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## INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/2384

DOI URL: <http://dx.doi.org/10.21474/IJAR01/2384>



### RESEARCH ARTICLE

#### SOCIAL MEDIA AND DEPRESSIVE EPISODES.

**Abdulrahman Abuhaimed, Habeeb Al Habboubi, Abdullah Al Jabr, Abdullah Al Otaibi, Ali Al Najjar, Badea Al Marzooq, Abdulrahman Al Mehrij, Fawaz Al Mulhim, Haider Al Herz, Mohammed Al Qahtani, Mohannad Al Qahtani, Saud Al Ardhi and Yousef Al Marzouq.**  
Medical students, Imam Abdulrahman Al Faisal University.

#### Manuscript Info

##### Manuscript History

Received: 19 October 2016

Final Accepted: 20 November 2016

Published: December 2016

#### Abstract

**Introduction and Aim:** Due to the increase involvement of social media in our daily activity, we conducted a survey to see the correlation between social media use and development of depression.

**Design of survey:** A Questioner paper was filled by randomly selected individuals. Data was collected with a total number of 283 subject and was analyzed using SPSS software program.

**Results:** According to our results, (45%) of the subjects (n=258) met the criteria of a depressive episode due to social media use. The data shows that there is no significant correlation between development of a depressive episode due to social media use and the other variables, except awareness, where there is a significant p value ( $p = 0.04$ ) and a negative r value ( $r = -0.128$ ).

**Conclusion:** We conclude that there is a link between development on a depressive episode from usage of social media and awareness, which signifies the importance of spreading public awareness on social media effect on psychological health.

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#### Introduction:-

In our time, the social media and social networking (Facebook, Twitter...etc.) is becoming a part of our daily life, so one can imagine the consequences of this increase in social media use on the psychological wellbeing of an individual. In our research, we conducted a survey to see the correlation between social media use and the development of a depressive episode. Our results were significant and show a strong link between social media and depressive episodes reflecting the magnitude of the issue and the need for a deeper and more sophisticated study to reach a solution.

Social media are internet-based application that allows people to communicate, socialize, and share personal information in virtual communities and networks.

According to the KSA Social Clinic in Jeddah, in 2013, it is estimated that 8.4 million of the Saudi population are active Facebook users, 26% are female and 74% are male, and most are in the age group between 18 to 34 years old, it is also estimated that there is currently 5 million active twitter account with a rate of increase by 45% per year in new accounts, these statistics reflex the magnitude of social media usage among the Saudi population

In 2013, according to the journal of Adolescent health, a paper published by Lauren A. Jelenchick titled “Facebook depression? Social networking site use and depression in older adolescent” concluded that there were no evidence supporting a relationship between social networking and clinical depression.

It was noted that in the past 5 years many news articles emerged discussing the psychological impact of social media on the young population as Facebook blues, envy and depression, cyber bullying ...etc. This lead to the idea of conducting a survey that would target social media users and its correlation with development of depressive episodes based on ICD-10 criteria.

### **Design of survey:-**

On December 2013, University of Dammam organized a public exhibition in Othaim mall in Dammam, Saudi Arabia, Which focused on social media impact on the community, it had many corners each tackling a specific subject. Ours was focused on the physical complications of prolonged use of personal computers (backache, carpal tunnel syndrome...etc). We prepared a questionnaire form that would be filled at the end of the tour. After filling the questionnaire, the individual would place it directly in a sealed box to assure privacy and avoid any social embarrassments. The tour would discuss physical complications and at the end of the tour one of the investigators would explain in details the survey and its contents to avoid any misunderstandings, and to emphasizes on that these answeres should be related to social media use specifically, then the individual would be left to fill the form privately and help would be provided upon request. The exhibition lasted 3 days, and at the end of the exhibition a total of (n=283) forms were collected. After data collection, the program Statistical Package for the Social Sciences (SPSS) was used for data entry and analysis.

Human subjects were randomly selected, not targeted individuals whom attended the exhibition.

The form was a patient health questionnaire (phq-9)\* relying on ICD-10 interpretation. It was translated to Arabic and back to English by different investigator to ensure accuracy. It had multiple variables that would add extra information with statistical benefits that could be used in different hypotheses.

Inclusive criteria are: any subject, who went on the tour, was explained the form in details with full understanding, completed the questionnaire, and placed it inside the box.

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دراسة ميدانية عن تأثير الإنترنت ووسائل الإعلام الاجتماعية على الصحة النفسية

معلومات عامة:-

1. العمر:  9-15  16-19  20-27  28-35  36 وأكثر. 2. الجنس:  ذكر  أنثى

3. كم عدد التطبيقات في هاتفك الجوال (تويتر, فيسبوك, باث, برامج المحادثة...):  2-3  4-8  أكثر من 8

4. معدل استخدامك لهذه التطبيقات يومياً:  ساعة - ساعتين  ساعتين - أربع ساعات  أكثر من أربع ساعات.

5. عدد صداقاتك المقربة في مواقع التواصل الاجتماعي:  1-2 أصدقاء  3-6 أصدقاء  أكثر من 6 أصدقاء.

6. هل تعتقد بأن مواقع التواصل الاجتماعي كـ (فيسبوك, تويتر, أنستغرام, باث,...) (منتديات, غرف الدردشة, ألعاب الإنترنت "واركرافت, فارمفل, إلخ...") هيا سبب أساسي للتأثير على الصحة النفسية للشخص:  نعم  لا

هل يوجد ارتباط بين أي من هذه العوامل التالية مع إستخدامك للإنترنت (فيسبوك, تويتر, أنستغرام, باث,...) (منتديات, غرف الدردشة, ألعاب الإنترنت "واركرافت, فارمفل, إلخ..."):  نعم  لا

لا	نعم	خلال أسبوعين مستمرين .....
		1- شعرت بحزن مستمر أو مزاج هابط:
		2- شعرت بفقدان الاهتمام وعدم المتعة:
		3- شعرت بتعب وإرهاق:
		4- نومي غير معتدل وعدم الراحة بالنوم (عدم القدرة على النوم أو النوم لساعات طويلة في النهار والليل):
		5- شعرت بعدم التركيز والعجز عن إتخاذ القرار:
		6- شعرت بضعف في الثقة بالنفس أو الخوف من آراء الآخرين:
		7- التهيج وسرعة الغضب (سواء أنتبهت إليه من نفسك أو أشار له أحد من حوله):
		8- شعرت بالخوف والقلق:
		9- التفكير بالموت ووجود أفكار إنتحارية بدون خطة معينة:
		10- تحدثت أقل من العادة:
		11- شعرت بالوحدة:
		12- الناس كانوا غير ودودين معي:
		13- شعرت بالرغبة في البكاء:
		14- شعرت بالحزن:
		15- شعرت بأن الناس يكرهوني:
		16- قلة الاهتمام بالنفس (المظهر العام) وكثرة نوم النفس والشعور بالذنب:

لا	نعم	هل تم تشخيصك مسبقاً بأي من الأمراض التالية:
		1- انفصام الشخصية (schizophrenia)
		2- اضطراب الوهمية (Delusional Disorder)
		3- اضطراب ثنائي القطبية (Bipolar Disorder)
		4- اضطراب الاكتئاب الأقمصي (Major Depressive Disorder أو Clinical Depression)

Exclusive criteria are: any subject, who didn't go on the tour, didn't have complete understanding of the form, didn't complete the questionnaire, had been diagnosed clinically with any significant mental disorder, and didn't place the form inside the box.

#### Our variables in the form were as followed:-

##### Age:-

Ages of the subjects were grouped based on developmental stages, a group of 9 to 15 represented pubescent group and coming to age group, a group of 16 to 19 represented an adolescence group, a group of 20 to 27 represents young adults whom are in the age of marriage, a group of 28 to 35 represents adults whom are usually married with children, finally a group of over 35 whom represented an older generation.

##### Gender:-

Male and female.

##### Number of applications used (Twitter, Facebook, Path, Chatting applications... etc.)

They were grouped to 2-3, 4-8, or 8 and above.

**Actual average daily use:-**

How many hours were spent using these applications specifically, answers were grouped to one to two hours, two to four hours, or over four hours.

**Number of close friends online:-**

How many actual close friends do you have online that you are in touch with, they were grouped to 1-2 friends, 2-6 friends, or over 6 friends.

Do you think that online social media (e.g. Facebook, twitter, path, online forums, chat rooms...etc.) have a direct effect on the psychological health of an individual?

A direct question which aimed to evaluate awareness and see personal opinions on the matter, answers were either yes or no.

Afterwards the patient health questionnaire (PHQ9) was used, based on criteria from ICD-10, 4 out of 9 questions answered with yes makes the diagnosis of a depressive episode positive. Some questions were added to avoid random selections, those don't have any significance and are not taken in consideration.

Finally there was a table to screen if the patient had been diagnosed clinically with any significant mental disorder, subjects who answers any of them positively is excluded from the study.

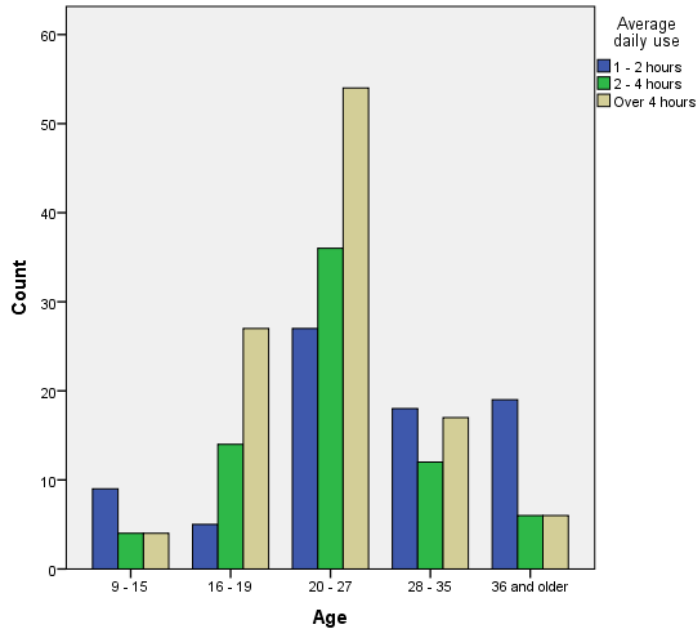
**Results:-**

Number of subjects excluded from the study because they had been diagnosed clinically with a significant mental disorder(n=25) representing 8.8%.

Mental Patient					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Eligible	258	91.2	91.2	91.2
	Out	25	8.8	8.8	100.0
	Total	283	100.0	100.0	

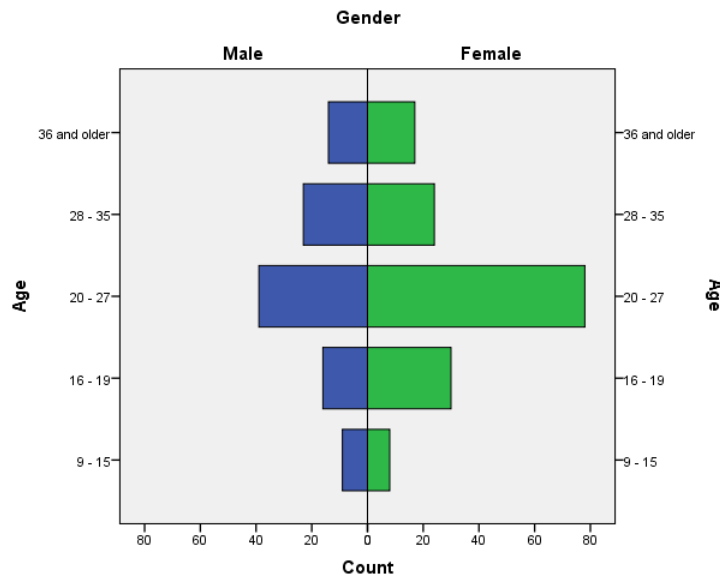
Crosstab between age of subjects and number of hours used.

Age * Average daily use Crosstabulation						
			Average daily use			Total
			1 - 2 hours	2 - 4 hours	Over 4 hours	
Age	9 - 15	Count	9	4	4	17
		% within Age	52.9%	23.5%	23.5%	100.0%
		% within Average daily use	11.5%	5.6%	3.7%	6.6%
	16 - 19	Count	5	14	27	46
		% within Age	10.9%	30.4%	58.7%	100.0%
		% within Average daily use	6.4%	19.4%	25.0%	17.8%
	20 - 27	Count	27	36	54	117
		% within Age	23.1%	30.8%	46.2%	100.0%
		% within Average daily use	34.6%	50.0%	50.0%	45.3%
28 - 35	Count	18	12	17	47	
	% within Age	38.3%	25.5%	36.2%	100.0%	
	% within Average daily use	23.1%	16.7%	15.7%	18.2%	
36 and older	Count	19	6	6	31	
	% within Age	61.3%	19.4%	19.4%	100.0%	
	% within Average daily use	24.4%	8.3%	5.6%	12.0%	
Total	Count	78	72	108	258	
	% within Age	30.2%	27.9%	41.9%	100.0%	
	% within Average daily use	100.0%	100.0%	100.0%	100.0%	



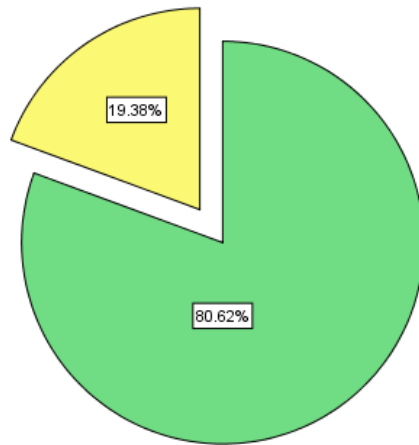
**Frequency of gender:**

		Gender	
		Frequency	Valid Percent
Valid	Male	101	39.1
	Female	157	60.9
	Total	258	100.0



**Awareness:-**

Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ...etc) have a direct effect on the psychological health of an individual?				
		Frequency	Valid Percent	Cumulative Percent
Valid	Yes	208	80.6	80.6
	No	50	19.4	100.0
	Total	258	100.0	



Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ... etc) have a direct effect on the psychological health of an individual?

Yes  
 No

**Number of applications used:**

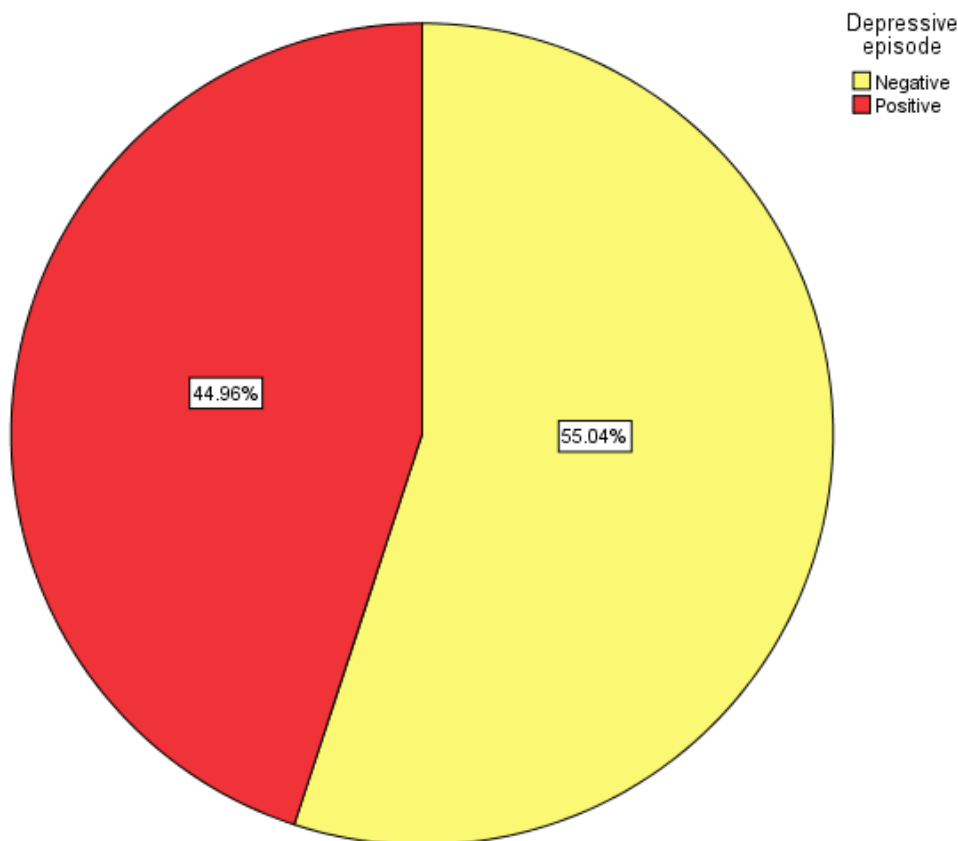
Number of apps used			
		Frequency	Valid Percent
Valid	2 - 3	81	31.4
	4 - 8	105	40.7
	Over 8	72	27.9
	Total	258	100.0

**Number of close online friends:-**

Number of online close friends			
		Frequency	Valid Percent
Valid	1 - 2	23	8.9
	3 - 6	54	20.9
	More than 6	181	70.2
	Total	258	100.0

**Percentage of subjects which met the criteria of a depressive episode:-**

Depressive episode			
		Frequency	Valid Percent
Valid	Negative	142	55.0
	Positive	116	45.0
	Total	258	100.0



Crosstabulation between age group and depressive episode:

Age * Depressive episode Crosstabulation					
			Depressive episode		Total
			Negative	Positive	
Age	9 - 15	Count	11	6	17
		% within Age	64.7%	35.3%	100.0%
		% within Depressive episode	7.7%	5.2%	6.6%
	16 - 19	Count	23	23	46
		% within Age	50.0%	50.0%	100.0%
		% within Depressive episode	16.2%	19.8%	17.8%
	20 - 27	Count	66	51	117
		% within Age	56.4%	43.6%	100.0%
		% within Depressive episode	46.5%	44.0%	45.3%
	28 - 35	Count	24	23	47
		% within Age	51.1%	48.9%	100.0%
		% within Depressive episode	16.9%	19.8%	18.2%
36 and older	Count	18	13	31	
	% within Age	58.1%	41.9%	100.0%	
	% within Depressive episode	12.7%	11.2%	12.0%	
Total	Count	142	116	258	
	% within Age	55.0%	45.0%	100.0%	
	% within Depressive episode	100.0%	100.0%	100.0%	

**Crosstabulation between average daily use and depression:-**

<b>Average daily use * Depressive episode Crosstabulation</b>					
			Depressive episode		Total
			Negative	Positive	
Average daily use	1 - 2 hours	Count	48	30	78
		% within Average daily use	61.5%	38.5%	100.0%
		% within Depressive episode	33.8%	25.9%	30.2%
	2 - 4 hours	Count	37	35	72
		% within Average daily use	51.4%	48.6%	100.0%
		% within Depressive episode	26.1%	30.2%	27.9%
	Over 4 hours	Count	57	51	108
		% within Average daily use	52.8%	47.2%	100.0%
		% within Depressive episode	40.1%	44.0%	41.9%
Total	Count	142	116	258	
	% within Average daily use	55.0%	45.0%	100.0%	
	% within Depressive episode	100.0%	100.0%	100.0%	

**Crosstabulation between number of applications and depressive episodes:-**

<b>Number of apps used * Depressive episode Crosstabulation</b>					
			Depressive episode		Total
			Negative	Positive	
Number of apps used	2 - 3	Count	39	42	81
		% within Number of apps used	48.1%	51.9%	100.0%
		% within Depressive episode	27.5%	36.2%	31.4%
	4 - 8	Count	64	41	105
		% within Number of apps used	61.0%	39.0%	100.0%
		% within Depressive episode	45.1%	35.3%	40.7%
	Over 8	Count	39	33	72
		% within Number of apps used	54.2%	45.8%	100.0%
		% within Depressive episode	27.5%	28.4%	27.9%
Total	Count	142	116	258	
	% within Number of apps used	55.0%	45.0%	100.0%	
	% within Depressive episode	100.0%	100.0%	100.0%	

**Crosstabulation between awareness and opinion with depressive episodes:-**

<b>Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ...etc) have a direct effect on the psychological health of an individual? * Depressive episode Crosstabulation</b>					
			Depressive episode		Total
			Negative	Positive	
Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ...etc) have a direct effect on the psychological health of an individual?	Yes	Count	108	100	208
		% within Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ...etc) have a direct effect on the psychological health of an individual?	51.9%	48.1%	100.0%
		% within Depressive episode	76.1%	86.2%	80.6%
	No	Count	34	16	50



		% within Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ...etc) have a direct effect on the psychological health of an individual?	68.0%	32.0%	100.0%
		% within Depressive episode	23.9%	13.8%	19.4%
Total	Count		142	116	258
		% within Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ...etc) have a direct effect on the psychological health of an individual?	55.0%	45.0%	100.0%
		% within Depressive episode	100.0%	100.0%	100.0%

**Correlation coefficient between depressive episodes and other variables:-**

Correlation coefficient			Depressive episode
Spearman's rho	Depressive episode	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	258
	Age	Correlation Coefficient	.004
		Sig. (2-tailed)	.949
		N	258
	Gender	Correlation Coefficient	.102
		Sig. (2-tailed)	.101
		N	258
	Number of apps used	Correlation Coefficient	-.052
		Sig. (2-tailed)	.408
		N	258
	Average daily use	Correlation Coefficient	.067
		Sig. (2-tailed)	.284
		N	258
	Number of online close friends	Correlation Coefficient	-.050
		Sig. (2-tailed)	.424
		N	258
	Do you think that online social media (e.g. Facebook, twitter, path, online forums, chatrooms, ...etc) have a direct effect on the psychological health of an individual?	Correlation Coefficient	-.128*
		Sig. (2-tailed)	.040
		N	258

**Discussion:-**

Our data shows that subjects age 20 – 27 represent the majority (45.3%) of social media users, with (46.2%) of them spending an average of over 4 hours on it, bearing in mind that most of our subjects (n=117) are of this age group.

Our data also shows that awareness of development of a depressive episode due to social media usage is at (80.62%).

Finally according to our results, (45%) of the subjects (n=258) met the criteria of a depressive episode due to social media use which signifies the magnitude of social media impact on the psychological wellbeing of an individual.

The data shows that there is no significant correlation between development of a depressive episode due to social media use and the other variables, except awareness, where there is a significant p value ( $p = 0.04$ ) and a negative r value ( $r = -0.128$ ), which indicates that there is a weak significant negative correlation between development of a depressive episode due to social media use and awareness, concluding that individuals with awareness has a lesser chance of development of a depressive episode due to social media. Otherwise the issue doesn't rely on age, gender, number of hours spent on social media, number of close friends, and number of applications.

**Conclusion:-**

We conclude that there is a link between development on a depressive episode from usage of social media and awareness, which signifies the importance of spreading public awareness on social media effect on psychological health.

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