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Impact Of Youtube Usage On Sleep Quality And Cognitive Function In Efl Learners

Saadia Mahmood-ul-Hassan[1,2], Sana Ullah Khan[3], Aneela Sheikh[4], Tayyaba Ayub[5], Alishba Mustansar[6], Muhammad Farhan Tabassum[7]

[1]*University Institute of Diet & Nutritional Sciences, Faculty of Allied Sciences, University of Lahore, Lahore, Pakistan.*
[2]*University Institute of Food Science & Technology, Faculty of Allied Sciences, University of Lahore, Lahore, Pakistan.*
[3]*Sanai Fitness4u, 19 Cheetham Hill Road, Manchester M4 4FY, United Kingdom*
[4]*School of Educational Studies, Universiti Sains Malaysia, Penang. Malaysia.*
[5]*Institute of Public Health, Faculty of Allied Sciences, University of Lahore, Lahore, Pakistan.*
[6]*University Institute of Physical Therapy, Faculty of Allied Sciences, University of Lahore, Lahore, Pakistan.*
[7]*Depaertment of Mathematics, University of Management and Technology, Lahore, Pakistan.*
[*]*Corresponding Author: Muhammad Farhan Tabassum, farhanuet12@gmail.com*

Abstract: New researches have suggested that excessive internet use may have an impact on users' daily sleep quality and cognitive functioning and frequent use of YouTube may exhibit addiction-like behavior patterns. With approximately one billion active users, YouTube is today one of the most used online programs. Significant links between YouTube usage, sleep loss and cognitive function have been discovered in studies. In this study, 240 YouTube users' daily cognitive failures, sleep quality, and responses to questionnaires about their YouTube use were compared. The final sample was made up of 101 men (24.75 ± 7.35) and 131 women (23.68 ± 6.89) aged 16 to 34 from all provinces in Pakistan. The overall reliability of all the scales was 0.838, which is in excellent range. Normality of all three scales having significant values which are greater than 0.05 which shows that the data is normal. Correlation of the mean value of YouTube Questionnaire is positively moderate correlated with Pittsburg Sleep Quality Index with significant value, and mean value of Cognitive Failures Questionnaire and having the significant value. The overall impact of YouTube Questionnaire on Pittsburg Sleep Quality Index is 49.6% and Cognitive Failures Questionnaire is 36.5%. Finally, future studies could take experimental designs, to find out the direction of the association between our study's variables and to provide more concrete explanations for the reported results.

Keywords: YouTube usage, Social media addiction, Cognitive function, Sleep quality, EFL learners.

Introduction

With its headquarters in San Bruno, California, YouTube is an American social media and internet video sharing company. After Google Search, it is the second most frequented website and is presently owned by Google. More than 2.5 billion people use YouTube each month, and they watch more than one billion hours of video daily. Above 500 hours of content were uploaded every minute of video as of May 2019. YouTube was bought by Google for $1.65 billion in October 2006, 18 months after the first video was uploaded and 10 months after the site's formal launch. When Google took over YouTube, the site's business model changed from relying solely on advertising to also providing paid content like movies and other exclusive YouTube productions. Additionally, it provides YouTube Premium, a paid membership service that allows users to

watch content without commercials. The Google AdSense program, which aims to increase revenue for both sides, has also been approved by YouTube for creator participation. In 2020, YouTube recorded $19.8 billion in revenue. YouTube's yearly ad income grew to $28.8 billion in 2021 (YouTube, 2022).

Furthermore, since being acquired by Google, YouTube has grown to include mobile apps, network television, and the ability to connect with other platforms in addition to its main website. Music videos, news, news clips, short films, feature films, documentaries, audio recordings, movie trailers, teasers, live streams, vlogs, and other types of videos are among the video genres on YouTube. The majority of content is created by one person, including partnerships between YouTubers and business sponsors. Businesses in the media with a long history, like Disney, Paramount, and Warner Bros unprecedented societal change has been brought about by YouTube, which has influenced internet trends, popular culture, and the rise of billionaire celebrities. Despite its expansion and popularity, YouTube has drawn a lot of flak. YouTube has come under fire for facilitating the dissemination of false information, copyright breaches, systematic invasions of user privacy, supporting censorship, and compromising the safety and wellness of children and adults (YouTube, 2022).

The use of YouTube is a fundamental component of daily life, particularly among young individuals (Jones, Johnson-Yale, Perez, & Schuler, 2007). However, after 1996, more researchers have documented people who used YouTube to such an extent that they began to exhibit behavioral and psychological traits associated with other types of addiction, such as those to drugs, alcohol, or gambling (Greenfield, 1999). Since 2005, there has been a noticeable increase in the adoption of online apps like YouTube. YouTube is defined as "Internet applications that enables people to design a public or semi-public profile within a bounded system, interact with a list of other users with whom they share a connection, and view profiles of their list of connections as well as those made by others within the system," by Boyd and Ellison (2007).

According to studies, YouTube is primarily used by young adults (Sheldon, 2008), and during the past few years, usage has skyrocketed (Kuss & Griffiths, 2011). The use of YouTube and the amount of time spent there raised the question of whether abusing it would result in dependent signs (Echeburua & de Corral, 2010). Studies have shown that utilizing YouTube to deal with loneliness and stress as well as to maintain and form new relationships strongly predicted dependent symptoms (Xu & Tan, 2012). To evaluate YouTube addiction, recent research has either produced their own scales or modified versions of the YouTube Addiction Test (Cam & Isbulan, 2012). The percentage of participants who were classified as YouTube addicts in these studies ranged from 1.6% to 34%, mostly because these studies used particular and practical samples (university students and teenagers) and various techniques to determine YouTube addiction. They only evaluated addiction on one YouTube, too (Griffiths, Kuss, & Demetrovics, 2014). As an alternative, the current study addresses YouTube reliance by looking at a sample from various age and educational categories.

Studies have shown that the use of YouTube, computer games, and television can all affect how well you sleep. Furthermore, according to a recent literature review (Lam, 2014), participants who reported sleep issues had 1.5 times the likelihood of being labelled YouTube Addicts than those who did not report any sleep disturbances. Furthermore, the excessive use of YouTube, computer games, and television can all result in poorer sleep quality (Choi et al., 2009). In addition, a recent review of the literature revealed that individuals who reported sleep issues had 1.5 times as much of a probability of being labelled Internet Addicts as those who did not report any sleep disturbance (Lam, 2014).

The prefrontal cortex of the brain, which is associated with cognitive processes including

creativity, integration, and planning, has been suggested to be impacted by the quality of one's sleep (Cursio, Ferrara, & De Gennaro, 2006). Furthermore, Wilkerson, Boals, and Taylor (2012) looked at the connection between insomnia and common cognitive mistakes in a sizable sample of young adults and they hypothesized that insomnia and poor sleep quality were particularly linked to mistakes, blunders, and poor memory for names. Intriguingly, Stickgold and Walker (2007) hypothesized that poor sleep quality impairs new learning, which decreases the brain's capacity to preserve newly acquired skills in long-term memory and ultimately results in daily cognitive errors.

Speaking has held a peculiar place throughout the history of language teaching and has just started to develop as a branch of teaching, learning, and testing. According to Bygate (2001), there are three explanations for this. 1) Applying conventional grammar translation techniques. 2) Since1970s, tape recording has been affordable and practical enough to be used in classrooms. 3) These methods used to teach languages and focused oral proficiency and pronunciation. while teaching languages, speaking was previously treated as a separate subject.

Getting proficiency in speaking has been a difficult skill (Alonso, 2014). It is one of the four essential language fundamental skills along with writing, it is a crucial language production skill that lets students to interact with people effectively. Language learning through the new internet-based methods has always been hailed as a trustworthy method. Due to the videos and images it provides to users, YouTube is an online educational platform that makes it simple for users to maintain material and encourages students to learn. One of the important internet-based resources for language learning is YouTube. On the well-known website YouTube, users can post videos, share them with other users, and leave comments on the videos that have already been posted. Every month, the website draws millions of visitors. Additionally, YouTube is accessible worldwide and in more than 60 different languages (Silviyanti, 2014).

According to reports, YouTube is a useful tool for teaching public speaking (Silviyanti, 2014). It can be a tool to assist learners to comprehend what they hear, speaking freely without hesitation, to overcome their nervousness in speaking lessons because of its significant feature in terms of videos, visuals, and animation. According to Aljumah (2011), speaking has reportedly always been a challenge for EFL students. The traditional methods of instruction were used by English teachers in secondary English classrooms in Pakistan result in underdeveloped speakers who are unable to hold lengthy discussions with others (Alhamami, 2013).

This study aims to determine the impact of YouTube usage on sleep quality and cognitive function in EFL learners from Pakistan. We hypothesized that poor sleep and higher levels of cognitive failures would be linked to greater YouTube dependent, and that the impact and relationship between YouTube dependence and the frequency of daily cognitive failures would be explained by sleep quality. Some latest studies in the relevant field have been reported in (Aamina et al., 2020; Aqsa et al., 2020; Aqsa et al., 2021; Farwa et al., 2021; Hira et al., 2021; Iqbal et al., 2019; Rabia et al., 2021; Saadia et al., 2021; Salma et al., 2020; Sana et al., 2021; Threem et al., 2020, Saadia et al., 2021; Saadia et al., 2022)

Materials and Methods

240 people finished the questionnaires in total. However, some of the individuals were eliminated from the current study because they provided incomplete information. The final sample was made up of 101 men (24.75 ± 7.35) and 131 women (23.68 ± 6.89) aged 16 to 34 from all provinces (Federal 20%, Punjab 34%, KPK 22%, Sindh 18% and Balochistan 6%) and educational levels (Bachelor to onward). The YouTube Questionnaire (Thamer, 2020) consists of (26) statements, distributed on (3) fields, EFL learners' perceptions of using YouTube, attitudes towards using YouTube,

best ways to use YouTube. In this investigation, the Cronbach's alpha revealed a satisfactory reliability (0.801). The Pittsburg Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) was used to evaluate the distinction between effective and subpar sleep quality. The PSQI comprises of 19 questions that inquire about seven different sleep-related categories over the course of the previous one month. The terms "components" allude to areas including daytime dysfunction, habitual sleep efficiency, subjective sleep quality, sleep duration, usage of sleep medication, and sleep latency. The Cronbach's alpha for the current sample was 0.72. Daily cognitive failures were measured using the Cognitive Failures Questionnaire (CFQ; Broadbent, Cooper, FitzGerald, & Parkes, 1982). The 25-item CFQ measures the frequency of inconsistencies in perception, distractibility, memory, and motor performance over the previous six months. In the current investigation, the CFQ's Cronbach's alpha was (0.93). Online cross-sectional study design was used in this study. The University of Lahore's ethics committee examined and approved the work.

Results

Statistical analysis was done by using SPSS version 23.0. Collected data reported in frequency distribution, mean value ± standard deviation. To find the relationship between the variable using Pearson Correlation Test. To find the impact of variables using Regression analysis.

Table 1 Correlation among the study variables (N=240)

	Sub-Constructs	1	2	3
1	mean YouTube Questionnaire (YTQ)	1	0.59**	0.45**
	p-value		0.00	0.04
2	mean Pittsburg Sleep Quality Index (PSQI)		1	0.251*
	p-value			0.000
3	mean Cognitive Failures Questionnaire (CFQ)			1

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

The Correlation coefficient of these study variables are listed in above table and showed that the mean value of YouTube Questionnaire is positively moderate correlated (r=0.59) with Pittsburg Sleep Quality Index with significant value (p<0.001), the mean value of YouTube Questionnaire is positively moderate correlated (r=0.45) with mean value of Cognitive Failures Questionnaire and having the significant value (p<0.05) and Pittsburg Sleep Quality Index is positively low correlated (r=0.251) with Cognitive Failures Questionnaire with significant value (p<0.001). A simple linear regression the outcome variable Y is predicted using the equation of a straight line $Y_i = (b_0 + b_1X_i) + \varepsilon_i$. The next section of output describes the overall model (so it tells us whether the models are successful in predicting Pittsburg Sleep Quality Index and Cognitive Failures Questionnaire). This option is selected by default in SPSS because it provides us with some very important information about the model: the values of R, R^2 and the adjusted R^2.

Table 2 Model Summary of study variables (n=240)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.594[a]	.496	.476	.46079	1.859
2	.453[a]	.365	.485	.48561	1.571

a. Predictors: (Constant), meanYTQ, b. Dependent Variable: meanPSQI for model 1 and meanCFQ for model

In the column labeled R are the values of the linear correlation coefficients between the predictors and the outcome which are 0.594 and 0.453 for model 1 and model 2 respectively. The next column gives us a value of R^2, which is a measure of how much of the variability in the outcome is accounted for by the predictors. For the model 1 its value is 0.496 and for the model 2 its value is 0.365, which means that YouTube for 49.6% of the variation in Pittsburg Sleep Quality Index and 36.5% for Cognitive Failures Questionnaire. The adjusted R^2 gives us some idea of how well our model generalizes and ideally, we would like its value to be the same, or very close to, the value of R^2. In this example the difference for the final models are small. Finally, the Durbin–Watson statistic, it will be found in the last column of the table. This statistic informs us about whether the assumption of independent errors is acceptable. As a conservative rule, suggested that values less than 1.5 or greater than 2.5 should definitely raise alarm bells. The data values are 1.859 and 1.571, which are in the range of 1.5-2.5 that the assumptions have almost certainly been met.

Table 3 Analysis of Variance of study variables (n=240)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.162	2	8.162	35.558	.000[b]
	Residual	45.449	237	.230		
	Total	53.611	239			
2	Regression	.987	1	.987	4.273	.040[b]
	Residual	45.742	238	.231		
	Total	46.729	239			

b. Predictors: (Constant), meanYTQ, Dependent Variable: meanPSQI for model 1 and meanCFQ for model

The next part of the output, which contains an ANOVA that tests whether the models are significantly better at predicting the outcome than using the mean as a 'best guess'. Specifically, the F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. The models have one coefficient (one for predictors and one for the constant, and has 239 degrees of freedom. The average sum of squares is then calculated for each term by dividing the square sum by the df and F-ratio are 35.558 and 4.273, we can interpret these results as meaning that the models predict the outcome variable.

Table 4 Coefficients of the current study

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.988	.299		6.655	.000
	meanPSQI	.465	.078	.390	5.963	.000
2	(Constant)	3.053	.300		10.188	.000
	meanCFQ	.162	.078	.145	2.067	.040

So far, we have looked at several summary statistics telling us whether or not the model has

improved our ability to predict the outcome variable. The next part of the output is concerned with the parameters of the model. Remember that in linear regressions the models take the form of equation $Y_i = (b_0 + b_1X_i) + \varepsilon_i$ and in that equation there are several unknown quantities (the b-values). The first part of the table gives us estimates for these b-values and these values indicate the individual contribution of each predictor to the model. If we replace the b-values in equation we find that we can define the models as follows:

$$\text{Pittsburg Sleep Quality Index} = (1.988 + 0.465\ \text{YouTube Questionnaire})$$

$$\text{Cognitive Failures Questionnaire} = (3.053 + 0.162\ \text{YouTube Questionnaire})$$

The b-values tell us about the relationship between Pittsburg Sleep Quality Index and Cognitive Failures Questionnaire with predictor. If the value is positive, we can tell that there is a positive relationship between the predictor and the outcome, whereas a negative coefficient represents a negative relationship. For these data all predictors have positive b-values indicating positive relationships. Each of these beta values has an associated standard error indicating to what extent these values would vary across different samples, and these standard errors are used to determine whether or not the b-value differs significantly from zero. The smaller the value of Sig. the greater the contribution of that predictor.

Figure 1 Normal P-P plot of regression standardized residual

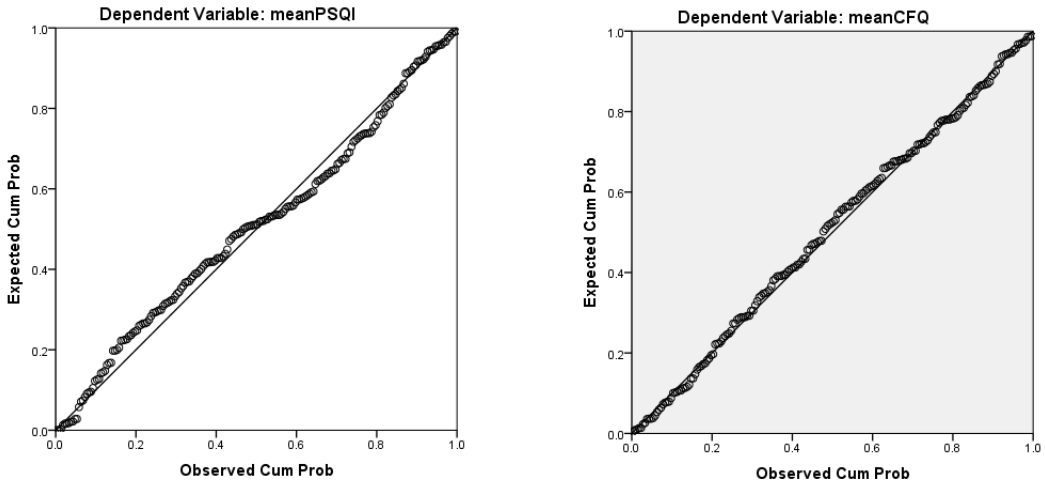
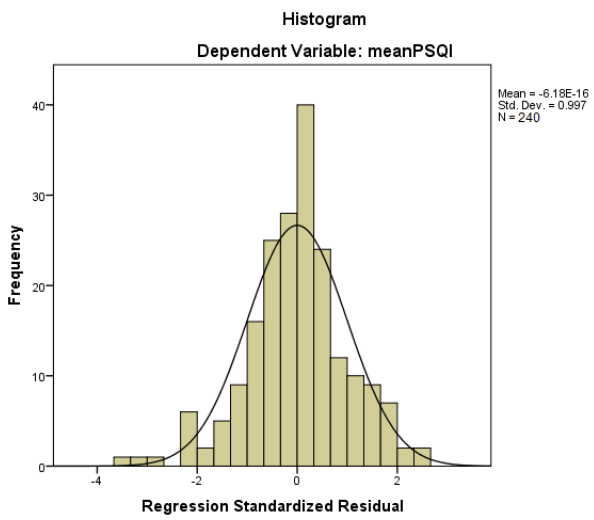


Figure 1 the plot of standardized residuals against standardized predicted values. Figure 1 shows the graph for the data of Pittsburg Sleep Quality Index and Cognitive Failures Questionnaire. Note how the points are randomly and evenly dispersed throughout the plot. This pattern is indicative of a situation in which the assumptions of linearity and homoscedasticity have been met.

Figure 2 Histogram and normal probability plot



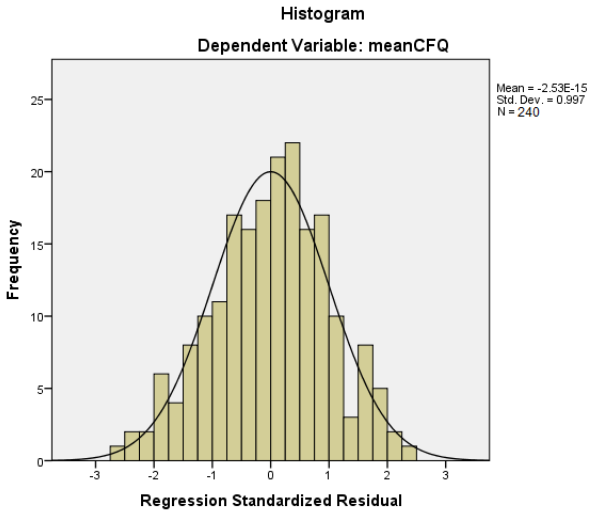


Figure 2 shows the histogram and normal probability plot of the data for the current study. The histograms should look like a normal distribution (a bell-shaped curve). SPSS draws a curve on the histograms to show the shape of the distribution.

Discussion

This study looked at the relationship between YouTube dependence, sleep quality, and the frequency of daily cognitive errors. A greater reliance on YouTube was linked to worsening sleep and more daytime instances of poor cognitive function. These results were in accordance with previous findings, which suggested that, excessive use of YouTube (Wolniczak et al., 2013), was highly associated with poor sleep quality. According to presumptive interpretations of the connection between YouTube and sleep quality, those who have grown dependent on the site may spend a lot of time using it in bed and may get fewer hours of sleep as a result of the late-night logins (Wolniczak et al., 2013). They consequently expose themselves to blue-end light, which interferes with circadian rhythm and reduces the quality of their sleep (Barion & Zee, 2007). The nature of our study prevents us from drawing this conclusion, therefore we can only speculate that this might be one explanation for our results. Our research adds to the growing body of evidence, showing a connection between poor sleep and frequent daily cognitive errors (Wilkerson et al., 2012). The effect that bad sleep has on the prefrontal cortex region of the brain may be one reason for the link between poor sleep and cognitive problems, which is related with the process of novel learning that is affected by sleep quality (Altena, Van Der Werf, Strijers, & Van Someren, 2008).

We have reasoned that poor sleep would result from increased YouTube dependency and thus worsen daytime cognitive impairment. The association between YouTube dependency and cognitive failures can be explained by participant sleep quality, according to a mediation study, which implies that YouTube dependence influences participants' sleep quality, which in turn affects cognitive failures. The mediation model, however, showed that YouTube use also had a direct impact on cognitive failures, demonstrating that dependence on YouTube is linked to worsened cognitive failures even when the impact of sleep quality was taken into account. Previous research indicated multitasking, or the simultaneous performance of two or more cognitive tasks, could be used to interpret this finding (Borst, Taatgen, & van Rijn, 2010) and subsequent divided attention intensely affect cognitive performance (Owens, McLaughlin, & Sudweeks, 2011). Additionally, the excessive usage of YouTube was linked with poor performance on memory tasks and this association was noteworthy even when YouTube was not used during the tasks (Frein, Jones, & Gerow, 2013).

This study is unique in the realm of research into YouTube reliance because the majority of earlier studies have looked at dependence on YouTube or on a specific SNS-based activity (such as chatting or gaming). People who weren't YouTube users but were dependent on another website would therefore have been considered independent of YouTube.

Second, the study's questionnaire and findings were from a sample made up of individuals from various age groups and educational levels, which was commendable in the field of research into YouTube dependence as prior studies had primarily recruited undergraduate psychology students (Griffiths et al., 2014). Regarding the study's clinical practice implications, we could contend that people who have sleep problems ought to be made aware of one potential factor YouTube that might be a factor in their poor sleep quality. Second, based on each participant's ratings on each subscale, physicians could use the study's questionnaire to create more specialized therapies for YouTube dependence.

It may be required to interpret the results of this study with caution. The evaluation of the connection between YouTube, sleep quality, and cognitive failures using correlation methods and self-report data was one of the shortcomings in particular. Therefore, our results show that there is merely a connection, not causality, between the aforementioned variables.

Conclusion

Over the past ten years, there has been a significant increase of one billion YouTube users. According to recent studies, the usage of YouTube has been linked to adverse effects on everyday functioning and addiction-like symptoms, this study looked at the connection among daily cognitive failures, YouTube dependence, and sleep quality. The overall reliability of all the scales was 0.838, which is in excellent range. Normality of all three scales having significant values which are greater than 0.05 which shows that the data is normal. Correlation of the mean value of YouTube Questionnaire is positively moderate correlated with Pittsburg Sleep Quality Index with significant value, and mean value of Cognitive Failures Questionnaire and having the significant value. The overall impact of YouTube Questionnaire on Pittsburg Sleep Quality Index is 49.6% and Cognitive Failures Questionnaire is 36.5%. Finally, future studies could take experimental designs, to find out the direction of the association between our study's variables and to provide more concrete explanations for the reported results.

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