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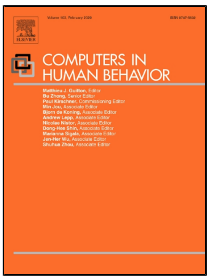

The impact of perceived social support on students' pathological Internet use: The mediating effect of perceived personal discrimination and moderating effect of emotional intelligence

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The impact of perceived social support on students' pathological Internet use: The mediating effect of perceived personal discrimination and moderating effect of emotional intelligence

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ABSTRACT : The aim of this study is to investigate how perceived personal discrimination and emotional intelligence affect the relationship between perceived social support and pathological Internet use of students in China. Data were collected from 560 students from primary and secondary schools in mainland China. Results showed that perceived social support could be a predictor of students' perceived personal discrimination, and perceived personal discrimination could have a significant impact on students' pathological Internet use. Perceived personal discrimination had a mediating effect on the relationship between perceived social support and pathological Internet use. In addition, emotional intelligence played a moderating role in the relationship between perceived social support and perceived personal discrimination, as well as between perceived personal discrimination and pathological Internet use. As a moderator, emotional intelligence can enhance the effect of social support perception on discrimination perception, and mitigate the effect of discrimination perception on individual pathological Internet use. This enlightens us that it is necessary to provide social support and improve emotional intelligence of primary and secondary school students and reduce their perceived personal discrimination, thereby reducing their pathological Internet use.

Key Words: Perceived social support; perceived personal discrimination; emotional intelligence; pathological Internet use

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1. Introduction

Pathological Internet use (PIU) refers to excessive use of Internet that damages individuals' social and psychological functions and affects their normal work and learning behaviors (Davis, 2001). Pathological Internet use among adolescents and children has become an increasingly concerned issue in the past decades (Hernández et al., 2019; Karaer & Akdemir, 2019). Along with its prevalence, the Internet plays an increasingly important role in the lives of children and teens. However, pathological Internet use has begun to endanger the physical and mental health of young people while the Internet brings speed and convenience (Zhang et al., 2019). There are 829 million Internet users in China, accounting for 20% of all Internet users worldwide (Lei et al., 2018). Among them, 21.6% (179.06 million) are under the age of 19 (CNNIC, 2019), and the rate of pathological Internet use among primary and secondary school students in China is 6.6% (Wang, Wang, & Fu, 2008). As more children become addicted to the Internet, their problem behaviors related to pathological Internet use have arisen accordingly (Stavropoulos, Alexandraki, & Motti-Stefanidi, 2013; Zhang, Qin & Ren, 2018; Zhang et al., 2019). Studies have found that pathological Internet use has negative effects on students' academic performance (Zhang et al., 2019) and psychosocial development (Dong & Wang, 2013). Therefore, more attention should be paid to this phenomenon. It is very important to understand the factors contributing to pathological Internet use and how they interact. However, studies on the influencing mechanism of pathological Internet use are still at an early stage, and the understanding of its etiological factors and mechanism is rather limited (Kuss & Lopez-Fernandez, 2016). Therefore, it is urgent to explore the key influencing factors of pathological Internet use and their influencing mechanism.

1.1 Perceived social support and pathological Internet use

Among a variety of influencing factors, perceived social support maybe one of the key factors (Gunuc & Dogan, 2013; Karaer & Akdemir, 2019). Perceived social support

is the subjective support perceived by individuals, which refers to their recognition and evaluation of support from family members, friends and important others (Fan et al., 2012). According to cognitive-behavioral theory, lacking of social support, a person tends to look for it on Internet, spend excessive time there, and then become addicted (Davis, 2001). In addition, psychological-decompensation model holds that the Internet has the function of compensation when the psychological development of teenagers is blocked. For example, when social support is not provided adequately, the Internet forms "pathological compensation", which leads to the development deviation of teenagers and the formation of pathological Internet use (Gao & Chen). Empirical studies also indicate that social support to Internet addicts is significantly lower than non-addicts (Chen, Liu, & Luo, 2007; Wu, Zhang, & Zhao, 2016; Karaer & Akdemir, 2019). Because the Internet can compensate for the lack of social support in the real world, addicts tend to use Internet more frequently to gain such support (Gao & Chen, 2006). In addition, use-satisfaction theory (Parker & Plank, 2007) indicates that the satisfaction obtained from Internet will further stimulate people to use it more. Empirical studies have also found that pathological Internet use is negatively correlated with offline social support (Wang & Wang, 2013). Low level of social support can make people feel lonely in real interpersonal communication (He, Hui, & Liu, 2015). In order to get rid of this loneliness, individuals immerse themselves in the virtual world of Internet to seek social support (Liu, Xu, & Hu, 2009). Other studies have also shown that adolescents with more social support are less likely to develop pathological Internet use (Wu et al., 2016; Yeh et al., 2008). The relationship between social support and pathological Internet use have been well documented (Chen, Liu, & Luo, 2007; Karaer & Akdemir, 2019). However, there is still insufficient studies on how social support impact pathological Internet use.

Based on previous work, the current study presents hypothesis 1, as follows: Perceived social support are negatively related to pathological Internet use.

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1.2 The mediating role of perceived personal discrimination

Pathological Internet use is often regarded as a problem behavior of an individual (Wang, Wang, & Fu, 2008). How this kind of addictive behavior is formed has attracted great attention (Hernández et al., 2019). As mentioned earlier, inadequate social support is often seen as a crucial reason for Internet addiction (Karaer & Akdemir, 2019). However, there is growing evidence demonstrating that social support has an indirect effect on such problem behavior (Hyde & Gorka, 2011; Zhang et al., 2019). Behavior synthesis theory model indicates that children's problem behavior is the result of interaction between social environment and individual character system factors (Zhang et al., 2019). Some studies found that social support plays a role in individuals' mental health and behavior by influencing their internal cognitive system (Hyde & Gorka, 2011). For example, some studies indicate that the lack of social support can lead to students' sense of loneliness and can be used as a predictor of their pathological Internet use (Ding et al., 2016; Song et al., 2010). Other studies also indicate that social support, as a situational factor, can indirectly affect individuals' problem behaviors through their mental factors (Zhang et al., 2019).

Among various individual factors, perceived personal discrimination maybe an important mediator that has not received much concern. Perceived personal discrimination is a negative cognition, which refers to the perception of an individual that he or she is and his or her group are negatively evaluated or treated unfairly (Wooda & Cooka, 2019; Pascoe & Richman, 2009). Compared with objective discrimination, perceived personal discrimination is a psychological reality that influences the psychology and behaviors of individuals as a practical variable (Dion & Kawakami, 1996; Fu et al., 2017). Social support and perceived discrimination are the two opposites of social cognition. Social support is inversely proportional to the reduction of perceived discrimination (Zhang, Xue & Zhao, 2019; Podakoff, 2012). According to the cognitive theory of depression (Zhang, Xue & Zhao, 2019), less social support will produce negative schemata of depressed individuals and lead to cognitive biases in

information processing, which tends to produce discrimination perception. Individuals will feel less lonely when receiving more social support, and generate more positive emotions (Wooda & Cooka, 2019; He, Hui, & Liu, 2015; Wang & Shi, 2014).

Perceived discrimination is a potential predictor of pathological Internet use. Based on the hypothesis of self-medication, (Hsieh et al. 2016) believed that Internet addiction is a maladjustment from traumatic experience and a maladjustment coping strategy reducing psychological pain and negative emotions from suffering experience. On the one hand, perceived discrimination is an important source of stress, which has a predictive effect on individual's pathological Internet use (Meena et al., 2015; Kuss et al., 2014). Stress can effectively predict an individual's anxiety, and Internet can be seen as a safe haven where students can get rid of anxieties caused by stress (Ye & Zheng, 2016; Hsieh et al., 2019). On the other hand, perceived discrimination leads to their lackage of belongingness. Their need of belongingness can be satisfied by using the Internet (Gross, 2004; He, Hui, & Liu, 2015). In this way, they are over-dependent on it, which ultimately results in pathological Internet use (Ko & Roberts, 2005). When faced with negative emotions, individuals tend to choose negative coping mechanisms such as avoidance to maintain internal equilibrium (Diehl et al., 2014; Dybdahl, Jenkins, & Nuismer, 2014).

Therefore, hypothesis 2 and 3 are presented as follows. Hypothesis 2: Perceived personal discrimination can positively predict pathological Internet use.

Hypothesis 3: Perceived personal discrimination has a mediating effect on the relationship between perceived social support and pathological Internet use.

1.3 Emotional intelligence as a moderator

However, not all children without enough social support are bound to have perceived personal discrimination and develop pathological Internet use (Lei et al., 2018; Zhao et al., 2016; Major, Quinton, & McCoy, 2002). There is still possibility for them to grow healthily against unfavorable environment. It depends on whether there are protective factors that can help them resist the negative impacts of such adverse

environment (Luthar, Cicchetti, & Becker, 2000; Maes, Stevens, & Verkuyten, 2014). Apart from focusing on intervention and prevention, there is a new trend to focus on factors promoting the positive development of young people (Hsieh et al., 2019). It is important to identify the protective factors that can help resist the negative impacts brought by social support and discrimination. Emotional intelligence may be one of the protective factors.

Emotional intelligence is often thought to be at the center of a process where protective factors are acquired (Morales & Trotman, 2011; Sesma et al. 2013). On the one hand, according to the protective-protective model, when one protective factor (for example emotional intelligence) (Guy & Lee, 2015; Pau & Sabri, 2015) exists, it will enhance the role of another protective factor (for example social support) (Lopez-Zafra et al., 2019). Previous studies indicate that emotional intelligence can moderate the relationship between social support and adolescents' cognition, adolescents with high level of emotional intelligence pay more attention to the interactive experience of social support than those with low level of emotional intelligence, which leads to more positive cognition and less negative cognition (Lopez-Zafra et al., 2019; Ciarrochi, Deane, & Anderson, 2002). Other studies also indicate that social support can affect college students' career adaptability, which is moderated by emotional intelligence (Sun & Liu, 2019).

On the other hand, emotional intelligence can reduce the risk that children face (Sesma et al. 2013; Hsieh et al., 2019). Researchers believe that emotional intelligence can help individuals cope with negative environmental pressure positively (Gong & Zhang, 2012). Individuals with high emotional intelligence often feel less pressure and are more likely to boost mental health (Slaski & Cartwright, 2002). Other studies also indicate that there is a positive correlation between emotional intelligence and psychological resilience (Wen, Liu, & Chen, 2014), and can play a protect role in one's mental health development (Slaski, & Cartwright, 2002). However, the studies on the roles of emotional intelligence played in the relationship between perceived social support and perceived personal discrimination, as well as between perceived personal

discrimination and pathological Internet use, are quite limited and need to find more evidences (Karaer & Akdemir, 2019).

Therefore, hypothesis 4 and 5 are presented as follows. Hypothesis 4: Emotional intelligence plays a moderating role in the relationship between perceived social support and perceived personal discrimination. Hypothesis 5: Emotional intelligence plays a moderating role in the relationship between perceived personal discrimination and pathological Internet use.

The research model are presented as follows:

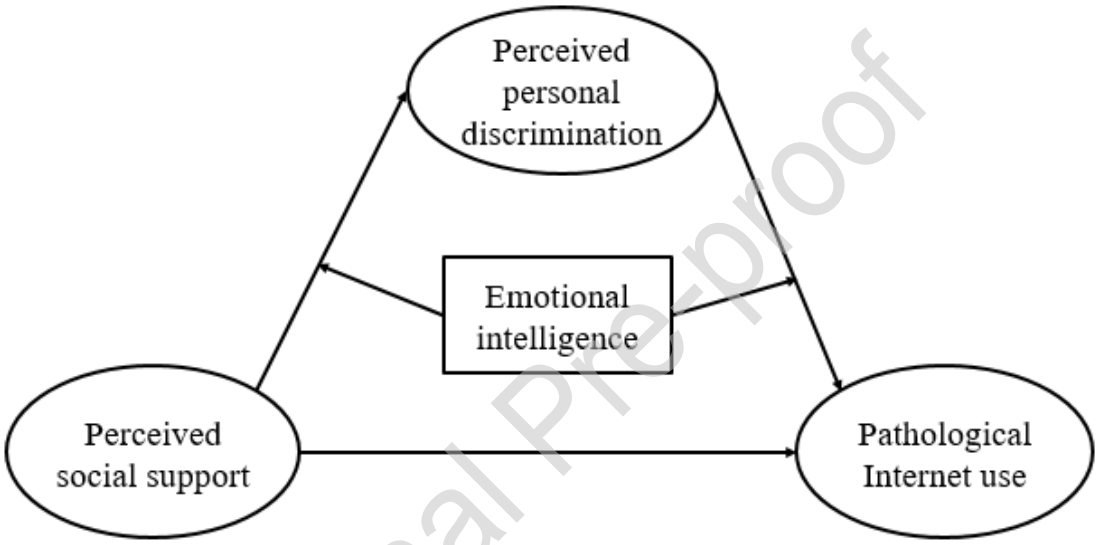

Fig. 1. Research model

2. Methods

2.1 Participants and procedures

This study was approved by the local ethical committee of Zhejiang University. The researchers first explained the purpose of the study to the schools before investigation and obtained their consent. According to the principle of cluster random sampling, 560 students from 6 primary and secondary schools were sampled (Table 1). Students were informed that participation was voluntary, and there would be no negative effects if they refused or discontinued participation. All participants need to

inform their parents or legal guardians and obtain their consent before participating. All participants were required to fill in paper questionnaires. The questionnaires were completed in 30 minutes by all participants in a quiet classroom under the supervision of a trained researcher member.

Of all the students who responded to the request to participate, 49.8% (279) were boys, and 50.2% (281) were girls. A total 40.5% (227) of the students were primary school students and 59.5% (333) were middle school students. Moreover, 91.8% (514) of all were Han students, and 8.2% (46) were minority students. 22.3% (125) were from city schools, 22.0% (123) were from town schools and 55.7% (312) were from rural schools. The average age of the all participates was 12.77 ± 2.078 years.

Table 1. Student samples

		Number	Percent
Gender	Male	279	49.8
	Female	281	50.2
Educational stage	Primary school student	227	40.5
	Secondary school student	333	59.5
Ethnicity	Han	514	91.8
	Minority	46	8.2
Region	City	125	22.3
	Town	123	22.0
	Rural	312	55.7

2.2 Measures

Perceived social support (Wang, Wang, & Ma, 1999). The scale was compiled by Zimet et al. (1988) and revised in Chinese. There were 12 questions, which were divided into three categories: family support, friend support and other support. The total score of the scale was added up by all items using the 7-level rating scale with scores from 1 to 7. The Cronbach's alpha coefficient of the total scale was 0.88 and the test-retest reliability was 0.85. The goodness of fit (χ^2/df=4.387, RMSEA=0.080, CFI=0.939, TLI=0.919) of confirmatory factor analysis in this study indicated that it has an adequate structural validity.

Emotional Intelligence. The Chinese version of Emotional Intelligence Scale (EIS) revised by Wang (2002) was used to measure emotional intelligence. It was first developed by Schutte et al. (1998) based on the emotional intelligence theory of Mayer and Salovey. A total of 33 items were scored with a 5-point rating scale, including four dimensions: emotional cognition, self-regulation, regulation of others' emotions and application of emotions. The EIS had a good internal consistency reliability (0.90) and test-retest reliability (0.78).

Perceived personal discrimination. The perceived personal discrimination scale compiled by Liu and Shen (2010) was used to investigate the degree of discrimination perceived by children in their interaction with others. The questionnaire consists of 20 typical discrimination incidents experienced by children, with a 5-level rating scale ranged from 1 point "completely disagree" to 5 points "completely agree". The subjects were asked to choose the frequency of such experience. The higher the score, the more discrimination they perceive. The questionnaire had also been used in many studies (Xing et al., 2011; Fan et al., 2012). The Cronbach's alpha coefficient of the total scale was 0.92. The goodness of fit (χ^2/df=3.342, RMSEA=0.068, CFI=0.931, TLI=0.920) of confirmatory factor analysis in this study indicated that it has an adequate structural validity.

Pathological Internet use (Yang & Lei, 2007). Pathological Internet Use Scale (PIUS) compiled by Yang and Lei (2017) was used due to its adaptation to Chinese environment. The table consists of 38 items, from "completely disagree" to "completely agree" with a rating scale from 1 to 5 points. The results of exploratory factor analysis and confirmatory factor analysis showed that PIUS consisted of 6 dimensions: a. primacy (Internet use occupies the center of users' thinking and behaviors); b. tolerance (Internet users constantly increase their time and involvement online to obtain a sense of satisfaction); c. compulsive Pathological Internet use treatment symptom (refers to the physiological responses and negative emotions caused when someone having compulsive Pathological Internet use intends to reduce the time spent online but can not manage to do; d. change of mood (use Internet to change negative mood); e. social

comfort (thinks that online communication is safer and more comfortable; uses the Internet as his or her means of socializing; f. negative consequences (Internet use has a negative impact on normal life). PIUS had good reliability and validity indicators so it could be a measurement tool for the pathological Internet use of children in China. The α coefficients for each dimension were 0.86, 0.77, 0.81, 0.87, 0.92 and 0.88, and the α coefficient of the total questionnaire was 0.94. The confirmative factor analysis showed that the pathological Internet use questionnaire had a good construct validity (χ^2/df =1.21, NFI =0.90, NNFI =0.97, CFI =0.97, RMSEA =0.03).

2.3 Data analysis

The data were analyzed with SPSS 24.0 and AMOS 21.0. First, the common method bias was tested by Harman's single factor test using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The correlations of all the variables were tested by bivariate correlations. All the continuous variables are centralized. Since most of the variables in the constructs were multidimensional, we used a structural equation modeling approach to test the moderated mediating effect model (Wu & Wen, 2011; Wen & Ye, 2014). To access the model fit, we reported the Chi square divided by degrees of freedom (χ^2/df), root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis fit index (TLI), and standardized root mean square residual (SRMR). χ^2/df ≤5, RMSEA ≤0.08, CFI and TLI ≥0.90, and SRMR ≤0.08 were considered as an adequate model (Hu & Bentler, 1999; Zhang et al., 2019).

3. Results

3.1 Test of common method bias

Common method bias refers to artificial co-variation generated between a predictive variable and a targeted variable resulting from data with the same origins or grader and measuring environment and project context (Wang, 2019). A test of

common method bias was conducted using Harman's single factor test (Zhou and Long, 2004). Typically, variables such as perceived social support, perceived personal discrimination, pathological Internet use and emotional intelligence are assessed with exploratory factor analysis to test the explanatory power of the first common factor in unrotated factor analyses. The results of EFA in this study showed that the explanatory power of the first common factor was 16.840%, far less than 40%. The confirmatory factor was further adopted (Zhou and Long, 2004) and the common factor was set as 1. These results showed that the fit index was not satisfactory (χ^2/df = 12.835, RMSEA = 0.089, NFI = 0.88, TLI = 0.88, CFI = 0.89). These two steps revealed that there was no serious common method bias in this research and that it was suitable to carry on further analysis.

3.2 Descriptive statistics

Table 2 indicated the univariate correlation between perceived social support and emotional intelligence was significant ($r = 0.502$, $p < 0.01$), as it was for perceived social support and perceived personal discrimination ($r = -0.443$, $p < 0.01$), and between perceived social support and pathological Internet use ($r = -0.229$, $p < 0.01$). This means that the higher the level of perceived social support, the more likely the students will have higher emotional intelligence, and the less likely the students will have perceived personal discrimination and become addicted to Internet. Hypothesis 1 was supported.

The significant correlation was also found between emotional intelligence and perceived personal discrimination ($r = -0.303$, $p < 0.01$), as well as between emotional intelligence and pathological Internet use ($r = -0.268$, $p < 0.01$). This means that the higher the level of perceived social support, the less likely the students will have perceived personal discrimination and pathological Internet use. In addition, pathological Internet use was significantly related with perceived personal discrimination ($r = 0.534$, $p < 0.01$), which means that the higher the level of perceived personal discrimination, the more likely the students will have pathological Internet use.

Table 2. Correlations

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	Gender	Age	Ethnic	Perceived social support	Emotional intelligence	Perceived personal discrimination	Pathological Internet use
Gender	1						
Age	-.128**	1					
Ethnic	.030	.182**	1				
Perceived social support	.006	-.036	-.041	1			
Emotional intelligence	.025	.115**	.052*	.502**	1		
Perceived personal discrimination	-.056*	.172**	-.032	-.443**	-.303**	1	
Pathological Internet use	-.102**	.182**	-.125**	-.299**	-.268**	.534**	1

3.3 A moderated mediating effect model

In figure 2, AMOS 21.0 was used for structural equation modeling, and the structural equation model had an adequate fit with the actual data (χ^2/df=3.493; RMSEA = 0.067 < 0.08; TLI = 0.909 > 0.90; CFI = 0.929 > 0.90; SRMR=0.044<0.08). After controlling the unrelated variables such as gender, age, nationality, Figure 2 showed that perceived social support had a negative impact on perceived personal discrimination (β= -0.404, P < 0.001), while perceived personal discrimination had a positive impact on pathological Internet use (β= 0.474, P < 0.001). Hypothesis 2 was supported. However, the results showed that the direct effect of perceived social support on pathological Internet use did not disappear (β= 0.007, P > 0.05). That was to say, perceived personal discrimination played a completely role in the impact of perceived social support on pathological Internet use. Hypothesis 3 was supported.

Emotional intelligence did not have a significant effect on perceived personal discrimination (β=0.004, P > 0.05), but the interaction terms of perceived social support and emotional intelligence significantly predict perceived personal discrimination (β= -0.179, P < 0.001). This indicated that the relationship between perceived social support and perceived personal discrimination use was moderated by emotional intelligence. Hypothesis 4 was supported. In order to further explore the moderating effect of emotional intelligence on the impact of perceived social support on perceived personal

discrimination, the research drew an interactive effect map (Fig. 3). Simple slope test (Dearing & Hamilton, 2006) showed that for students with low emotional intelligence level (e.g. Emotional intelligence = -1SD), perceived personal discrimination showed a significant downward trend (γ = -0.15, t = -3.64, P < 0.001) with the increase of perceived social support. When students with high emotional intelligence level (e.g. Emotional intelligence = +1SD), perceived personal discrimination showed a more significant downward trend (γ = -0.34, t = -5.74, P < 0.001) with the increase of perceived social support. This means that perceived social support can help to reduce individual discrimination perception, but if assisted by high emotional intelligence, the effect of reducing discrimination perception will be more significant.

Emotional intelligence had a negative impact on pathological Internet use (β= -0.141, P < 0.05) and the interaction terms of perceived personal discrimination and emotional intelligence could significantly predict students' pathological Internet use (β= -0.091, P < 0.05). This indicated that emotional intelligence could moderate the relationship between students' perceived personal discrimination and pathological Internet use. Hypothesis 5 was supported. Interactive effect map (Fig. 4) showed that higher emotional intelligence could relieve the positive impact of perceived personal discrimination on pathological Internet use. Simple slope test (Dearing & Hamilton, 2006) showed that for students with lower emotional intelligence level (e.g. Emotional intelligence = -1SD), pathological Internet use showed a significant upward trend (γ = 0.69, t = 12.15, P < 0.001) with the increase of perceived personal discrimination. When students with higher emotional intelligence level (e.g. Emotional intelligence = +1SD), pathological Internet use showed a more significant downward trend (γ = 0.51, t = 9.54, P < 0.001) with the increase of perceived social support.

The interaction terms of perceived social support and emotional intelligence could not significantly predict students' pathological Internet use (β= -0.039, P > 0.05). This indicated that emotional intelligence did not moderate the relationship between perceived social support and their pathological Internet use.

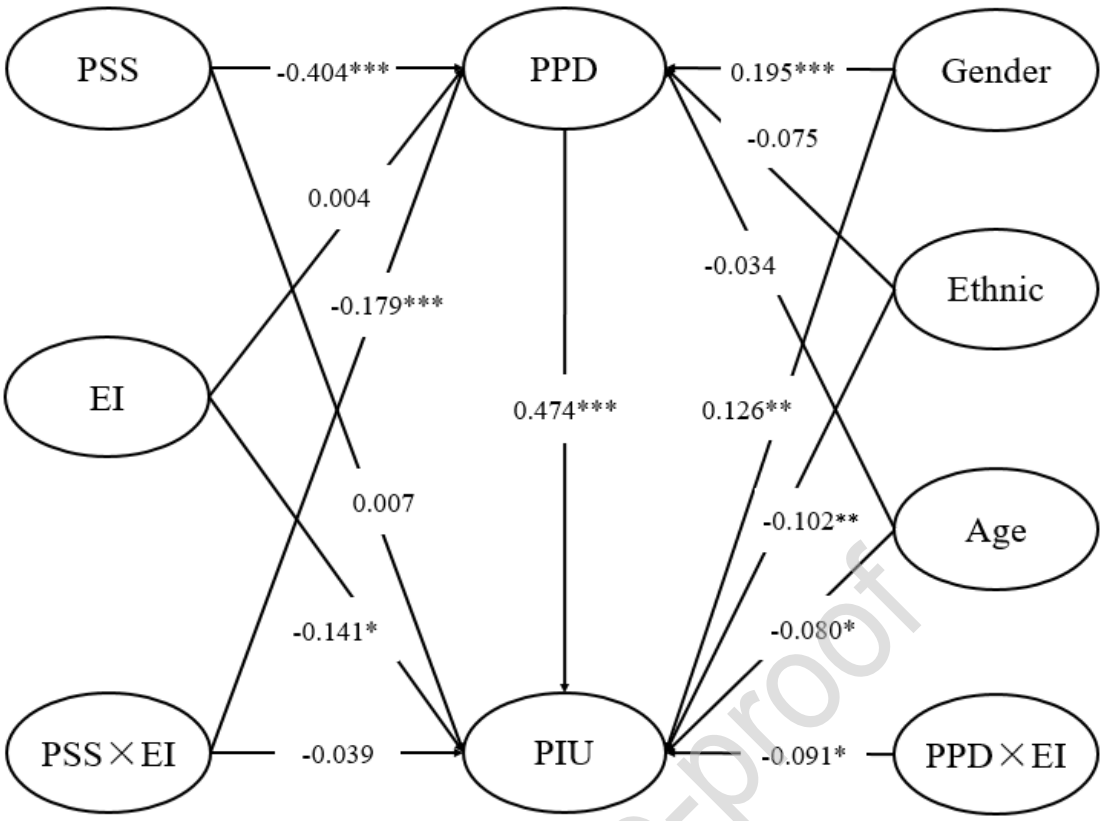

Fig. 2. A moderated mediating effect model. PSS=perceived social support; PPD=perceived personal discrimination; EI=emotional intelligence; PIU= pathological Internet use

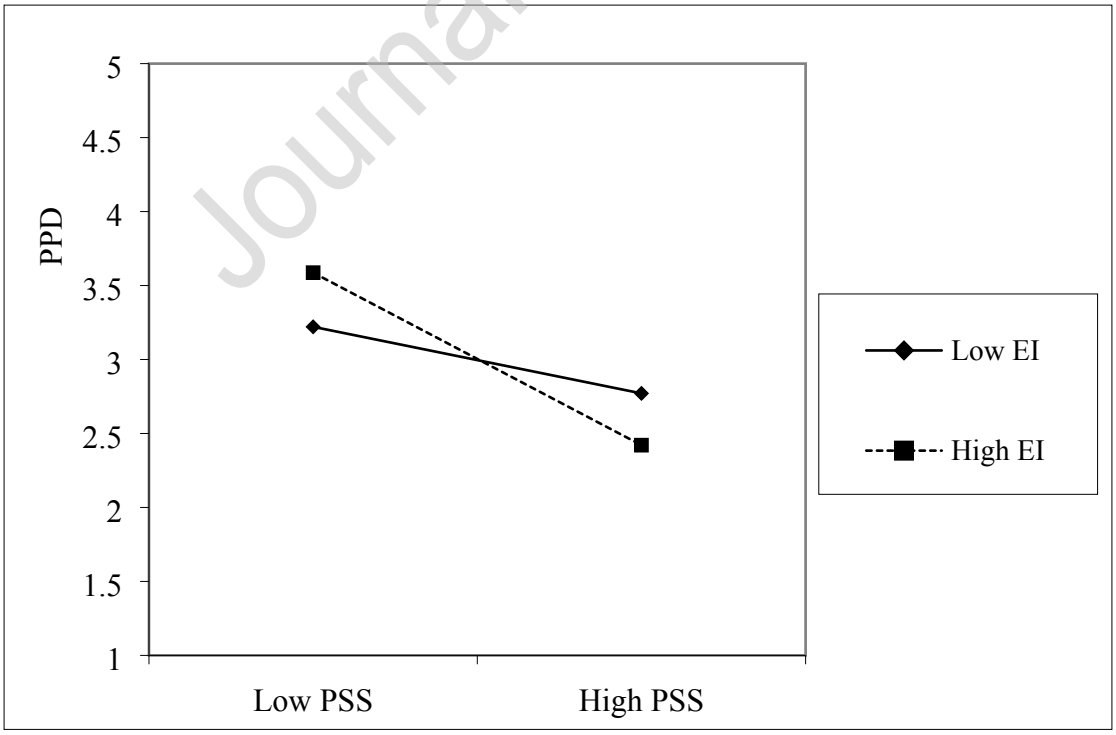

Fig. 3. Interaction effect of perceived social support with emotional intelligence on

perceived personal discrimination. PSS=perceived social support; PPD=perceived personal discrimination; EI=emotional intelligence. High=1 standard deviations above the mean; Low=1 standard deviations below the mean.

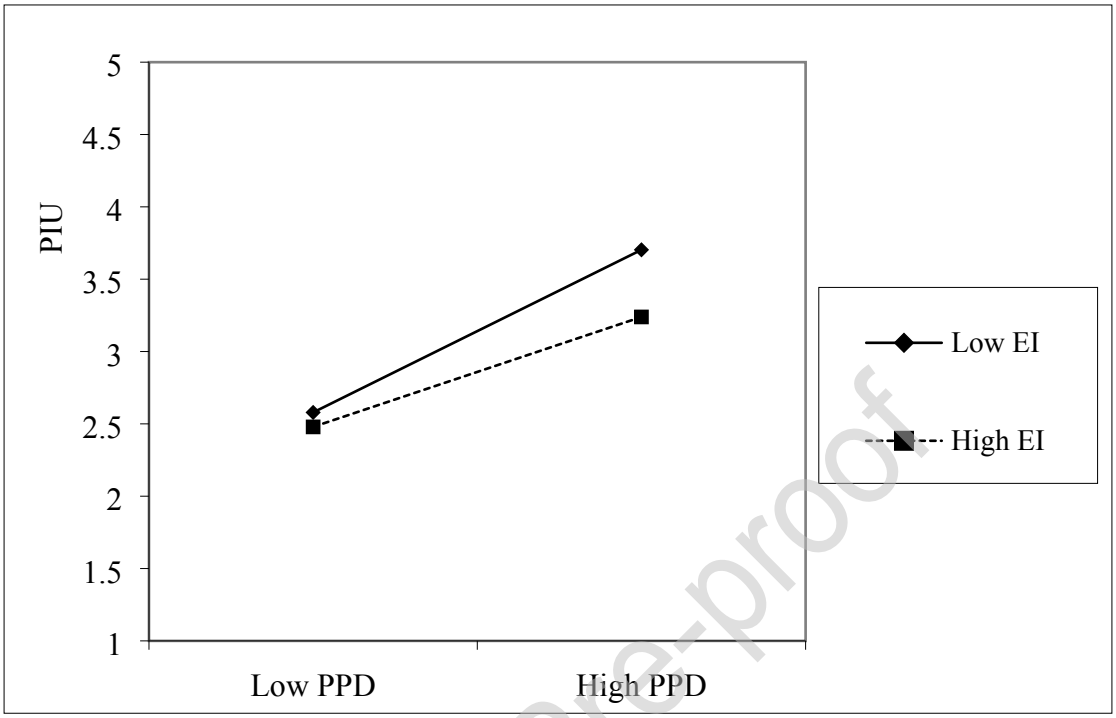

Fig. 4. Interaction effect of perceived personal discrimination with emotional intelligence on pathological Internet use. PPD=perceived personal discrimination; EI=emotional intelligence; PIU= pathological Internet use. High=1 standard deviations above the mean; Low=1 standard deviations below the mean.

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4. Discussion

This study explored the effects of perceived social support on students' pathological Internet use and examined the mediating effect of perceived personal discrimination on the relationship between perceived social support and pathological Internet use, and the moderating effect of emotional intelligence on the relationship between perceived social support and perceived personal discrimination, as well as between perceived personal discrimination and pathological Internet use. It not only supports the cognitive-behavioral model (Davis, 2001), psychological-decompensation model (Gao & Chen, 2006; Wu et al., 2019) and protective-protective model (Guy & Lee, 2015; Pau & Sabri, 2015; Zhang, Guo, & Lin, 2019) of children's development, but also

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provides necessary empirical support to understand the role of perceived social support, perceived personal discrimination and emotional intelligence in the development of children.

This study also found that perceived social support could be a negative predictor for children's pathological Internet use. This means that perceived social support could reduce the incidence of pathological Internet use, which is supportive to previous studies (Gunuc & Dogan, 2013; Wu, 2016; Ye et al., 2017; Karaer & Akdemir, 2019; Wu et al., 2019). Social support is particularly important for individuals. According to the buffering model of social support (Wood & Cook, 2019), adequate social support can promote the establishment of more healthy coping mechanisms, relieve individuals' pressure and reduce their overdependence on the Internet. A supportive individual or group can provide encouragement for others with positive behaviors or resources to help others overcome obstacles (Mo et al., 2018). These behaviors or resources can provide a sense of emotional well-being and a way to deal with problems, contributing to personal development and protecting individuals from the negative impact of stress (Lopez-Zafra et al., 2019; Gunuc & Dogan, 2013), thereby motivating them to get rid of pathological Internet use. Psychological decompensation hypothesis of Pathological Internet use also holds that when the psychological development of adolescents is blocked, the Internet has the function of compensation (Gao & Chen, 2006; Wu et al., 2019). For example, when there is no adequate social support, the Internet acts as a "pathological compensation", leading to deviations in the unhealthy development of adolescents and makes them Internet addicted (Ding et al., 2016; Jia, An, & Jia, 2019).

Perceived personal discrimination has a complete mediating effect on the relationship between perceived social support and pathological Internet use. It supports the social cognition theory and provides a new perspective for studying the influencing mechanism between social support and pathological Internet use. Social cognition theory (Narciss & Huth, 2004) believes that behavior varies with the change of people and environment. Without enough social support, individuals could feel lonely and a lack of belongingness (He, Hui, & Liu, 2015). This may lead to the perception of

discrimination. Consequently, individuals may avoid social interaction and indulge themselves in the virtual world of the Internet where their need of belongingness can be satisfied. Hypothesis of self-medication (Hsieh et al., 2016) indicates that pathological Internet use may be a kind of maladjustment from negative experience and a kind of maladjustment coping strategy to reduce the negative emotions from experience. According to psychological-decompensation theory, this negative experience make the development of adolescence blocked, and leads to their deviation of development and formation of pathological Internet use (Wu et al., 2019). In addition, the use and gratification model of pathological Internet use, children's need of belongingness is satisfied by Internet use (Gross, 2004), and then they become over-dependent on the Internet as manifested by pathological Internet use (Ko & Roberts, 2005).

Emotional intelligence moderated the relationship between perceived social support and perceived personal discrimination, as well as between perceived personal discrimination and pathological Internet use. On the one hand, emotional intelligence can enhance the negative effect of social support perception on discrimination perception. This is similar to the results of previous studies (Lopez-Zafra et al., 2019; Sun & Liu, 2019). The result provides an empirical support for the protective-protective theory, which indicates that the existence of one protective factor will enhance the function of another (Guy & Lee, 2015; Pau & Sabri, 2015). Emotional intelligence is an important protective factor, which can improve the effect of social support. When it was at a low level, other protective factors could not play their roles effectively. On the other hand, emotional intelligence can mitigate the positive effect of discrimination perception on individual pathological Internet use. This result gave an evidence for the psychological resilience model (Luthar, Cicchetti, & Becker, 2000; Zhao et al., 2016). According to the resilience model, the influence of risk factors on individuals is smaller under the circumstance of protective factors (Ye et al., 2018).

Several limitations of this study should be noted. Firstly, this study uses cross-sectional research to explore the impact of perceived social support on pathological

Internet use of primary and secondary school students, which may not be able to find the causal relationship between variables (Zhang et al., 2019). In the future, researchers should combine longitudinal research to further explore. Secondly, the data of this study were obtained by self-report method, and later could be collected by teacher report, peer nomination and other methods. Thirdly, this study failed to examine the family background of the subjects, the family economic and social background may have an impact on the students' perception of discrimination. Therefore, in the future research, the family background of students should be included in the further impact mechanism investigation.

5. Conclusion and implication

Despite these above limitations, this study is the first to study the interplay between perceived social support, perceived discrimination, emotional intelligence and pathological Internet use. This study adds to the evidence for the direct effects of perceived social support and perceived personal discrimination on pathological Internet use. Moreover, the result of this study indicates that perceived personal discrimination has a mediating effect on the relationship between perceived social support and pathological Internet use. Meanwhile, emotional intelligence plays a moderating role in the relationship between perceived social support and perceived personal discrimination, as well as in the relationship between perceived personal discrimination and pathological Internet use. As a moderator, emotional intelligence can enhance the effect of social support perception on discrimination perception, and mitigate the effect of discrimination perception on individual pathological Internet use. This study will be helpful to explore the causal relationship between variables in the longitudinal or experimental design in the future, and provide the basis for effective intervention to reduce Internet addiction among students.

This study enlightens us that in the study of the influence mechanism of pathological Internet use, perceived personal discrimination is an important mediating variable, which should be paid more attention. Meanwhile, emotional intelligence is an

important protective factor of protective factors and a buffer factor of risk factors. Its role in the development of pathological Internet use should be given concern in the future. In practice, it is necessary to provide social support and improve emotional intelligence of primary and secondary school students and reduce their perceived personal discrimination, thereby reducing their pathological Internet use.

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Author Contributions Section

Shutao Wang

Shutao Wang collected and analyzed the data, and put forward research ideas. He write the sections of methods and result and part of introduction. Demei Zhang helped to analyze the data. She write the sections of discussion, conclusion and implication, and most of the introduction. She also edited the language writing and get help from native language editor.

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Highlights

Perceived social support (PSS) could predict pathological Internet use (PIU).

Perceived personal discrimination (PPD) could predict PIU.

PPD had a mediating effect on the relationship between PSS and PIU.

Emotional intelligence (EI) played a moderating role in the relationship between PSS and PPD.

EI played a moderating role in the relationship between PPD and PIU.

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