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Original Article

The Association between Moral Intelligence and Communication Skills with Internet Addiction: The Mediating Role of Psychological Distress in Secondary School Students of Tabriz, Iran

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Abstract

Introduction: Internet addiction is a growing phenomenon that has harmful psychological-behavioral effects on users. The present study was conducted with the aim of investigating the relationship between moral intelligence and communication skill s with the mediation of psychological distress in secondary school students of Tabriz city.

Methods: In this descriptive cross-sectional correlational study, 431 adolescents (female=227, male=204) in Tabriz, Iran schools were selected using cluster sampling and responded to psychological distress questionnaires DASS21, Internet addiction KDAI, communication skill s of Queen dam and moral intelligence of Lenik Vakil. Structural equation modeling (SEM) was used to analyze the data. SPSS 26 and LISREL 8.80 statistical software were used to classify, process and analyze data and test research hypotheses.

Results: The fit indices of the proposed model show its optimal fit (χ^2/df=2.93, CFI=0.97, GFI=0.91, AGFI=0.88, RMSEA=0.06, RMR=0.03). The results showed that moral intelligence (β=-0.167, $P<0.001$) and communication skill s (β=-0.525, $P<0.001$) have a significant indirect relationship with Internet addiction.

Conclusion: The present study showed that healthcare organizations should take preventive interventions more seriously to reduce the possibility of Internet addiction and pay attention to the issue of increasing the level of moral intelligence and communication skill s with regard to the mediating role of psychological distress in order to reduce psychological distress. We can reduce the increasing prevalence of internet addiction.

Introduction

In recent years, the internet has become an essential part of daily life, accessible to over 69% of the global population.[1] The opportunities provided by the internet have also increased people's use of it, making it an integral part of everyday life across the world.[2] This technology allows for a range of possibilities, such as quick and easy access to information, interpersonal communication, entertainment, and the acquisition of various skills, from life and self-care skills to specialized expertise.[3-5]

While the internet has revolutionized our way of life and offers unprecedented levels of convenience and accessibility,[6] the rapid development of digital technologies and the increasing number of internet users have given rise to new forms of addictive behavior. Internet addiction, also described as pathological or problematic internet use, is defined as a pattern of excessive or compulsive use of the internet that results in distress or impairment.[7] Behavioral addiction and substance addiction share many similarities. Behavioral addiction follows a process similar to substance addiction, involving a cycle consisting of three stages: Binge/intoxication, deprivation/negative affect, and preoccupation/anticipation. In this process, initially, in the binge/intoxication stage, where the subject is engaging in or using the object, significant euphoria and pleasure are experienced. In the specific case of internet addiction, the individual experiences intense pleasure while engaging in online activities. This is followed by the deprivation/negative affect stage, where the individual experiences significant discomfort and distress and

may feel depressed, irritable, or agitated when offline, particularly when forced to be offline. Finally, individuals act highly obsessively and become excited about the next opportunity to go online in the preoccupation/anticipation stage. Depending on the severity of the addiction and overuse, this cycle may repeat multiple times in a day. Furthermore, internet addiction can alter brain structure. Specifically, the gray and white matters in the prefrontal regions are involved in tasks such as remembering details and planning. Additionally, a theoretical model in neuroscience suggests that internet addiction reduces an individual's prefrontal control processes. This, in turn, may accompany a loss of control over internet use. This is essentially a vicious cycle that continually increases the severity of the addiction.[8]

Internet addiction is significantly associated with psychological and interpersonal problems, such as an inability to connect with others, an inability to control one's behavior, social withdrawal, difficulty maintaining a regular schedule, and sleep disturbances with decreased sleep hours.[9-11] Additionally, some physical symptoms include back muscle strain, altered sleep patterns, and eye problems. However, these symptoms are often associated with prolonged screen time and lack of exercise.[8]

One important issue related to the internet and information technology is the age of its users. Adolescents (12-17 years old) and young adults (18-29 years old) are the primary users of this technology.[9-11] Internet overuse during adolescence can culminate in various psychological problems. Naturally, numerous factors can direct individuals, particularly adolescents, toward excessive and problematic internet use and other addictions, including an unhealthy lifestyle, low mental health literacy, lack of life skills,[12] an unfavorable family environment, psychological insecurity,[13] psychiatric disorders, mood disorders, morbid curiosity,[14,15] and weak emotion regulation skills.[16]

In the process of developing internet addiction, numerous signs and symptoms are involved. A potential mechanism that may prevent the worsening of behavioral problems, such as internet addiction, is moral intelligence. Moral intelligence, first introduced by Borba, was defined as the capacity and ability to understand right from wrong, having strong moral beliefs and acting upon them, and behaving in a correct manner. Moral intelligence acts as a guide for individuals, helping them make wise and optimal choices. Individuals who have reinforced their moral intelligence have a set of ethical principles that significantly contribute to their goals, values, personal performance, and purposeful life. Moral intelligence determines an individual's moral trajectory in life and in the workplace, prevents criminal and unlawful acts, and behavioral problems, and promotes observing ethical principles in decision-making. Previous studies have found a negative correlation between moral intelligence and internet addiction; therefore, a relationship between moral intelligence and internet addiction is expected.[17,18]

Another influential mechanism related to internet addiction is communication skill s. Individuals with good communication skills are more successful in establishing healthy and effective relationships with others. These relationships enhance an individual's mental health and provide feelings of acceptance, worth, and strong social connections. Moreover, appropriate communication skills can help individuals better share their thoughts and feelings with others and avoid isolation and disgust. On the other hand, individuals with poor communication skill s may prefer to express their thoughts and feelings online to alleviate the anxiety associated with face-to-face communication. Such individuals typically spend more time in online activities to compensate for their deficiencies in real-world communication skill s. Overall, the correlation of moral intelligence and communication skill s with internet addiction has been confirmed in research.[19-21]

While individuals may have weak moral intelligence and communication skill s, it is the probable distress arising from these experiences that often serves as a factor for developing internet addiction. In this context, the concept of psychological distress can be seen as one of the underlying mechanisms in the link of moral intelligence and communication skills to internet addiction. Psychological distress is a term used to describe a range of symptoms of depression, anxiety, and perceived stress in the context of individual psychopathology.[22,23] Poor self-control, lack of goals, and a lack of genuine social support and emotional connections predispose individuals to loneliness, anxiety, and depression.[18] Using the internet as a means of escaping problems, alleviating feelings of hopelessness, anxiety, and depression, or spending excessive time online with the specific goal of finding virtual friends to achieve imaginary and dreamy things that may not be possible in real life is a factor for internet addiction among some internet addicts. Lin et al state in their research that internet addicted individuals are shy, timid, and lonely and also have depression.[24] Previous research findings also indicate that psychiatric disorders, such as depression, anxiety, hypochondria, obsessive-compulsive disorder, interpersonal sensitivity, aggression, paranoia, phobia, and psychosis, are positively and significantly correlated with internet addiction.[24-27]

At this time, from a public health and preventive care perspective, there is a critical need to provide effective information and interventions to individuals, communities, and healthcare organizations to relieve psychological distress and strengthen individuals' capacity to cope with internet addiction. Given the significant prevalence estimates of internet addiction and its negative association with mental and physical health, internet addiction has become a major global mental health concern and should be given more attention. Thus, there is a significant need for research on the prevention

of internet addiction and the treatment of its adverse effects and consequences.[7]

Recent studies have demonstrated a relationship among internet addiction, moral intelligence, and communication skill s.[1,7,17,20,21] However, little attention has been paid to the underlying mechanisms that increase individuals' vulnerability to internet addiction. Previous research on internet addiction has shown that relieved psychological distress is associated with decreased internet addiction. Hence, it can be argued that psychological distress may function as a mediator among moral intelligence, communication skills, and internet addiction. Although previous studies have examined psychological distress and the relationship of moral intelligence and communication skills with internet addiction, no study has examined the mediating role of psychological distress in the relationship of moral intelligence and communication skills with internet addiction. Therefore, the current research was conducted to investigate the significant relationships among moral intelligence, communication skills, and internet addiction, with the mediating role of psychological distress.

Materials and Methods

Study Design and Data Collection

The present research was a descriptive-correlational study. Library sources were used to collect theoretical foundations and a literature review, and a field method using questionnaires was employed to collect the data. These questionnaires comprised the Moral Intelligence Questionnaire (MIQ), the Communication Skills Questionnaire (CSQ), and the Internet Addiction Diagnostic Questionnaire (KDAI). Multistage cluster sampling was used to recruit 431 adolescents in Tabriz, Iran schools. Based on the formula of Tabachnick and Fidell, the following formula was used to calculate the sample size (N = 400), depending on the number of predictor variables: $N > 50 + 8M$ (number of predictor variables = M).[28]

Data Collection Tools

The Moral Intelligence Questionnaire (MIQ)

The MIQ, developed by Lennick and Kiel,[29] consists of 40 items and utilizes a 5-point Likert scale. Moreover, this scale conceptualizes moral intelligence through 10 factors: Acting based on principles; honesty; perseverance and insistence on rights; loyalty to commitments; responsibility for personal decisions; admitting mistakes and failures; accepting responsibility for helping others; spontaneously caring for others; the ability to forgive one's own mistakes; and the ability to forgive others' mistakes. The MIQ was normalized in Iran by Arasteh et al.[29] The reliability of the scale, using Cronbach's alpha coefficient, is 0.86, with all indices exceeding 0.70, indicating high reliability. It has also been validated with $r = 0.94$, and content validity and internal consistency of its components have been approved by experts.[29] Cronbach's alpha for moral intelligence in the present research was obtained to be 0.934.

The Communication Skills Questionnaire (CSQ)

The CSQ, developed by Queen Dam (2004), was designed to assess the communication skill s of adults and contains 34 items. Five communication skill s are examined in this scale: Listening, the ability to receive and send messages, insight into the communication process, emotional control, and assertive communication. The CSQ is based on a 5-point Likert scale ranging from "never" (1) to "always" (6). The maximum score on this questionnaire is 170, and the minimum is 34. The reliability of this questionnaire was assessed by Hosseinchari and Fadakar, with an overall Cronbach's alpha of 0.88 and a test-retest reliability of 0.71.[30] Cronbach's alpha for communication skill s was obtained to be 0.703 in the present research.

The Depression, Anxiety, Stress Scale (DASS-21)

The DASS-21, developed by Lovibond,[30] has two forms: The original form with 42 items, each assessing the psychological constructs of depression, anxiety, and stress through 14 different items. The short form consists of 21 items, with each of the 7 items measuring one psychological factor or construct. The short 21-item form was validated for the Iranian population by Samani and Joukar.[30] The reliability values for the Depression, Anxiety, and Stress Scale were reported to be 0.80, 0.76, and 0.77, respectively, while the Cronbach's alpha values for these scales were reported as 0.81, 0.74, and 0.78, respectively. To assess the validity of this scale, the statistical method of confirmatory factor analysis using principal component analysis was employed. The KMO index value was 0.9012, and the Chi-square (X^2) value in Bartlett's test of sphericity was 3092.30, which was significant at the 0.0001 level, indicating the adequacy of the sample size and the selected variables for conducting factor analysis. Based on the factor analysis performed using varimax rotation on the questionnaire items, and considering the eigenvalues and the slope of the scree plot, three subscales were extracted: depression, anxiety, and stress, which align with the factors of the original DASS test.

The Internet Addiction Diagnostic Questionnaire (KDAI)

The KDAI, developed by Siste et al,[31] consists of 44 items and is scored on a 7-point Likert scale. The KDAI demonstrated very high internal consistency with a Cronbach's alpha of 0.94. Among the factors, based on Cronbach's alpha, "withdrawal" had the highest reliability (0.87) and "impairment" had the lowest reliability (0.61). Cronbach's alpha for this questionnaire was obtained to be 0.972 in the present research.

Data Analysis

Data were analyzed with SPSS 26.0 software. Mean and

standard deviation were calculated for data interpretation. Pearson correlation analysis was used to analyze the correlation between the average scores of the research items. In the end, structural equations were used to measure and model relationships between variables, which was done using LISREL 8.80 software. Nonetheless, prior to the analysis, the hypotheses of parametric tests were examined. The Levene's test was utilized to investigate the equality of variance between the two groups, and the Kolmogorov–Smirnov test was employed to check the normality of data distribution. A *P* value of less than 0.05 was considered statistically significant.

Results

In this study, the mean (standard deviation) of male and female was 16.93 (0.80) and 17.12 (0.82) respectively. The descriptive statistics of the studied variables by gender are summarized in Table 1 based on the average and standard deviation. The structural model was previously tested, as it is the basis for the analysis of causal correlation models. Thus, the matrix of inter variable correlation coefficients between the variables was calculated. Table 2 presents correlation matrix of the relationships between different researches. This table information about the results of the correlation matrix of studied variables. Partial results show that internet addiction has the most positive correlation with loss of control with 0.93%. The lowest level of direct relation in this scale belongs to listening ability with 0.07%. In this table, psychological distress has strong correlation with 0.90% with stress. Communication skills exhibit the most positive correlation with 0.66% with the emotional regulation subscale and the most significant negative correlation with -0.33%, shared with anxiety and depression. Additionally, emotional intelligence demonstrates the most positive correlation with 0.91% with responsibility and the most considerable negative correlation with -0.23% with depression.

Table 1. Descriptive indicators of studied variables

Variables	Mean (SD)		
	Male n=204 (47.3%)	Female n=227 (52.7%)	Total (N=431)
Listening	3.31 (0.52)	3.39 (0.51)	3.35 (0.51)
Understanding Verbal and nonverbal massages	3.64 (0.45)	3.62 (0.46)	3.63 (0.45)
Insight Communication	3.19 (0.54)	3.19 (0.64)	3.19 (0.59)
Emotional regulation	3.36 (0.53)	3.16 (0.65)	3.25 (0.61)
Assertiveness	3.36 (0.54)	3.41 (0.57)	3.39 (0.55)
Withdrawal	2.09 (1.06)	2.12 (1.10)	2.10±1.08
Loss of Control	2.37 (1.22)	2.28 (1.08)	2.23 (1.15)
Increase of Priority	2.15 (1.02)	2.13 (1.06)	2.14 (1.04)
Negative Consequences	2.01 (1.10)	1.93 (1.02)	1.97 (1.06)
Mood Modification	2.69 (0.95)	2.69 (1.07)	2.69 (1.02)
Salience	1.91 (1.04)	1.71 (0.83)	1.80 (0.94)
Impairment	2.42 (1.24)	2.42 (1.28)	2.42 (1.26)
Honesty	3.67 (0.68)	3.82 (0.65)	3.75 (0.66)
Responsibility	3.52 (0.66)	3.57 (0.70)	3.55 (0.68)
Compassion	3.44 (0.77)	3.48 (0.86)	3.46 (0.81)
Forgiveness	3.41 (0.69)	3.29 (0.75)	3.35 (0.72)
Depression	0.82 (0.64)	0.91 (0.76)	0.87 (0.71)
Anxiety	0.56 (0.47)	0.76 (0.66)	0.67 (0.59)
Stress	0.92 (0.61)	1.16 (0.74)	1.05 (0.69)
Communication skills	3.37 (0.29)	3.35 (0.33)	3.36 (0.31)
Ethical Intelligence	14.07 (2.49)	14.17 (2.54)	14.12 (2.52)
Psychological distress	2.31 (1.51)	2.84 (1.96)	2.59 (1.7)
Internet addiction	15.68 (6.70)	15.31 (6.52)	15.49 (6.60)

The values of the indices obtained in this research are shown in Table 3. In this table, the fit indices of the measurement model illustrate the optimal fit of this model (χ^2/df) = 2.93, comparative fit index (CFI) = 0.97, goodness of fit index (GFI) = 0.91, adjusted goodness of fit index (AGFI) = 0.88, root mean square error of approximation (RMSEA) = 0.067 and root mean square residual (RMR) = 0.038. Thus, the observed variables have the necessary ability to operate the latent variables. In this study, the χ^2 result is 2.93 that is close to 5 and acceptable for the presented model. Moreover, the GFI, adjusted goodness of fit index (AGFI), and CFI results are close to one, which are good for the model. Also, the RMSEA and root mean square residual results in this table are in acceptable range and very close to zero. Based on the overall results of structural model evaluation, it can be concluded that the model has good data fit.

Figure 1 reflects the standardized and (t) values of the path model. Also, In order to investigate the mediating role of psychological distress in the relationship between independent and dependent variables, the bootstrap method was used.

The study assessed the mediating role of psychological distress on the relationship between communication skills and internet addiction. The results revealed a significant indirect effect on impact of communication skills on internet addiction (β = -0.525, $P < 0.001$), supporting H1. Furthermore, the direct effect of communication skills on internet addiction is presence of mediator was also found significant (β = -0.348, $P < 0.001$). Hence, psychological distress partially mediated the relationship between communication skills and internet addiction. Mediation analysis summary is presented in Table 4.

This study assessed the mediating role of psychological distress on the relationship between ethical intelligence and internet addiction. The results revealed a significant indirect effect on impact of ethical intelligence on internet addiction (β = -0.167, $P < 0.001$), supporting H1. Furthermore, the direct effect of ethical intelligence on internet addiction is presence of mediator was also found significant (β = -0.159, $P < 0.001$). Hence, Psychological Distress partially mediated the relationship between

Table 2. The correlation matrix of studied variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1. Listening	1																						
2. Understanding Verbal and nonverbal massages	0.24	1																					
3. Insight Communication	0.14	0.11*	1																				
4. Emotional regulation	0.19	0.38**	0.16**	1																			
5. Assertiveness	0.04	0.13**	0.11*	0.10*	1																		
6. Withdrawal	0.10	-0.30**	-0.08	-0.30**	-0.11*	1																	
7. Loss of Control	0.08	-0.32**	-0.11*	-0.29**	-0.19**	0.80**	1																
8. Increase of Priority	0.11	-0.27**	-0.04	-0.31**	-0.14**	0.74**	0.77**	1															
9. Negative Consequences	0.02	-0.31**	-0.11*	-0.29**	-0.18**	0.81**	0.86**	0.71**	1														
10. Mood Modification	0.14	-0.20**	-0.07	-0.25**	-0.13**	0.71**	0.69**	0.69**	0.63**	1													
11. Salience	-0.01	-0.34**	-0.04	-0.20**	-0.15**	0.79**	0.77**	0.70**	0.79**	0.55**	1												
12. Impairment	0.02	-0.24**	-0.07	-0.31**	-0.15**	0.64**	0.79**	0.63**	0.79**	0.54**	0.63**	1											
13. Honesty	0.29	0.32**	0.19**	0.33**	0.04	-0.29**	-0.27**	-0.25**	-0.31**	-0.15**	-0.31**	-0.27**	1										
14.Responsibility	0.29	0.36**	0.28**	0.34**	0.11*	-0.22**	-0.24**	-0.19**	-0.25**	-0.11*	-0.23**	-0.18**	0.75**	1									
15. Compassion	0.31	0.24**	0.16**	0.28**	0.15**	-0.12**	-0.13**	-0.10*	-0.14**	-0.04	-0.15**	-0.11*	0.60**	0.70**	1								
16. Forgiveness	0.27	0.26**	0.20**	0.28**	0.05	-0.09	-0.10*	-0.08	-0.10*	-0.01	-0.11*	-0.07	0.62**	0.72**	0.64**	1							
17. Depression	0.00	-0.30**	-0.06	-0.47**	-0.11*	0.46**	0.460**	0.491**	0.45**	0.40**	0.38**	0.40**	-0.26**	-0.19**	-0.17**	-0.19**	1						
18. Anxiety	0.09*	-0.33**	-0.07	-0.37**	-0.15**	0.423**	0.383**	0.440**	0.37**	0.37**	0.38**	0.32**	-0.16**	-0.12*	-0.08	-0.10*	0.66**	1					
19. Stress	0.10*	-0.35**	-0.11*	-0.43**	-0.15**	0.45**	0.42**	0.42**	0.40**	0.40**	0.35**	0.39**	-0.16**	-0.21**	-0.17**	-0.18**	0.71**	0.70**	1				
20.Communication skills	0.54*	0.61**	0.56**	0.66**	0.49**	-0.24**	-0.29**	-0.23**	-0.30**	-0.18**	-0.25**	-0.26**	0.41**	0.48**	0.40**	0.37**	-0.33**	-0.29**	-0.33**	1			
21.Ethical Intelligence	0.34**	0.34**	0.24**	0.36**	0.10*	-0.20**	-0.21**	-0.17**	-0.22**	-0.09	-0.23**	-0.18**	0.84**	0.91**	0.86**	0.86**	-0.23**	-0.13**	-0.21**	0.47**	1		
22.Psychological distress	0.07	-0.37**	-0.09*	-0.48**	-0.15**	0.50**	0.47**	0.50**	0.46**	0.44**	0.41**	0.42**	-0.22**	-0.20**	-0.16**	-0.18**	0.89**	0.87**	0.90**	-0.36**	-0.22**	1	
23. Internet addiction	0.07	-0.32**	-0.08	-0.32**	-0.17**	0.90**	0.93**	0.86**	0.92**	0.78**	0.85**	0.83**	-0.30**	-0.23**	-0.13	-0.09*	0.50**	0.44**	0.47**	-0.29**	-0.21**	0.52**	1

**$P<0.01$, *$P<0.05$

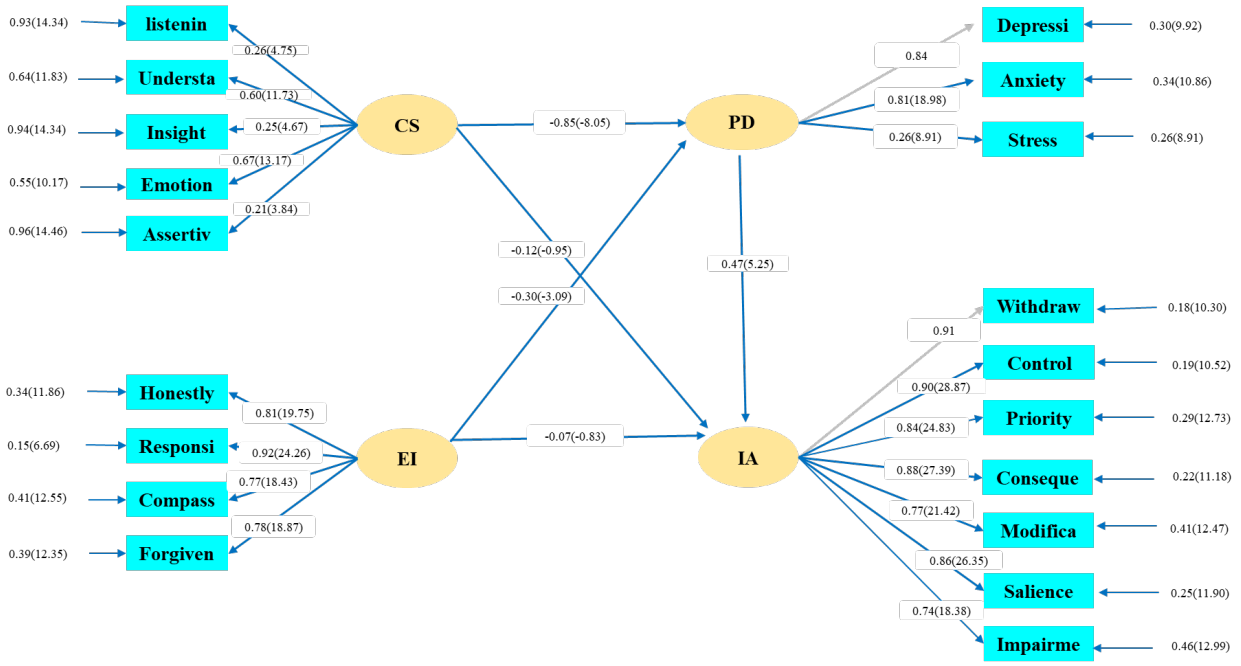

Figure. 1. Standardized and (t) values of the finalized structural model (N = 431)
Abbreviation. CS: Communication skills, PD: Psychological distress, EI: Ethical Intelligence, IA: Internet addiction, Listenin: Listening Understa: Understanding verbal and nonverbal massages, Insight: Insight Communication, Emotiona: Emotional regulation, Assertiv: Assertiveness, Depressi: Depression, Withdraw: Withdrawal, Control: Loss of Control, Priority: Increase of Priority, Conseque: Negative Consequences, Modifica: Mood Modification, Impairme: Impairment, Responsi: Responsibility, Compassi: Compassion, Forgiven: Forgiveness

Table 3. Model fit indices presented in the research. index of fit indicator values

Fit Indices	Value
Chi-square ($\chi 2$)	404.63
χ^2/df	2.932
Goodness of fit index (GFI)	0.91
Adjusted goodness of fit index (AGFI)	0.88
Comparative fit index (CFI)	0.97
Root mean square error of approximation (RMSEA)	0.067
Root mean square residual (RMR)	0.038

moral intelligence and internet addiction. Mediation analysis summary is presented in Table 5.

Discussion

A theoretical model was proposed in the present study to examine psychological distress as a mediator between moral intelligence and communication skill s on the one hand, and internet addiction on the other. According to this model, low moral intelligence and communication skill s reinforce psychological distress, which encompasses anxiety, stress, and depression. In turn, psychological distress increases the risk of internet addiction. The findings of this study align with the theoretical underpinnings and conclusions of related research. The results of the present study revealed a significant negative correlation between moral intelligence and internet addiction. This finding aligns with previous research that has shown a significant inverse relationship between moral intelligence and internet addiction, suggesting that low moral intelligence may play a key role in the development of internet addiction.[17,19-31] Thus, moral intelligence can have significantly impact internet addiction, as individuals with higher moral intelligence typically have better abilities in moral decision-making, empathy, and emotion regulation. Due to a deeper understanding of the consequences of their behaviors, such individuals are less likely to engage in internet overuse and more likely to place greater importance on real-world social interactions. As shown by Abharzanjani and colleagues' research,[32] moral beliefs are protective factors against substance abuse and various addictions. Therefore, it is expected that low moral intelligence would jeopardize healthy internet use by neglecting internet ethics.[33]

Furthermore, the present study results revealed a significant negative correlation between moral intelligence and psychological distress. This finding is consistent with the results of other studies[34-37] that have shown a close relationship between moral intelligence and mental health. Moral intelligence in individuals culminates in value-based actions and attach importance to others. When individuals are responsible, they try to generalize this responsibility to family, work, and social environments, leading to enhancing their mental health.[38]

Another variable discussed in the present study was communication skill s. The results indicated that there was a significant negative correlation between communication skill s and internet addiction. This finding is consistent with previous research, a significant portion of which

Table 4. Mediating role of psychological distress on the relationship between communication skills and internet addiction

Relationships	Total effect	Direct effect	Indirect effect	Lower bounded	Upper bounded	Confidence interval	Conclusion
Communication skills→ Psychological distress → Internet addiction	-0.8735 $P=0.0000$ t=-6.3383	-0.3484 $P=0.0077$ t=-2.6764	-0.5251	-0.7225	-0.3512	0.95	Partial mediation

Table 5. Mediating role of psychological distress on the relationship between ethical intelligence and internet addiction

Relationships	Total effect	Direct effect	Indirect effect	Lower bounded	Upper bounded	Confidence interval	Conclusion
Ethical Intelligence → Psychological Distress → internet Addiction	-0.3268 $P=0.0000$ t=-4.6337	-0.1592 $P=0.0112$ t=-2.5471	-0.1667	-0.2551	-0.0918	0.95	Partial mediation

has shown that internet addictive use can be influenced by an individual's relationships and communication skill s, and it is expected that internet addiction will increase if communication skill s decrease.[19-21,39-43] For instance, individuals who have difficulty finding friends in real life and experience negativity in family relationships may turn to the internet to escape the loneliness they experience. In fact, it has been found that students who report that their relationships with their families have not been as they would like have higher levels of internet addiction. It has been observed that students who do not receive the desired social support from their families turn to the internet to find social support and view the internet as a way to escape from unsatisfactory family relationships. In addition, it has been found that individuals who lack the ability to present themselves prefer online social interaction to face-to-face relationships, and such a preference for online social interaction gives rise to increased compulsive internet use, and this situation results in negative consequences.[19]

The current study also demonstrated a significant negative correlation between communication skill s and psychological distress. This finding matches the results of studies conducted by Hoseinpoor et al[44] and Salomone et al.[45] Research has shown a significant negative correlation between communication skill s and physical symptoms, anxiety, sleep disorders, and the depression scale. These results reveal that individuals with stronger communication skill s are less likely to experience anxiety and depression than others due to having more connections and a larger social network, and possibly a greater ability to seek help from others, and they also exhibit fewer physical symptoms of anxiety and depression. Lack of communication skill s in dealing with life issues is one of the damaging factors. Many individuals do not have the necessary skills in dealing with problems, and this issue makes them vulnerable when facing challenges and causes problems such as depression, anxiety, and anger.[24]

The data analysis results demonstrated that psychological distress had a significant positive correlation with internet addiction. Accordingly, depression, anxiety, and stress emerged as crucial factors in the development of internet addiction. The comorbidity between psychiatric disorders and internet addiction indicates that the relationship between the two disorders is more than expected among internet users. A bidirectional relationship seems to exist between psychiatric disorders and internet addiction: Firstly, psychiatric disorders lead to the development or worsening of symptoms of addiction disorder, and secondly, internet addiction culminates in the development or worsening of symptoms or the course of other psychiatric disorders. Studies have shown that anxiety and depression may help facilitate engagement in internet-related activities and predispose individuals to internet overuse as a maladaptive way of managing irrelevant and intrusive thoughts. The results of the current research revealed that the absence of psychological distress predicted a lower probability of developing internet addiction, which is in line with the results of previous research in this regard.[24-27] Mamun et al[46] also concluded that internet addiction had a strong relationship with depression but had no significant relationship with anxiety.

Besides the direct impacts of moral intelligence and communication skill s on internet addiction, the present study results revealed that psychological distress reinforced the relationship of moral intelligence and communication skill s with internet addiction. Therefore, it can be said that psychological distress plays a mediating role in the relationship of moral intelligence and communication skill s with internet addiction. It is believed that individuals who have difficulty making friends, have poor communication skill s in real life, and cannot find effective ways to cope with their problems because of low moral intelligence, which culminates in poor self-control and poor decision-making, may face psychological disorders, such as depression, anxiety, aggression, and sexual delinquency. These psychological problems cause changes in brain structure and also hormonal changes, the most prominent of which is a decrease in dopamine.[47] In fact, in the human brain, an area called the reward system has evolved as a way to reinforce behavior and habits by increasing dopamine levels in reward pathways, causing the individual to feel pleasure and satisfaction. When the brain begins to change, addiction develops. Substance use or performing addictive behaviors causes dopamine, a neurotransmitter associated with feelings of pleasure and reward, to be

released in large amounts in the brain's reward pathways. It can lead to the development of addiction, as the brain becomes dependent on this dopamine and seeks to repeat those pleasurable experiences. The brain adapts to the repeated behavior and becomes less sensitive to dopamine, culminating in the need for more and more of the behavior to feel significant pleasure and satisfaction.[1] As a result, the internet, by providing a platform for distraction and temporary relief, becomes an attractive way for individuals to relieve stress and emotional problems in real life. This reliance on the internet as a coping mechanism may result in overuse and, consequently, an increased risk of internet addiction.[48]

Conclusion

Overall, based on the presented findings, it can be stated that psychological distress plays a potent mediating role between moral intelligence and communication skill s with internet addiction. In other words, psychological distress in individuals can maximize the impacts of low moral intelligence and communication skill s on internet addiction. It is suggested that future studies investigate the mediating role of other important variables in the relationship of moral intelligence and communication skill s with internet addiction. Additionally, due to the large number of questions, a significant amount of time was spent obtaining results. The use of shorter versions of questionnaires could save time in data collection.

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Competing Interests

There are no conflicts of interest.

Data Availability Statement

The datasets are available from the corresponding author on reasonable request.

Ethical Approval

This study was approved by the ethics committee of Tabriz University of Medical Sciences (Ethical code IR.TBZMED.REC.1403.678). Written informed consent was obtained from all participants.

Research Highlights

What is the current knowledge?

Moral intelligence has a significant negative relationship with internet addiction.
There is a significant negative relationship between communication skill s and internet addiction.
Psychological distress has a significant positive correlation with internet addiction.

What is new here?

Psychological distress in individuals can maximize the impacts of low moral intelligence and communication skills on internet addiction.

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