

Impact of Cloud Based Services on Mental Health

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Abstract

The cloud computing has witnessed drastic evolution in last few years with respect to its development and application. Thus, research and development in cloud computing are scaling in a positive direction, due to the growing demand for cloud computing but no one is bothered about its impact on mental health. This paper provides the results after thorough analysis and data collection how cloud based services are acting like slow poison for mental health of youths. Youths expressed concern about the security, access to, and privacy, of their data in the cloud. The results shows that the female youth are become short tempered ever since they are using cloud based websites than male. The user have no idea about data storage in cloud technology. So end user always worry about privacy and security of data. When user use cloud base services, he/she has some mental pressure due to unknown place of data storage. Regular use of cloud base services user feel anxiety.

Keywords: Cloud computing; social networking websites; mental health; short tempered; memory loss; feeling unhappy with opposite sex; emotionally weak.

1. Introduction

“Cloud computing” was coined for what happens when applications and services are moved into the internet “cloud.” Cloud computing is not something that suddenly appeared overnight; in some form it may trace back to a time when computer systems remotely time-shared computing resources and applications. More currently though, cloud computing refers to the many different types of services and applications being delivered in the internet cloud, and the fact that, in many cases, the devices used to access these services and applications do not require any special applications.[1]

Many companies are delivering services from the cloud. Some notable examples as of 2010 include the following:

- **Google** — Has a private cloud that it uses for delivering many different services to its users, including email access, document applications, text translations, maps, web analytics, and much more.
- **Microsoft** — Has Microsoft Share-point online service that allows for content and business intelligence tools to be moved into the cloud, and Microsoft currently making its office applications available in a cloud.
- **Salesforce.com** — Runs its application set for its customers in a cloud, and its Force.com and Vmforce.com products provide developers with platforms to build customized cloud services. [1]

“Cloud Computing refers to both the applications delivered as services over the Internet and the hardware and systems software in the data centres that provide those services. The services themselves have long been referred to as Software as a Service (SaaS). The data-centre hardware and software is what we will call a cloud. When a Cloud is

made available in a pay-as-you-go manner to the general public, we call it a Public Cloud; the service being sold is Utility Computing. We use the term Private cloud to refer to internal data-centres of a business or other organization, not made available to the general public. Thus, Cloud Computing is the sum of SaaS and Utility Computing, but does not include Private Clouds. People can be users or providers of SaaS, or users or providers of Utility Computing.” [2]

Privacy has been a subject of great concern with cloud computing. The protection of a user’s identity varies across the various social network services available across the internet. Some websites, such as Facebook, encourage the use of real names and thus make a connection between their social network and public identities. Others sites, such as dating services provide some weak anonymity by using only first names or a user-created name instead. Even though Facebook does not provide anonymity, it does provide options to restrict access only to those allow access. Other than access by other users, there are questions on how these social networking services may be using the vast amounts of data that users are providing. Facebook’s policy states that information may be shared with third parties that does not identify or expose the user’s identity. There are means to deduce identities based upon the social network graph topology, and distorted and removing data could affect the quality of data analysis and mining of the information that is being shared. These issues raise questions as to how these cloud based social network services handle their data to balance the needs of third party data consumers and the expectations of their users [8].

Cloud technology also offers other benefits to developing countries since they no longer have the burden of investing in costly infrastructures and easy availability of data storage without worry but another aspect of cloud technology is negative impacts on youth mental health.

cloud technology have so many challenges but one of the most import is the data storage on unknown places. Data storage on Cloud creates some mental pressure in user due to the data stores in unknown place. Some peoples may feel anxiety due to regular use of cloud based social networking websites like Twitter, Facebook, etc. Cloud based services users feels regular alertness for any posting comments or likes on every new feeds and also feel anxiety after long use of cloud based services. If they are using social sites on mobile apps, they have regular alertness for getting any comments make on their posts so that user checks their phone regularly. This situation lie on long run cause of mental issues.

The use of anything at an extreme can lead to negative impacts and social media is one such entity. It is affecting teenagers more prominently than adults because the adult brain is fully developed. While on the other hand, teenagers are still in a position of constantly developing brain and this high use of cloud based social media is wiring our brains accordingly which may lead to negative results, such as lack of in cognitive skills.

2. Material and method

2.1 Tool for Data Collection

The self created test was used for collecting data from the universe and F-test for data analysis. Test have 07 questions out of 32 questions for knowing the impact of cloud based services on mental health.

2.2 Scoring and Interpretation

Scores for Cloud Based Services Inventory (CBSI) are derived from the responses on each item obtained on five point response format "Extremely", "Moderately", "Slightly" and "Not at all". Items of the inventory are given scores of 4, 3, 2 and 1 for "Extremely", "Moderately", "Slightly" and "Not at all" responses.

Responses	Score
Extremely	4
Moderately	3
Slightly	2
Not at all	1

The maximum possible score for CBSI is 100 and minimum being 25. High score on CBSI is indicative of poor mental health. The maximum score of mental health scale is 28 and minimum 7. Mental health scale measures the extent to which the individual is concerned about his personality, emotion, anxiety and memory loss. People scoring high on this scale would have not good mental health.

Table 2.1

Question No.	Description
Q9.	How happy do you feel when you meet a person of opposite sex online while using cloud based services?
Q13.	How much feel that you have become short-tempered ever since you started using cloud based services?
Q17.	How much more emotional have you become ever since you are using cloud based websites?
Q19.	How much memory loss you think have incurred ever since you are using cloud based websites?
Q23.	How much do you agree that you hide your identity while you are using cloud based websites?
Q27.	How much do you agree that your mind regularly prompts to you to check your Mobile/PC/Laptop to see if you have any new tweet/comments/ messages ever since you are using cloud based social networking websites?
Q30.	How much under mental pressure you get knowing that your data is stored in an unknown place while using cloud based computing?

2.3 Sampling

The sample for the study was selected by Multi-stage random sampling method. Since the elements of the sample are of a scattered nature and are only a variable in 'clusters' (i.e. colleges, online), a list of youths is prepared from the different colleges of Uttarakhand state and google online form link

<http://goo.gl/forms/pCxdw33xoY>

The questionnaires for mental health were administered over these 400 youths and 320 of these have been selected as for requirement of the following research paradigm.

Gender	Internet Speed Less than or equal to 512 kbps (A1)		Internet Speed Greater than 512 kbps (A2)		Σ
	Internet Use Less than or equal to 2hrs	Internet Use More than 2hrs Per day (B2)	Internet Use Less than or equal to 2hrs Per day	Internet Use More than 2hrs Per day (B2)	

	Per day (B1)		(B1)		
Male	40	40	40	40	160
Female	40	40	40	40	160
Σ	80	80	80	80	320

2.4 Variables

2.4.1 Independent Measure

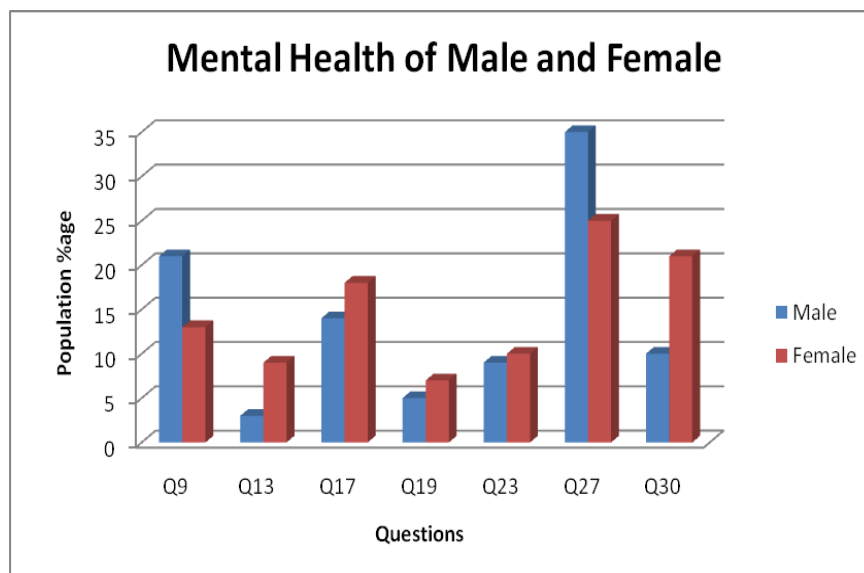
- Internet User Per Hours - Internet use per day for cloud based services is taken for study as independent measure with two different status of less than equal to 2 hours per day and greater than 2 hours per day.
- Internet Speed - Internet speed for cloud based services is taken for the study as independent measure with two different status of less than equal to 512 kbps and another greater than 512 kbps.
- Gender - Gender of youth as male and female are taken another independent measure of the present investigation.

2.4.2 Dependent Measure

The dependent measures of the study for cloud based services is mental health.

3. Results

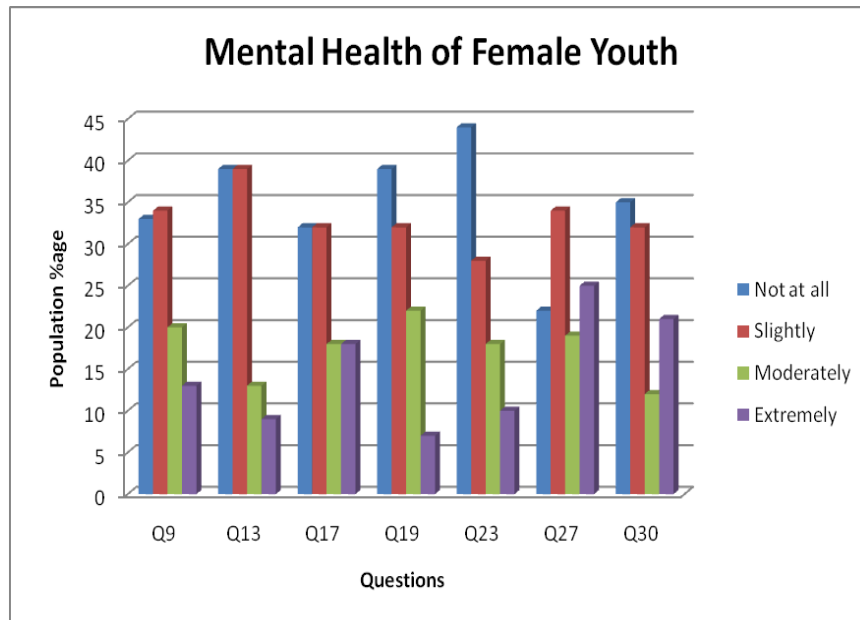
The impact of cloud based services on youths' mental health will be studied. The youth mental health problems in daily life because of different internet gadgets to access the could based social sites will be studied.



Graph 3.1

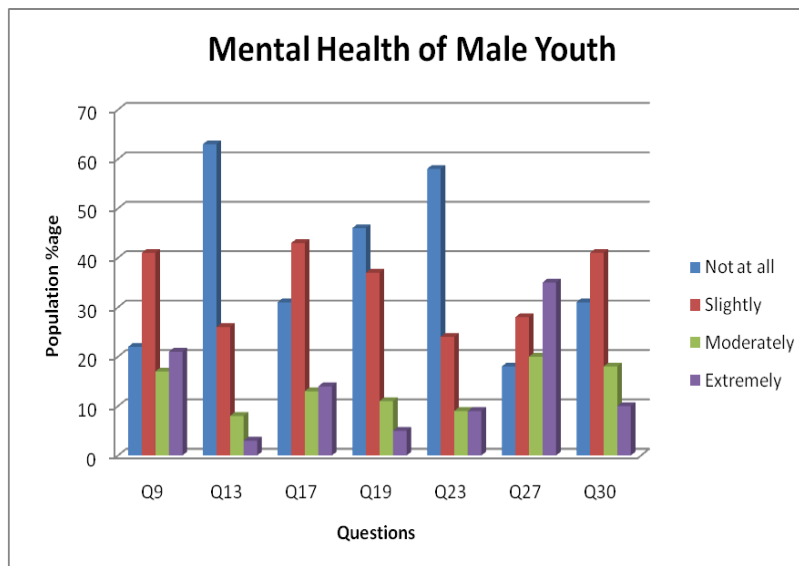
Graph 3.1 represented that male youth were more feeling to meet with opposite sex online while using cloud based services as compared to female youth. Female youth becomes more short tempered than male youth offer they started using cloud based

services. Female youth become more emotional after they started using cloud based websites than male youth. Female youth get more feeling of memory loss ever since they were using cloud based websites than male youth. Most of female youth hide their identity while they were using cloud based websites than male youth. Most of male youth mind regularly prompts to check Mobile/PC/Laptop to see if they have any new tweet/comments/ messages ever since they were using cloud based social networking websites than female youth. Female youth have more regular mental pressure when they know that their data was stored in an unknown place while using cloud based computing than male youth.



Graph 3.2

Graph 3.2 shows that most of female youth were, "Slightly Agree" to become short tempered, more emotional, meet with opposite sex and mind regularly prompts to check Mobile/PC/Laptop to see if they have any new tweet/comments/ messages ever since they were using cloud based social networking websites. Most of female youth were, "Extremely Agree" that mind regularly prompts to check Mobile/PC/Laptop to see if they have any new tweet/comments/ messages ever since they were using cloud based social networking websites. Most of female youth were not accepted that they got memory loss, mental pressure due to the data storage on unknown place and hide their identity while they were using of cloud based computing.



Graph 3.3

Graph 3.3 shows most of male youth were not accepted that they become short tempered, got memory loss and hide their identity while they were using cloud based services. Most of male youth were "Slightly Agree" that they have happy feeling when they meet with opposite sex online, become short tempered and mental pressure due to the data storage on unknown place while they were using cloud based services. Graph shows that male youth were completely accepted that mind regularly prompts to check Mobile/PC/Laptop to see if they have any new tweet/comments/ messages ever since they were using cloud based social networking websites.

Now days all social site mobile applications are generally cloud based. This has made them easily acceptable with all devices. As a result user is always surrounded with IT enabled services in the background of his mind. Our research aims to study the mental health concern of different people depending on their involvement in such cloud based services.

Table-3.2 THE ANOVA SUMMARY (P < .05)

Source of Variance	S.S.	df	M.S.	F	P
Treatment	1090.58	5	218.12		
Gender	385.01	1	385.01	27.84	< .01
Internet Speed	206.41	1	206.41	14.93	< .01
Internet Use in Hrs.	77.03	1	77.03	5.57	<.01
Gender × Internet Speed × Internet Use in Hrs.	422.13	2	211.07	15.26	<.01
Within Error	4340.27	314	13.83		
Total	5430.85	319			

$F_{.05} (1, 314) - 3.87$; $F_{.05} (2, 314) - 3.03$

$F_{.01} (1, 314) - 6.72$; $F_{.01} (2, 314) - 4.68$

Table-3.2 shows that the female youths feel mental pressure when they knowing that the data is stored in an unknown place in cloud based services than male youth in general. Those youth who have internet speed up to 512 kbps, have emotionally weak ever since they are using cloud based websites than youth having internet speed above 512 kbps. Those youth who are using internet more than 2 hrs per day, hide their identity while they are using cloud based websites than youths are using internet less than or equal to 2 hrs per day.

Sanjay et al found that security is of great importance in cloud computing and social networking. Cloud computing security refers to the technology that is used to protect the data and applications of the cloud from threats such as unauthorized access, disruption of services, modification and others. In cloud security, the common goals or objectives of information security still apply: confidentiality, integrity, and availability. With social networks attention should be given to the sharing of data between authorized users [6]. Tran et al proposed such a framework for securely sharing data. This was based upon a proxy re-encryption process where a key is shared between both the user and proxy. If a user is removed from a group by the administrator they would be unable to re-access that group. This model had two weaknesses: security could become vulnerable should the proxy and a user participate in collusion, and the potential load on the proxy for encryption and decryption of data shared[7].

Table-3.3 Research Paradigm

Gender	Internet Speed Less than or equal to 512 kbps (A1)		Internet Speed Greater than 512 kbps (A2)		Σ
	Internet Use Less than or equal to 2hrs Per day (B1)	Internet Use More than 2hrs Per day (B2)	Internet Use Less than or equal to 2hrs Per day (B1)	Internet Use More than 2hrs Per day (B2)	
Male	604	571	556	497	2228
Female	593	764	572	650	2579
Σ	1197	1335	1128	1147	4807

Table-3.4 't' Test

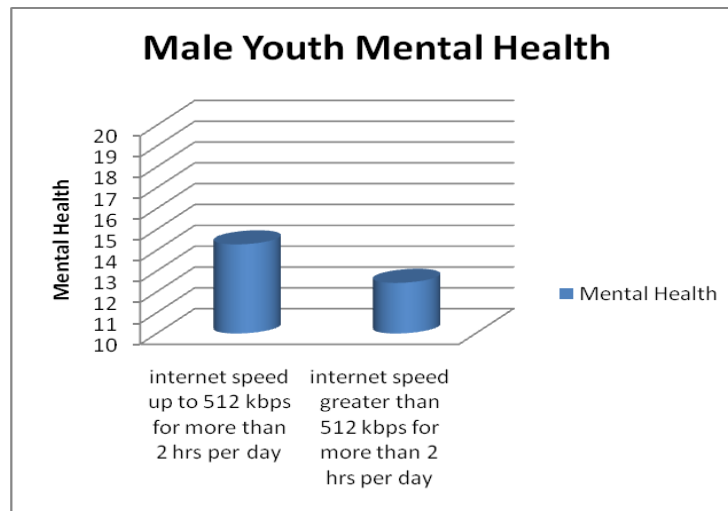
S.No.	Gender	Interaction	M	SD	t	P
1	Male	A1 \times B1	15.10	4.12	1.06	
		A1 \times B2	14.28	2.70		
2	Male	A2 \times B1	13.90	3.57	1.75	
		A2 \times B2	12.43	3.97		
3	Male	A1 \times B1	15.10	4.12	1.39	
		A2 \times B1	13.90	3.57		
4	Male	A1 \times B1	15.10	4.12	2.96	
		A2 \times B2	12.43	3.97		
5	Male	A1 \times B2	14.28	2.70	0.53	
		A2 \times B1	13.90	3.57		
6	Male	A1 \times B2	14.28	2.70	2.44	<.05
		A2 \times B2	12.43	3.97		
7	Female	A1 \times B1	14.83	3.69	5.75	<.01
		A1 \times B2	19.10	2.91		
8	Female	A2 \times B1	14.30	3.61	2.12	<.05
		A2 \times B2	16.25	4.54		
9	Female	A1 \times B1	14.83	3.69	0.64	
		A2 \times B1	14.30	3.61		
10	Female	A1 \times B1	14.83	3.69	1.54	
		A2 \times B2	16.25	4.54		
11	Female	A1 \times B2	19.10	2.91	6.55	<.01
		A2 \times B1	14.30	3.61		
12	Female	A1 \times B2	19.10	2.91	3.34	<.01
		A2 \times B2	16.25	4.54		

13	A1 × B1	Male	15.10	4.12	0.31	
		Female	14.83	3.69		
14	A1 × B2	Male	14.28	2.70	7.69	<.01
		Female	19.10	2.91		
15	A2× B1	Male	13.90	3.57	0.50	
		Female	14.30	3.61		
16	A2 × B2	Male	12.43	3.97	4.01	<.01
		Female	16.25	4.54		

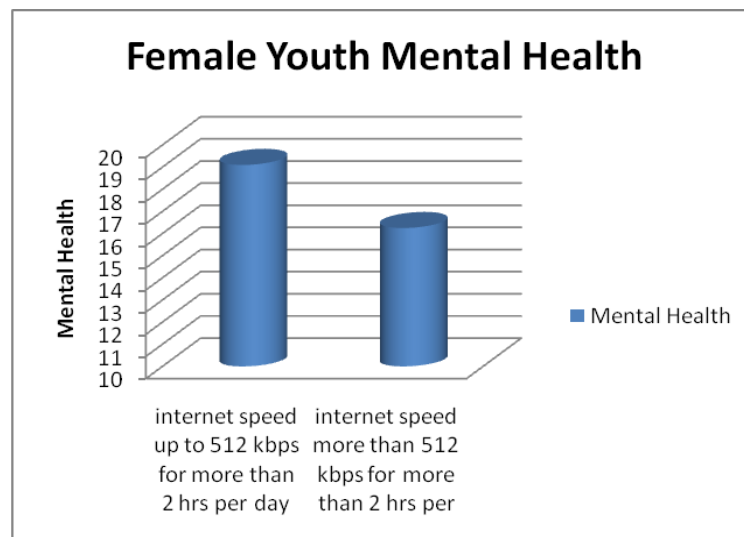
$t_{.05} (df=78) = 1.99$; $t_{.01} (df=78) = 2.64$

Internet Speed Variability Based Results-

- The male youth using internet speed up to 512 kbps for more than 2 hrs per day having memory loss ever since they are using cloud based websites than male youth using internet speed greater than 512 kbps for more than 2 hrs per day.



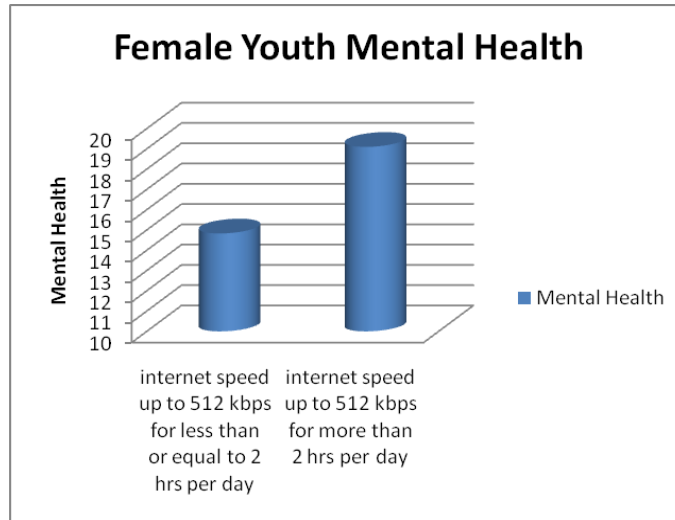
- The female youth using internet speed up to 512 kbps for more than 2 hrs per day feeling unhappy when they meet with opposite sex while using cloud based services than female youth using internet speed more than 512 kbps for more than 2 hrs per.



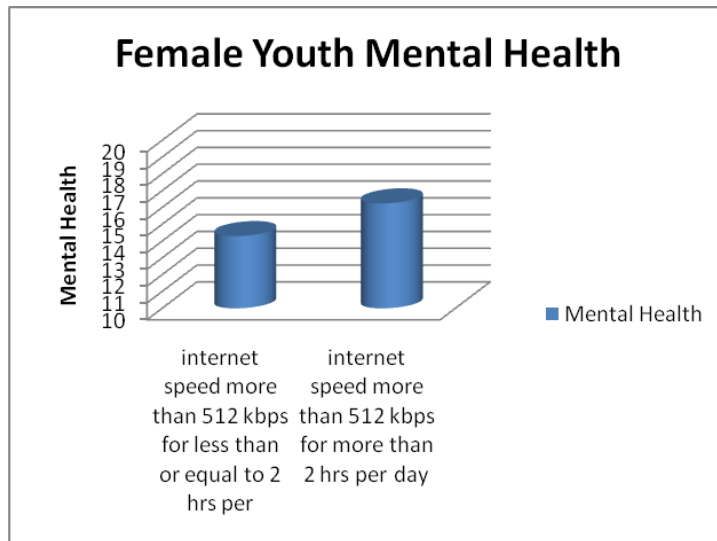
Most teens surveyed who are regular media users have lots of friends, get along well with their parents, and are happy at school [9]. However, peer rejection and a lack of close friends are among the strongest predictors of depression and negative self-views [10]. Teens who are the heaviest media users report being less content and are more likely to report that they get into trouble a lot, are often sad or unhappy, and are often bored [9].

Internet Used Per Day Variability Based Results-

1. The female youth using internet speed up to 512 kbps for more than 2 hrs per day are hiding their identity while they are using cloud based websites than female youth using internet speed up to 512 kbps for less than or equal to 2 hrs per day.



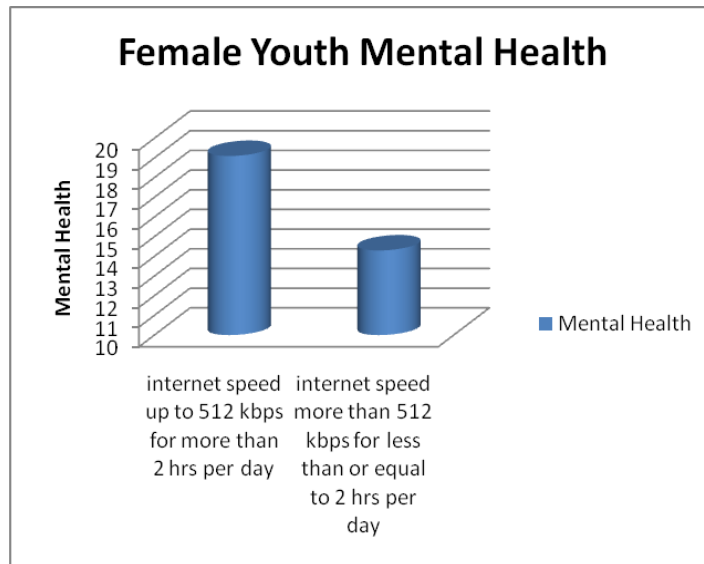
2. The female youth using internet speed more than 512 kbps for more than 2 hrs per day having emotionally weak ever since they are using cloud based websites than female youth using internet speed more than 512 kbps for less than or equal to 2 hrs per.



Cyber bullying has been shown to cause higher levels of depression and anxiety for victims than traditional bullying and has also been connected to cases of youth suicide with teens known to engage in reading hurtful comments days before their suicide attempts [11].

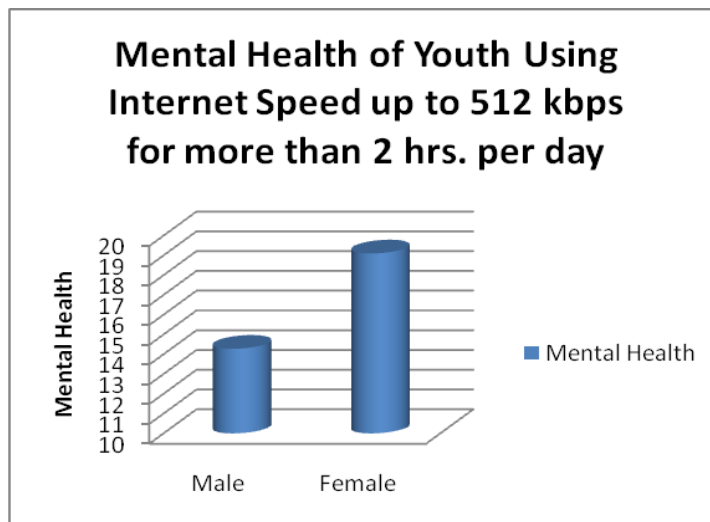
Internet Speed and Internet Used Per Day both Variability Based Results-

1. The female youth using internet speed up to 512 kbps for more than 2 hrs per day are short tempered ever since they are using cloud based websites than female youth using internet speed more than 512 kbps for less than or equal to 2 hrs per day.

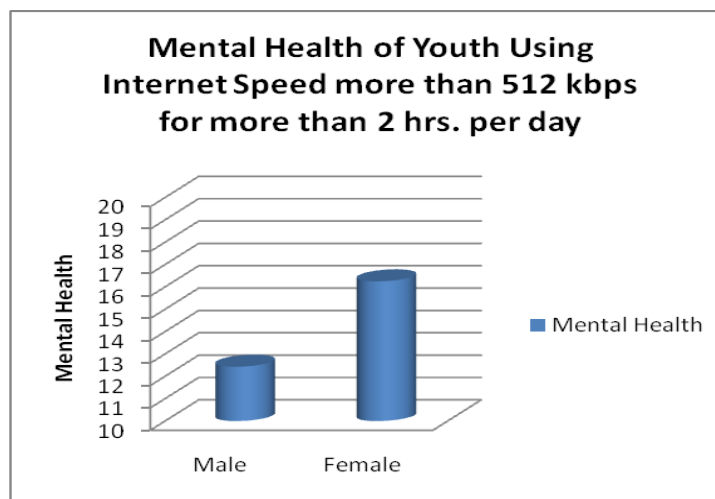


Gender Based Results-

1. The female youth using internet speed up to 512 kbps for more than 2 hrs per day having memory loss ever since they are using cloud based websites than male youth.



2. The female youth using internet speed more than 512 kbps for more than 2 hrs per day having emotionally weak ever since they are using cloud based websites than male youth.



3. CONCLUSION

Results shows that male youth are more feeling to meet with opposite sex online while using cloud based services as compared to female youth. Most of male youth mind regularly prompts to check Mobile/PC/Laptop to see if they have any new tweet/comments/ messages ever since they are using cloud based social networking websites than female youth. The female youth using internet speed more than 512 kbps for more than 2 hrs per day having emotionally weak ever since they are using cloud based websites than male youth. Our research survey shows that female are more effective from cloud based services in compare to male so we suggest that we should find some solutions to reduce the negative effective on youth mental health. We should build new technology but we do not forget the another aspect of that.

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