

## INVESTIGATION OF STUDENT ATTENTION DEFICIT DISORDER AND ITS IMPACT

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### ABSTRACT

The objective of the study was to test the influence of Attention-Deficit/Hyperactivity Disorder (ADHD) and its associated problems. The focus of the study was college students in the city of Mexico. The methodology was quantitative and survey based. Data is collected from two selected college students and sample size was 327. Correlation results shows that there is positive and significant relationship between ADHD and psychological problems. Accordingly, attention deficit is positively associated with internet addiction ( $r=.33$ ,  $P<.05$ ); depression ( $r=.29$ ,  $P<.05$ ); anxiety ( $r=.26$ ,  $P<.05$ ); stress ( $r=.41$ ,  $P<.05$ ); and social phobia ( $r=.27$ ,  $P<.05$ ). The other variable is hyperactivity/impulsivity which is also positively associated with internet addiction ( $r=.34$ ,  $P<.05$ ); depression ( $r=.29$ ,  $P<.05$ ); anxiety ( $r=.29$ ,  $P<.05$ ); stress ( $r=.27$ ,  $P<.05$ ); and social phobia ( $r=.26$ ,  $P<.05$ ). The canonical correlation results shows that attention deficit disorder is associated with dependent variables including internet addiction ( $F_{stat}=6.09$ ,  $P<.05$ ); depression ( $F_{stat}=4.78$ ,  $P<.05$ ); anxiety ( $F_{stat}=2.89$ ,  $P<.05$ ); stress ( $F_{stat}=7.92$ ,  $P<.05$ ); and social phobia ( $F_{stat}=4.94$ ,  $P<.05$ ). Similarly, hyperactivity/impulsivity is positively associated with internet addiction ( $F_{stat}=8.27$ ,  $P<.05$ ); depression ( $F_{stat}=5.30$ ,  $P<.05$ ); anxiety ( $F_{stat}=6.69$ ,  $P<.05$ ); stress ( $F_{stat}=20.61$ ,  $P<.05$ ); and social phobia ( $F_{stat}=3.51$ ,  $P<.05$ ). Overall, our results implies that ADHD is positively leading to other psychological problems among the college students and hence need suitable intervention.

**Keywords:** Disorder, Attention Deficit, Hyperactivity Disorder, Stress, Social Phobia, Anxiety

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### INTRODUCTION

The children are often subject to the problem of Attention deficit hyperactivity disorder (ADHD) which can persist from childhood to adulthood. The problem is mostly diagnosed in children and is a neurodevelopmental disorder. The symptoms include hyperactivity, inattention, disorganization, impulsivity, and others which influence negatively on the accomplishment and abilities of individual (Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Miller, Ho, & Hinshaw, 2014; Mosalanejad, Mosalanejad, & Lashkarpour, 2013). A study suggest that among half of individuals, the symptoms become more visible during the adulthood (Ivanov & Yehuda, 2014; Klein et al., 2012). Other studies suggest that ADHD is common among school going children where almost 7% of school going children caught this disease while among 4% of population of adult is also subject to ADHD (Faraone & Antshe, 2008; Kavakci, Kugu, Semiz, Meydan, Karsikaya, & Dogan, 2012).

Adult individuals who have ADHD face several problems such as difficulty in time management, less extent of social adjustment, lack of interpersonal and communication skills, execution action problems, emotional and psychological problems, attention deficit disorder, work and educational challenges, relationship challenges, and drug and alcohol abuse problem (Bakhshani, Raghibi, & Babaei, 2011; Green & Rabiner, 2016). College students with hyperactivity symptoms experience depression and educational problems during their education (Rabiner, Anastopoulos, Costello, Hoyle, & Swartzwelder, 2008).

Other complications include social media and internet related addiction (Bozkurt, Coskun, Ayaydin, Adak, & Zoroglu, 2013; Cao, Su, Liu, & Gao, 2007; Chou, Huang, Chang, Chen, Hu, & Yen, 2017; Yen, Ko, Yen, Chen, & Chen, 2009). The related disorders include mood swings, anxiety and social phobia (Floros, Siomos, Stogiannidou, Giouzepas, & Garyfallos, 2014). Buzkort, Cascan, Aydaydin & Zoruglo (2013) suggest that ADHD is a common psychiatric disorder among adolescents with Internet addiction. Other evidences suggest that higher use of internet and social media leads to the problems such as social anxiety, hyperactivity disorder, attention deficit, insomnia, and social anxiety (Cheung & Wong, 2011; Ho et al., 2014; Morrison & Gore, 2010). Other facet of the problem is computer or mobile video games as individuals who plays more games in their daily time are more subject to hyperactivity symptom (Yoo, Cho, Ha, Yune, Kim, Hwang, Chung, Sung, & Lyoo, 2004).

Generally, most individuals regardless of age group if facing some sort of psychiatric disorders are subject to the ADHD. For example, study by Sobanski (2006) suggested that in adults, 65.89% population suffer from one or more psychological disorder such as personality disorder, drug abuse, anxiety, and mood disorder. The ADHD is also related with so many other problems. For example, study by Nelson and Lieble (2017) suggested that among college students, individuals who had ADHD symptoms also found higher level of depression and higher anxiety. Gender also plays some role in ADHD and related complications. For example, study by Fuller-Thomson, Lewis, & Agbeyaka, (2016) suggested that female students compare to the male students report higher rate of anxiety and depressive symptoms providing they have ADHD symptoms. Another study by Parvaresh, Ziaol dini, Erfani & Shokuhi (2014) reported that ADHD and depression in adulthood and it is one of the first symptoms of ADHD in adulthood.

Other problems of ADHD include drug abuse, personality disorder, oppositional-defiant disorder, conduct disorder, and adjustment disorder (Yoshimasu, 2012).

O'Rourke, Bray, and Anastopoulos (2017) noted that most likely college students with ADHD have a background of anxiety disorders and may encounter a greater risk of anxiety symptoms and other related problems. Some studies also shows that ADHD is associated with stress, higher stress response, and elevated level of subjective stress (Hirvikosi, Lindholm, Nordenstrom, Nordestorm, & Lajic, 2009; Combs, Canu, Borman-Folks, Rocheleau, & Nieman, 2015). In sum, most of the literature indicate that ADHD is associated with other psychological challenges and problems especially among college students. In this study, we investigate the relationship between ADHD with problems including social phobia, stress, anxiety, depression, and internet addiction.

## **RESEARCH METHOD**

The study is based on quantitative approach and used descriptive and correlation design. This research was a descriptive-correlational study regarding the method of data collection.

### **Population and Sampling Method**

The population of the study is all students in Mexican capital. However, for sampling purpose, we used 3 community colleges and a sample of 327 based on Krejcie and Morgan sample size calculator table.

### **Data Collection Tool**

We used 'Adult ADHD Self-Report Scale' developed by Kessler, et al., (2005) for measuring the ADHD symptoms among individuals. The scale consist of 18 items out of which 6 questions are screening based and the remaining are related to actual problem. For social anxiety, we used the measure developed by Conner et al., (2000) called 'Social Phobia Inventory' consisted of 17 items. For measuring, negative emotional states of stress, anxiety, and depression, we used scale developed by Levi Bond (1995) consisted of three sub-scales. In these subscales, there are 7 items for depression, 7 items for anxiety, and 7 items for stress. For measuring internet addiction, we used a scale developed by Widyanto and McMurrin (2004) consisted of 20 items.

### **Data Collection Procedure**

For data collection, we distributed the survey in selected classes in the two selected colleges in the city of Mexico. The surveys were collected back by the researcher and research assistants.

### **Data Analysis**

The data analysis technique is quantitative and first all of the data is undergone initial screening for missing and inconsistent values. Later, we used the statistical tests such as descriptive and correlation using the SPSS version 21 for analysis.

## **RESULTS**

In this study, there were 187 male and 140 female students. Age wise, most students were in the age group of 18 to 23 with mean age of 19.45. marital status wise, 63% students were single,

23% married, and 14% belonged to the unknown or other category. The descriptive statistics is provided below.

Table 1.

*Descriptive Statistics of Internet addiction: depression, anxiety, stress, social phobia and hyperactivity*

Variables		Mean	Standard deviation	Minimum	Maximum	Kurtosis	Skewness
	Internet addiction	79.69	11.74	4.4	100	0.79	-1.07
Dependent variables	Depression	29.32	3.19	7	21	0.64	-1.01
	Anxiety	28.40	2.78	9	21	0.42	-0.92
	Stress	24.46	3.04	7	21	-0.17	-0.64
	Social phobia	66.49	11.92	30	85	0.42	-0.94
Independent variables	Attention deficit	32.22	5.82	16	45	-0.42	-0.04
	Hyperactivity/impulsivity	33.26	5.62	17	45	-0.07	-0.22

The descriptive statistics for all independent and dependent variables are provided above. The results show that in the sample, there was higher level of internet addiction (M=79.69); depression (M=29.32); and anxiety (M=28.40). While, the level of stress (M=24.46); and social phobia were moderate (M=66.49). In terms of attention deficit, there was moderate level of attention deficit (M=32.22); and hyperactivity/impulsivity (M=33.26).

Table 2

*Correlation matrix of research variables*

Variable	Attention deficit	Impulsivity	Internet addiction	Depression	Anxiety	Stress	Social phobia
Attention deficit	-						
Hyperactivity/Impulsivity	0.64*	-					
Internet addiction	0.45*	0.33*	-				
Depression	0.41*	0.29*	0.21*	-			
Anxiety	0.36*	0.29*	0.38*	0.61*	-		
Stress	0.54*	0.36*	0.28*	0.80*	0.61*	-	
Social phobia	0.44*	0.26*	0.16*	0.36*	0.33*	0.33*	-

\*Correlation is significant at the 0.01 level (2-tailed)

Table 2 shows the correlation between the variables. The results show that ADHD components are positively associated with other variables in the proposed direction. For example, attention deficit is positively associated with internet addiction (r=.45, P<.05); depression (r=.41, P<.05); anxiety (r=.36, P<.05); stress (r=.54, P<.05); and social phobia (r=.44, P<.05). The other variable is hyperactivity/impulsivity which is also positively associated with internet addiction (r=.34,

P<.05); depression (r=.29, P<.05); anxiety (r=.29, P<.05); stress (r=.27, P<.05); and social phobia (r=.26, P<.05). Next, we present the results of the canonical correlation.

Table 3

*Results of canonical correlation between predictor and criteria variables*

Independent Var.	Value	F	p	Partial Eta Squared	Observed Power	
Attention deficit	Wilz L.	0.87	5.94	0.013	0.04	0.84
Impulsivity	Wilz L.	0.76	6.54	0.000	0.22	0.99

The results of the canonical correlation shows that attention deficit and impulsivity are both components of ADHD and are significantly correlated with set of variables including social phobia, stress, anxiety, and depression (P<.05). the results of the canonical correlation is presented in the next table. 1

The results of Table 3 reveal that the variables of attention deficit and impulsivity have a significant relationship with the set of variables Internet addiction, depression, anxiety, stress and social phobia (p<0.05). Also, the results of canonical correlation between each of the criteria and predictive variables are shown in Table 4.

Table 4

*Canonical correlation results between each of the criteria and predictor variables*

Independent variable	Dependent variable.	df	Mean Square	F	p	Partial Eta Squared	Observed Power
Attention deficit	Internet addiction	1	840.484	7.088	.014	0.02	.682
	Depression						
	Anxiety	1	44.242	4.788	.030	0.02	.587
		1	20.451	2.885	.090	0.02	.486
	Stress	1	56.444	7.828	.005	0.04	.802
Hyperactivity/ impulsivity	Social phobia	1	646.420	4.840	.027	0.02	.600
	Internet addiction	1	990.488	9.271	.004	0.04	.827
	Depression						
	Anxiety	1	49.042	5.32	.022	0.02	.642
		1	48.281	6.69	.010	0.02	.742
	Stress	1	146.848	20.717	.000	0.07	.885
	Social phobia	1	459.514	4.512	.062	0.02	.464

The results as presented in above table shows that attention deficit disorder is associated with dependent variables including internet addiction (Fstat=7.08, P<.05); depression (Fstat=4.78, P<.05); anxiety (Fstat=2.88, P<.05); stress (Fstat=7.82, P<.05); and social phobia (Fstat=4.84, P<.05). Similarly, hyperactivity/impulsivity is positively associated with internet addiction (Fstat=9.27, P<.05); depression (Fstat=5.32, P<.05); anxiety (Fstat=6.69, P<.05); stress (Fstat=20.71, P<.05); and social phobia (Fstat=4.51, P<.05).

### **Discussion**

The objective of the study was to test the influence of ADHD on some psychological disorders on students. The results show that there is significant positive influence of ADHD on some of the psychological disorders including internet addiction, depression, anxiety, stress, and social phobia.

Our findings are supported by previous studies including Yen et al. (2009), Yu et al. (2004), Cao et al. (2007), Bozcourt et al. (2013). One possible reason for the relationship between internet addiction and ADHD is that internet is considered as an alternative to social world. Thus, people with ADHD may find it easier to communicate and spend time in internet setting such as social media compare to the actual social world. These findings are supported by previous studies (e.g. Sacchetti & Lefler, 2014; Humphreys, Galán, Tottenham, & Lee, 2016).

Our findings also show influence of ADHD with other psychological problems such as social phobia, stress, anxiety, and depression which are consistent with the findings of previous studies Sobansky (2006), Sobansky et al. (2007), Parvaresh et al. (2014), Yoshimasu et al. (2012), Koyuncu, Celebi, Ertekin, Kok, & Tukul (2016). Hirvikosi et al. (2009), Combs et al. (2015), and O'Rourke et al. (2017).

### **CONCLUSION**

Based on these studies result, we conclude that ADHD among college students is a problematic issue and can lead to other psychological problems. Therefore, early detection is required along with the corrective action. Furthermore, it can also be concluded that the problem of ADHD is common among the college students and thus it needs to be taken seriously. Other conclusion of the study is that ADHD is negative psychological state since it gives rise to many other complications.

### **Limitations**

The limitations of the study are the self-reported measure, survey-based data collection, limited sample size, and single method of data collection technique.

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