The Relationship between Internet Addiction and Psychological Wellbeing among Addis Ababa University Main Campus Students

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Abstract

The internet, being an integral part of human life, is widely used by university students for different purposes including academic related works, networking, entertainment and staying up to date with latest information. Nevertheless, making use of the internet excessively can bring about negative consequences in the lives of students. The present study sought to determine the relationship between internet addiction and psychological wellbeing among main campus students at Addis Ababa University. Employing a cross sectional research design, quantitative data from 304 university students (male = 156, female = 148) with a mean age of 20.76 years (SD = 1.42) were collected using demographic questionnaire (6 items), Young's Internet Addiction Test (20 items) and Ryff's Psychological Wellbeing scale (18 items). Descriptive statistical methods including frequency, percentage, mean, standard deviation, Pearson product moment correlation and inferential statistical methods such as Independent Samples T test, One Way ANOVA, and multiple regression analysis were used to analyze the data. The study found that 28.2 % of the participants were found to be addicted to the internet. Students who use the internet for entertainment purpose are more prone to internet addiction compared to students who use the internet for academic purposes. A higher level of internet addiction was observed among students who used the internet for more than six hours per day compared to those who used the internet for two hours and below. Majority (90.1%) of the students' psychological wellbeing status was found to be high. Compared to second year students, first and third year students had a relatively higher status of psychological wellbeing. Students who use the internet for entertainment purposes reported a lower status of psychological wellbeing compared to students who use the internet for academic purposes. Similarly, spending more than six hours online per day was also associated with lower status of psychological wellbeing. Bivariate correlation showed that internet addiction and psychological wellbeing had a significant and negative relationship. Furthermore, multiple regression analysis revealed that psychological wellbeing was significantly and negatively associated with internet addiction, after adjusting for potential confounding factors. Based on the findings, it is safe to conclude that internet addiction is a risk factor for lower psychological wellbeing.

Keywords: Buprenorphine, Induction, Maintenance, Discontinuance, Clinical guidance

Introduction

The Internet is a common word by many people all over the world. It has become the most sought after and most commonly used media over the last twenty years. It has provided many benefits to individuals as well as societies [1]. This media has become one of the most useful and advanced technological advancements of our time. Today, different services such as e-mail, World Wide Web, social media sites such as Face book and Telegram can be accessed through the internet [2].

Research shows that the number of people using the internet is increasing at an alarming rate. According to a recent study done by Kemp [3], on average, more than one million people join the world of internet every day globally. Kemp further revealed that out of the total world population, 5.11 billion were mobile users out of which 4.39 billion of them were internet users in the year 2019. This is an increase of 366 million from the previous year (2018). An amazing increase has also been witnessed among social media users. There were an estimated 3.48 billion social media users in January 2019 with the increase of 288 million people in a single year. The main reason for such rapid increase in the number of users is the universal availability of the internet which makes it different from other information providing mass media [4].

In Africa, there was a 39.3% penetration rate of internet users as of December 2019. In Ethiopia, some 17.8% of the population was reported to use the internet in the same year [5]. This is very small compared to South Africa, Nigeria, and Kenya with a penetration rate of 55%, 61.2% and 87.2% respectively [3].

Being one of the most advanced technological advancements, the internet plays a great role in people's lives. Students use the internet to get updated information and knowledge in various subjects. It also helps them to do research and conduct studies [6]. Business people can use the internet to showcase and advertise their products and services [2]. The internet has spread to almost all areas of everyday life. It is found everywhere: at work, in schools, universities and hospitals. It is also used for information, chatting and playing online games [7].

Some studies conducted in Ethiopia also reveal similar findings. For example, university students use the internet in such areas as interpersonal communication, entertainment, education and research [8]. Due to this, it can be said that the internet has become common activity among adolescents and youth [9].

As uses and users grow, the world of Internet and its potential addiction has attracted researchers in the field. University students, one of the groups considered to be vulnerable to internet addiction due to a number of psychological and social factors, have been the focus of such psychological research [10].

Research shows not only the positive association of the internet with people's lives but also the negative factors that are associated with its excessive use. Kunduz [9], for example, argue that despite its numerous uses, excessive or problematic internet use can be changed into addictive instruments. Problematic internet use /internet addiction has also been reported to have a significant positive correlation with loneliness and depression [11] and stress and a negative relationship with self-esteem [12].

With the increased focus in positive psychology in recent years, psychological research has started to shift from the study of problems and disorders to positive functioning such as psychological wellbeing (PWB) that has potential contributions to the issue of internet addiction [13]. This shift aligns with the World Health Organization's (WHO) definition of health: "a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity" [14].

Many studies found significant negative correlation between Internet addiction or problematic Internet use and PWB [15]). While others found no relationship between internet addiction and PWB [16].

There are studies that investigated significant differences in internet addiction in terms of sex. Some of these studies reveal findings indicating that males tend to make more problematic use of the internet [17,18]. To the contrary, some others suggest that females are more vulnerable to internet addiction than males [19]. Still some others argue that there is no significant difference in internet addiction between male and female internet users [20,21].

Internet use in Ethiopia has increased from 4.5 million people in 2013 to 16.4 million in the year 2018 [3]. The large number of people using the internet on a daily basis raises concerns among scholars for possible effects on physical, social, and psychological health [22]. However, to the knowledge of the researcher, there is no any study on the association between internet addiction and PWB in the Ethiopian context.

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Hence, it is paramount importance to conduct a study in the context of Ethiopia on the association between internet addiction and PWB among university students. Internet addiction and related psychological problems may challenge current academic endeavors and future work force of the country. Therefore, this study aimed to investigate the level of internet addiction and its relation with PWB among students at Addis Ababa University.

A lot of research has been conducted on the issue of internet addiction [17-21, 23-24]. While some of them focus on the level of internet addiction [23]; others focus on examining the relationship internet addiction has with PWB [24]. However, many of the studies conducted on the relationship between internet addiction and PWB are in developed countries. Some researchers such as Dutta & Chye [12] found out a negative correlation between internet addiction and PWB. To the contrary, other researchers like Huang [16] found no relationship between internet addiction and PWB. In addition to this, there is an increase in the number of internet users in Ethiopia [3]. However, as far as the researcher's knowledge is concerned, there is no any study that examined the relationship between internet addiction and PWB among university students in the Ethiopian context. Therefore, conducting such studies is important mainly for two reasons.

The first is that existing studies found inconsistent results and this calls for the need to study more on the area. The second is that there are no studies conducted in the Ethiopian context despite the increasing number of internet users.

Motivated intrinsically, this research undertaking is also a result of the researcher's interest and curiosity. As one who spent a good number of years in the city of Addis Ababa studying and working, the researcher has observed a lot of people particularly university students spending a great deal of time on the internet and as a counseling psychology student wondered whether this internet use can be changed into addictive instrument and, in turn, whether this addiction has something to do with PWB. Hence, the researcher believed that the area is worth studying and the study became a reality.

Thus, the main focus of this study was to examine the relationship between internet addiction and PWB among main campus students at Addis Ababa University.

Methodology and Procedures

Research Design

This study aimed to examine the relationship between internet addiction and psychological well-being. To this end, the study employed a mixture of correlational and cross sectional research design. Correlational research design helps to measure two variables and assess the relationship between them.

Participants

All first, second and third year regular undergraduate students on the main campus of Addis Ababa University were the target population of the study.

Fourth and fifth year students were not included in the study as they were few in number. The main reason for targeting university students is that they are believed to have better access to the internet and can provide sufficient data well enough to conduct the study.

There is no "golden" rule to determine sample size. However this may be, determining sample size is an inevitable decision to make in any research undertaking. To select appropriate number of sample, the researcher used *Krejice and Morgan's* sample size determination formula which is indicated below.

$$S = X^2\,NP\,(1-P) \div d^2\,(N-1) + X^2\,P\,(1-P)$$

Where,

S = required sample size

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (1.96 x 1.96)

N = the population size (3762, in this study);

P = the population proportion (assumed to be .50 to secure maximum sample size) and d = the degree of accuracy expressed as a proportion (0.5).

Using this formula, the equivalent sample size for the population N=3762 is 349. For contingency inputs, the researcher randomly selected additional 35 samples; hence, 384 undergraduate students were the sample for the study.

As can be clearly seen from Table 1 above, there were a total of 3762 first, second and third year regular undergraduate students studying under the three colleges on the main campus. Out of the total number of students, 1429 (38.2%) of them were first year students; while 1214 (32.2%) of them were in their second year. The remaining 1119 (29.6 %) of them were third year students.

About 8 % of students from each year level were included in the study. Based on this, 116 students from first year, 98 from second year and 90 from third year students were selected.

Sampling Techniques

According to data from AAU Registrar Office, there were a total of 3762 regular students enrolled in the undergraduate program on the main campus. The selection process of participants from the aforementioned colleges involved multistage sampling. Firstly, three colleges were randomly selected. From these three colleges it was decided to select manageable number of departments proportionally. It was also decided that students in each year level had proportional representation. Having cleared these concerns, stratified sampling was employed to select participants. Given the heterogeneous nature of the students, stratification was based on sex, department and year level. To select actual participants from each sex, department and year level, simple random sampling technique was employed.

Table 1. Target population and sample size based on year level.

Year level	Target population	Sample size
Year I	1429	116
Year II	1214	98
Year III	1119	90
Total	3762	304

Table 2. Selected sample sistribution.

		Year level						
		Year I		Year II		Year III		
College	Departments	M	F	M	F	M	F	Total
College of Law and Governance Studies	Law	-	-	4	8	5	7	24
	PSIR*	-	-	5	7	4	7	23
College of Social Sciences	Sociology	-	-	5	8	6	4	23
	Anthropology	-	-	7	5	6	5	23
	Management	-	-	7	5	7	4	23
College of Business and Economics	PADM**	-	-	11	2	8	3	24
	Economics	-	-	8	12	7	12	24
	BAIS***	-	-	6	12	9	12	24
	Total	62	54	50	48	44	46	304

* Political Science and International Relations; ** Public Administration and Development management; *** Business Administration and Information System

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Table 2 shows total number of sample student participants based on department and year level. From each department almost equal number of students was selected. Departments from each college were randomly selected except Law. It is the only school that enrolls undergraduate students in the college; hence participants from the school were randomly selected.

Data Collection Methods

Quantitative data were collected using a questionnaire containing three parts. The first part of the questionnaire contained questions that helped to collect data related to demographic characteristics of participants. The second part contained a scale designed by Young [25] that measures excessive Internet addiction of students. The final part of the questionnaire was a scale developed Ryff [26] to measure PWB of university students.

Socio-demographic Characteristics Questionnaire

To get data related to participants' socio-demographic characteristics (sex, age, field of study and year level), questions were specifically designed by the researcher. In addition to items on socio-demographic information, questions regarding purpose of internet use and amount of time spend online were included.

Internet Addiction Test

This second part of the questionnaire measured students' use of the internet. Designed by Young [25], the scale consists of 20 items measuring compulsive internet use associated characteristics and behaviors like dependency, escapism and compulsivity. Items in the scale also assess personal, occupational and social functioning related problems resulting from making use of the internet. Rated on a 5-point scale, respondents are expected to self-rate against each item on scale points that range from a minimum of 1 to a maximum of 5; '1' indicating lower and '5' indicating higher level of internet overuse. Items assess internet overuse ranging from normal to moderate to severe addiction.

The scale is self-administered and usually takes 5-10 minutes to complete. When administered orally, it may take more than 10 minutes. The Internet Addiction Test total score is the sum of the ratings given by the respondent for the 20 item responses. Each item is rated on a 5-point scale ranging from 1 to 5. Scores in each item are added with total scores theoretically ranging from minimum of 20 points to a maximum of 100 points. Higher scores in the scale represent higher level of severity of internet compulsivity and addiction. Sum scores that range from 20 to 49 indicate the presence of a normal level of internet consumption; scores of 50 to 69 points are considered to reflect problems in internet use; 70 to 100 reflect the presence of a severity of internet compulsivity and addiction [27].

Being the most widely used internet addiction scale globally, this test has been able to get acceptance in several countries and translated into many languages mainly English, Chinese, French, Italian, Turkish and Korean [28]. Studies show that Internet Addiction Test has sound psychometric properties. It is a reliable and valid measure of pathological internet use. A recent study in Thailand by Neelapaijit et al. [29] reported a good internal consistency with alpha value of .89. Another study conducted in Lebanon in the same year reported even higher internal consistency raising the coefficient alpha to .91 [30]. Furthermore, a local study conducted very recently reported alpha value of 0.93 [8].

Psychological Wellbeing Scale

The last part of the questionnaire included a scale that measures students' PWB. Developed based on the theory of positive functioning, Ryff [26] identified six dimensions of the scale. These include autonomy (measures self-determination, independence, and the regulation of behavior from within), environmental mastery (measures the ability to choose or create environments suitable to one's strengths so defined as a characteristic of mental health), personal growth (measures desire for continual development of one's potential, to grow and expand as a person), positive relations with others (measures sense of warm, trusting, loving, and interpersonal relationships), purpose in life (measures a sense of directedness, and intentionality) and self-acceptance (measures positive attitude towards oneself).

The scale currently exists in different versions or forms. For each of the six dimensions of wellbeing, the original and the longest version contain 20 items; hence a total of 120 items. The dimensions in the subsequent versions of the scale contain 14 items (a total of 84 items), 9 items (a total of 54 items), 7 items (a total of 42 items) and 3 items (a total of 18 items [31]. In this particular study, the last and shortest version of the scale was used. Basically, there were two reasons that explained why this is so. The first one relates to time and cost restrictions. The second one relates to previous study reporting comparable psychometric properties of the shortest scale (18 items) to even

the longest (120 items) version of the scale [32].

Out of the total number of items, 8 of them are negatively phrased. Participants are supposed to self-rate against each item on six scale points that range from a minimum of 1 to a maximum of 6. For positively phrased items, '1' indicates lower and '6' indicates higher psychological well-being. To the contrary, for negatively phrased items, '1' indicates higher and '6' indicates lower psychological wellbeing. Once the negatively phrased items are reverse coded, scores are added together. Since PWB is a continuous variable, scores are categorized in dichotomy (below and above hypothesized mean).

For each dimension, high scores reveal respondent's mastery of that area in life. Conversely, low scores reflect respondent's little mastery of that particular concept in life. Generally, scores above the hypothesized mean in the scale indicate high psychological wellbeing while sores below the hypothesized mean indicate lower psychological wellbeing.

Psychometric studies indicate that Ryff's Psychological Wellbeing Scale is a valid and reliable measuring instrument. Studies show the internal consistency of the scale to be good. Example, one study reported a coefficient alpha of 0.91 (Lin, 2015) while another reported even higher alpha value (0.96) [33]. Avery recent local study conducted among college students in Mekelle employing the shortest version reported alpha value of.87 [34].

Pilot Study

The original scales are prepared in English which need to be translated into local language (Amharic) for ease of understanding. The translation was of two types: forward and backward. A subject matter expert (counseling psychologist) along with the researcher translated the scales into Amharic. Then a language expert fluent in English and Amharic languages translated the Amharic version back into English. Based on feedbacks, differences in translation were corrected accordingly.

Following translation, pilot study was conducted on a randomly selected 30 students at Addis Ababa University (School of Commerce). The rationale behind conducting pilot study is to test the practicality of the instruments and to have a quality and reliable measure to address the research questions properly. To this end, confusing alternatives in some items were modified. To ensure the consistency of the instruments of the study (internal consistency), Cronbach's alpha was computed. Reliability analysis showed that Internet Addiction Test and Psychological Wellbeing Scale had adequate internal consistency with alpha value of .91 and .80 respectively. Hence, no item from either of the instruments was discarded as they had high and acceptable alpha values.

Another point of focus was validity of the measures. Special emphasis was given to examining the content validity (whether items in the scale are representative of the construct in question). Since there is no any statistical method to ensure this, professionals in the field were consulted. Finally, the researcher was able to secure reliable and valid instruments for the main study.

Data Collection Procedure

The data collection procedure generally took a lengthy process. The researcher first secured a letter requesting possible collaboration in the data gathering process. Given the outbreak of COVID-19 pandemic, which has suddenly changed normal life, meeting study participants in person appeared to be out of reach. The researcher, therefore, used other mechanisms-online and via telephone calls-to collect data.

In doing so, contact information (telephone number) of students of selected departments on the main campus was obtained from Office of the Registrar, Addis Ababa University. Before getting students' private information, the researcher, along with School of Psychology and Office of the Registrar, signed a Memorandum of Understanding which stated that the researcher use students' private information to collect data only.

Prior to starting collecting data, the researcher introduced himself, indicated why and from where their address was obtained, and gave a brief orientation regarding the purpose of the questionnaire. Confidentiality issues were also discussed. Having done all these and their willingness assured, students were asked to choose their preferred way of providing data i.e. through Telegram or having read the questions on the phone. Depending on their choice, the researcher either sent a link containing the questionnaire to their Telegram address or read the same items in the questionnaire on the phone. Those who provided data through Telegram, responses were automatically recorded and accessed by the researcher. Hard copied questionnaires were prepared and read for those who had no Telegram account, those who didn't have internet access, those who had no smart phones to use Telegram, and those who just wanted to provide data orally. Data collection started 21st July, 2020 and

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ended September 7, 2020. Data analysis and writing up of the paper followed thereafter.

Methods of Data Analysis

Descriptive and inferential statistical methods were used to analyze data. Attempt was made to describe research participants' demographic information by employing descriptive statistics (frequency counts and percentage values). Besides, mean and standard deviation were calculated for demographic variables that are continuous.

Findings

Demographic Characteristics of Participants

From a total of 384 sample proposed initially, the researcher was able to secure 304 participants (87.1 % of the total sample proposed initially) due to several reasons. These included unwillingness to participate in the study, network problem, misunderstanding about the purpose of the study, language problems, and not responding to telephone calls. The number 304 was considered a representative sample of the total population 3762. As can be seen from Table 3 above, a little more than half (51.3%) of the participants were males. Females make up the remaining 48.7% of the participants. The participants' age ranged from 18 to 26 years with mean age of 20.76 years (SD = 1.42). In terms of year level, attempt was made to randomly select participants proportionally. Out of the total respondents, 38.2% of them were fresh entries. Second and third year students make up 32.2 % and 29.6 % of the total participants respectively.

College wise, participants were drawn from three colleges: College of Law and Governance Studies, College of Social Sciences and college of Business and Economics. The least number of participants were from Law (7.9%). Majority (31.3%) of the respondents were students of College of Business and Economics while the remaining 22.8% of participants were College of Social Sciences Students. First year students were not assigned into their respective departments. Hence, they were treated as a single entity in the Table 3.

The Table 3 further shows that, on average, 35.5% of the participants spent more than two and up to four hours per day. In a comparable manner, 35.5% of the respondents reported that they stay online up to two hours per day. Those who stay online more than four hours and up to six hours make up 18.8 % of the participants while the remaining 10.2% reportedly stay online for more than six hours per day. Finally, it was found that students use internet for education and related purposes (36.2%), entertainment (28.6%), networking (29.6%) and for news (5.6%).

Prevalence of Internet Addiction Among Students

Table 4 shows the overwhelming majority (71.7%) of respondents were "normal" internet users indicating greater control over internet use. The remaining 24.3 % and 3.9% of participants reported "moderate" and "severe" level of internet addiction respectively reflecting problems in internet use.

Group Difference in Internet Addiction

To examine group differences in the level of internet addiction, analysis of demographic characteristics was conducted. These factors included gender, year level, purpose of internet use and average time spent online with internet addiction being a dependent variable. Inferential statistical procedures (Independent Samples T Test and One Way ANOVA) were used to detect group differences in internet addiction.

From Table 5 below one can understand that there is a slight variation in the mean scores between male (mean= 40.47, SD = 14.67) and female participants (mean = 41.66, SD = 14).However, this difference was not statistically significant (t (302) = .72, p = .47).

Table 5 above shows the mean scores of participants in each year level. Slight differences were observed in the mean scores. One way-ANOVA showed no statistically significant difference among the groups, Welch's F (2, 199.41) = 2.27, p >.05. Students in the different year levels do not differ in their levels of internet addiction.

Students were asked for what purpose they use the internet most often. As can be seen from Table 5 above, purpose of internet use included education, entertainment, communication or networking and news. One Way ANOVA was run to see if a statistical difference exists in internet addiction. Results revealed that a statistical significant difference existed at least in one of the groups, F (3.300) = 11.56, p = 0.0.

To exactly identify the group(s) that has such differences, post hoc (posteriori) tests was conducted. Since the assumption of homogeneity of variances was violated, Games- Howell test was used. Post hoc multiple comparison (see Appendix C) revealed that four out of the six groups had significant differences. Internet addiction level for those who used the internet for entertainment (mean =45.68, SD = 14.7) and networking purposes (mean =44.19, SD = 14.41) were significantly different from those who use the internet for education and research purposes (mean = 35.59, SD = 12.72) and news purpose (mean = 36.06, SD = 8.44). This reflects problematic use of the internet by those who used it for entertainment (communication) and for socializing with others.

Table 5 above also shows that as time spent online increases so does mean score for internet addiction. For example, those who spent 2 hours and below online had a mean score of 31.28 (SD = 9.74) while those who went online over six hours per day had a mean score of 54.58 (SD=10.92). Analysis of One Way ANOVA revealed a statistically significant difference in the level of internet addiction as the p-value was quite smaller than the alpha value of .05, F(3,300) = 44.4, p <.05.

Table 3. Summary of demographic characteristics of participants (N= 304).

Variable	Category	Frequency (%)
Sex	Male	156(51.3)
	Female	148(48.7)
Age	Mean (20.76)	SD (1.42)
	Fresh entry*	116 (38.2)
College of study	Law	24(7.9)
	Business and Economics	95 (31.3)
	Social Sciences	69 (22.8)
Year level	Year I	116 (38.2)
	Year II	98 (32.2)
	Year III	90 (29.6)
Average time spent online per day	≤2 hours	108(35.5)
	>2-4 hours	108(35.5)
	>4-6 hours	57 (18.8)
	Over 6 hours	31 (10.2)

Note: *First year students were not assigned into their respective departments

Table 4. Students' level of internet addiction.

Internet Addiction Classification	Frequency	Percent
Normal	218	71.7
Moderate	74	24.3
Severe	12	3.9
Total	304	100

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Table 5. Group differences in internet addiction.

Variable	Category	N	Mean	SD	Sig.
Gender	Male	156	40.47	14.67	
	Female	148	41.66	14	0.47
Year level	Year I	116	42.81	16.48	
	Year II	98	41.26	12.5	0.11
	Year III	90	38.56	13	
Purpose of internet use	Education or research	110	35.59	12.72	
	Entertainment	87	45.68	12.72	0.00
	Social networking	90	44.19	14.41	
	News	17	36.06	8.44	
Average time spent online	≤2 hours	108	31.28	9.74	
	> 2 and up to 4 hours	108	43.40	13.18	
	> 4 and up to 6 hours	57	47.75	13.89	0.00
	Over 6 hours	31	54.58	10.92	

To detect which mean scores were different from which other mean scores post hoc test was conducted. Post hoc comparison test (see Appendix D) revealed that there was a statistically significant difference in the level of internet addiction between those who spent 2 hours and below and those who spent more than 2 hours and up to four hours online, four hours and up to six hours and those who spent over six hours online. Similarly, a statistically significant difference was observed between those who went online over two and up to four hours and those who spent over six hours online. It can, therefore, be said that those who spent two hours and less and those who spent over six hours online per day are the least and the most addicts respectively.

Students' Psychological Wellbeing Status

Examining psychological wellbeing status of students was another objective of the present study. Descriptive statistics (frequency counts and percentage values) was used to meet this objective. Furthermore, respecting the continuous nature of the variable, hypothesized mean (mean split or expected mean) was used to examine students' status of psychological wellbeing. Hence, scores below and above the expected mean indicate lower and higher status of psychological wellbeing respectively.

As clearly indicated in Table 6, students' minimum and maximum scores for PWB were 51 and 105 respectively with a mean score of 80 (SD = 9.39). This average score is higher than the expected mean reflecting students' higher status of PWB. The standard deviation score indicates a reasonable variation in PWB scores among students. Furthermore, close to 10% of students scored lower in PWB while the overwhelming majority (90.1%) of them scored higher in PWB. This implies majority of the participants were in a position to recognize and realize their potential, make meaningful engagement of personal lives, exercise autonomy, accept their past and present situations, and have good psychological health.

Group Differences in Psychological Wellbeing

To examine group differences in the different scores of PWB, analysis of demographic characteristics was conducted. These factors included gender, year level, purpose of internet use and average time spent online with PWB being a dependent variable. Inferential statistical procedures (Independent Samples T Test and One Way ANOVA) were used to detect group differences in PWB after checking the assumptions.

Form Table 7 above, it is clear that the mean PWB scores for males is 80.23 (SD = 9.6) and 79.74 (SD= 9.2) for females. Independent Samples T test revealed that the mean PWB scores for males and females appeared to show no statistically significant difference, t (302) = 0.45, p = 0.65.

Regarding year level, One Way ANOVA showed that there was statistically significant mean difference in scores of PWB among first year (mean = 80.04, SD = 7.9), second year (mean = 77.73, SD = 10.43) and third year students (mean = 81.1, SD = 9.64), F (2, 301) = 4.27, p = 0.02).

Tukey's Honestly Significant Difference (HSD) multiple comparison test (see Appendix E) revealed that second year students' mean score (77.73) was statistically and significantly different from both first (81.04) and third year students (81.1).

As is the case in the Table 7 above, mean PWB score for those who use the internet for education or research purposes is 81.88 (SD = 8.03). Mean scores of those who use the internet for social networking (mean = 78.89, SD = 10.1)

and entertainment (mean = 78.33, SD = 9.02) appears to be relatively similar. Those who use the internet to get updated information had a mean score of 82.12 (SD = 12.57).

Analysis of Welch ANOVA indicated significant mean difference at least in one of the groups, F (3, 67.3) = 3.37, p = .02. In identifying which mean scores were different from which other means, Games-Howell test of post hoc comparison (see Appendix F) was used. The result revealed that the mean difference for those who use the internet for educational and entertainment purpose was statistically significant reflecting better psychological health for the former. The mean difference for the other groups was not statistically significant.

Descriptive statistical procedures showed that mean scores of PWB of students differ based on average time spent online. Table 7 above also clearly shows that for university students as online time increases, PWB mean scores decrease. For example, the mean score for those who spent two hours and below online was 82.02 (SD = 8) compared to the mean score of those who spent more than six hours online (mean= 74.94, SD= 11.47). Further One Way ANOVA analysis also revealed that the p − value was smaller than the alpha value (.05) which indicates the mean scores of at least one of the group pairs were statistically significant, F (3, 300) = 5.07, p = 0.002.

To identify which mean scores are different from which other means, post hoc comparison specifically Tukey's HSD post hoc multiple comparison test (see Appendix G) was conducted. Results showed that the mean score of those who access the internet for two hours and below per day was significantly different from those who access the internet for more than six hours per day. In other words, those who went online for two hours and below were in a relatively better state of psychological health than those who went online for more than six hours per day.

The Relationship between Internet Addiction and Psychological Wellbeing

Pearson product moment correlation showed that internet addiction and PWB had a statistically significant negative relationship, r (304, 304) = -0.4, p = 0.00. In other words, as internet addiction increases, PWB decreases and vice versa.

Multiple regression analysis was run to identify the predicting power of internet addiction and demographic variables on the dependent variable PWB. Factors included as predictors were internet addiction, age, sex, years stayed in university, purpose of internet use and average time spent online. The variance explained by joint and each predictor variable on the outcome variable (PWB) was examined. Prior to running the regression analysis, assumptions of normality of residuals, homoscedasticity (equal distributions of residuals)and the absence of multi collinearity were first checked using appropriate statistical procedures. Hence, normal P-P plot indicated the presence of approximate normal distribution of the data for the dependent variable (see Appendix I). The existence of linear relationship was also evidenced by scatter plot (see Appendix H). Moreover, the absence of multi collinearity was assured by the presence of less than 10 (ranged from 1.2 to 1.5) Variance Inflation Factor (VIF) values.

The value (.41) in the R column of Table 8 tells that there was a moderate relationship between the outcome variable (PWB) and all the independent variables combined suggesting a good predicting ability of the model. Moreover, the value in the R-squared column indicates the model (socio

Table 6. Descriptive statistics and students overall status of PWB.

Variable	Minimum	Maximum	Mean	SD	Low (%)	High (%)
PWB	51	105	80	9.39	9.9	90.1

Table 7. Group difference in PWB.

Variable	Category	Mean	SD	Sig.
Sex	Male	80.23	9.6	
	Female	79.74	9.2	0.65
Year level	Year I	81.04	7.9	
	Year II	77.73	10.43	0.02*
	Year III	81.10	9.64	
Purpose of internet use	Education or research	81.88	8.03	
	Entertainment	78.33	9.20	
	Networking	78.89	12.57	0.03*
	News	82.12	12.57	
Average time spent online	≤2 hours	82.02	8	
	> 2 and up to 4 hours	79.93	79.93	
	>4 and up to 6 hours	79.04	8.94	0.00*
	over 6 hours	74.94	11.47	

*The mean difference is significant at.05 level (two tailed); **Note:** Higher scores indicate high level of PWB

Table 8. Predicting power of the model.

R	R-squared	Adjusted R-squared	Sig.
0.41[a]	0.164	0.147	0.00[b]

Table 9. The contribution of independent variables to PWB.

Independent variable	β	Adjusted R2	Sig.
Age	-0.1	–	0.82
Sex	-0.62	–	0.38
Year level	-0.08	–	0.94
Purpose of internet use	-0.19	–	**0.73**
Average time spent online	-0.09	–	**0.71**
Internet addiction	-0.26	0.147	0.000

demographic variables and internet addiction combined) explained 16.4% of the variance in the outcome variable. To test whether the model significantly predicts the outcome variable, Analysis of Variance was conducted. As can be seen in the Table 8, the significance value was less than the alpha value of 0.05. It can therefore be said that the outcome variable was significantly predicted by the regression model, $F_{(6, 297)} = 9.71$, p = 0.00.

From Table 9, one can understand that predictor variables like age (p = 0.82), sex (p = 0.38), year level (p =0.94), purpose of internet use (p = .73), average time spent online (p = 0.71) did not significantly contribute to the model. The table further illustrates the only variable that contributed significantly to the model was internet addiction (p = .00). This variable alone was responsible for some 15% of the variance in PWB. This means a one-unit increase in PWB was associated with .26 points decrease in internet addiction.

Discussion

Prevalence of Internet Addiction among University Students

According to Young [25], level of internet addiction is classified in to three: no problem with internet use, frequent problem with internet use and significant problem with internet use. Results of the current study showed that majority (71.8%) of the student participants were normal internet users meaning they do not make problematic use of the internet. This finding is supported by Use and Gratification theory of internet addiction. According to this theory, consumers are rational beings that actively and purposively seek information while being aware of the content [35].

While 24.3 % of the students reported frequent problems with internet use, the remaining 3.9 % of them indicated significant problems with internet use. Hence, the prevalence of internet addiction among university students was 28.2%. The internet addiction prevalence rate in this finding seems to be similar with a previous finding conducted in Ethiopia where close to one- third of the participants were reported as being addicts [19]. This may be due to employment of similar instruments and the similarity of the setting.

Contradicting the current finding, studies conducted abroad reported a much lower prevalence rate of internet addiction. For example, Smita & Azhar [21]

put the prevalence rate of internet addiction among university students in Mauritious at 5.1%. Even more, a much lower prevalence rate (3.9%) was reported from Italy (Bruno & et al., 2014). The relatively higher prevalence rate of internet addiction in the current study may be due to lack of recreational facilities that makes students spend a great deal of time on the internet. More importantly, data were collected in time of COVID 19 pandemic. This global crisis has restricted social gatherings, limited face-to-face interactions with others and fueled uncertainty, pushing students to spend more time online than usual.

Differences in Internet Addiction Due to Demographic Characteristics

The present study revealed no difference in internet addiction between male and female participants. Similar previous findings were obtained in a couple of countries. Dai [20] and Smita &Azhar [21] conducted similar studies in China and Mauritious respectively with results revealing no significant difference between males and females in internet addiction.

In strict contradiction with the current study, some previous studies indicate significant difference in internet addiction between male and female participants. To begin with, a study conducted at Addis Ababa University revealed that compared to males, females make problematic use of the internet [19]. The same finding was also observed in neighboring Kenya [24]. Still other studies revealed findings arguing males are more vulnerable to problematic internet use than females [17,18,36]. The differences in the findings could be attributed to the instruments used, sample size, methods of data collection and the time when data was collected.

Majority of the student participants in the different year levels had control over their internet use. Statistical procedures showed internet addiction mean scores didn't significantly differ among first, second and third year students. Similar and contradicting findings were observed in previous studies. The findings of the present study contradict with previous findings of one local study. In this study, students' level of internet addiction was found to increase with years stayed in university [8]. According to this study, compared to second year students, first year were less vulnerable to internet addiction.

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The same is true with second and third year students. A study conducted outside of Ethiopia indicated a slightly different finding. Compared to second year students, first and third year students were more addicted to the internet [20]. However, the finding of the present study was consistent with a previous study conducted among Addis Ababa University students. No significance difference in internet addiction was observed based on years stay in university [19].

The similarities and differences in the present and previous findings may depend on a number of factors including the instruments used to collect data, sample size and the setting where and when the study was conducted.

Students used the internet for many purposes. These included for education and/or research related purposes, to get connected with others, for entertainment purposes and to get updated information. Majority of the students used the internet for educational and networking purposes and significant variation among the groups did exist in internet addiction. The present study revealed that students who use the internet for entertainment and communication (social networking) purposes tend to be more vulnerable to internet addiction than those who make use of the internet for education and getting latest information. The finding is comparable with a local study which indicated that compared to students who use the internet for academic purposes, those who use the internet for non-academic purposes (e.g. social networking) were more vulnerable to internet addiction [8]. This could be because going online to study or conduct researches may be more satisfying than spending time online for entertainment or networking.

Looking at the average time students spent online, vast majority of the students spent four hours and below online. In the current study, it was found out that internet addiction among university students increase as online time increases. For instance, compared to those who have gone online for two hours and below every day those who went online for six hours and above were more addicted to the internet. This finding is consistent with studies by Akhter and Khalek [37] who reported that students who make excessive use of the internet are more likely to make problematic internet use and Al-Muqrin et al. [38] who found out that internet addiction increases with online time.

Psychological Wellbeing of University Students

As one of the main objectives of this particular study, the PWB of university students was examined using appropriate statistical procedures. Findings have shown that a sizable majority of university students had higher PWB. More specifically, students were found to have positive relations with others, strive to grow as a person, and had purpose in life. They were also in a position to realize their potential while positively accepting their present and past life.

Similar findings have been documented in a number of studies conducted in other nations as well as in Ethiopia. For example, majority of Ilia state university students in Georgia were found to be better off psychologically. Recently conducted study among Malaysian university students also evidenced higher PWB [39]. Yikerbelegn [40] who assessed the PWB of Addis Ababa University students in Ethiopia reported that the vast majority of students were found to have high PWB.

The presence of similar PWB status among university students might be possibly because students usually come from different backgrounds but with the same aim. This may have provided them with the opportunity to understand and appreciate their differences while sticking to their aim. Studying and doing assignments together may promote positive relations among them. Moreover, being a university student can encouraging to strive to grow as people and can be helpful in realizing students' potential. All these may positively contribute for students' higher status of PWB.

Psychological Wellbeing Differences Due to Demographic Characteristics

The present study revealed that males and females do not significantly differ in their status of PWB. Higher PWB scores were observed in both sexes. Prior studies supporting and contradicting the findings of the current study are enormous. To begin with, a study conducted by Waghmare [41] revealed no significant PWB mean score difference between male and female university students. Salleh & Mustafa [42] also reported similar findings.

There are also studies with contradicting findings with the present study both locally as well as abroad. (2015) A study conducted in Turkey revealed higher PWB among males than females. However, a local study by Belay & Gerum [33] showed that female university students' PWB was lower than their male counterparts. Sample size, instruments of data collection, scoring methods and cultural variations may have contributed for the existence of different findings.

Regarding number of years students stayed in university, first, second and third year students' PWB appeared to be high. But when looked specifically, first year students had higher status of PWB than second year students. Similarly, third year students had higher level of PWB compared to second year students. This finding is inconsistent with a local study conducted by Belay & Gerum [33]. Their study revealed no significant difference among university students in the different year levels. The existence of contradicting results may be due to sample size, sampling techniques, the time when data were collected.

In general, university students purpose of the internet use can be classified in two four: academic purpose, networking, entertainment and news. The findings of the present study showed that accessing the internet for academic purposes was associated with higher PWB. This could be because spending time for educational purpose may provide a sense of accomplishment, indicate purpose in life, and helps to realize one's potential and grow as a person. The researcher couldn't find any such previous study to compare with.

Time wise, mean scores of PWB decrease as online time increases. The findings of the present showed that for university students, the PWB status of those who spend much time online was significantly different from those who spend online little time. Indeed, those who spent more than six hours a day online had lower status of PWB than those who spent two hours and below. No previous study was found to support or contradict this study.

The Relationship between Internet Addiction and Psychological Wellbeing

Pearson product moment correlation showed that internet addiction and PWB had a statistically significant inverse relationship. This means as internet addiction increases, PWB decreases and vice versa. Furthermore, multiple regression analyses showed that internet addiction was associated significantly and negatively with PWB indicating internet addiction as a risk factor for lower PWB. As to the researcher's knowledge, no local study addressed this issue. Consistent with findings of the present study, previous studies conducted abroad [43-46] found that internet addiction and PWB have negative relationship. These studies reported that students with lower levels of internet addiction are more likely to be higher in PWB. The presence of inverse relation between internet addiction and PWB in the current study may be attributed to a number of factors. For instance, students with internet addiction may tend to make unwise use of their time, which prevents them from realizing their potential and grow as person. In addition, students who make problematic use of the internet may reflect no purpose and direction in their life; hence low PWB. Similarly, students with low PWB may spend more online time. For example, those who have no purpose and meaning in life, those who don't accept themselves and those who have less environmental mastery may spend more online time aimlessly resulting in uncontrolled (and problematic) use of the internet.

Conclusion

Problematic internet use is a growing concern among main campus students at Addis Ababa University students. This implies a sizable number of university student's exhibit frequent and severe problems involving excessive or poorly controlled preoccupations, urges and behaviors associated with internet use.

Male and female students do not differ in their level of internet addiction, which implies that being male or female has nothing to do with internet addiction. Similarly, students' level of internet addiction does not depend on their batch (year level). Compared to students who use the internet for entertainment and networking purposes, students who use the internet for academic related works are less likely to make addictive use of the internet. This implies students who access the internet for educational and research related purposes make wise and more controlled use of the internet. Longer online time is associated with high level of internet addiction. This means too much online time implies problematic use of the internet.

Majority of main campus students at Addis Ababa University have high PWB status. This indicates majority of the students strive to realize their potential and grow as a person, make good mastery of their environment, accept their past and present life situations, engage positively with others, have purpose in life and internally regulate their behavior.

Male and female students do not significantly differ in their status of PWB. This implies realizing one's potential, accepting oneself, having purpose in life, and being independent are not associated with whether someone is male or female. Second year students have lower status of PWB compared to first and third year students. This indicates second year students to be less capable of growing as a person and realizing their potential, have little mastery of their environment, lead life with no sound purpose, experience difficulty making decisions independently and have little acceptance of their present and past lives. Accessing the internet for academic related works is associated with better psychological health. Online time is associated with students' status of PWB. Too

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much online time may indicate little purpose in life, poor relationship with others, little mastery of the environment and difficulty living life to the fullest.

Students' internet addiction level and PWB status are negatively correlated. This implies students who make problematic use of the internet are less likely to accept their lives, incapable of striving to grow as person and realize their potential. In addition, students who make uncontrolled use of the internet are more likely to lead life with little meaning and purpose, less likely to build positive and satisfying relations with family members, friends, and the community in which the live, and experience difficulty making autonomous decisions. Moreover, it can be concluded that internet addiction is a significant risk factor for PWB.

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