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The Relationship Between Problematic Internet Use and Loneliness of Secondary Vocational School Students

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Abstract:

Since the popularization of the Internet, people's lives have undergone earth shaking changes. The real-time, cross regional and personalized characteristics of the network make it possible for people to communicate remotely and instantaneously. However, the network is a double-edged sword, which brings many conveniences to people's lives and also has some potential negative effects that can not be ignored. At present, China has a large number of Internet users. Compared with adults, the proportion of teenagers in the existing Internet users is relatively higher. Taking secondary vocational school students as an example, the Internet has certainly brought many positive effects on their study and life, but at present, most secondary vocational school students have been addicted to the virtual society of the Internet for a long time, and the problem of Internet addiction has become increasingly prominent in their use of the Internet. Problematic network use may cause secondary vocational school students to break away from the real society and have psychological problems such as loneliness and autism. This paper will conduct an in-depth study on the current situation of network use of secondary vocational school students and the correlation between problematic network use and loneliness through visits, literature review and data analysis.

1. Introduction

The development and popularization of the Internet has provided a more open, fair and convenient communication platform for people. In the virtual network environment, people can fully demonstrate themselves and enjoy a completely free voice. By the end of 2021, the number of Internet users in China has exceeded 1billion, of which secondary vocational school students account for more than 40%. At present, people are more and more dependent on the Internet, and they also occupy an increasingly important position in people's study and life. However, the Internet is

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a double-edged sword. The rapid rise of the Internet has brought many benefits to Chinese adults and students, but there are also certain use risks. Compared with adults, the minors represented by secondary vocational school students have poor self-control, and are prone to a series of improper use problems when using the Internet, such as too long online time, Internet addiction, Internet autism, etc. Teenagers will inevitably encounter some difficulties and setbacks in their study and life. At this time, if they are not dredged in time, students are likely to escape from reality and become excessively addicted to the Internet, which will lead to a series of psychological problems to varying degrees. In serious cases, they may have personality disorders in the process of their growth, or even neglect their studies. The concept of Internet addiction has been concerned by scholars from all walks of life since it was put forward. However, there is little research on the motivation and formation factors of Internet addiction. This paper will take secondary vocational students as an example to focus on the relationship between problematic Internet use and students' loneliness [1].

2. Overview and Influencing Factors of Internet Addiction

2.1. Internet Addiction

As a new medium, the Internet can help people realize communication. In addition to obtaining a large amount of effective information on the Internet for daily leisure and entertainment, it can also meet people's needs for finding jobs, houses, shopping and so on. However, long-time immersion in the Internet can have a negative impact on people's physical and mental health. Internet addiction was first proposed by foreign scholars in 1994. Excessive use of the Internet can not only affect physical health, studies and work, but also cause some psychological barriers. For a long time in the network virtual world, people will gradually fail to pay attention to the changes in the outside world. For a long time in a situation of not contacting the society and not socializing, it will also cause some personality defects. Loneliness is a typical psychological problem caused by Internet addiction. At present, in judging Internet addiction, we often consider the long time of surfing the Internet, impulse control disorders, withdrawal negative effects and other aspects. Internet addiction is a relatively broad concept, mainly including compulsive behavior, Internet relations, information collection, pornographic addiction and other types [2].

2.2. Influencing factors of Internet Addiction

Because Internet addiction has adverse effects on the physical and mental health of adults and minors, it has attracted the attention of many scholars at the clinical medical level and school level. At present, many mathematicians have conducted in-depth research on the specific influencing factors of Internet addiction. Personal factors have an important impact on the occurrence and development of Internet addiction. Personality is a stable factor to promote Internet addiction, because personality is generally gradually formed in the long growth process of people. Once formed, personality is not easy to change [3]. Compared with non internet addiction groups, Internet addicts are mostly accompanied by personality defects of different degrees, Mainly introverted and withdrawn personality. In addition, personal self-control, adaptive and non adaptive cognition, loneliness, etc. also play an important role in Internet addiction. Among them, the correlation between loneliness and Internet addiction is also the focus of many scholars' research. Loneliness refers to a

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painful experience caused by personal subjective feelings that cannot be satisfied. It is a negative expression of the combination of emotion and cognition. Compared with the real world, people with a stronger sense of loneliness, Maybe they trust and even rely on the Internet. With the extension of online time, they feel more lonely. Loneliness can be used as the result of Internet addiction, on the contrary, it can also be used as a predictor of Internet addiction. If an individual has a high level of loneliness, he is more prone to Internet addiction [4].

In addition to the above individual factors, environmental factors also play a certain role in the occurrence and development of Internet addiction. Here, environmental factors mainly refer to the students' family environment, surrounding social environment and school education environment. At present, it is considered that parents' improper education is an important reason for Internet addiction, and severity, autocracy, indifference, or excessive connivance, indulgence, etc. may lead to teenagers' Internet addiction. School is one of the most important growth environments for students except for their families. Influenced by exam oriented education, some students will feel great frustration under the test pressure of school and teachers for a long time. Such students are usually not good at communicating with teachers. Over time, they will gradually stay away from the real environment and become more addicted to the virtual network environment. In addition, the results of different Internet use motivations are different. Generally speaking, people's motivation to use the Internet is nothing more than entertainment, making friends, information acquisition and so on. However, if a certain motivation is too strong, it may also lead to Internet addiction. For young people, the typical types of Internet motivation addiction are mainly game addiction and pornographic addiction.

Internet addiction can be affected by many factors, but finding out the key influencing factors and taking corresponding countermeasures is an important link to improve the current situation of Internet addiction among secondary vocational school students, which is of great significance to improve teenagers' Internet use and optimize their Internet environment [5].

3. Investigation on the Current Situation of Internet Addiction Disorder in Secondary Vocational School Students

At present, the phenomenon of Internet addiction is becoming increasingly prominent among secondary vocational school students. In order to clarify the current situation of problematic Internet use among secondary vocational school students, the author conducted a survey on 1242 secondary vocational school students in our school, and made corresponding statistics on the Internet use among students of different grades, genders and places of origin. Personality test (epq-rsc), social emotional loneliness scale (selsa-s) and The pathological internet use scale (apius) investigated the students who spent more than 30h on the Internet every week to clarify the current situation of their problematic Internet use. In this survey, p-type and E-type personalities with epq-rsc score selsa-s score > 15 and apius > 3.15 were judged as Internet addicts. See Figure 1, figure 2, figure 3 and Figure 4 for specific statistical results. Through data statistics, we know that at present, the proportion of Internet addiction among secondary vocational students in our school has exceeded 50% (74.48%), and there is no significant difference in the percentage of Internet addiction among students of different grades. However, compared with female students, male students are more likely to indulge in the Internet world, and compared with students from rural areas, urban students are more likely to have Internet addiction. In order to

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clarify the relationship between problematic Internet use (Internet addiction) and loneliness, the following will take 925 Internet addiction students as examples to analyze the correlation between them.
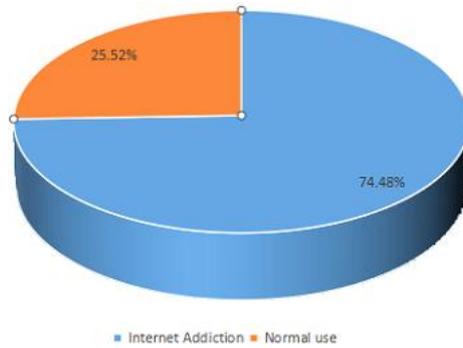

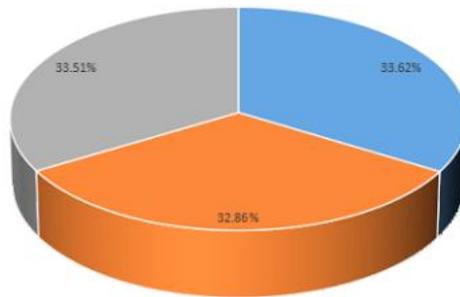**Figure 1.** *Proportion of Internet addiction among surveyed students.*

Figure 2. *Statistical chart of Internet addiction disorder in different grades.*
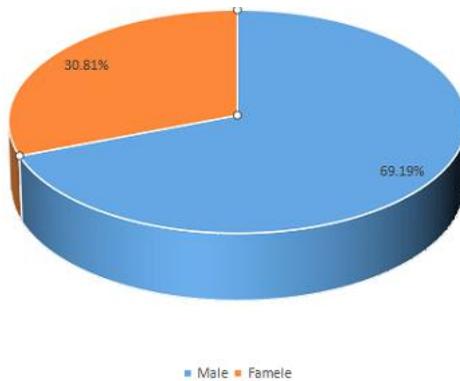

Figure 3. *Statistical chart of Internet addiction disorder by gender.*
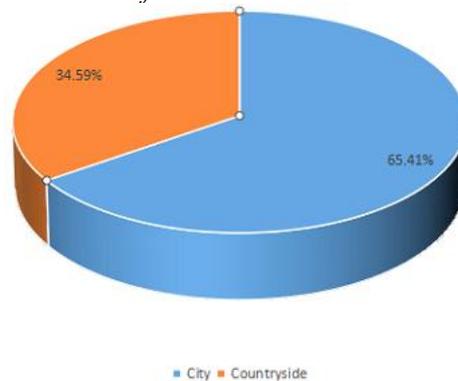

Figure 4. *Statistical chart of Internet addiction disorder in different source areas.*

4. Research on the Relationship Between Loneliness and Internet Addiction

It should clearly explain the main conclusions of the work highlighting its importance and relevance [8]. This is where you describe the meaning of your results, especially in the context of what was already known about the subject [9]. You can present general and specific conclusions, but take care not to summarize your article – that's what the abstract is for [10].

4.1. Research object and method

This survey is mainly conducted on 925 students with internet addiction disorder (online for more than 30h/ week) in our school. They are listed as the survey group, and the other 317 students who use non problem Internet are listed as the control group. First, the students will be investigated on personality test, loneliness and Internet use motivation, and then the relationship between Internet addiction and loneliness will be verified through statistical analysis, multi factor analysis, correlation analysis and other methods [6].

4.2. Research tools and data analysis

The scoring and statistical tools used in this survey mainly include personality test (epq-rsc), social emotional loneliness scale (selsa-s), pathological internet use scale (apius), univariate statistical analysis, logistic multivariate regression analysis and receiver operating characteristic curve (ROC).

(1) Epq-rsc scoring rules: the scale includes four aspects: extroversion (E), neuroticism (n), psychoticism (P) and lie detection (L). A high P indicates withdrawn personality, and a high e indicates introverted personality. The proportion of p-type and E-type personality in the two groups of students is recorded.

(2) Selsa-s scoring rules: there are 15 items in total, including three dimensions: family loneliness, friendship loneliness and love loneliness, all of which are scored according to 1~5 points. The higher the score, the heavier the loneliness.

(3) Apius scoring rules: it contains multiple positive and negative scoring items, which are not detailed here. At present, it is considered that a score higher than 3.15 can be defined as Internet addiction.

(4) Statistical analysis: SPSS 22.0 statistical software was used for data analysis. The measurement data were expressed in ($\bar{x} \pm s$).T-test was used for comparison between groups; The counting data is expressed in[n (%)]. The comparison between groups adopts $\chi 2$ inspection. $P < 0.05$ was statistically significant.

(5) Multivariate regression analysis: the independent risk factors were summarized through statistical single factor and logistic multi factor regression analysis. Due to the nonlinear relationship between independent variables and dependent variables, Internet addiction was taken as the independent variable, and the scores of various loneliness related scales of students were taken as the dependent variable. The single factors with $P < 0.1$ were included in logistic multi factor regression analysis. When $p < 0.05$, the single factor was considered as the risk factor of Internet addiction.

(6) ROC verification method: by drawing ROC curve, the correlation between th and TS levels and the severity of children's disease was verified by the area under the

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curve (AUC). The AUC was generally between 0 and 1. When the AUC was > 0.85, it was considered that the two were significantly correlated [7].

4.3. Results and discussion

4.3.1. Display of survey results

(1)Among the students in the survey group, the proportion of p-type and E-type personality was higher than that in the control group, and the selsa-s and apius scores were higher than those in the control group, with statistically significant difference (P < 0.05). See Table 1 and Table 2.

Table 1. *Comparison of the proportion of p-type and E-type personality in the two groups (n,%).*

Group	n	P-type personality	E-type personality
Investigation group	925	416（44.97)	399（43.14)
Control group	317	95（29.97)	86（27.13)
x^2	-	4.822	5.623
P	-	0.028	0.018

Table 2. *Comparison of selsa-s and apius scores between the two groups ($\overline{x} \pm s$, points).*

Group	n	SELSA-S	APIUS
Investigation group	925	42.15±0.23	4.24±0.33
Control group	317	20.12±0.16	2.14±0.16
t	-	1579.229	108.976
P	-	0.000	0.000

(2) Univariate and multivariate analysis: according to the results (1), there are certain differences between the two groups in the proportion of p-type and E-type personality, selsa-s and apius scores, which may lead to Internet addiction. Logistic multivariate regression analysis shows that selsa-s and apius scores are risk factors leading to Internet addiction, as shown in Table 3.

Table 3. *Multivariate regression analysis.*

Factor	B	S.E.	Wald	P	OR	95%CI
P-type personality	1.106	0.605	1.339	0.153	1.125	1.113~1.214
E-type personality	1.169	0.711	1.107	0.114	1.528	1.017~1.925
SELSA-S	1.828	0.714	6.629	0.011	2.325	1.829~4.274
APIUS	1.836	0.725	6.663	0.025	3.114	1.771~5.164

(3) Correlation analysis: as verified by ROC curve, the higher the scores of selsa-s and apius, the higher the risk of Internet addiction. Loneliness is positively correlated with problematic Internet use, with AUC > 0.85. See Table 4 and Figure 5.

Table 4. *Correlation Analysis between loneliness and Internet Addiction.*

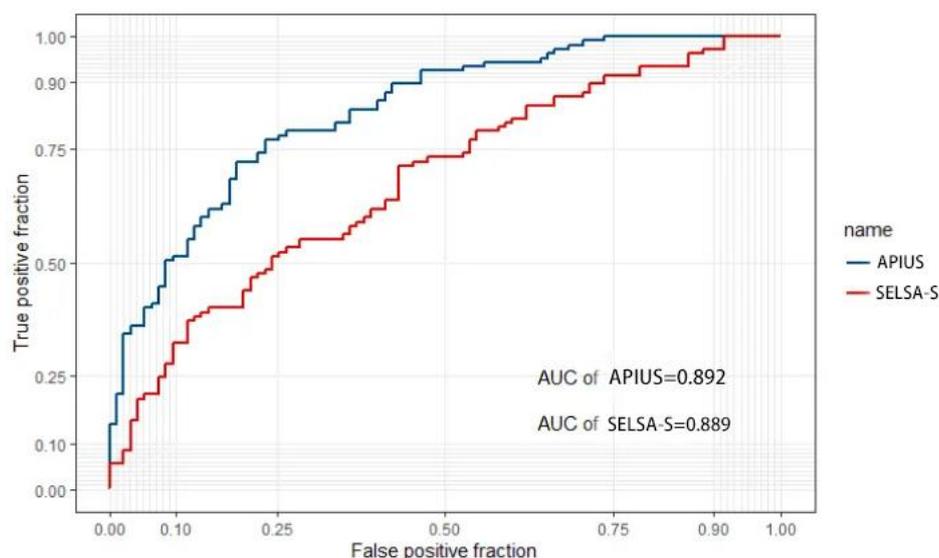| Index	Susceptibility（%）	95% CI		Specificity（%）	95% CI		AUC
		upper limit	lower limit		upper limit	lower limit	
SELSA-S	88.95	0.941	0.825	96.15	0.825	0.957	0.889
APIUS	89.33	0.959	0.829	96.33	0.832	0.966	0.892

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Figure 5. *ROC curve of loneliness and Internet Addiction.*

4.3.2. Result discussion

At present, the Internet is playing a more and more important role in people's life, which can have varying degrees of impact on people's thoughts, behavior consciousness and psychological state. Unlike adults, teenagers have relatively poor self-control. When facing a complex network environment, they may be misled by some negative information. Self closure, separation from display, and withdrawn personality are the more common psychological and behavioral characteristics of Internet addicted teenagers, At present, scholars from all walks of life have carried out some risks on the correlation between loneliness and Internet addiction, but the relationship between them has not yet formed a unified conclusion.

This survey shows that among the 1242 secondary vocational school students in our school, more than 70% (74.48%) are judged as Internet addicts. The above-mentioned students can spend more than 30h on the Internet every week. From the grade level, the problem Internet use of students in the three grades is the same. From the gender level, the risk of Internet Addiction of male students is higher than that of female students, and compared with students from rural areas, urban students are more likely to indulge in the Internet world. At present, secondary vocational school students are in an important stage of life development. Excessive addiction to the Internet world will lead to their disconnection from the real society. Over time, they will form introverted and withdrawn personality characteristics. With the intensification of Internet addiction, students' inner loneliness will gradually increase, which may have an adverse impact on their normal study and life, and even some students will have personality disorders. The results of this survey showed that the proportion of p-type, E-type and other problematic personality in the control group was less than that in the survey group, and the corresponding selsa-s and apius were also lower than that in the survey group ($P < 0.05$). The results of univariate and multivariate analysis showed that the Internet addiction students in the survey group had higher loneliness, selsa-s and apius, and loneliness was the risk factor of Internet addiction. After drawing the ROC curve, we further verified the correlation between the two. The higher the scores of selsa-s and apius, the higher the risk of Internet addiction. Loneliness is positively correlated with problematic Internet use [8].

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5. Conclusions

Internet addiction is closely related to personal factors such as loneliness. Too strong loneliness may lead to Internet addiction, while most Internet addicts will be accompanied by strong loneliness. For secondary vocational school students who are in a critical period of growth, it is of great significance to clarify the relationship between loneliness and Internet addiction, and take corresponding measures to reduce or eliminate students' loneliness to reduce the risk of Internet addiction and optimize the Internet environment for teenagers. This paper clarifies the relationship between the two by means of investigation, interview and data analysis. Subsequent scholars from all walks of life can explore specific application measures that can improve teenagers' loneliness and the status of Internet addiction disorder according to the conclusions of this paper [9].

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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