships (10). Internet-addicted individuals involve with higher levels of social anxiety and loss of identity levels (11). Since, internet addiction leads to some negative consequences on students’ mental health, identifying the variables leading to the adolescents’ excessive tendency to the internet can be considered as an important topic for research (12). Disturbed identity style is a psychological aspect that can potentially lead to internet addiction. According to Berzonsky’s identity model, identity is a personal referral
framework applied for interpreting the personal experiences, information and answering an individual's questions regarding the meaning and the purpose of life (13). This is a hypothesis constructed based on the model, i.e. people take an active role in shaping their thinking about who they are and what they do in life (14). The model includes four styles: informational, normative, diffuse/avoidant, and achieved identity. While adolescents having informational identity actively seek identity, those with normative identity are dependent on others' expectations and adhere to others' beliefs; adolescents with diffuse/avoidant identity are often hesitant and do not actively search identity (15); advanced identity represents a commitment developed after a searching period (16). Therefore, an individual applies one of these identity styles for managing his/her life, decision-making, and/or problem-solving situations (17). Researchers have indicated that the internet negatively affects foreclosure and total identity (18). Moreover, internet addiction delays identity achievement and increases the feeling of not belonging to any type of identity. In a research conducted to study the effect of internet use on individuals' identity, the findings delineated that increased duration of internet use resulted in lower possibility of having stronger identity (19). Another research revealed that internet addiction strongly affected the social communications and decreased the users' identity level (20). Furthermore, it was found that the informational identity of non-addicted students was higher than addicted ones. Conversely, normative and diffuse/avoidant identities of addicted students were higher than non-addicted students (21,22).

Identity style is an important variable for justifying students' internet addiction level influenced by parenting style (23,24). Baumrind divided parenting styles into three categories: permissive, authoritarian, and authoritative. Parents with authoritative parenting styles apply over-intimacy and over-control for their children's upbringing. Parents with authoritarian styles apply under-intimacy and over-control, and parents with permissive styles apply over-intimacy and under-control in upbringing their children (25). Previous studies have shown a negative relationship between authoritative parenting styles and children's proneness to addiction. Authoritarian parenting style is a positive and significant predictor of children's addiction. Furthermore, those with permissive parents have stronger tendency to addiction (26,27). Lau and Yuen contend that although parenting styles are not the only influential factor on adolescents' risky behavior, common interaction of gender, religion, and parenting styles can be a predictor of adolescents' risky behaviors in the virtual world (28). Therefore, since the use of internet virtual space provides an appropriate ground for identity achievement or fixation, investigating the students' identity styles is crucially important (29). Moreover, when we know which parenting style corresponds to students' internet addiction we can take effective steps toward decreasing the risks of students' internet addiction. Thus, the present research was conducted to investigate the relationship between parenting styles, identity styles and students' internet addiction at Kerman University of Medical Sciences.

Methods
In this descriptive correlational type of research, the study population included all internet-addicted students (N = 5000) at Kerman University of Medical Sciences in 2014. Based on Krejcie and Morgan's sample-size table, the studied sample was selected using multi-stage cluster sampling method (n = 357). Of nine medical-sciences faculties at Kerman University of Medical Sciences, five faculties were randomly selected. Internet addiction as well as parenting and identity style questionnaires were distributed among 500 subjects. After removing the incomplete and invalid questionnaires, 375 questionnaires were considered for further analysis (those questionnaires which had a high score of 50 or above). Details of the applied tools are highlighted below:

Baumrind's parenting styles questionnaire
The initial form of Baumrind's parenting styles questionnaire had 30 items and was designed by Diana Baumrind in 1973. This questionnaire measures three parenting styles namely permissive, authoritarian, and authoritative styles on a 5-point Likert scale (ranging from 0 to 4). After summing up the scores of the related questions and dividing them by the number of questions, the separate score is obtained. Buri (30) used the differential method to study the questionnaires' validity and observed that there was a negative relationship between authoritarian style, permissiveness (r = 0.38), and logical authority (r = 0.48). Moreover, he found that there was not a significant relationship between permissive style and logical authority style (r = 0.7). He used the test-retest method to calculate the validity and obtained the coefficients of 0.81, 0.86, and 0.78 for permissive, authoritarian, and authoritative styles respectively. Furthermore, using Cronbach alpha formula, he calculated the internal consistency and came to present the results as 0.75, 0.85, and 0.82 for permissive, authoritarian, and authoritative styles respectively (30). The original form of this questionnaire has been translated into Persian by the Iran Psychiatric Institute. The results of a survey by 10 experts in the field of psychology and psychiatry revealed that the questionnaire had face validity (31).

Berzonsky's identity styles questionnaire
Berzonsky's identity styles questionnaire, including 40 items, was developed in 1989 by Berzonsky in the United States and was further revised in 1997 by the same scholar through reading each material and based on a 5-point Likert scale, participants agreed or disagreed with each material. This questionnaire measures three styles of "normative", "informational", and "diffuse/avoidant", along with its fourth dimension as "commitment". The questions are distributed as follows: 11, 10, and 9 questions are for informational, diffuse/avoidant, and normative styles respectively. In addition, 10 questions are about identity commitment and are used for secondary analysis (since com-
Permissive parenting, diffuse-avoidant identity, Informational identity, normative, diffuse/avoidant styles, and commitment respectively. In order to evaluate the obtained scores, Young’s instruction ought to be followed, i.e. scores between 20 to 49, 50 to 79, and 80 to 100 are respectively indicative of common users, users at risk, and severely addicted users. Researchers suggested a cut-point of 50 for diagnosing non-addicted from addicted users. Young’s internet addiction test is a valid test. In a research conducted in Sweden, the Cronbach alpha coefficient was obtained at 0.95 and in another research conducted in Iran, this coefficient equaled to 0.90 (32).

Results
The purpose of the present research was to investigate the relationship between parenting styles, identity styles and the students’ internet addiction at Kerman University of Medical Sciences. According to the demographic information, 62% of the subjects were male and 38% were female. The average age of participants was 19.68 years. Mean and standard deviation of 375 subjects were as follows: 62.78 ± 11.1, 30.97 ± 10.4, 28.17 ± 8.1, 29.59 ± 9.9, 29.58 ± 9.7, 23.75 ± 8.2, 24.32 ± 8.2, and 24.99 ± 7.5 for internet addiction variable, informational, normative, diffuse/avoidant identity styles, and commitment, permissive, authoritarian, and authoritative parenting styles respectively. The range of scores was as follows: 50 to 96, 10 to 55, 10 to 45, 6 to 50, 10 to 50, 8 to 40, 7 to 40, and 10 to 40 for internet addiction variable, informational, normative, diffuse/avoidant identity styles, commitment, permissive, authoritarian, and authoritative parenting styles. Regarding the variables’ normality of distribution, at first the correlation coefficient between variables was calculated and then the regression analysis was conducted. The correlation coefficient values for the studied variables and the students’ internet addiction are provided in Table 1.

As shown in Table 1, among different identity styles there was only a negative significant correlation between informational identity style and internet addiction ($P < 0.001$, $r = -0.191$). A positive significant correlation was found between diffuse/avoidant identity styles and internet addiction ($P < 0.001$, $r = 0.229$) and a negative significant correlation between authoritative parenting style and internet addiction ($P < 0.009$, $r = -0.135$). However, the correlation among normative identity styles ($P < 0.187$, $r = 0.068$), commitment ($P < 0.102$, $r = -0.085$), and authoritarian parenting style ($P < 0.678$, $r = -0.021$) with internet addiction was not significant. These findings indicated that the relationship of informational identity and authoritative parenting styles with internet addiction was of inverse type and the relationship of diffuse/avoidant identity and permissive parenting styles with students’ internet addiction was direct. In order to study the prediction possibility of internet addiction based on identity styles and parenting styles, stepwise regression analysis was utilized. The analyses progressed up to 5 steps and, regarding the significant role of each variable, stopped at the fifth step. Table 2 presents a summary of regression coefficients.

As shown in Table 2, at the first step, permissive parenting style was entered into the regression model as a predictor variable: it was found that the variables relationship was linear ($P < 0.001$, $F = 20.552$); then at the second step, diffuse/avoidant identity style was entered into the model

<table>
<thead>
<tr>
<th>Scales</th>
<th>Correlation coefficient</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity styles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informational identity</td>
<td>-0.191</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Normative identity</td>
<td>0.068</td>
<td>&lt; 0.187</td>
</tr>
<tr>
<td>Diffuse-avoidant identity</td>
<td>0.202</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Commitment</td>
<td>-0.085</td>
<td>&lt; 0.102</td>
</tr>
<tr>
<td>Parenting styles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permissive parenting</td>
<td>0.229</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Authoritarian parenting</td>
<td>-0.021</td>
<td>&lt; 0.678</td>
</tr>
<tr>
<td>Authoritative parenting</td>
<td>-0.135</td>
<td>&lt; 0.009</td>
</tr>
</tbody>
</table>

Table 2. Regression coefficients of students’ internet addiction based on identity styles and parenting styles

<table>
<thead>
<tr>
<th>Criterion variable</th>
<th>Predictive variables</th>
<th>Multiple R$^2$</th>
<th>Adjusted R-squared</th>
<th>F$^a$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet addiction</td>
<td>Step 1</td>
<td>Permissive parenting</td>
<td>0.229</td>
<td>0.052</td>
<td>20.552</td>
</tr>
<tr>
<td></td>
<td>Step 2</td>
<td>Permissive parenting, diffuse-avoidant identity</td>
<td>0.308</td>
<td>0.95</td>
<td>19.519</td>
</tr>
<tr>
<td></td>
<td>Step 3</td>
<td>Permissive parenting, diffuse-avoidant identity, Informational identity</td>
<td>0.354</td>
<td>0.125</td>
<td>17.721</td>
</tr>
<tr>
<td></td>
<td>Step 4</td>
<td>Permissive parenting, diffuse-avoidant identity, Informational identity, Authoritative parenting</td>
<td>0.393</td>
<td>0.155</td>
<td>16.936</td>
</tr>
<tr>
<td></td>
<td>Step 5</td>
<td>Permissive parenting, diffuse-avoidant identity, Informational identity, Authoritative parenting, normative identity</td>
<td>0.405</td>
<td>0.164</td>
<td>14.473</td>
</tr>
</tbody>
</table>

$P < 0.001$; $*Multiple correlation coefficients; $^aF$ ratio in f-test.
and it was added to the predictor variable: in this case, the relationship between the variables was linear \((P<0.001, F=19.519)\); in the third step, informational identity style was entered into the model and it was found that the variables relationship was linear \((P<0.001, F=17.721)\). Finally, authoritative parenting style was added to the predictor variables: the obtained results revealed that the relationship between variables was linear \((P<0.001, F=16.936)\). After adding normative identity style and the linearity of the relationships \((P<0.001, F=14.473)\), the analyses were stopped at the fifth step.

As shown in Table 3, at the first step, permissive parenting style \((P<0.001, \beta=0.229)\) positively predicted internet addiction and regarding \(R^2\) (Table 2), a total of 5.2% of its variance was explained. At the second step, diffuse/avoidant identity style \((P<0.001, \beta=0.207)\) was entered into the model and predicted 9.5% of internet addiction variance. At the third step, informational identity style \((P<0.001, \beta=-0.175)\) was entered into the model and negatively predicted the internet addiction, explaining up to 12.5% of its variance. At the fourth step, authoritative parenting style \((P<0.001, \beta=-0.173)\) was entered into the regression and negatively predicted the internet addiction. Concerning \(R^2\), it could predict 15.5% of internet addiction variance. Finally, normative identity style \((P<0.045, \beta=0.098)\) was entered into the regression as the last significant variable and predicted up to 16.4% of students’ internet addiction variance.

**Discussion**

According to many clinical practitioners and social critics, transformation of the internet into a global concern with all its behavioral, functional, and social consequences is an important issue; ignoring the consequences of harmful and unnecessary use of the internet, e.g. internet addiction, cyber-attacks, user’s social exclusion, and intensifying individuals’ psychological problems is unforgivable (33). Therefore, in the present research we attempted to investigate the relationship between two determinant factors (namely different identity styles and parenting styles) and internet addiction. The obtained results indicated a significant negative relationship between informational identity style and internet addiction. This finding can be interpreted regarding the fact that internet addiction scores of adolescents with informational identity style were relatively lower. According to previous studies, individuals with informational identity style tend to: (a) not search for others’ confirmation and verification, (b) trust their own judgments and act more independently, (c) show more endurance in dealing with new and ambiguous situations and individuals. Therefore, glamorous effects of the virtual space do not attract their attention and their dependence on it is relatively lower (34). Moreover, since informational identity style is the most adaptive style, it can literally be regarded as a problem-solving strategy and/or a mechanism of compromise to manage daily situations. Individuals who have this style will apply wiser and more logical approaches to manage their daily situations and will use the internet in a more logical way (21). Therefore, a student with informational identity style may less likely prefer the attractions and anonymity of the internet virtual space over its application to conduct searches for scientific literature in his/her field of studies. Based on other findings of this research and in agreement with many previous studies, there was a significant positive correlation between diffuse/avoidant identity style and internet addiction (18-20,22). This implies that adolescents with diffuse/avoidant identity styles get higher scores in internet addiction test. Regarding the fact that previous researches introduced internet addicts as isolated, bored, depressed, and introspective individuals as well as individuals with characteristics such as low self-esteem, lack of assertiveness, and withdrawing from parents (22), we can conclude that with an eye on common characteristics of the internet addicts and those of the individuals with diffuse/avoidant identity style, the statistically observed significant relationship in the present study is not far from reality. In fact, diffuse/avoidant style is a symbol of procrastinating behavior and negligence in dealing with problems and is an emotion-focused strategy with a low level of commit-
ment, self-esteem, and self-concept instability. Therefore, due to their lack of self-confidence, low self-concept, and lack of required skill to communicate with others in a real world, these individuals prefer a space to avoid any negative feedback (i.e. the internet) over the real world and enjoy their anonymity in that space (21). Moreover, it can be speculated that such a space can delay and prolong these individuals’ identity achievement process.

Furthermore, in the present research the relationship between different parenting styles and internet addiction was taken into consideration. Improper use of the internet is a behavior which gradually fixes and strengthens, finally appearing in the form of internet addiction. Parents’ upbringing methods may contribute to the problem formation; they may have no special rules and have little control over their children’s use of the internet. Parents’ little control over their children’s use of the internet may be due to their little knowledge about this media (35). Therefore, it can be hypothesized that the internet dependence level of individuals with different parenting styles is different. In line with most previous studies, the present research revealed that there was a significant positive relationship between permissive parenting style with internet addiction (26,27). This highlights that children of parents with permissive parenting style get higher scores in internet addiction test. Generally, it should be mentioned that harmful and destructive behaviors (such as addiction-like behaviors) are observed in children with either very strict or very permissive parents (36). Permissive parents more likely contribute to their children’s identity confusion; since such parents leave their children free and provide them with love, and at the same time do not control them. Thus, their children become dependent on others, cannot control their impulses, see problematic situations with uncertainty and doubt, and finally, they feel that their parents cannot advice and support them in problematic situations (35). As some individuals in the virtual world can attract others’ attention through using false identities (without any responsibility), students who are grown with permissive parenting styles easily surrender to the virtual space and are more vulnerable against its tempting impulses. Results of the present research were in line with previous researches indicating a significant negative relationship between authoritative parenting style and internet addiction (26), implying that students who are grown with authoritative parenting styles get lower scores in internet addiction test. Berk believes that democratic parents (those who are intimate with their children and at the same time logically assign some limitations and responsibilities to them and involve them in family’s decision-makings), help their child’s successful identity growth and achievement. Such families provide an appropriate ground for search and exploration through giving the feeling of security, emotional support, and logical freedom to their children. Their children act independently and individually and at the same time ask for their parents’ help if required; such children either have or are seeking a successful identity (37). In fact, authoritative parenting style encourages moral security, independence, social power, and intellectual success, leading these individuals toward getting social rewards in the real world and thus leaves no room for their dependence on the virtual world to yearn for social support (36). Furthermore, authoritative parenting style (as a protective factor) not only prevents individual’s tendency toward lost identity style but also helps the adolescents with their identity achievement process (38). Therefore, based on the discussion provided, it can be concluded that the present research findings emphasized the necessity of providing the specialized training for parents to prevent their children’s internet addiction. The results of the most recent literature of the field also indicate that parents’ monitoring, constant supervision and adopting a special parenting style can influence their children’s internet use and its subsequent problems (39).

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Ethical issues
Participation of students was voluntary, so they could withdraw from the study at any time.

Authors’ contributions
All authors equally contributed to the writing and revision of this manuscript.

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