Effect of Technology Addiction on Life Style among Adolescent

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Abstract

Aim: This study aimed to assess the impact of an educational program on nurses' knowledge and performance regarding nursing care of children with WT. **Setting:** This study was conducted at the outpatient and inpatient of pediatric oncology departments in Children Cancer Hospital (57357). **This study sample** is convenient, involved all the available (60) staff nurses giving nursing care for about 70 children suffering from WT. **Tools** of data collection included a structured interviewing questionnaire and Observational checklists sheets for assessing nurses' knowledge and performance (pre-posttest and follow up). The findings of the present study revealed that, the impact of the educational program on nurses' knowledge and performance about care of children with WT the result **concluded** that there was a positive correlation between nurses' knowledge and performance regarding WT after the educational program implementation. The result **recommended** that newly appointed nurses who are working at oncology unit must have an orientation program prior to care of children with Wilms' tumor, periodical continuous on job-training programs for oncology nurses to update and refresh their knowledge and performance about care of children with Wilms' tumor, regular clinical sessions to monitor the nursing performance at 57357 hospital will reinforce and improve the skills regarding to care of children with Wilms' tumor and further studies and replication of this study in other oncology units.

Key words: Adolescents, lifestyle, Technology addiction, Community health nurse

Introduction

Adolescents constitute an important group that needs special care, it begins at the age from9-19 years, according to world health organization, also adolescent stage consider the critical transitions in the life span and is characterized by a tremendous pace in growth and change such as behavioral, intellectual and social. Therefore, they have many risk factors and also the adolescents arethe continuous escape from real life into virtual space is often associated with serious problems in daily life. For this reasons addiction is considered a common problem in this age (**Davey, 2012**).

Technology addiction is a broad concept and become a big problem in the present generation. Recently technology addiction, dealing as a pathological using and many clinics around the world were open for treating this problem especially in Asia. The factor leads to pathologic using

of technology among adolescent are: they have less ability to control their enthusiasm for something that awakens their interests, such as internet or computer games **(Wang, 2009).**

Addiction to technology is a habitual compulsion to engage in using technology instead of using it to address life's problems. Adolescent are using of technology as a coping mechanism to avoid conflict, but long-term compulsions can effect in all health aspects, (physical, social, psychological... etc.). addiction to technology lead to many problems such as sleep disorders, academic, athletic, social performance problems, weight gain, poor diet and sedentary lifestyle diseases such as cardiovascular disease, diabetes and… etc. Also unable to distinguish between the lived and the alternate realities that produce instant stimulation, disrupt normal patterns of mood in adolescence, depression, insomnia, irritability, frustration, anxiety, difficulty concentrating and restlessness symptoms of withdrawal can be happened **(Young, 2011).**

Lifestyle is a very subjective concept and it can be defined as; the perception of the individuals for their own position in life in the context of culture and value systems of the country where they live in relation to their goals, expectations, standards, and concerns. All aspects of life style affected by technology addiction in both work and leisure behavior. Technology addiction as an addictive behavior cause unhealthy lifestyle and impairment to personalities, especially amongst the adolescents (**Kahel, 2011).**

Preventing adolescence's addiction to technology means finding a balance within adolescents' lives, adults can help in explaining to adolescents how promotion a healthy relationship with technology. There are plenty of easy steps can be taken to prevent technology usage from becoming addicted such as: unplug for 30 minutes, taking some time out, focus on the people around and keep a healthy balance. In reality, using technology is not spoiled, but it is important to stress to balance it with other parts of life **(Wilson, 2005).**

Nursing actions should be based on, a process that offers space for dialogue, both with the group and nurses as educators for self-care**.** Nurses' role continually interacts with clients who identify tech- addiction related problems as either their primary reason for seeking mental health services or a secondary problem to other issues, such as anxiety, depression or family discord. Nursing assessment should include instruments to assess technology addiction disorders. The implications for psychiatric mental health nurses are broad and challenging. Therefore, nurse educators need to add process of technology addictions such as internet addiction to nursing curricula and continuing education on the topic is needed **(Qidwai, 2010).**

Significance of the study**:**-

Worldwide, technology addiction becomes a major source of worried. It is more prevalent in developed countries also has significant presence in young age. The highest rate of using technology around the world is among age's 16-19years (15.9%).The next highest rate is ages between 13 -15years (15%). In Egypt, addicted to social media one of the major problems that affect more than 14 million of Egyptians cannot stop posting, chatting and liking everything in sight. The largest age group for Facebook usage is currently 18-24years, followed by the users at the age of 25-34. In summation, both genders are logging on for their social media fix as 64% male users and 36% female users **(Egypt Addicted to Social Media - Cairo Scene, 2014).**

Aim of the study:

The aim of the current study is to assess effect of technology addiction on adolescence lifestyle:

Research questions:-

To achieve the aim of this study the following research questions were formulated:

1- Is there a relation between the student's personal characteristics and technology addiction?

2- What is the adolescent's knowledge about technology addiction?

3- What is the relation between students practice toward technology devices, purpose and technology addiction?

4- What is the relation between technology addiction phenomena in adolescents and their lifestyle affecting?

Subjects and methods

Research design

A descriptive, analytical research design was used to achieve the desired aim of the study.

Setting:

The study was conducted in three (3) preparatory schools (25January, Mohamed mutually shareware and Bilal bin Rabah)). The previous settings were selected by simple random sample and it was represent 20% from total 15 preparatory schools at Benha city.

Sampling:

Random sample was used to select the study sample. The total sample were included 181 preparatory school age students in Benha city, they were selected as multi-stage random technique done using three stages, 1st stage: - (3) schools were selected randomly (25january, Mohamed mutually shareware and Bilal bin Rabah) from total preparatory schools, 2nd stage: - each school had (3) classes of third grade; one class from each school was selected randomly, 3rd stage: - All students in the selected class were taken.

Tools for Data Collection:

An interviewing questionnaire: It was developed by the investigator, based on reviewing the related literatures and it was written in simple Arabic language and included the following parts:

Part I:Personal characteristics of the studied sample:This part included personal data of the students: such as; age, sex, birth order, and school grade. General characteristic of family such as; age, educational level, occupation, and residence (Appendix I).

Part II:Assessment of student's knowledge about technology and technology addiction: It included nine questions covered areas such as, meaning of technology &technology addiction, subcategories of technology, reasons for uses of technology, factor leads to technology addiction, sign &symptom, types of technology addiction, side effect and how prevent.

Scoring system: Knowledge score for each answer was given as follows:Each question hasanswer more than one choice, A correct answer for a single question has been assigned a score of (1) while incorrect answer was assigned a score (0). So all knowledge variable were weighed

according to the number of question e.g. knowledge attached to meaning of technology addiction was assigned a score of (3), since it contains 1 question. The scores were summed- up and the total divided by the number of the questions, giving a mean score. Total score for all questions related to knowledge was 33 points which represents 100% and categorized into three levels as follows:The total knowledge scores were considered good if the score of total knowledge >65%, while considered average if it is more than or equal 50%and considered poor if it is less than 50%.

Part III: Assess the reported practices of students regarding technology devices and services; Section-A: questions regarding the use of the devices in a tabular form, e.g. the time spent with the devices by the students was asked provided options like 1-2 hrs, 2-4 hrs, 4-6 hrs and >6 hrs against each device and services. Time spent for the purposes of use of the devices and services was also asked.

Scoring system, the percentage calculation of the students was made as per the time spent with the devices and time spent for the purposes. In the present study, the respondents regard the use of the devices up to (6) hours considered addicted.

Section-B: - Assess the reported practices of students on level of technology dependency: it included ten closed ended questions; to assessment of technology dependency practices, the questions covered areas such as, using technology as the best method of entertainment, cannot caring of others when busy with machinery, depended on technology in the performance of the school duties, living without electronic devices is impossible even for one day, using technology only as a source of information, technology a constant cause of conflict with parents, consider using a lot of technology increase

intelligent, dealing with electronic devices from daily basis .

Scoring system: Practice score for each answer was given as follows: 1= done, and 0 = not done

Total score = 20

The total dependency practice scores were considered done if the score of total practice > or equal 60 %, and considered not done if it is less than 60%. As dependency determines the addictive behaviour, so the more the dependency the more will be the addiction among the students.

Part IV**:** Concerned with the effects of excessive use of the Tech-devices on lifestyle aspects: To assess physical status, school activities, social and psychological status. **Physical status:** It included 4 items such as; daily activity tolerance, physical discomfort symptom, sport practice, feeding and sleeping attitude.**Social activity**: it included **11** items such as; number of friends, used method to talk with friends, time spend with relative, having problem in face to face communication, having problem in building new friends, having problem in work with group, number of hours to watching TV with the family, types of hobbies prefer and rate to practice the hobbies.

Scoring system: of physical status and social activities variables was adapted as follows: Each healthy practice scored as one point and each unhealthy practice scored as zero. So all physical status and social status variable were weighed according to the number of questions included of them and these scores were converted into a percent score; the percentage of the respondents having health problems and problematic social behaviour were calculated. Total score for all questions related to physical status was

39point, and for school activities was 42 point.

School activities: It included **6**questions (50-56) such as; having trouble in paying attention in class, having problems in doing homework, having problems in remembering, having absent problem, low scholastic achievement level and difficulty in share in school activity. **Psychological status:** It included 7 questions (57-63) such as; (feeling non satisfaction from technology leads to increase in time, fill in adjusting time, feel think always in technology, feel sad when not use, feel irritable from forgetting the devices in home, great difficulties in thinking logically and memory is impaired.

Scoring system of school activities& psychological status:

The scoring system is calculated for school activities and psychological status as each question has three levels of answers: Always, sometimes and never. These were respectively scored 0, 1, and 2. The scores of the items were summed- up and the total divided by the number of the items, giving a mean score. These scores were converted into a percent score, means and standard deviations were computed. Total score of psychological status =14 Total score of school activity status=12.

The score of total effects of on the life style of adolescents categorized into following:

- Inadequate effect = more than or equal 50% of the total score

- Adequate effect = less than 50% of total score

Content validity:

The tool validity was revised by 5 experts from Community Health Nursing to assess content and face validity.

Ethical consideration:

Permission has been obtained from each student before conducting the interview and given them a brief orientation to the purpose of the study.They were also informed that participation is voluntary. Also, we're reassured that have the right to withdraw from the study at any time without giving reason and all information gathered would be treated confidentiality and used only for the purpose of the study.

Pilot study:

The pilot study was carried out on sample 10% students who were excluded from the study sample to ensure clarity, applicability of the tools and time needed to fill each sheet. The modifications were done and then the final formats were developed.

Administrative design:

A formal approval was obtained through official letter from the Dean of Faculty of Nursing, Benha University to the director of security department, and undersecretary of the ministry of education and then official letter was send from ministry of education to director general of Benha educational administration, then to manager of each school. The title and objectives of the study had been explained to them to obtain their permission and help in the conduction of the study and to facilitate data collection.

Field work:

The investigator was attended two days/ week from 9.00am to 12.00pm; those

days were (Saturday &Thursday).The average time needed for the sheet was around 30 minutes depending upon their understanding and response. The respondents filled the questionnaires, in the presence of the investigator all the time to clarify any ambiguities and answer any queries and collect the questionnaire.

Statistical design:

Computerized data entry and statistical analysis were fulfilling scored using statistical package for social science (SPSS) version18.Data were presented in the table by using mean, standard deviation, frequencies, percentage distribution, t-test and was used chi-square test is a test used to study the association between two qualitative variables and matrix correlation to detect the relation between the variables for (p value) and correlation coefficient (r) to represent the linear dependence of two variables Statistical significance was considered at:

- Highly significant (HS) $P < 0.001$

- Significant(S) $P < 0.05$

- Significant (NS) $P > 0.05$

Results

Table (1):- **Distribution of the studied subjects according to their personal characteristic (n= 181).**

Items	No	%
Age		
14	42	23.2
15	102	56.4
16	37	20.4
Mean± SD	14.9± 0.6	
Sex		
Male	95	52.5
Female	86	47.5
Have an account on Facebook/yahoo…. Etc.		
Yes	132	72.9
No	49	27.1

Table (1):-Shows that, 23.2% of students' studies were aged 14 years old, 56.4% student studies were aged 15 years old, 20.4% of student were aged 16years, with the mean (14.9± 0.6) years, while52. 5 % of them were boys, and 72.9% of students had e-mail on social sites.
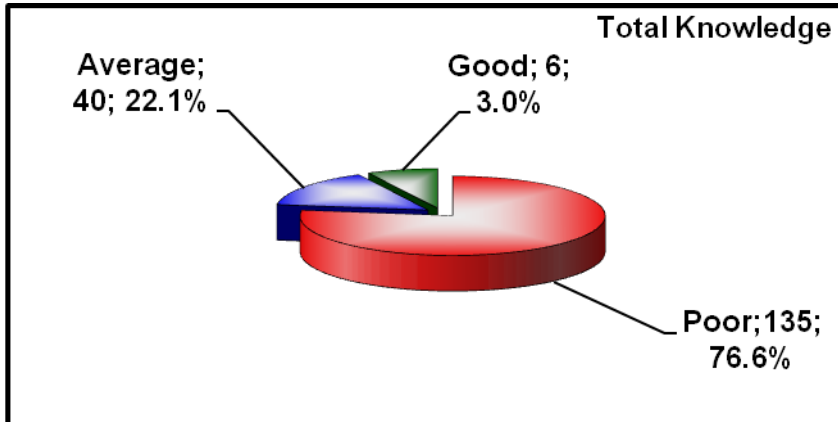
Figure (1):Distribution of the studied sample total knowledge score

Figure (1): Shows that, 76.6% of the studied sample had poor total score knowledge about technology and technology addiction .However, only3.0% of them had good knowledge about technology and technology addiction.
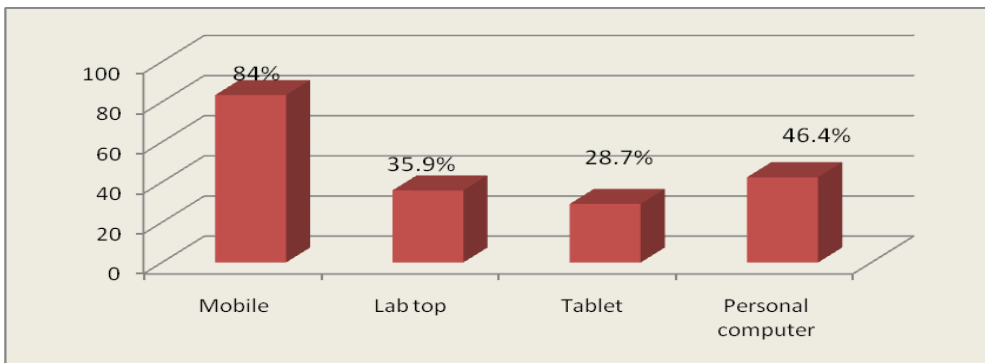

Figure (2):Distribution of the studied sample regarding the types of the technology devices that uses (n= 181).

*Figure(2):*show that, it is clear from the data that all most a of the students using many types of technology devices, but the mobiles use present up to 84 %, so the availability of something always forces the use of that product. Finally, due to this availability the use of the tech- devices are increasing in a significant manner.

Table (2):Distribution of the studied sample regarding time spent with the Technology devices (n=181).

Items	No	%
1-2 hours	2	1.1
2-3 hours	11	6.77
4-6 hours	34	18.78
Up to 6 hours	134	74.0

*Table (2):*Reveals that, how much time the students spend on technology devices. Their percentage is 74.0 %of the total studied sample are spending more than **6** hours per day with their technological devices so, according our study this percentage had technology addiction problem.

Table (3):Distribution of the total dependency practice of the studied sample related to technology, (n=181).

Items	Done		Not done	
	n	%	n	%
Dependent on technology in every thing	134	74	47	26.0
Consider technology the best source of entertainment	153	84.6	28	15.5
Unaware about the surroundings when using technology devices	149	82.3	32	17.7
Dependent on technology in performing homework	137	75.7	44	24.3
Survival is considered impossible without technological	135	74.5	46	25.5
The internet is the ultimate source of knowledge uses	113	62.4	68	37.6
Technology always the reason of conflict with parents	140	77.4	41	22.7
Believe, the excessive use of technology increase the Intelligence	112	61.9	69	38.1
Neglect the advices related balanced uses of technology	131	72.4	50	27.6

Table (3):shows that, the result demonstrated that (74%) the studied sample reported high degree of dependency on technology. However, only (26. 0%) were reported low dependency score on technology.

Table (4):Relation between Time Spent with the technology devices by the studied sample of their lifestyle (n= 181).

Lifestyle aspects	Time Spent with the technology devices							
	inadequate <6		adequate >6		total		chi-square	
	n	%	n	%	n	%	x^2	p-value
school activity								
Never	5	2.8	58	32.0	63	34.8	**16.377**	**<0.001***
sometimes	17	9.4	32	17.7	49	27.1		
Always	25	13.8	44	24.3	69	38.1		
psychological status								
Never	6	3.3	74	40.9	80	44.2	**34.062**	**<0.001***
sometimes	18	9.9	42	23.2	60	33.1		
Always	23	12.7	18	9.9	41	22.7		
physical status								
abnormal	29	16.0	110	60.8	139	76.8	**8.116**	**0.004***
Normal	18	9.9	24	13.3	42	23.2		
social status								
abnormal	34	18.8	119	65.7	153	84.5	**7.214**	**0.007***
Normal	13	7.2	15	8.3	28	15.5		

p<0.001   (High statistical significant), P> 0.05   (No statistical significant).

Table (4): Denotes that, there were highly statistically significant relations between time spend with technology and negative effect on psychological status and school activity of studies sample while, p-value = (< 0.001*). Besides, there were statistically significant with abnormality effect of physical and social status, p-value = (0.004*, 0.007*) respectively.

Table (5): Correlation between number of hours, total practice and the studied sample lifestyle effect n= (181)

		Total knowledge	Number of hours	Total dependency practice	Physical status	School activity	Psychological status
Number of hours	r	-0.048					
	p	0.524					
Total dependency practice	r	-0.127	0.379				
	p	0.089	<0.001**				
Physical status	r	-0.083	-0.289	0.333			
	p	0.267	<0.001**	<0.001**	.		
School activity	r	-0.135	-0.315	0.397	0.383		
	p	0.069	<0.001**	<0.001**	<0.001**		
Psychological status	r	-0.092	-0.465	0.516	0.372	0.388	
	p	0.220	<0.001**	<0.001**	<0.001**	<0.001**	
Social status	r	0.009	-0.079	0.215	0.156	0.209	0.191
	p	0.905	0.005*	<0.004*	0.035*	0.005*	<0.001**

Table (5): Shows that there were a highly statistically significant correlation between total dependency practice and unhealthy lifestyle (physical status, school activities, psychological status) of studied sample related to technology, while p-value = (p <0.001**) also there were astatistically significant correlation between total dependency practice and abnormal effect on social status of studied sample related to technology while p-value = (p< 0.004*).

Discussion

Technology addiction, is considered a new mental condition means a habitual compulsion to engage in using technology instead of using it to address life's problem, the adolescent becomes largest consume of technology devices and services, which in turn make them addicted to technology, adolescents with technology addiction are often staying more than 6 hours daily on devices and complained from of unhealthy lifestyle symptoms **(Alavi *et al.,* 2010).**

The scores of unhealthy lifestyle symptoms in the addicted groups are statistically significant. This means that normal users are better in terms of healthy lifestyles in comparison with the addicted group. In addition, technology addicts had various pathological lifestyle disorders. This means that the group with technology addiction had higher scores in all dimensions of unhealthy lifestyle symptoms, which suggests that addiction could have a negative effect on the all lifestyle aspects of adolescents. These findings are consistent with other studies

and support previous findings **(Cheong, S. C.,et al., 2009).**

According to personal characteristics of students, the present study showed that, the mean age of studied subjects was (14.9± 0.6) (table1). This finding was agreement with **Das & Sahoo (2011**), who reported that the age of technology addiction ranged from 9-18years old with the mean age (13 years). Also, the finding was supported by **Moeller&Razieh (2012)**, who reported that the age of the student with technology addiction ranged between 9-19 years means in adolescent group which matches the age range used in this study.

In relation to the sex, the present study revealed that more than half of the studied sample was males (table No1). This finding was in the same line with **Jyoti (2014),** the study applied in College, Rourkela who reported that the majority of technology users were males. And **Alaviet al. (2011),** who reported that, the majority of internet users were males (61.7% males, 38.3% females). This study applied at the Isfahan University. In other hand, this result disagreement with **Mireille, G. (2012),** who reported that the gender of the student did not significantly predict whether he/she has weak or moderate relation with his/her family (p-value=. 847 >.05).

As regards having e-mail, the present study revealed that, slightly more than three third of the studied students were having account in different social sites (table 1). This finding was in agreement with the result of **Safwatet al. (2010),** who found that the majority of adolescents having e-mail. In addition, this finding was agreement with **Jyoti (2014),** who reported that more than three third of adolescents having account on social sites.

Concerning total knowledge of studied sample regarding technology addiction, the result of the present study revealed that about three quarters of studied sample had poor knowledge about technology addiction (figure1). This finding was agreement with **Robertoet al. (2015),** who reported that most of the adolescents had poor knowledge about technology addiction.

Regarding the types of devices that are common uses by students the present study revealed that, the mobile become more uses by the studied sample around more than two third prefer to use mobile and less than half uses the personal computer (PC), (figure 2). This finding was incongruent with**Pellegrini et al.(2012),**who studied "The Effect of Technology on Human Behavior "the study applied in secondary school .They revealed that more than half of study sample prefer (PC) and less than half prefer mobile. Who also reported smart phones did not replace PCs yet. This may be due to the availability, also in the governmental schools the leaning depends on teacher explain and books than research, so the students in this age did not need to use the PC for a long time.

Regarding the time spent on technology devices, the present study revealed that, more than two third of the studied sample are using their devices above 6 hours daily. Excessive spent of time on technology to 6 hrs daily contribute to technology addiction, (table 2).This finding was in agreement with result of**Muduli (2014),** who studied "Addiction to Technological Gadgets and Its Impact on Health and Lifestyle" .A Study on College Students They revealed that 26.4% of respondents are using internet more than 6 hours per day and nearly 34% of them are using it from 4-6 hours this leading to the addiction towards the technological devices.

Concerning total practices of studied sample regarding technology devices, the present study showed that, more than three fifth of the studied sample had dependency practice regarding technology (table3). This finding was in agreement with result of **Weigle (2014),** who clarified that the majority of studied sample had dependency practice toward technology in addiction, they revealed thatthe adolescent more age group depends on technology in all actions.

Regarding relation time Spent with the technology devices by the studied sample and effect on their lifestyle. The result of the present study revealed that highly statistically significant relations between times spend with technology. studied sample are busy with their devices for more than 6 hours are having several problems like problems in logical thinking, headaches, depression, anxiety, etc. studied sample of the same category also have problems in sleeping, worry excessively, are afraid of public speaking and have low consciousness. But these problems are seen less in studied sample using the devices below 6 hours (Tables 4). The problems faced decreases with the decrease in time spent with the devices. The present study agrees with earlier studies confirming over use of the tech-devices and services leads to addiction to the gadgets and has impacts on mental health of the respondents **Cabral et al., (2011).**

Regarding to the correlation between students total dependency practice and number of hours spending on technological devices by the studied sample (table no5). The present study found that, there was a positive significant correlation between total dependency practice and number of hours spent on technology. This result was agreement with **Boothroyd (2014).** Who reported that, life style of adolescents, is

changing by the influence of the technology. This may be because this is due to the age of students affected in their ability to control of time of technology uses.

Regarding to the correlation between students total dependency practices and the bad effect of lifestyle (physical, school activity, psychological status and social status), (table no 5). The present study found that, there was a negative significant correlation between total dependency practices in all life activity on technology in adolescent's age and quality lifestyle (physical, school activity, psychological status and social status. The findings of the present study partially support earlier studies in other countries **Wolniczak et al. (2013).**

Conclusion

The majority of adolescents had poor knowledge about technology addiction, such as meaning, causes, signs and symptoms, complications and protection steps from technology addiction. More than two third of adolescents were spending more than 6 hours per day with their technological devices according our study they considered addicted. In addition, there were statistically significant relations between technology addiction and their lifestyle abnormal

Recommendations

- Workshops and regulars meeting with adolescents to give messages about healthy lifestyle promotion for these aspects (physical, social& recreation, school activity and psychological status)

- Help students to change their lifestyle to move towards a state of optimal health by increase awareness.

-Design especial booklet for adolescents at beginning of puberty for health education and health behavior.

-A health education program for parent and teachers to fill the requirements of adolescents' needs and problems.

-Further studies need to be focusing on this phenomena of technology addiction, how prevent and how balanced in using of technology.

References

Alavi, S. S., Alaghemandan, H., Maracy, M. R., Jannatifard, F., Eslami, M., & Ferdosi, M. (2012). Impact of addiction to internet on a number of psychiatric symptoms in students of isfahan universities, iran, 2010. International journal of preventive medicine, 3(2), 122.

Cabral, H., Matsumoto, Y., Mizuno, K., Chen, Q., Murakami, M., Kimura, M., ... & Nishiyama, N. (2011). Accumulation of sub-100 nm polymeric micelles in poorly permeable tumours depends on size. Nature nanotechnology, 6(12), 815.

Cheong, S. C., Chandramouli, G. V. R., Saleh, A., Zain, R. B., Lau, S. H., Sivakumaren, S., ... & Gutkind, J. S. (2009).Gene expression in human oral squamous cell carcinoma is influenced by risk factor exposure. Oral oncology, 45(8), 712-719.

Das, B., & Sahoo, J. S. (2011).Social networking sites-A critical analysis of its impact on personal and social life. International Journal of Business and Social Science, 2(14).

Davey, S., & Davey, A. (2014).Assessment of smartphone addiction in Indian adolescents: a mixed method study by systematic-review and meta-analysis approach. International journal of preventive medicine, 5(12), 1500.

Ewald, S. E., Chavarria-Smith, J., & Boothroyd, J. C. (2014).NLRP1 is an inflammasome sensor for Toxoplasma gondii. Infection and immunity, 82(1), 460-468.

Egypt addicted to social media - cairo scene, (2014).speed internet access and the instant gratification of 2014 smart phone technology. ... here at cairo scene we definitely 'like' social media. www.cairoscene.com/lifestyle/egypt -ddicted-to-social-media

Kahle, L. R., & Close, A. G. (Eds.). (2011). Consumer behavior knowledge for effective sports and event marketing. Routledge.

Muduli, J. R. (2014). Addiction to technological gadgets and its impact on health and lifestyle: a study on college students(Doctoral dissertation).

Mireille, g. (2012), & sarah h. khan (2010).Online communication and adolescent relationships. the future of children, 18, 1, pp. 119-146. 2.

Mannell, R. C., Zuzanek, J., & Aronson, R., (2013).Internet/Computer Use and Adolescent Leisure Behavior, Flow Experiences and Psychological Well-Being: The Displacement Hypothesis. www.lin.ca/sites/default/files/attach ments/CCLR11-89.pdf.

Pellegrini, C. A., Verba, S. D., Otto, A. D., Helsel, D. L., Davis, K. K., & Jakicic, J. M. (2012).The comparison of a technology-based

system and an in-person behavioral weight loss intervention. Obesity, 20(2), 356-363.

Qidwai, W., Ishaque, S., Shah, S., & Rahim, M. (2010).Adolescent lifestyle and behaviour: A survey from a developing country. PloS one, 5(9), e12914.

Roberto, C. A., & Kawachi, I. (Eds.). (2015). Behavioral economics and public health. Oxford University Press.

Safwat, C., Adel, H., George, M., & Sobhy, S. (2012). The effect of technology on human behavior (a case study on BBC secondary school and the British University in Egypt). Cairo University.[Online] Available.

Wilson,b.,(2005):blackberry addiction:available at:http://wichita.bizjournals.com/wichita/stories/2005/10/03/focus

1.html american life project on-line. - did not match any articles.

Wang, D., Ou, C. Q., Chen, M. Y., & Duan, N. (2009).Health-promoting lifestyles of university students in Mainland China. BMC Public Health, 9(1), 379.

Wolniczak, I., Caceres-DelAguila, J. A., Palma-Ardiles, G., Arroyo, K. J., Solís-Visscher, R., Paredes-Yauri, S., ... & Bernabe-Ortiz, A. (2013). Association between Facebook dependence and poor sleep quality: a study in a sample of undergraduate students in Peru. PloS one, 8(3), e59087.

Weigle, P. (2014).Internet and Video Game Addiction: Evidence & Controversy. Adolescent Psychiatry, 4(2), 81-91.

Young, K. S., & De Abreu, C. N. (Eds.). (2011). Internet addiction: A handbook and guide to evaluation and treatment. John Wiley & Sons.