The Effect of Excessive Use of Internet upon Adolescents

MRIDULA BHADAURIA*, RASHMI GORE**, DHEERAJ PANDEY***

Abstract

The present study was conducted to find out the effect of excessive use of internet upon adolescents, mental health. The major findings of the study were : (i) Internet usage negatively affects the mental health of adolescents. (ii) Internet usage affects more to the mental health of rural adolescents than that of urban adolescent. (iii) Internet usage affects the mental health of adolescent boys and girls of different SES same way. (iv) Internet usage and area differences are interacting significantly for the adolescents mental health and no variable are interacting significantly with one another for the mental health of adolescents.

The 21st century is telemetric (Computers connected to networks). It denotes the emergence of new technologies of communication and most significantly, the telemetric revaluation. Both globalisation and communication technologies have caused and resulted in the growth of each other and have influenced one another in complex and multiple ways. People have become compulsive information consumer. Technology, particularly, internet is widely influenced all spheres of human beings and specially the adolescent. No doubt, the technology is revitalising antidote for stagnating education system. But, also true that excess use of internet is creating problems regarding mental health of people, especially of adolescents as they are widely using internet. Hyper use of internet produces impulsive-control disorders (*ICD*) with the development unlimited access to sex, gambling, shopping, stock trading etc. These all increase a subsequent rise in

* *Reader,* C.S.J.M. University, Kanpur
** *Lecturer*, C.S.J.M. University, Kanpur
***M.Phil, Student

impulsive behaviour. Addictive behaviour are classified into four categories. Intermittent explosive disorder fails to receive aggressive impulses. Kleptomania, failure to resist urges to steal items. Pyromania and Pathological gambling fails to resist urges to set fire, and gambling. Trichotillomania fails to resist urges to pull ones hair.

Patients afflicted with these disorders engage in the behaviour to increase arousal. When these behaviours occur frequently, they interfere with a person's normal functioning or sometimes may distort personality.

Bonebrake, K. (2002) estimated that 85 million Americans are on line and about 15 millions of those suffer from internet addiction; also identified specific risk factors such as loneliness, thrill seeking behaviour and sexual compulsivity. Many research studies have supported this view (Beaved, K.W. (2002), Meral Kelleci and S. Inal (2009), Hardie, E. & Tee, M.Y. (2007), Cooper, N.S. (2003). Some studies revealed that hyper use of internet contributes to increase job stress and strain. (Lakshminarayanan T.R. and Prabhakaran P. 1993). Information overload and multitasking both associated with ICT and may create stress by work overload.

Excess use of internet may lead to increase levels of depression and reduction in social support. The excess online interaction of isolated adolescents sometimes encourages self–injurious behaviour. Hamburger, Y. & Ben Artizi, E. (2003) supported this view and identified that time spent online was not associated with dispositional or daily well being. As per intimacy theory the closeness of instant messages communication partner was associated with daily social anxiety. However results indicated that teenagers may be the population most vulnerable to those negative effects. Sometimes they are often quite knowledgeable about unwanted things like drugs and have made access to information extremely simple (BBC New – Oct. 28, 2009). Contrary to above studies S. Netherlands (2009) found that over-media use acted as protective factor for boys, who spent relatively more time playing video games and watching movies. He found lowest level of anxiety in them. The opposite pattern emerged for girls. Similarly surfing the net can slow dementia progression (caregmoor.news, Oct. 20, 2009). The Study of G. Small, supported the view and also indicated that people the little experience of web, performing the internet searches for even a short period of time can enhance brain function.

Research Question

On the basis of above discussion the question arises as does excessive internet usage affects the mental health of adolescents? Whether it effect positively or negatively? Is these any relationship between excessive internet usage and rural/urban adolescent? Is there any relationship exists between excessive use of internet and boys and girls of different socio-economic status? The present research is designed to answer the above questions.

Objective

The specific objective of the study is

- To study the effect of excessive internet usage on mental health of adolescents.

Hypotheses

In order to achieve the objectives the following null hypotheses were formulated for presented study.

$\mathbf{H_{01}}$ • The scores of mental health of adolescent are not significantly different on experimental group and control group regarding ***area, sex*** and **SES**.

$\mathbf{H_{02}}$ • *Internet usage, area differences, sex* and *SES* do not interact significantly for the adolescents' mental health in their two ways three way and four way interaction.

Sample: In this study adolescents between age group of 17-18 years were selected from Class XI of senior secondary school of Banda city.

Sample Design

Different Stratas	*Urban*						*Rural*						*Total*
	Boys			*Girls*			*Boys*			*Girls*			
	High (SES)	Middle (SES)	Low (SES)	High (SES)	Middle (SES)	Low (SES)	High (SES)	Middle (SES)	Low (SES)	High (SES)	Middle (SES)	Low (SES)	
Experimental Group	5	5	5	5	5	5	5	5	5	5	5	5	60
Control Group	5	5	5	5	5	5	5	5	5	5	5	5	60
Total	10	10	10	10	10	10	10	10	10	10	10	10	120

Tools: The following tools were used in this study –

- Mental Health Battery, constructed by *Dr. Arun Kumar Singh* and *Dr. Alpana Sen Gupta.*
- Socio-Economic Status Scale (SESS) constructed by *Dr. R.L. Bharadwaj.*

Research Design – The *Pre-test - Post-test equivalent groups design* was used as follows: -

R	O_1		O_2	O_1	O_3	Pre-tests
R	O_3	C	CO_4	O_2	O_4	Post-tests

On the basis of the design an experiment was conducted to examine the effect of excessive internet usage on mental health of adolescents.

Procedure

Phase I *Administration of MHB & SESS* upon the students of Class XI of senior secondary schools of Banda city to select the students having normal mental health. SESS is administered to categories the SES of the students.

Phase II On the basis of the scores of MHB and SESS 1200 students were selected. Out of 1200 students only 120 students were selected randomly as sample.

Phase III Collection of their scores on MHB and *allocation of 120 students* of normal mental health into experimental and control group on the basis of *area, sex* and *SES*.

Phase IV The experimental group was given the facility to use internet in the computer center continuously 04 hours up to 30 days regularly while no such facility was given to control group.

Phase V After 30 days a post-test of MHB was administered to both the groups, i.e., upon experimental group and control group. The differences of pre-test scores and post-test scores were found as a gain scores.

Analysis and Interpretation of Data

The scores of adolescents' mental health were divided into different groups in accordance to their internet usage, area, sex and socio-economic status.

TABLE –I

Showing the sum of scores, sum of squares and mean of scores on the variable of adolescent's mental health falling in different stages of internet uses, area, sex and socio-economic status

Factors and its Stages		*Different stages of factor B (Area)*												Σ
		B_1 (Urban Area)						*B_2 (Rural Area)*						
		Different Stages of Factor C (Sex)						*Different Stages of Factor C (Sex)*						
		C_1 (Boys)			*C_2 (Girls)*			*C_1 (Boys)*			*C_2 (Girls)*			
		Different Stages of Factor D			*Different Stages of Factor D*			*Different Stages of Factor D*			*Different Stages of Factor D*			
		(Socio-Economic Status)			*(Socio-Economic Status)*			*(Socio-Economic Status)*			*(Socio-Economic Status)*			
		D_1 *High* (SES)	D_2*Middle* (SES)	D_3 *Low* (SES)	D_1 *High* (SES)	D_2*Middle* (SES)	D_3 *Low* (SES)	D_1 *High* (SES)	D_2*Middle* (SES)	D_3 *Low* (SES)	D_1 *High* (SES)	D_2*Middle* (SES)	D_3 *Low* (SES)	
1		2	3	4	5	6	7	8	9	10	11	12	13	14
Different Stages of factor A (Internet uses)	A_1 *(Experimental Group)*	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=60
		Σx=–22	Σx=–31	Σx=–38	Σx=–35	Σx=–21	Σx=–31	Σx=–62	Σx=–69	Σx=–84	Σx=–84	Σx=–52	Σx=–83	Σx=–578
		Σx^2=234	Σx^2=261	Σx^2=412	Σx^2=351	Σx^2=99	Σx^2=297	Σx^2=900	Σx^2=1233	Σx^2=1678	Σx^2=804	Σx^2=680	Σx^2=1891	Σx^2=8840
		M=4.4	M=6.2	M=7.6	M=.7	M=4.2	M=6.2	M=12.4	M=13.8	M=16.8	M=.10	M=10.4	M=16.6	M=9.633
	A_2 *(Control Group)*	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=60
		Σx=9	Σx=1	Σx=8	Σx=21	x=13	Σx=8	Σx=2	Σx=–5	Σx=–2	Σx=10	Σx=12	Σx=8	Σx=+85
		Σx^2=89	Σx^2=89	Σx^2=58	x^2=297	Σx^2=97	Σx^2=34	Σx^2=44	Σx^2=41	Σx^2=220	Σx^2=76	Σx^2=104	Σx^2=152	Σx^2=1301
		M=1.8	M=0.2	M=1.6	M=4.2	M=2.6	M=1.6	M=0.4	M=1.0	M=0.4	M=2	M=2.4	M=1.6	M=1.4116
		N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=120
		Σx=–13	Σx=–30	Σx=–30	Σx=–14	Σx=–8	Σx=–23	Σx=–60	Σx=–74	Σx=–86	Σx=–40	Σx=–40	Σx=–75	Σx=–493
		Σx^2=323	Σx^2=350	Σx^2=470	Σx^2=648	Σx^2=196	Σx^2=331	Σx^2=944	Σx^2=1274	Σx^2=1898	Σx^2=880	Σx^2=784	Σx^2=2043	Σx^2=10141
		M=–1.3	M=–3.0	M=–3.0	M=–1.4	M=–0.8	M=–2.3	M=–6.0	M=–7.4	M=–8.6	M=–4.0	M=–4.0	M=–7.5	M=–4.10833

Table I denotes that four way analysis of variance was applied to the scores of adolescents mental health at different stages of internet uses, Area, Sex, and Socio-economic status. The scores of adolescents mental health were divided into different groups in accordance to their internet uses, area, sex and socio-economic status. The results of the analysis are depicted in Table 2 given below.

TABLE 2

Summary table of four way analysis of variance on adolescent's mental health scores at different stages of internet usage, area, sex and socio-economic status.

Source	*df*	*SS*	*MS*	*F*	*Level of Significance*
Main effect					
Factor A	1	3363.08	3363.08	124.68	0.1
Factor B	1	3363.08	3363.08	124.68	0.1
Factor C	1	72.06	72.06	2.45	Non - Significant
Factor D	1	100.32	50.16	1.70	Non - Significant
Two Way Interaction					
A B	1	291.39	291.39	9.92	0.1
B C	1	11.41	11.41	0.39	Non - Significant
C D	2	23.46	11.73	0.40	Non - Significant
D A	2	54.94	27.47	0.93	Non - Significant
A C	1	5.21	5.21	0.18	Non - Significant
B D	2	18.81	9.41	0.32	Non - Significant
Three way Interaction					
A B C	1	1.91	1.91	0.06	Non - Significant
B C D	2	3.62	1.81	0.06	Non - Significant
A B C	2	6.02	3.01	0.10	Non - Significant
D A B	2	32.54	16.27	0.55	Non - Significant
Four way Interaction					
A B C D	2	25.71	12.86	0.44	Non - Significant
Error	96	2820.7	29.38		
Total	19	7681.59			

Table value of F-ratio is F. 05 = 3.94 and F. 01 = 6.90 for df (1,96)
Table value of F-ratio is $F_{.05}$ 3.09, and $F_{.01}$ 4.82 for df = (2,96)

The summary table of four way analysis of variance on the scores of adolescent's mental health at different stages of internet uses, area, sex and socio- economic status shows that:

- The calculated value of F (1.96) = 124.68 (P <.01) for the main effect of Factor A (Internet usage) exceeds the critical value (F.01 = 6.90), therefore F-ratio is significant at .01 level. Therefore

null hypothesis is rejected and research hypothesis that *the mental health of adolescents of experimental group is significantly different from that of control group* is accepted at .01 level.

- The calculated value of F (1.96) = 18.73 (P < .01) for the main effect of Factor B (Area), exceeds the critical value (P(.01) = 6.90) therefore F-ratio is significant at .01 level. Therefore null hypothesis is rejected and research hypothesis that is *the mental health of adolescents of urban group is significantly different from that of rural group* is accepted at .01 levels.
- The calculated value of F (1.96) 2.45 (P <.01) for the main effect of Factor C (sex) very less than the critical value (F(.05) = 3.94) therefore F-ratio is non significant at both level. Therefore null hypothesis *'the mental health of adolescents of boys group is not significantly different from that of rural group'* is accepted and research hypothesis is rejected at both level
- The calculated value of F (2.96) = 1.70 (P <.01) for the main effect of Factor D (Socio-economic status) is very less than the critical value ($F._{05}$ = 3.09), therefore F-ratio is non significant at both level. The null hypothesis that *'the mental of adolescents is not significantly different in high, middle and low socio-economic status groups'* is accepted and research hypothesis is rejected at both levels.
- The calculated value of F (1.96) = 9.92 (P <.01) for the interaction effect of Factor A and Factor B is exceeds the critical value ($F._{01}$ = 6.90), therefore F-ratio is significant at .01 level. So null hypothesis is rejected and research hypothesis that *'Is internet uses and area differences interact significantly for mental health of adolescents'* is accepted.
- The calculated value of F (1.96) 0.39 (P <.01) for the interaction effect of Factor B and Factor C is very less than the critical value ($F._{05}$ = 3.94), therefore F-ratio is non significant at both level. That is why null hypothesis *'Area and sex differences are not interacting significantly for the mental health of adolescents'* is accepted and the research hypothesis is rejected at both level.
- The calculated value of F (2.96) = 0.40 (P<.01) for the interaction effect of Factor C and Factor D is very less than the critical value (F(.05) = 3.09) therefore F-ratio is non significant at both level. That is why, null hypothesis *'Sex and SES differences are not interacting significantly for the mental health of adolescents'* is accepted and the research hypothesis is rejected at both level.

- The calculated value of F (2.96) = 0-93 (P <.0l) for the interaction effect of factor D and Factor A is very less than the critical value ($F._{05}$= 3.09) therefore F-ratio is non significant at both level. That is why, the null hypothesis *'Is the differences of SES and internet usage are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.
- The calculated value of F (1.96) = 0.18 (P < 0.1) for the interaction effect of Factor A and Faceted C is very less than the critical value (F.0.5 = 3.94), therefore F-ratio is non-significant at both level. That is why the null hypothesis *'Internet usage and sex differences are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.
- The calculated value of F (2.96) = 0.32 (P <.01) for the interaction effect of Factor B and Factor D is very less than the critical value ($F._{05}$ = 3.09), therefore F-ratio is non significant at both level. That is why, the null-hypothesis *'Area and socioeconomic status differences are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.
- The calculated value of F (1.96) = 0.06 (P <.01) for the interaction effect of Factor A, Factor B and Factor C is very less than the critical value (F.05 3.94), therefore F-ratio is non significant at both level. That is why the null hypothesis *'Internet usage, area and sex differences are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.
- The calculated value of F (2.96) 0.06 (P <.01) for the interaction effect of Factor B, Factor C and Factor D is very less than the critical value (F.05 = 3.09), therefore F-ratio is non significant at both level. That is why the null hypothesis *'Area, sex and socio-economic status differences are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.
- The calculated value of F (2.96) = 0.10 9 P <.01) for the interaction effect of Factor C, Factor D and Factor A is very less than the critical value (F.05 = 3.09), therefore F-ratio is non significant at both level. That is why the null hypothesis that *'The differences of sex, socio-economic status and internet usage are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.

- The calculated value of F (2.96) = 0.55 (P <.01) for the interaction effect of Factor D, Factor A, and Factor B is very less than the critical value (F.05 = 3.09), therefore F-ratio is non significant at both level. That is why, the null hypothesis *'Socio-economic status, area, and sex differences are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.
- The calculated value of F (2.96) = 0.44 (P <.01) for the interaction effect of Factor A, Factor B, Factor C, and Factor D is very less than the critical value (F.05 = 3.09) Therefore, F-ratio is non significant at both level. That is why the null hypothesis that *'The internet usage, area, sex and socio economic status differences are not interacting significantly for the mental health of adolescents'* is accepted and research hypothesis is rejected at both level.

Table 3 indicates that mean scores on adolescents mental health (a) in experimental group are less than that of control group which shows that internet uses negatively affects the mental health of adolescents, (b) in rural area group are less than that of urban area group which shows that internet uses more affected negatively to the rural area groups than that of urban area groups (c) There is no significant difference between the mean scores of boys group and girls group which shows that the effect of internet uses or boys group in not significantly different from girls group and (d) the same case with high, middle and low socio-economic status groups.

FINDINGS

The findings of the present study are as follows:

- Internet usage negatively affects the mental health of adolescents.
- Internet usage affects more to the mental health of rural adolescents than that of urban adolescent.
- Internet usage affects the mental health of boys and girls in the same way.
- Internet usage affects the mental health of the adolescents of high middle and low SES in the same way.
- Internet usage and area differences are interacting significantly with one another for the mental health of adolescents.
- It is found that area and sex differences are not interacting significantly with one another for the mental health of adolescents.

TABLE 3

Mean value of adolescent's mental health scores at different stages of internet uses, Area, Sex and Socio-Economic Status.

Factors and its Stages	*Different stages of factor B (Area)*														
	B_1 (Urban Area)						*B_2 (Rural Area)*								
	Different Stages of Factor C (Sex)						*Different Stages of Factor C (Sex)*								
	C_1 (Boys)			*C_2 (Girls)*			*C_1 (Boys)*			*C_2 (Girls)*					
	Different Stages of Factor D			*Different Stages of Factor D*			*Different Stages of Factor D*			*Different Stages of Factor D*					
	(Socio-Economic Status)			*(Socio-Economic Status)*			*(Socio-Economic Status)*			*(Socio-Economic Status)*					
	D_1 *High (SES)*	D_2*Middle (SES)*	D_3 *Low (SES)*	D_1 *High (SES)*	D_2*Middle (SES)*	D_3 *Low (SES)*	D_1 *High (SES)*	D_2*Middle (SES)*	D_3 *Low (SES)*	D_1 *High (SES)*	D_2*Middle (SES)*	D_3 *Low (SES)*			
1	2	3	4	5	6	7	8	9	10	11	12	13			
Different Stages of A_1 *(Experimental Group)*	– 4.4	–6.2	–7.6	–7.0	–4.2	-6.2	-12.4	-13.8	-16.8	-10.4	-10.4	-16.6			
Different Stages of A_2 *(Control Group)*	+1.8	+.02	+1.6	+4.2	+2.6	+1.6	+0.4	–1.0	–0.4	+2.0	+2.40	+1.60			

- It is found that sex and SES differences are not interacting significantly with one another for the mental health of adolescents.
- It is found that internet usage and SES differences are not interacting significantly with one another for the mental health of adolescents.
- It is found that internet usage and sex differences are not interacting significantly with one another for the mental health of adolescents.
- It is found that area and SES differences are not interacting significantly with one another for the mental health of adolescents.
- It is found that internet usage, area, and sex differences are not interacting significantly with one anther for the mental health of adolescents.
- It is found that area; sex and SES differences are no interacting significantly with one another for the mental health of adolescents.
- It is found that internet usage, sex, and SES differences are not interacting significantly with one another for the mental health of adolescents.
- It is found that SES, internet usage and area differences are not interacting significantly with one another for the mental health of adolescents.
- It is found that internet usage, area, sex and SES differences are not interacting significantly with one another for the mental health of adolescents.

DISCUSSION

Recent reports are indicating that 97 per cent urban youth are using internet out of them there is a large number of adolescents using it regularly.While circumstance are quite different for rural adolescents. Consequently internet usage affects too negatively to the mental health of rural adolescents than that of urban adolescents.

Presently Internet use is emerging as one of the negative aspect among youth too. Interactive communication application such as chat rooms, instant messaging, e-mail, and on-line games have been more commonly associated with internet addiction among youth. Internet addiction has a negative effect upon academics (a drop in grades), family relations (having to hide the excessive use of internet from parents), physical health (sleep deprivation) and mental health

(depression). These all creates poor concentration, poor memory management, social impairment, impaired problem solving memory, disorganised behaviour, depressed mood, indifferent to others, shyness, lack of self confidence etc.

Often these negative symptoms steadily become more prominent. The same results were supported by Campbell, A.J. Cumming, C.R. and Hughes, I. (2006) as they found negative relationship between web-surfing frequency and life satisfaction.

Adolescents with internet addiction were noticed with deficiencies in the ability to read, express and elicit desired emotions. The co-relation of emotional intelligence and internet addiction disorder was especially high for young adolescents.

Meral Kellei (2009) found that internet use in adolescent was associated with more severe psychiatric symptoms like schizophrenia. But on the contrary G.small (2009) found that among the older people with little experience of the web performing the internet searches for even a relatively short period of time can enhance brain function. It seems that while moderate use of the internet can have positive effects but excessive usage of internet has negative effects upon mental health of adolescent. Attention should be devoted to adolescents with internet use for design of preventive strategies.

REFERENCES

ANDERSON, K. J. 1999. Internet Use Among College Studies: Should We be Concerned. Paper presented at the *Annual Meeting of the American Psychological Association*, Boston.

BBC (*British Broadcasting Corporation*, October 28, 2009), at *http:// nesbbc.co.uk*

BEARD, K.W. 2002. Internet Addiction: Current Status and Implications for Employees. Journal of Employment and Counselling, 39 (2), 2-11.

BONEBRAKE, K. 2002. College Student Internet Use, Relationship Formation, and Personality Correlates, *Cyber Psychology and Behaviour*, 5, 55 1-557.

CARE G. MOOR. 2009. *http://www.caregmoon.co.uk/direcltry/mental health. aspx.*

COOPER, A., SCHERER, C.R., BOIES, and GORDON, B.L. 1999. Sexuality on the Internet: From Sexual Exploration to Pathological Expression Professional Psychology: Research and Practice *www.http:/ / www.apa.org/journalspro/ pro302154html.*

Cooper, N.S. 2003. The identification of Psychological and Social Correlates of Internet Use in Children and Teenagers, *Unpublished doctoral thesis, Alliant International University, California.*

Drever, J. 1964 *A Dictionary of Psychology. London : Penguin Book.*

Engelberg, E. and Sjoberg, L. 2004. Internet Use, Social Skills and Adjustment. *Cyber Psychology and Behaviour,* 7,41.

Gross, E.F., Juvonen, J. and Gable, S.L. 2002. Internet Use and Well Being in Adolescents. *The Society for Psychological Study of Social Issues,* 58 (1), 75-90.

Hamburger, Y, and Ben Artizi, E. 2003. Loneliness and Internet Use. *Computers in Human Behaviour,* 19, 71.

Hardie, E. and Tee, M.Y. 2007. Excessive Internet Use: the Role of Personality, Loneliness and Social Support Network Internet Addiction. *Australian Journal of Emerging Technologies and Society,* 5 (1), 34-47.

King, S.A. 1996. Is the Internet Addictive, or Are Addicts Using the Internet? .August, 18, 1999. www:http:www.concentric.net/~Astorm/ iad.html.

Lakshminarayanan, T. R. and Prabhakarna, P. 1993. Comparison of Mental Health Among the Different Age Groups of Industrial Employees. *Journal of Psychological Researches,* 30 (3), 30-34.

Moody, E.J. 2001. Internet Use and its Relationship to Loneliness. *Cyber Psychology and Behaviour,* 4, 393-401.

Morahan Martin, J. and Schumacher, P. 2003. Loneliness and Social Uses of the Internet. *Computers in Human Behaviour*, 19, 659-67 1.

Meral Kelleci and S. Inal 2009. Phychitric symptoms in Adolescent with Internet Use : Comparison without Internet Use, *Cyber Psychology and Behaviour, on line,* November 3, 2009, 1089/cpb.

O-Toole, K. 2000. How Internet is Changing Daily Life. www. Stanford. edu/dept/news/pr/00/000216 internet. html.

Odell, P.M., Korgen, K.O., Schumacher, P. 2000. Internet Use Among Female and Male College Students *Cyber Psychology and Behaviour*,3, 855-862.

Oldfield, and B. Howitt, D. 2004. Loneliness, Social Support and Internet Use. Paper Presented at the *Conference Internet Research 5.0: Ubiquity?,* Sussex, U.K.