

# Technology Addiction, Sleep Disturbance and Physical Inactivity Among Psychiatric Patients

Sayed Shahbal<sup>1†</sup>, Muhammad Tahir<sup>2</sup>, Amna Khan<sup>1</sup>, Ali Ibrahim Noshili<sup>#3</sup>, Thana A Aljohani<sup>4</sup>, Ayat Mohamed Ahmed Zammar<sup>5</sup>, Amal Mohammad Hamdi<sup>6</sup>, Hejab Saad Alharbi<sup>7</sup>, Abdulmajeed Hassan Alzahrani<sup>8</sup>, Mariam E Alammi<sup>9</sup>, Hind Khalid Almutairi<sup>10</sup>, HebaTalal al Faisal<sup>11</sup>, Mohammed Mansour Althawabi<sup>12</sup>, Ali Aali Alharbi<sup>13</sup>, AbdulraheemMulfi Almutairy<sup>13</sup>, Thamer Salem Ali Alghamdi<sup>14</sup>, Turki Ali Haloosh<sup>15</sup> and Rubia Batool<sup>16</sup>

### ABSTRACT

**Background and Aim:** The rapid expansion in the global prevalence of technology addiction suggests that it has vital role in the quality of sleep and physical inactivity. Current study investigated the increased use of technology is associated with increased rates of cardiac diseases to declines in physical activity. As well as quality of sleep and sleeping habits disturbed due to the internet and smartphone use on bed and in sleeping hours. People who are diagnosed with different psychological disorders, neglected from the assessment of technology addiction, whereas the health practitioners also ignore these kinds of vital roles in patient's psychological health.

**Method:** This research was completed in 6 months from March 3, 2021, to September 3, 2021 with cross cultural research design. For the sample of 100 [(n=50 Males, n=50 females) (Islamabad=50, Makkah=50)] psychiatric patients, online-survey method was used with the help of purposive sampling technique. Five self-report measures including Internet Addiction Test, The Smartphone Addiction Scale, Pornography Craving Questionnaire. The Pittsburgh Sleep Quality Index and The Global Physical Activity Questionnaire. Multiple regression analysis was applied for testing the hypotheses. The findings revealed that predictive role of Technology Addiction on Physical Inactivity positively whereas the predictive role of Technology Addiction on quality of sleep negatively. The findings empirically established that use of technology related psychological issues in clinical settings by clinicians is essential. As well as technology addiction is cause of reducing quality of sleep as well increasing in physical inactivity.

Keywords: Technology addiction; Quality of sleep; Physical inactivity; Internet; Smartphone; Pornography

#### Introduction

The modern era is derived from the life based on technology as every human now days connected with the internet with each other corner of the modern world. Through this human life is bound and heavily relaying on technology and internet. No doubt such advancements made human life easier faster than as it was in the past. But as usual many of the major issues also happened due to this. As excessive use of technology made human somehow addicted to this, which laid towards the internet and smartphone addiction as well.

Received: 14-Mar-2022, Manuscript No.M-57156;

Editor assigned: 16-Mar-2022,

PreQC No. P-57156;

**Reviewed:** 26-Mar-2022, QC No. Q-57156;

**Revised:** 28-Mar-2022, Manuscript No. R-57156;

**Published:** 31-Mar-2022, DOI: 10.37532/1753-0431.2022.16(3).231

<sup>1</sup>Department of Psychology, International Islamic University, Islamabad, Pakistan

<sup>2</sup>Deapartment of Social Science and Humanities, Shifa Tameer-e-Millat University, Islamabad, Pakistan

<sup>5</sup>General Directorate of Health Affairs, Riyadh, Saudi Arabia

- <sup>7</sup>Health Affairs, Al-Qassim Region Infection Control Department, Pakistan
- <sup>8</sup>Eradah and Mental Health Complex, Jeddah, Saudi Arabia
- 9Nurse, Haql hospital-Haql, Saudi Arabia
- <sup>10</sup>Nursing Department, Prince Sultan Military Medical City, Riyadh, Saudi Arabia
- <sup>11</sup>Ministry of Health, Saudi Arabia
- <sup>12</sup>Abha Health Sector, Aseer Health, Saudi Arabia
- <sup>13</sup>Psychiatric Hospital, Jeddah, Saudi Arabia
- <sup>14</sup>King Faisal Specialist Hospital & Research Centre, Jeddah, Saudi Arabia
- <sup>15</sup>Nurse Educator, Khamis Mushayt General Hospital, Saudi Arabia
- <sup>16</sup>Department of Psychology, Ripha International University, Lahore, Pakistan
- <sup>†</sup>Author for correspondence: Sayed Shahbal, Department of Psychology, International Islamic University, Islamabad, Pakistan, Telephone +923125622832; E-mail: syedshahabal@gmail.com

\*Ali Ibrahim Noshili, Infection Prevention & Control Unit, Alhurrath General Hospital, Saudi Arabia Telephone: +966507460879; E-mail: Alinoshili2012@gmail.com

<sup>&</sup>lt;sup>3</sup>Infection Prevention & Control Unit, Alhurrath General Hospital, Saudi Arabia

<sup>&</sup>lt;sup>4</sup>Nurse Educator, King Fahad Hospital- Marina. Nursing Education Department

<sup>&</sup>lt;sup>6</sup>Abha Maternity and Children Hospital (AMCH)-Asir, Saudi Arabia

Human involvement in such issues triggered many of serious psychological issues which also effected human physical and physiological aspects as well. As medical scientists suggested 8 hours sleep considered as necessary element for health. Similarly on daily bases there is need of adequate physical activity to keep human physic and psyche in balance. While failure to get adequate sleep can lead towards insomnia or other sleep disorders as well the physical inactivity can lead towards the cardiovascular disease which is the among highest global health issues [1].

Addiction is a disease in which a person finds themselves unable to stop using a substance or engaging in a behaviour [2]. Although technology addiction is not currently included in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM), its symptoms are like that of another behavioral addition that is included in the manual, compulsive gambling. As with other impulse control disorders, tech addicts can experience short periods of time in which symptoms are stronger. Technology Addiction includes; Smartphone Addiction, Internet Addiction and Porn Addiction [3].

Current study is established on the three major domains of the technology addiction, which are Internet Addiction, Smartphone Addiction and Pornography Craving and consumption [4]. The smartphones can distract us to a point where we are unable to achieve a state of flow at work [5]. Alton et al. (2014) found that interruptions as brief as 2.8s disrupted participants' flow of concentration and led to increased errors on a sequence-based cognitive task [6]. Thus, smartphones with their visual and acoustic signals alerting the owner to incoming messages from social networks, etc. act as interrupters, which have the potential to hinder flow experience and may have an associated negative impact on productivity [7].

Experimental research of the Korot et al. (2021) showed the significant relationship between IA and psychiatric symptoms such as depression, obsessive compulsion, interpersonal sensitivity, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism [8]. With longer use, more psychiatric symptoms occur.

Terms used in the literature to describe

closely related phenomena include "Internet addiction disorder," "pathological Internet use," "problematic Internet use," "excessive Internet use," and "compulsive Internet use" [9]. Recent research has documented different patterns of prevalence of smartphone addiction throughout the world. For instance, smartphone addiction rates in European countries, like Switzerland, Spain, France, and the United Kingdom were 16.90%, 12.50%, 21.59% and 10% respectively. In contrast, smartphone addiction rates in the Middle East and Asian countries, like Saudi Arabia, India, and South Korea, were 48%, 55.70% and 35.20% respectively [10].

Several researched have indication of smartphone addiction's harmful effects not only on the physical health like brain and eyesight, but also psychological and psychosocial effects as well [10]. As well as internet access is very easy for all range of ages which is leading towards the pornography and porn content as well. As google reported that Pakistan is on 2nd in this list in worldwide [11].

Smartphone addiction is observed across all age groups and other socio-demographic classes, diverse cultural and ethnic settings. Although, many surveys and studies have demonstrated the prevalence and risk factors of chemical addiction in Pakistan but there is paucity of empirical studies indicating the rates and predictors of non-chemical addictions [12]. Whereas, KSA also among top countries where everyone has access to the smartphone as 85% population of KSA is frequent smartphone user as suggested by Hasan et al., (2022) in their literature.

Porn addiction is considered a behavioral addiction that is characterized by an evergrowing compulsion to view pornographic content or material. Now, the tools available to feed a porn addiction have since evolved thanks to the internet and other technologies, allowing anonymous access to unlimited pornography at all levels of explicitness [13].

Adequate sleep is essential for growth hormone secretion that is required for normal physical development, particularly in adolescents. Previous studies revealed sleep problems in up to 51% of hospitalized patient in the Netherlands' hospital. [14]. With the increasing popularity of smartphones together with all its advanced technology, the use of the smartphone before

sleep has become a habit for adolescents that could prolong sleep latency and decrease sleep duration [15]. Of all the factors affecting sleep quality in college students, internet use is among one of the most prevalent. A previous study has shown that college students in Taiwan spend an average of up to 16.27 hour per week on the Internet. Furthermore, the sleep quality of over half of those students was found to be adversely affected using internet for chatting, playing games, and watching movies before sleeping [16]. Previous studies have already underscored the link between internet use and sleep quality. A study investigating the correlation between internet use and sleep in 380 medical students concluded that overuse of mobile phones and social networks could impair sleep quality [17].

Physical activity was defined in its broadest sense as any movement of the body caused by skeletal muscles resulting in energy expenditure [18]. This definition was chosen to encompass as many related physical activities as possible, such as exercise, fitness, resistance training, yoga, and so forth. The theoretical underpinnings of physical activity in relation to health and aging are well established. There are several biological mechanisms through which physical activity enhances health and prevents disease. Specifically, physical activity decreases heart rate, systolic blood pressure and myocardial oxygen requirements, while enhancing the endothelial function of blood vessels [19,20].

#### Significance of the Research

Technology addiction has been a widely studied domain of research, but with an inevitable limitation, and that happens to be the narrow focus of such studies on the student population. The student sample happens to be widely distributed and heterogeneous in nature and ultimately such studies just give general outcomes related to the various factors studied along with technology addition. Just like that, recent research in Karachi University about internet addiction was also conducted on the sample of student [21]. As well as another study about Internet Addiction, Insomnia and Mental Health Problems, which was conducted by University of Punjab, its sample was also limited in university students [22].

Recent research from India based on Technology

addiction among treatment seekers for psychological seems to address this limitation but no research study could be identified in Pakistan that has its focus on Technology addiction and its associated factors in the clinical settings comprised of both in and outpatient facility [23]. This research aims to overcome this shortcoming.

One reason for this gap can be that the cases of technology addiction either go largely unreported or, if reported, our clinicians and practitioners lack the clinical insight, expertise, and readiness to identify and assess these kinds of cases. As it has been observed that in clinical settings the practitioners largely possess screening and diagnostic instruments for depression, anxiety or OCD but do not seem to possess psychometric tools for the assessment of technology related addictions. This is an ironic situation because a study has concluded that in Pakistan, users of networking sites are tremendously increasing. Among Asia's top ten internet using countries, Pakistan is ranked 7th with 17.5 million internet users and out of them 50% use online SNS. A cross sectional study amongst 412 medical students at Agha Khan university indicated that 74% of the sample was minimal addicts, 24% were moderate addicts and 2% were severe addicts. This research will also aid clinicians in identifying technology addiction as a contributing factor to various other psychological issues when it studies the presence of technology addiction in their patients [24].

This research also aims to identify and fill the gap existing in the Saudi Arabian and Pakistani literature pertaining to technology related addictions coupled with physical inactivity and sleep deprivation in clinical patients. The present research has included physical inactivity and sleep deprivation as mediators because when clinical patients become the victims of technology addiction, their physical activity tends to decline and according to a report by the world health organization a decline in physical activity and lack of exercise leads to cardiovascular diseases in clinical patients [4]. Lack of sleep and sleep deprivation also occurs since most people using technology devices in late resting hours, by lying on their beds thus disturbing their sleep cycles.

The concept of internet addiction having clinical roots will introduce a new trend in the attitudes of clinicians regarding technology related addictions.

Shahbal, Tahir, Khan, Nosheli, Zammar, Hamdi, Alharbi, Alzahrani, Alammi, Imutairi, Faisal, Althawabi, Alharbi, Almutairy, Alghamdi, Haloosh & Batoo

### Objectives

- To access the prevalence rate of Technology Addiction in the clinical settings of Makkah and Islamabad. (Main objective)
- To investigate the to identify the predictive role of Technology Addiction on quality of sleep.
- To explore the predictive role of Technology Addiction on physical inactivity.

### Hypotheses

- Physical inactivity will be predicting positively Smartphone addiction.
- Physical inactivity will be predicting positively Internet addiction.
- Physical inactivity will be predicting positively Porn addiction.
- Quality of sleep will be negatively predicting Smartphone addiction.
- Quality of sleep will be negatively predicting Internet addiction.
- Quality of sleep will be predicting negatively Porn addiction.

#### Method

#### Research Design

Online survey method was used to recruit 100 subjects (male/female) from the in-patient and out-patient psychiatric setting of Islamabad and Makkah' hospitals and clinics.

#### Sample

For the present study, a sample of 100 (n=50 Males, n=50 females) was gathered and collected from the clinical patients online from Islamabad and Makkah. For this purpose, purposive sampling technique was used.

#### Inclusion and Exclusion Criteria

With inclusion criteria of age range of 16 years and above, using internet for the minimum duration of 1 year and ability to read and write. Subjects with active psychopathology, illiterate, and unwillingness to participate were excluded from the study.

#### Instruments

Demographic sheet: Participants will be given

a demographic sheet to collect information significant to the present research i.e., age, gender, education, socio-economic status, diagnosed disorder category and level of education.

Internet Addiction Test (IAT): Internet Addiction Test (IAT) is developed by Dr. Kimberly Young. It consists of 20 items that measures mild, moderate, and severe level of Internet Addiction with having Cronbach's alpha reliability is 0.85 [25].

The Smartphone Addiction Scale (SAS-SV): This scale is a 10-item shortened version of the original 40 itemed scale with responses of 1 "strongly disagree" to 6 "strongly agree". The final 10 questions were chosen with regard content validity, and the original SAS-SV showed content and concurrent validity and internal consistency (Cronbach's alpha: 0.91). There are no reverse scores involved [26].

**Pornography Craving Questionnaire (PCQ):** It is 12 item scale, developed by Kraus, S., and Rosenberg, H. (2014) with 7-point Likert scale range from 1-7.1 for Disagree Completely and 7 for Agree Completely with Cronbach's alpha: 0.89 [27].

The Pittsburgh Sleep Quality Index (PSQI): The PSQI 7 item scale with 4-point lickert scale (response range 0-4), developed by Buysse et al, 1989, has internal consistency and a reliability coefficient (Cronbach's alpha) of 0.83 for its seven components [28].

Global Physical Activity Questionnaire: GPAQ was developed by WHO for physical activity surveillance in countries. Scale containing 16 items with binary response option and having Cronbach's alpha reliability is 0.83. It collects information on physical activity participation in three settings (or domains) and sedentary behavior. These domains are Activity at work, Travel to and from places and Recreational activities [29].

#### Procedure

The study entails the administration of a questionnaire to participants. The participants were asked to read the consent form and was told that the completion of the questionnaire demonstrates consent. Participants was provided information about the procedures that was used for confidentiality purposes. The participants were also be briefed that their participation is

### Technology Addiction, Sleep Disturbance and Physical Inactivity Among Psychiatric Patients

# **Research Article**

voluntary and that they can withdraw from the study at any time. The questionnaire consists of 81 questions and took approximately 40 min-50 min to complete.

### Ethical Considerations

Ethical approval was attained from Ethical Review Board, Department of Psychology, IIUI, Ethics Committee, along with head of the institutes. In addition, inform consent was taken from the participants and will ensure regarding privacy and confidentially to the matters.

### Results

The aim of the study was to investigate the Technology Addiction, Sleep Disturbance and

Physical Inactivity Among Psychiatric Patients. The data was analyzed using Statistical Packages for Social Science, version 21(SPSS-21). First, the data was screened to find missing values. The Cronbach's Alpha of the scales was obtaining using reliability analysis. To explain the internal consistency of measuring instruments used in research. The data was analyzed by using

- Descriptive Statistics to reports the mean, standard deviation, frequency, percentage of demographic variables
- Pearson Product Moment Co-Relational Analysis to observe the relationship between study variables
- Independent sample T-Test was used to assess the difference between Gender

Table 1: Frequency Statistics of demog	raphics.		
N=100	Category	f	%
N=100         Gender         Birth Order         Education Level         Marital Status         Work Status         Social Economic Status         Total Family Income	Male	50.00	50.00
	Female	50.00	50.00
	1st born	21.00	21.00
Birth Order	Middle	54.00	54.00
	Youngest	21.00	21.00
	only child	4.00	4.00
Education Level	Graduate	30.00	30.00
Education Level	Postgraduate	52.00	52.00
	Other	18.00	18.00
Maxital Status	Single	66.00	66.00
Marital Status	Married	34.00	34.00
Work Status	Student	55.00	55.00
	Worker	45.00	45.00
Social Economic Status	Lower Class	23.00	22.80
	Middle Class	61.00	60.40
	Elite Class	16.00	15.80
	20K Plus	7.00	7.00
Total Family Income	40K Plus	22.00	22.00
Total Failing income	60K Plus	25.00	25.00
	80K Plus	46.00	46.00
Diagnosed with the	Depressive Disorders	23.00	23.00
	Anxiety Disorders	19.00	19.00
	Substance and Addiction	16.00	16.00
	Obsessive-Compulsive Disorder	16.00	16.00
	Mood Disorders	5.00	5.00
Disorder of	Bipolar and Related Disorders	6.00	6.00
	Sexual Dysfunction	3.00	3.00
	Personality Disorder	5.00	5.00
	Schizophrenia	4.00	4.00
	Other Related	3.00	3.00
Pasidant of City	Islamabad (Pakistan)	50.00	50.00
Resident of City	Makkah (KSA)	50.00	50.00

 Regression was used to check all 3 domains of Technology Addiction on Physical Inactivity and Sleep Disturbance Among Psychiatric Patients

This frequencies of **Table 1** shows the percentage of the sample consist of 50% of male and 50% females, their educational level was Graduate 30%, Postgraduate 50%, and Other 20%. The sample's maximum diagnosed disorders were depressive disorders 23%, then anxiety disorders were 19%, substance and addiction and obsessive-compulsive disorder both were equally 16% each.

The Table 2 explains the reliability and descriptive statistics of all scales which used in this study. Cornbrash's Alpha Reliability of Alpha Reliability for the scales met the criteria.

The Table 3 shows a significant relationship positively among Global Physical Inactivity with all domains of technology addiction which are IAT, SAS and PCQ. IAT has significant positive correlation with GPAQ ( $r= 0.41^{**}$ , p<0.01), SAS has significant positive correlation with

GPAQ (r=  $0.21^{**}$ , p<0.01), PCQ has significant positive correlation with GPAQ (r=  $0.24^{**}$ , p<0.01). Whereas result values are showing that there Pittsburgh Sleep Quality Index predicting negatively with IAT, SAS and PCQ. IAT has significant negative correlation with PSQI (r=  $-0.39^{**}$ , p<0.01). PCQ has significant negative correlation with PSQI (r=  $-0.29^{**}$ , p<0.01). has significant negative correlation with PSQI (r=  $-0.21^{**}$ , p<0.01).

Table 4 shows the impact of Internet Addiction Scale, The Smartphone Addiction Scale and Pornography Craving Questionnaire on Global Physical Activity Questionnaire. The R2 value of 0.24 revealed that the predictors explained 24% variance in the outcome variable with F (3, 96)=13.01, p<0.001. The findings revealed that Internet Addiction Scale positively predicted Global Physical Activity Questionnaire ( $\beta$ =0.32, p<0.05).

Table 5 shows the impact of Internet Addiction Scale, The Smartphone Addiction Scale and Pornography Craving Questionnaire on The Pittsburgh Sleep Quality Index. The R2 value

Table 2: Psychometric Properties of the Study Major Variables/Scales (N=347).											
					Range		Skewness		Kurtosis		
Variable	k	α	М	(SD)	Actual	Potential	Statistic	Std. Error	Statistic	Std. Error	
Internet Addiction Scale (IAT)	20.000	0.810	62.380	-10.590	20-100	33-86	1.077	0.131	1.290	3.470	
The Smartphone Addiction Scale (SAS-SV)	10.000	0.770	36.410	-4.980	22190.000	24-46	-0.359	0.131	-0.310	0.410	
Pornography Craving Questionnaire (PCQ)	15.000	0.790	55.960	-6.880	15-75	36-74	-0.188	0.131	-0.470	0.480	
The Pittsburgh Sleep Quality Index (PSQI)	14.000	0.770	21.210	-3.930	0-42	15-37	-0.786	0.131	1.170	4.470	
Global Physical Activity Questionnaire	16.000	0.850	74.960	-19.820	16-112	19-112	-0.630	0.131	-0.040	0.480	

Table 3: Correlation of study variables.										
Variables	n	м	SD	1	2	3	4	5		
Internet Addiction Scale (IAT)	100	62.38	10.59	-						
The Smartphone Addiction Scale (SAS-SV)	100	36.41	4.98	0.11*	-					
Pornography Craving Questionnaire (PCQ)	100	55.96	6.88	0.12*	0.59**	-				
The Pittsburgh Sleep Quality Index (PSQI)	100	21.21	3.93	-0.39**	-0.29**	-0.21*	-			
Global Physical Activity Questionnaire	100	74.96	19.82	0.41**	0.21**	0.24*	-0.13*	-		
*p<0.05, **p<0.01, ***p< 0.001										

**Table 4:** Regression Coefficient of Internet Addiction Scale, The Smartphone Addiction Scale and Pornography Craving

 Questionnaire on Global Physical Activity Questionnaire.

gaestionnaire on Giobart hysical riceivity	Questionnunei				
Variables	В	SE	t	р	95%Cl
(Constant)	86.83	18.87	4.59	0	[49.19, 98.91]
Internet Addiction Scale	0.75	0.17	4.32	0.003	[0.04, 0.12]
The Smartphone Addiction Scale	0.69	0.45	1.53	0.023	[0.40, 0.63]
Pornography Craving Questionnaire	0.17	0.32	0.52	0.041	[0.16, 0.71]

### Technology Addiction, Sleep Disturbance and Physical Inactivity Among Psychiatric Patients

# **Research Article**

<b>Table 5:</b> Regression Coefficient of Internet Addiction Scale, The Smartphone Addiction Scale and           Pornography Craving Questionnaire on The Pittsburgh Sleep Quality Index.										
Variables	В	SE	t	Р	95%Cl					
(Constant)	28.05	3.95	7.08	0.00	[20.19, 35.91]					
Internet Addiction Scale	0.04	0.03	1.10	0.00	[0.03, 0.11]					
The Smartphone Addiction Scale	0.21	0.09	2.31	0.00	[0.40, 0.83]					
Pornography Craving Questionnaire	0.02	0.06	0.35	0.00	[0.16, 0.31]					

**Table 6:** Independent Samples t-test for investigating the Gender difference in Internet Addiction Scale,

 Smartphone Addiction, Pornography Craving, Pittsburgh Sleep Quality and Physical Activity (N=100).

Variabla	Male		Female		+ (09)	-	95% CI		Cohen's
vallable	м	SD	м	SD	L (90)	μ	LL	UL	d
Internet Addiction Scale (IAT)	63.10	12.07	61.10	8.94	1.67	0.04	-2.77	5.65	0.58
The Smartphone Addiction Scale (SAS-SV)	36.46	5.95	36.66	3.84	0.10	0.02	-1.88	2.08	0.44
Pornography Craving Questionnaire (PCQ)	62.26	7.90	42.66	4.75	0.10	0.00	-2.14	3.34	0.79
The Pittsburgh Sleep Quality Index (PSQI)	21.22	4.18	21.20	3.70	0.25	0.08	-1.55	1.59	0.65
Global Physical Activity Questionnaire	75.80	20.47	74.12	19.32	0.42	0.07	-6.22	9.58	0.49

**Table 7:** Independent Samples t- test for investigating the Cultural differences of KSA and Pakistan, in Internet Addiction Scale, Smartphone Addiction, Pornography Craving, Pittsburgh Sleep Quality and Physical Activity (n=100).

Variable		Islamabad (Pakistan)		Makkah (KSA)		p	95% CI		Cohen's d
	м	SD	м	SD		•	LL	UL	
Internet Addiction Scale (IAT)	36.10	12.07	16.10	8.94	1.67	0.66	-2.77	5.65	0.31
The Smartphone Addiction Scale (SAS-SV)	16.46	5.95	16.66	3.84	0.10	0.56	-1.88	2.08	0.22
Pornography Craving Questionnaire (PCQ)	22.62	7.90	12.66	4.75	0.10	0.66	-2.14	3.34	0.32
The Pittsburgh Sleep Quality Index (PSQI)	11.12	4.18	11.20	3.70	0.25	0.81	-1.55	1.59	0.33
Global Physical Activity Questionnaire	24.51	20.47	14.12	19.32	0.42	0.55	-6.22	9.58	0.21

of 0.22 revealed that the predictors explained 22% variance in the outcome variable with F (3, 96)=11.12, p<0.001. The findings revealed that Internet Addiction Scale negatively predicted. The Pittsburgh Sleep Quality Index ( $\beta$ = -0.43, p<0.001).

Table 6 revealed significant mean differences on IAT with t (98)=1.67, p<0.05. Findings showed that patients from Male gender exhibited higher scores on IAT (N=63.10, SD=12.07) compared to the Female gender (M=61.10, SD=8.94). The value of Cohen's d was 0.58 (<0.80) which indicated medium effect size.

Table 7 revealed no-significant mean differences on study variables on cultural differences among the patients of KSA and Pakistan.

Table 7: Independent Samples t- test for

investigating the Cultural differences of KSA and Pakistan, in Internet Addiction Scale, Smartphone Addiction, Pornography Craving, Pittsburgh Sleep Quality and Physical Activity (n=100).

Table 8 demonstrates the scores of means, F-values, and standard deviation for IAT, SAS, PCQ, PSQI and GPAQ across mostly diagnosed disorders in the sample groups. Results indicated significant mean differences across diagnosed disorders groups on depressive disorders with F (9,90)=21.63, p<0.05. Findings revealed that patients with depressive disorders showed higher level of internet addiction as compared to other disorders. The value of  $\eta_2$  was 0.63 (<0.80) which indicated medium effect size. The Post-

Shahbal, Tahir, Khan, Nosheli, Zammar, Hamdi, Alharbi, Alzahrani, Alammi, Imutairi, Faisal, Althawabi, Alharbi, Almutairy, Alghamdi, Haloosh & Batoo

Table 8: A variables.	Table 8: Analysis of One-Way Anova along with Mean, Standard Deviation and Post-Hoc on all study           variables.											
Variable	Depre Disor	essive rders	An: Disc	xiety orders	Substance and Addiction		Obsessive- Compulsive Disorder		F (9,90)	ղ <b>շ</b>	Post-Hoc	
	м	SD	м	SD	м	SD	м	SD				
IAT	64.22	12.36	63.16	9.57	62.88	10.32	62.25	9.7	21.63	0.63	1>2>3>4	
SAS-SV	38.91	5.2	36.53	5.51	36.5	5.36	35.88	4.51	18.87	0.56	1>2>3<4	
PCQ	59.26	7.78	56.42	7.38	59.94	5.19	55.25	7.67	16.26	0.52	1>2<3>4	
PSQI	22.96	2.96	21.16	3.53	20.88	4.47	20.38	3.48	16.01	0.46	1>2>3>4	
GPAQ	81.26	22.07	80.95	17.86	77.06	14.54	69.81	19.03	11.73	0.41	1>2>3>4	

hoc Comparisons indicated significant between group mean differences of each group with other three groups.

#### **Discussions and Results**

In clinics and hospital's OPDs, there come lot of patients, they diagnosed by the clinicians as psychological disorders which are common like depression, anxiety, addiction, and mood related disorders, but none of the clinician check, weather anyone have technology addiction including, smartphone addiction, addiction of internet or addiction related to watching pornography. The current study was fact finding, correlational and descriptive in nature. Quantitative method was used in this study with three different variables (including 3 domains of technology addiction i.e., IAT, SAS and PCQ) tried in the current research by using 5 different types of research tools to gather the responses which were required from the participant of this research. All ethical and research guidelines and rules were kept in view by the researcher. The researcher by itself collected that data and responses from the participants directly. To check the impact of gender differences, the sample of the research was separated into two kind groups to check the impact of gender-based differences, and for this sampling method which was used was stratified random sampling.

In current research, statistics of the analysis of correlations displayed that there is significant positive association on psychical inactivity's predictive role with IAT, SAS and PCQ as the usage of these trees domains of technology addiction increased.

So, first hypothesis of this study was that

Physical inactivity will be predicting positively smartphone. Regression Analysis showed that the findings revealed that The Smartphone Addiction Scale positively predicted Global Physical Activity Questionnaire ( $\beta$ =0.36, p<0.001). While The R2 value of 0.24 revealed that the predictors explained 24% variance in the outcome variable with F (3,96)=13.01, p<0.001. So, based on result findings, this hypothesis is approved where correlation value is r=0.21\*\*, p<0.01 significant positive.

Modern research on smartphone usages suggested that a person who engages himself excessively in smartphone usage, this will increase his physical inactivity. 2nd hypothesis of this study was that Physical inactivity will be predicting positively internet addiction. Regression Analysis showed that the Internet Addiction Scale positively predicted Global Physical Activity Questionnaire ( $\beta$ =0.32, p<0.001). While The R2 value of 0.24 revealed that the predictors explained 24% variance in the outcome variable with F (3,96)=13.01, p<0.001. So, based on result findings, this hypothesis is approved where correlation value is r=0.41\*\*, p<0.01 significant positive.

So, the result of the current study along with the previous study revealed, that significant relationship was founded between Physical inactivity and internet addiction, because such individuals use to enjoy by using internet [30].

While in other research, researchers revealed that participants scored high on the Physical inactivity and internet addiction, which indicated their physical activity declined due to the internet addiction. [31,32]. Such findings of these research are noteworthy in view of usage of internet addiction has significant impact in physical inactivity.

3rd hypothesis of this study was that Physical inactivity will be predicting positively pornography addiction. Regression Analysis showed that the findings revealed that Pornography Craving Questionnaire positively predicted Global Physical Activity Questionnaire ( $\beta$ =0.22, p<0.001). While The R2 value of .24 revealed that the predictors explained 24% variance in the outcome variable with F (3, 96)=13.01, p<0.001. So, based on result findings, this hypothesis is approved where correlation value is r=0.24\*\*, p<0.01 significant positive.

Azizi et al. (2021) research findings also reviled the same, that a person who is addicted with sexual and porn content, always will lack in different parts of his daily life i.e., his physical activities and healthy daily physical activities [33].

4th hypothesis of this study was that Quality of sleep will be negatively predicting Smartphone addiction. Regression Analysis showed that The Smartphone Addiction Scale negatively predicted The Pittsburgh Sleep Quality Index ( $\beta$ = -0.31, p<0.001). While The R2 value of 0.22 revealed that the predictors explained 22% variance in the outcome variable with F (3, 96)=11.12, p<0.001. So, based on result findings, this hypothesis is approved where correlation value is r= -0.29\*\*, p<0.01significant negative.

In the literature, it was observed that, those individuals, who remain engaged in smartphones especially on the sleep timings and while lying on the bed and using smartphones or cellphones, those always face difficulty in sleep as well healthy quality of sleep [34].

5th hypothesis of this study was that Quality of sleep will be negatively predicting internet addiction. Regression Analysis showed that the findings revealed that Internet Addiction Scale negatively predicted The Pittsburgh Sleep Quality Index ( $\beta$ = -0.43, p<0.001). While The R2 value of 0.22 revealed that the predictors explained 22% variance in the outcome variable with F (3, 96)=11.12, p< 0.001. So, based on result findings, this hypothesis is approved where correlation value is r= -0.39\*\*, p<0.01 significant negative.

In two of the recent research i.e., Lam (2014) and Adelantado-Renau et al. (2019) proved that sleep habits are associated with daily routine habits, as those who remained online while using

internet late night, they face issues in sleep and sleep quality could be disturbed [35,36].

6th hypothesis of this study was that Quality of sleep will be negatively predicting pornography addiction. Regression Analysis showed that the findings revealed that also, the findings revealed Pornography Craving Questionnaire that negatively predicted The Pittsburgh Sleep Quality Index ( $\beta$ = -0.21, p<0.001). While The R2 value of 0.22 revealed that the predictors explained 22% variance in the outcome variable with F (3, 96)=11.12, p<0.001. So, based on result findings, this hypothesis is approved where correlation value is r= -0.21\*\*, p<0.01 significant negative. The research findings also reviled that a person who is addicted with sexual and porn content, always will lack in quality of sleep as such person remains disturbed in his sleep [37].

### Limitations

Applied for age range above 16 years only. Data was collected from clinical outpatients only, so could not apply on in patients. Data was collected from 10 type of disorders categories only. Sample's data was gathered from cities of Makkah and Islamabad only, which could not be generalize over other cities of respected countries population.

#### **Suggestions and Recommendations**

In the light of findings and results of the ongoing research, it is suggested that, in the clinical settings, hospitals and OPDs, clinicians and psychologists need to focus on the technology addiction as well, because most of the clinicals don't use any kind of tool, scale or questionnaire related to the technology addiction including Internet addiction, Smartphone addiction and pornography addiction, meanwhile Pakistan is the at 2nd in the list where porn related material is being searched as per google released report in 2019 [38].

In the view of the results and findings of the study that, it is compulsory to reduce technology use including internet, smartphone, and pornography, as these habits have also multiple physical and psychological intoxicated effects.

Need to tell the patients and users to avoid use of smartphone and internet on bed specially in sleeping hours and laying down on bed, as these

may affect eye side as well as disturb the sleeping habits, that's why quality of sleep could affect.

It is suggested that people need to avoid or need to minimize the usage of internet and smartphone, as well as instead of spending their time and energy on technology-based things, they need to perform physical tasks and exercises. Because physical inactivity may cause of not only many of psychological issues but also physical and medical diseases as behind the cardiovascular disease, physical inactivity is the biggest cause and reason [4].

There is a huge gap in research and literature that, most of the research carried out on student sample while there is so less research carried out general population, so need to fill this gap. Also, it is suggested and recommended that, research institutes and students need to fill this gap by conducting research on general population like in this research.

### Implications

The current study can help to fill the gap in research area, where usually most of the research carried out in Pakistan on student samples while general population is neglected side in these areas of research.

In psychological clinical and hospital settings, this research will also help to provide statistics of the patients, which diagnosed with different psychological disorders, but they also have addictions towards internet, smartphone, and pornography.

This study can also help in the field of health, that health professionals can suggest physical activities and exercises to save them from cardiovascular diseases, as well health professionals recommend the usage hours of internet and smartphone to develop the good sense of healthy sleep and sleeping habits.

#### Conclusion

Since statistical analysis, it was found that, Internet Addiction and Smart Phone Addiction is high common among the patients of Depressive disorders, while Pornography consumption ratio is high among the patients of Substance Abuse disorders due to their involvement vulnerability of any kind of chemical or nonchemical addiction. As well Internet Addiction, Pornography Consumption, Sleep Disturbance and Physical Inactivity was higher in males while Smartphone addiction was slightly higher in females.

Results of the current research confirmed that, there is predictive role of Technology Addiction (i.e., IAT, SAS and PCQ) on the Quality of Sleep and Physical Inactivity. So, all objectives of this study were attained and the hypothesis of the was proved as per the results and findings of the study.

### Technology Addiction, Sleep Disturbance and Physical Inactivity Among Psychiatric Patients

# **Research Article**

#### References

- World Health Organization. World health statistics 2016: Monitoring health for the SDGs sustainable development goals. World Health Organization. (2016)
- Lewis M. Addiction and the brain: Development, not disease. Neuroethics 10(1), 7-18 (2017).
- Serenko A, Turel O. Directing technology addiction research in information systems: Part I. Understanding behavioral addictions. ACM SIGMIS Database. The DATABASE Adv Info Syst 51(3), 81-96 (2020).
- World Health Organization. Global status report on alcohol and health 2018. World Health Organization (2019).
- Montag C, Walla P. Carpe die instead of losing your social mind: Beyond digital addiction and why we all suffer from digital overuse. Cogent Psychol 3(1), 1157281 (2016).
- Cooper R. Diagnostic and statistical manual of mental disorders (DSM). KO Knowl Organ 44(8), 668-676 (2018).
- Thompson ML. Smartphones: addiction, or way of life? J Ideol 38(1), 3 (2017).
- Korot E, Pontikos N, Drawnel FM, et al. Enablers and barriers to deployment of smartphone-based home vision monitoring in clinical practice settings. JAMA Ophthalmol 140(2), 153-160 (2021).
- Griffiths MD, Kuss DJ, Billieux J, et al. The evolution of Internet addiction: A global perspective. Addict behav 53, 193-195(2016).
- Khalily MT, Loona MI, Bhatti MM, et al. Smartphone addiction and its associated factors among students in twin cities of Pakistan. JPMA (2020).
- 11. Kemp S. Digital 2021: Global Overview Report. Datareportal (2021).
- Khan AA, Khalid A, Iqbal R. Revealing the relationship between smartphone addiction and academic performance of students: Evidence from higher educational Institutes of Pakistan. Pak Adm Rev 3(2), 74-83 (2019).
- Brand M, Müller A, Stark R, et al. Addiction Research Unit: Affective and cognitive mechanisms of specific Internetuse disorders. Addict Biol 26(6), e13087 (2021).
- Wesselius HM, Van Den Ende ES, Alsma J, et al. Quality and quantity of sleep and factors associated with sleep disturbance in hospitalized patients. JAMA Intern

Med 178(9), 1201-1208 (2018).

- 15. Jiang Y, Yang M, Lv Q, et al. Prevalence of psychological disorders, sleep disturbance and stressful life events and their relationships with disease parameters in Chinese patients with ankylosing spondylitis. Clin Rheumatol 37(2), 407-414 (2018).
- Lee KC, Hsieh YL, Lin PC, et al. Sleep pattern and predictors of sleep disturbance among family caregivers of terminal ill patients with cancer in Taiwan: a longitudinal study. Am J Hosp Palliat Med35(8), 1109-1117 (2018).
- Mohammad Beigi A, Babaei M. Mental Health and Attitude toward Substance use among Medical Students. J Psychol Ment Health Care 5(3), (2021).
- Lippi G, Henry BM, Sanchis Gomar F. Physical inactivity and cardiovascular disease at the time of coronavirus disease 2019 (COVID-19). Eur J Prevent Cardiol 27(9), 906-908 (2020).
- Kim SH, Cha S, Kang S, et al. High prevalence of physical inactivity after heart valve surgery and its association with long-term mortality: A nationwide cohort study. Eur J Prevent Cardiol 28(7), 749-757 (2021).
- Sackner MA, Patel S, Adams JA. Changes of blood pressure following initiation of physical inactivity and after external addition of pulses to circulation. Eur J Appl Physiol 119(1), 201-211 (2019).
- Ahmer Z, Tanzil S. Internet addiction among social networking sites users: Emerging mental health concern among medical undergraduates of Karachi. Pak J Med Sci 34(6), 1473 (2018).
- 22. Zafar N, Kausar R, Pallesen S. Internet addiction, insomnia, and mental health problems in university students in Pakistan. Pak J Soc Clin Psychol 16(2), 10-16 (2018).
- Das A, Sharma MK, Thamilselvan P, et al. Technology addiction among treatment seekers for psychological problems: Implication for screening in mental health setting. Ind J Psychol Med 39(1), 21-27 (2017).
- Haroon MZ, Zeb Z, Javed Z, et al. Internet addiction in medical students. J Ayub Med Coll Abbottabad 30(4), S659-S663 (2018).
- 25. Young, K. Internet addiction scale. 1998.
- Kwon M, Kim D J, Cho H, et al. The smartphone addiction scale: development and validation of a short version for adolescents. PloS one 8(12), e83558 (2013).

- 27. Kraus S, Rosenberg H. The pornography craving questionnaire: Psychometric properties. Arch Sex Behav 43(3), 451-462 (2014).
- 28. Buysse DJ, Reynolds CF, Monk TH, et al. The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Res 28(2), 193-213 (1989).
- Armstrong T, Bull F. Development of the world health organization global physical activity questionnaire (GPAQ). J Pub Health 14(2), 66-70 (2006).
- Dang AK, Nathan N, Le QNH, et al. Associations between internet addiction and physical activity among Vietnamese youths and adolescents. Child Youth Serv Rev 93, 36-40 (2018).
- Bhandari PM, Neupane D, Rijal S, et al. Sleep quality, internet addiction and depressive symptoms among undergraduate students in Nepal. BMC Psychiat 17(1), 1-8 (2017).
- 32. Lin L, Liu J, Cao X, et al. Internet addiction mediates the association between cyber victimization and psychological and physical symptoms: moderation by physical exercise. BMC Psychiat 20(1), 1-8 (2020).
- Aziz N, Nordin MJ, Abdulkadir SJ, et al. Digital Addiction: Systematic Review of Computer Game Addiction Impact on Adolescent Physical Health. Electronics 10(9), 996 (2021).
- Stephens J, Allen J. Mobile phone interventions to increase physical activity and reduce weight: a systematic review. J Cardiovasc Nurs, 28(4) (2013).
- Lam LT. Internet gaming addiction, problematic use of the internet, and sleep problems: A systematic review. Curr Psychiatry Rep 16(4), 444 (2014).
- Adelantado Renau M, Diez Fernandez A, Beltran Valls MR, et al. The effect of sleep quality on academic performance is mediated by Internet use time: DADOS study. J Pediatr 95, 410-418 (2019).
- Charzyńska E, Sussman S, Atroszko PA. Profiles of potential behavioral addictions' severity and their associations with gender, personality, and well-being: A personcentered approach. Addict Behav 119, 106941 (2021).
- Wang HY, Sigerson L, Cheng C. Digital nativity and information technology addiction: Age cohort versus individual difference approaches. Comput Hum Behav, 90, 1-9 (2019).