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Shyness and Psychological Well-Being as Predictors of Problematic Internet Use Among Students in Pakistan

La timidez y el bienestar psicológico como predictores del uso problemático de Internet entre estudiantes en Pakistán

Timidez e bem-estar psicológico como preditores do uso problemático da Internet entre estudantes no Paquistão

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ABSTRACT

This research was aimed to study the relationship between the variables of shyness and psychological well-being as the predictors of problematic internet use (PIU). The study was carried out on

a sample of 400 students. The sample included 191 men (47.8%) and 209 women (52.2%) from University of Sargodha. The age range of participants in the sample was 18 to 24

years ($M= 21, S.D= 4.24$). The three variables of the study including shyness, psychological well-being, and problematic internet use were assessed with the shyness questionnaire, flourishing scale, and internet addiction test scale (IAT), respectively. To determine the psychometric soundness of instruments, descriptive and internal consistency levels of all the study variables were measured. The main statistical analyses included correlation, t-test, and regression analysis. The correlational analysis of overall results revealed the significant positive correlation of shyness and a significant negative correlation of psychological

well-being with problematic internet use. The t-test revealed that problematic internet use and psychological well-being were significantly different according to gender. Furthermore, the results of linear regression analysis divulged that shyness positively predicts problematic internet use, while psychological well-being negatively predicts problematic internet use. Also, regression analysis on the gender indicated that being male was a predictor of greater PIU. Implications of the study along with its limitations were discussed and recommendations for further research were highly suggested.

Keywords: Shyness; psychological well-being; problematic internet use; gender.

RESUMEN

Esta investigación tuvo como objetivo estudiar la relación entre las variables de timidez y bienestar psicológico como predictores del uso problemático de Internet. El estudio se realizó en una muestra de 400 estudiantes. La muestra incluyó 191 hombres (47,8%) y 209 mujeres (52,2%) de la Universidad de Sargodha. El rango de edad de los participantes de la muestra fue de 18 a 24 años ($M = 21, SD = 4,24$). Las tres variables del estudio, incluida la timidez, el bienestar psicológico y el uso problemático de Internet, se evaluaron con el cuestionario de timidez, la escala de florecimiento y la escala de prueba de adicción a Internet (IAT), respectivamente. Para determinar la solidez psicométrica de los instrumentos se midieron los niveles de consistencia descriptiva e interna de todas las variables de estudio. Los principales análisis estadísticos incluyeron correlación, prueba t y análisis de regresión. El análisis

correlacional de los resultados generales reveló la correlación positiva significativa de la timidez y una correlación negativa significativa del bienestar psicológico con el uso problemático de Internet. La prueba t reveló que el uso problemático de Internet y el bienestar psicológico eran significativamente diferentes según el género. Además, los resultados del análisis de regresión lineal divulgaron que la timidez predice positivamente el uso problemático de Internet, mientras que el bienestar psicológico predice negativamente el uso problemático de Internet. Además, el análisis de regresión sobre el género indicó que ser hombre era un predictor de mayor uso problemático de internet. Se discutieron las implicaciones del estudio junto con sus limitaciones y se sugirieron encarecidamente recomendaciones para futuras investigaciones.

Palabras clave: Timidez; bienestar psicológico; uso problemático de Internet; género.

RESUMO

Esta pesquisa teve como objetivo estudar a relação entre as variáveis timidez e bem-estar psicológico como preditores do uso problemático da internet. O estudo foi realizado em uma amostra de 400 alunos. A amostra incluiu 191 homens (47,8%) e 209 mulheres (52,2%) da Universidade de Sargodha. A faixa etária dos participantes da amostra foi de 18 a 24 anos ($M = 21$, $S.D = 4,24$). As três variáveis do estudo, incluindo timidez, bem-estar psicológico e uso problemático da internet, foram avaliadas com o questionário de timidez, escala de florescimento e escala de teste de vício em internet (IAT), respectivamente. Para determinar a solidez psicométrica dos instrumentos, foram medidos os níveis de consistência descritiva e interna de todas as variáveis do estudo. As principais análises estatísticas incluíram correlação, teste t e análise

de regressão. A análise correlacional dos resultados gerais revelou a correlação positiva significativa da timidez e uma correlação negativa significativa do bem-estar psicológico com o uso problemático da internet. O teste t revelou que o uso problemático da Internet e o bem-estar psicológico foram significativamente diferentes de acordo com o gênero. Além disso, os resultados da análise de regressão linear divulgaram que a timidez prediz positivamente o uso problemático da Internet, enquanto o bem-estar psicológico prediz negativamente o uso problemático da Internet. Além disso, a análise de regressão sobre o sexo indicou que ser do sexo masculino foi um preditor de maior uso problemático da internet. As implicações do estudo juntamente com suas limitações foram discutidas e recomendações para pesquisas futuras foram altamente sugeridas.

Palavras-chave: Timidez; bem-estar psicológico; uso problemático da Internet; gênero.

Over the past few decades, the internet has become the most significant medium to connect. According to Sharma and Sharma (2018), the population of internet users has increased from 360 million to 3885 million over the past two decades across the world. Only in Asia, this increment was 144 million users in 2000 to 1938 million users in 2017, with a penetration rate of 46.7%, which indicates that 49.9% of all internet users are from Asia. Along with all its benefits, the internet is one of the leading causes of many social, psychological, and behavioral problems. Hence, in today's era, it is significant to know that when and how problematic internet use (PIU) influences the health and well-being of a person (Leung, 2006).

Young (1999) viewed problematic internet use (PIU) as a mental condition characterized by excessive or addictive use of the internet. Generally, addiction is understood to be a mental disorder involving compulsive behavior. Hence, the compulsivity of PIU includes compulsivity, escapism, and dependency. Moreover, Young developed the internet addiction test (IAT) to measure PIU. The test also measured the associated features of PIU. These associated features include social isolation, feeling of being preoccupied with internet use or its thoughts, neglect of life responsibilities, and being secretive about online activities. Beard and Wolf (2001) found that the impairment in daily functioning is not a hallmark feature of PIU. So, an individual with PIU can carry out daily life task but the overall performance will be affected.

Interestingly, Young (1999) argued that the sign of PIU can be masked by the cultural norms that encourage and reinforce its use. PIU can be rationalized as “this is the prerequisite for my job” or “I am using it to study for my exams” when, in reality, it is causing significant problems in the life of a user.

In particular, the most susceptible population to develop PIU is the university undergrad students with an age range of 18 to 25 years. This age range is termed as “emerging adulthood” which is attributed to a greater risk of indulging in addicted behavior due to changing neurobiology and social-cultural milieu that impact the perception of oneself and social relations (Teo, Lim,& Oei, 2017). The gender prevalence of PIU in research conducted in Iran found that male students tend to use the internet more frequently than female students. The research concluded that the risk of internet addiction in men was about three times more than women (Dargahi& Razavi, 2007).

Davis (2001) elaborated the PIU and argued that the inability to control the use the internet which cause social or psychological difficulties emerges particularly as a result of an innate need to express emotions and feeling to get social support. So, it includes activities such as online chats and e-mails with no exact purpose. The shared contact

and support occurring online result in an intense desire to remain in such an artificial social life. Royal, Hedgpeth, and Flammer (2018) argued that this intense desire is more prominent in shy individuals because they feel awkward, worried, and tense in social interactions, especially with unfamiliar people. Most people feel shy at least occasionally but the level of shyness in some people is so intense which keeps them away from interacting with others and this suppression of desires leads to problems (Cheek & Melichor, 1985).

According to Yen, Ko, Yen, Wu, & Yang (2007) the problematic internet use of these individuals negatively influences their psychological well-being (PWB). PWB has often been conceptualized and investigated as the absence of mental illness symptoms or the absence of difficulties in social relationships. Self-presentation theory postulates that shy people attempt to control self-images or any information that relates to their identity to create a positive impression on others. However, unlike non-shy individuals, shy people tend to be less confident, doubting their ability to make positive self-presentation or impressions on others. The internet provides an environment that facilitates better quality relationships for shy people because of the perceived greater control over how they interact and present themselves online, largely in text-based environments. Taking their time to prepare, revise and respond to online messages, absence of face-to-face communication, or direct observation which allows anonymity, are features of the computer-mediated medium of the internet that provides shy individuals with a safe and secure environment for social interaction (Bar-On, 2005).

Much of the time people use the internet as a way to escape from reality or as a way to communicate with others without having to worry about social consequences. Shy people generally have smaller friendship networks, less social support, decreased social interaction, poor self-projection, weaker social ties, and deficient communication. However, the internet provides them the required sense of control (Kuss & Griffiths, 2012).

Shyness is one of the emotions that may serve as behavioral regulators of the social relationships in collectivistic cultures. For example, social shyness is perceived positively in collectivistic culture as compared to the individualistic culture where it is perceived negatively. Actually, in eastern cultures, shyness-inhibition in school-aged children is viewed as positive and those that show these traits are seen well by peers and are accepted. They are seen as capable by their teachers, to perform well in school, and to show well-being. Shy people are mostly considered to have a leadership status in school. In Eastern cultures, being shy and inhibited is considered as a sign of politeness, respectfulness, and thoughtfulness (Rubin, 1998).

Elihu Katz introduced the 'Uses and Gratification theory' (UG) while examining the reason why people tend to use the radio to listen to quiz program (Katz, Blumler, & Gurevitch, 1973). The UG theory emphasizes the psychological and social needs of people that create expectations and urges to mass media. The UG explains how the use of the internet meets the social needs of an individual and also talks about the dependence of particular media and consequences from this dependency and need. Moreover, the UG focus on social factors, for instance, unsuccessful or dysfunctional peer relationship make people move to use internet-medium to fulfill their socialization need. Hence, there is an association between socio-psychological variables and PIU (Chou, Condron, & Belland, 2005). Furthermore, the number of different studies claimed that PIU could result from stressful life events. For example, an east Asian study found that participants who failed to cope up with their life problems tend to see the imaginary world of the internet as the source of escape (Lee et al., 2019).

This study was conducted to explore the variables of PIU, shyness, and PWB. Hence, it was conducted to analyze the relationship between these variables. Also, to evaluate the impact of shyness and PWB on PIU. Lastly, to evaluate the impact of gender on present study variables.

Methods

Participants

The study included 400 undergraduate students ($n= 191$, 47.8%) boys and ($n= 209$, 52.2%) girls from the University of Sargodha. A convenient sampling strategy was used for the collection of data. The age range was 18-24 years; ($M= 21$, $SD= 4.24$). This study was approved by the ethical committee of the Department of Psychology, University of Sargodha, Pakistan.

Procedure

After choosing the research topic and instruments to measure the study variables, the data were taken from the participants of the University of Sargodha. The participants were approached and were briefed about the purpose and nature of the study. Moreover, they were told that the data will be used for research purposes only and all the information will remain confidential. They were requested to take part in the study by filling the booklet that included informed consent and questionnaires. All the willing participants completed the booklet.

The researcher remained present to respond to any query from the participants regarding the study or if, in case, any student failed to understand any item or word.

The researcher appropriately addressed their queries and answered their questions. After completing the booklet, the participants were paid special thanks, because of the voluntary participation in the study without taking any tangible incentive.

Instruments

Shyness scale (SS). The 20-item shyness scale measures the three components of shyness: emotion, personality, and personal well-being. The items are answered on a 5-point Likert-scale ranged from 1 (very uncharacteristic) to 5 (very characteristics).

The internal consistency of the scale was $\alpha = .94$. A higher score on shyness scale means a high level of shyness is present (Cheek & Melichor, 1985).

Flourishing scale (FS). The flourishing scale is an 8-items instrument that measures respondents' self-perceived success in imperative areas of life such as self-esteem, relationships, purpose, and optimism as indicators of the psychological well-being. The items are answered on a 7-point Likert-scale ranged from 1 (strongly disagree) to 7 (strongly agree). A high score on FS depicts a high level of well-being. The Flourishing scale has good internal consistency, with a Cronbach alpha coefficient reported of .87 (Diener et al, 2009).

Internet addiction test (IAT). The internet addiction test (IAT) is a measure of internet use and indicates PIU. It consists of 20 items that measure the mild, moderate, and severe levels of PIU. The items are answered on a 6-point Likert-scale ranged from 0 (Not Applicable) to 5 (Always). A high score on IAT means a high level of PIU. The scale has a Cronbach's alpha of $\alpha = .91$ (Young, 1999).

According to Young's (1999) original guidelines, scores from 20 to 39 indicate an average online user; scores from 40 to 69 suggest a user with frequent problems due to internet use, and scores from 70 to 100 indicate that internet use causes significant problems in daily living. Young defined a "mild degree" of internet addiction as the presence of a few symptoms over those required to make the diagnosis that resulted in no more than minor impairment in social or occupational functioning. A "moderate degree" of internet addiction was defined as symptoms or functional impairment between mild and severe, by using the above criteria given by Young were used to assess the levels of problematic internet use.

Results

Data Treatment and Analysis

The research understudy was conducted to analyze the shyness, psychological well-being, and problematic internet use in undergraduate students. The data were analyzed by using Statistical Products and Service Solution (SPSS-20V). The inferential statistical technique was used for the analysis of data. Firstly the reliability of the scales was measured, after that the t-test was applied to the study variables to check the gender differences, correlation among the variables was analyzed, regression analysis was then applied to the variables with significant correlation. A detailed description of the results along with tables is given below.

Table 1

Descriptive Statistics, Alpha Reliability Coefficient, and Univariate Normality of Scales in Study(N= 400)

	α	M	SD	Skewness (SE)	Kurtosis (SE)
PIU	.70	39.02	17.29	.08	-.24
Shyness	.80	58.16	11.52	.23	1.6
PWB	.70	42.84	8.82	-.84	.058

Note: PIU= Problematic internet use, PWB = Psychological well-being

Table 1 shows the psychometric properties of the study variables. The reliability analysis indicates that the reliability coefficient of Problematic internet use, Shyness and Psychological well-being is 0.70, 0.80, and 0.70, respectively, which indicates satisfactory internal consistency. The values of skewness for all the scales are less than 1 which indicates that univariate normality is not problematic.

The bivariate correlation among the study variables suggests that IAT scores were significantly positively correlated with SS scores ($r = .23$, $p < .01$) and negatively with FS scores ($r = -.13$, $p < .01$). While the correlation between SS and FS scores was negative ($r = -.15$, $p < .01$).

Table 2

Gender Differences in PIU, SS, and PW

Variable	<u>Men(n=191)</u>	<u>Women(n=209)</u>	<i>t</i> (400)	<u>95% CI</u>	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>LL</i>	<i>UL</i>
PIU	42.86 (15.97)	35.49(17.74)	4.34***	4.03	10.70
Shyness	58.83(11.06)	57.55(11.93)	1.10	-.99	3.55
PWB	41.23(9.17)	43.30(8.39)	-2.35*	-3.79	-.332

Note. PIU= Problematic internet use, PWB = Psychological well-being

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2 shows mean, standard deviation and *t*-values for men and women on PIU, Shyness and PWB. Results indicate significant mean differences on problematic internet use with $t(398) = 4.34$, $p > .001$. The findings show that men significantly scored high on Self-Silencing ($M = 42.86$, $p < .01$) as compared to women ($M = 35.49$, $p < .01$). Results indicate significant mean differences on psychological well-being with $t(299) = -2.35$, $p < .05$. The findings show that women ($M = 43.30$, $p < .05$) significantly scored higher on psychological well-being as compared to men ($M = 41.23$, $p < .05$). Results indicate non-significant mean differences on shyness with $t(398) = 1.10$, $p > .05$.

Table 3

Linear Regression Analysis Result (N=400)

Predictors	Model <i>B</i>	Outcome: PIU	95 % CI (<i>LL</i> , <i>UL</i>)
Gender	-.191***		[-9.93, -3.35]
Shyness score	.220**		[.175, .462]
PWB score	-.186***		[-1.19, -.46]
R^2		.504	
F		15.74***	

Note: PIU= Problematic internet use, PWB = Psychological well-being

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 3 shows the results of linear regression analysis where gender, shyness, and PWB are the predictors of PIU. Overall model is significant at ($F(3, 396) = 15.74, p < .001$) and these variables contribute for 50.4% variance in PIU ($R^2 = .504$). The findings indicates that the Shyness ($\beta = .33, t = 4.44, p < .001$) is a significant positive predictor, while the PWB ($\beta = -.186, t = -3.94, p < .001$) is a significant negative predictor, and the gender ($\beta = -.191, t = -3.96, p < .001$) is significantly negative predictor of PIU. Gender is a categorical variable, so the men are coded as “1” and women are coded as “2”. The total variance explained was 50.4%.

Figure 1 shows the frequency of problematic internet use levels with respect to gender. Female with mild level ($f = 122$) are greater in number as compared to men with the mild level ($f = 102$). Men with moderate ($f = 87$) and severe levels ($f = 12$) are greater in number as compared to female with moderate ($f = 84$) and severe level ($f = 3$).

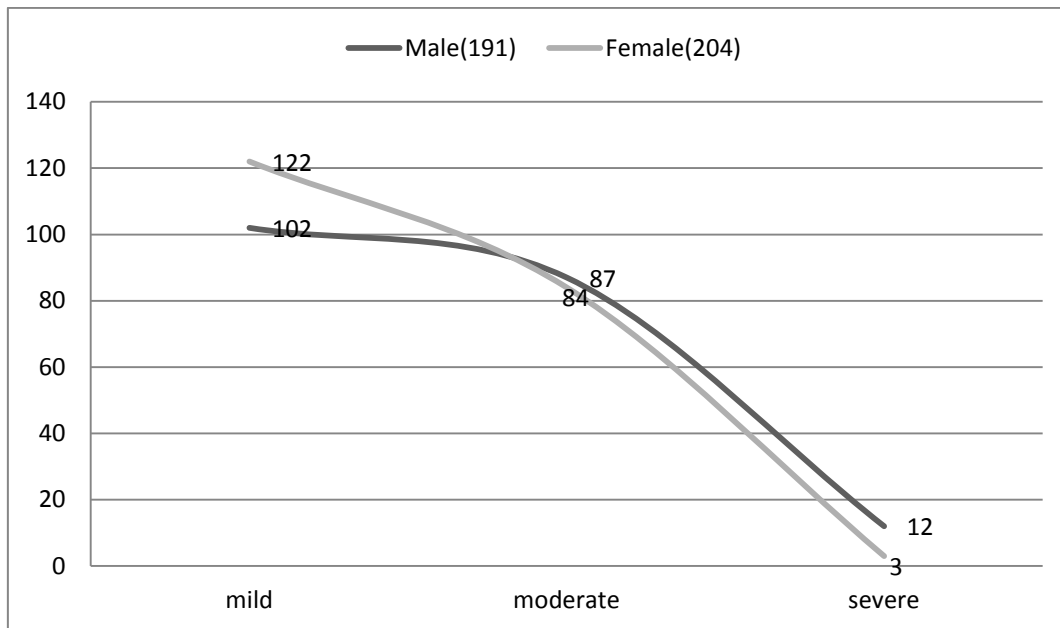


Figure 1. Results of the descriptive analyses for the PIU levels

Discussion

While exploring shyness, PWB, and PIU among students in Pakistan, the following was found.

The psychometric accuracy of the tools was observed by measuring the various constructs. For this purpose, descriptive statistics and internal consistency levels for all scales were determined. The skewness values of all the scales were within the acceptable range which shows that the variable of the present study approximated the normal curve in their distributions (see Table 1). The reliability estimate was computed to check the internal consistency of PIU, shyness, and PWB. The reliability analysis indicated that the reliability coefficient of PWB, shyness, and PIU are 0.70, 0.80, and 0.70 respectively which indicates satisfactory internal consistency.

The results of the present study indicated that there is a significant correlation among shyness, PWB, and PIU. The findings of the current study showed a positive relationship between shyness and PIU. The findings are in line with literature relating to positive correlation among these two variables (Ebelin-Whitte, Frank, & Lester, 2007),

for instance, the findings proposed a significant relationship between PIU and shyness. In explaining this finding, the researchers claimed that the shyness scores were associated with problematic internet use that is using the internet to decrease a perceived deficit in their real-life social network by establishing virtual friendships online to relieve feelings of loneliness and depression. It appears, therefore, that the internet offers shy individuals a medium through which they communicate with the world around them. Hence, their online behavior may be viewed as “problematic” according to some psychological measures.

Moreover, the results of this study showed a significant negative correlation between PWB and PIU. The findings are in line with literature which found negative relationships between both these variables (Yen et al., 2007). The findings of this study also showed a significant negative correlation between PWB and shyness. These findings are in line with literature relating to the negative relationship between both variables. For instance, a research was carried out on 50 students in a university to find out the relationship between PWB and shyness. In the end, the researchers found a negative relationship between PWB and shyness (Ilie et al., 2018).

Regarding to gender, the results of this study found the high prevalence of PIU in men as compared to women. These gender differences have also been reported by a few other studies conducted in Asian countries. For instance, the study conducted by Barmola (2015) found a mean of 68.39 and 60.9 among male and female students in India, respectively. Surprisingly, the mean difference of gender on PIU in that study was 7.49 which is equal to the mean difference of gender on PIU in the current study i.e. 7.37.

Furthermore, the results of the present study reported that women have a significantly higher score in psychological well-being as compared to men. Previously, we have discussed that the prevalence of PIU is higher in men. So, current findings supported

the findings of Sharma and Sharma (2018) that students with higher levels of PIU are more likely to be low in PWB.

Also, the findings of the regression analysis support the research hypothesis. It was found that the shyness positively predicts PIU. The findings are in line with the literature that relates shyness with PIU in adults. The study of Chak and Leung (2004) found that shyness was a significant and positive predictor of PIU. Chak and Leung conducted their research on 722 internet users from Hong Kong city. Moreover, they discussed the best environment for shy individuals and concluded that computer-mediated medium is the best for them. Hence, by using this medium, they accomplish the feeling that they are controlling the situation. This finding complies with UG theory which suggested that social factors, in this case, shyness, contribute to making people crave internet use.

Furthermore, the findings of the current study suggest that PWB predicts PIU, the direction is negative, which means that a high level of psychological well-being predicts the low level of PIU and vice versa. Also, these finding complies with the findings of Sharma and Sharma (2018) indicating that PWB negatively predicts internet addiction. Also, the results indicated that gender significantly predicts PIU. Being a categorical variable, the gender was coded simultaneously. Men coded as “1” and women as “2”. The result suggests that gender predicts internet addiction, but the direction is negative which means male students are more prone to PIU as compared to female students. The results are in line with the previous research which suggests that, from childhood through adulthood, men are more likely than women to use the computer and have favorable attitudes toward the usage of computers. Studies of computer users have found that men have more computer experience. They spend more time using computers and the internet, and have knowledge and experience of more computer applications than women (Dambrot, Watkins-Malek, Silling, Marshall, & Garver, 1985).

In conclusion, social discomfort is a factor associated with shyness, and several studies have looked specifically into the extent to which the shy people use the internet to socialize. The internet offers an alternative for shy people to gratify and express their social and emotional needs, which remain unexpressed in their traditional offline networks. While the internet brings some conveniences to the life of the individual, it may cause some problems from the other side (Caplan, 2010).

Studies about the reasons for PIU showed that characteristics like shyness are attributed with an inclination towards PIU. As the level of PIU increases the dimensions of well-being decreases. Students with higher levels of PIU are more likely to be low in PWB (Yen et al., 2007). In the collectivistic culture of Pakistan, it is not expected for men to express their feelings and emotions. However, the expression of emotions is more attributed to women. Additionally, it was found that the prevalence of PIU is more common in male participants of the study. So it can also be concluded that the reason for high PIU in men was due to the cultural norm that men do not cry or express emotions which, no doubt, lessen the PWB of a person.

The present study has several implications for research and practice. It makes important contributions to clinical and counseling psychology by signifying that the people with a high level of PIU are actually unaware of the fact that their use of the internet is problematic. These changes become more and more apparent to friends and loved ones. Dangerous effects of internet addiction can also take the form of replacing face-to-face interaction time with e-mail and texting. Ultimately, the loss of a significant relationship in a person's life amounts to a loss of self-identity and connection with life. The present study extended knowledge about different factors influencing internet addiction in young adulthood on which literature is scarce.

This study is a groundbreaking work that delineated in the specific context of Pakistani culture the dynamics by which personality factors and psychological health influence internet addiction of people. There are several practical implications of the current

study that can be capitalized in clinical and counseling psychology. The findings of the present research have shown the significant importance of psychological well-being and shyness in PIU. These findings can be help clinicians to improve the well-being of individuals with a high level of PIU by addressing primary and comorbid conditions of PIU such as social anxiety or shyness.

There are some limitations to this study that should be taken into account when considering the results. Firstly, the present study considered a cross-sectional design to examine the effect of different variables rather than a longitudinal research design. Therefore, a causal relationship cannot be inferred. Secondly, the sample included participants from only one university so the findings should be generalized with caution to other students in Pakistan. Thirdly, the use of self-report measures for the operationalization of various constructs of this research might have introduced common method variance which might lead to certain compromises in the validity of measurement of these constructs. Lastly, rather than addressing a specific domain of internet use the study considered a general domain.

On the basis of the aforementioned limitations, the following suggestions are recommended for future research. In order to maximize the external validity, the sample size should be larger and the sampling method should be probabilistic. Longitudinal research design should be utilized for assessing causal effects of the hypothesized predictors of internet addiction so that the direction of causal influences might have been ascertained.

Future research should take a closer look at more specific domains of problematic internet use such as social media addiction, online dating, and gaming disorders. The construct of internet addiction would also be tested with additional variables and different models. Also, future research should consider the differences between day scholars and hostelites, especially when exploring personality traits and wellbeing with

the variable of internet. Lastly, the manifestation of the family system and research focusing on the treatment of PIU is also suggested.

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Authors' contribution statement

SA did the literature search, conceived the review, major write up, and is accountable and responsible for the accuracy or integrity of the study. LN participated in critical revision and evaluation of work. Her major contribution is in the results chapter. MA helped in data collection, study design, and literature search. All authors discussed the results, participated in write up, and contributed to the final manuscript.

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