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Virtually alone: excessive Facebook use and mental health risk in Palestine, a cross sectional study[†]

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ABSTRACT

Social media has changed the face of social interaction, particularly in countries like Palestine where restrictions related to cultural and geopolitical realities create an environment of isolation for young adults. Despite its benefits, it is suggested that dependence on social media diminishes motivation to participate in naturally occurring activities and life interests leading to mental health risks. The aim of this study was to assess the potential association between excessive Facebook use and emotional discomfort (depressive, anxiety, and stress symptoms) in a student population in Palestine. A descriptive cross-sectional design was utilized in this investigation. The study population included all students at a major university in Palestine. The sample included 1003 students of mixed gender and area of study. A survey of Facebook utilization, perceived academic success and mental health risk was completed by each participant. Almost all participants [938 (98.3%)] were Facebook users with a high utilization population identified [239 (26%) spending over 3 hours daily on Facebook] and 262 (28.3%) had over 300 Facebook friends. A relationship between the intensity of Facebook use/ number of Facebook friends and symptoms of anxiety and depression was found; higher levels of use predicting higher levels of symptoms ($p < 0.05$). Furthermore, a significant association between scores on the Facebook Intensity Scale (FIS) and perceived negative effect on educational performance was demonstrated ($p < 0.001$). The excessive use of Facebook in environments of social and leisure restriction may lead to increased risk for mental health symptomology and interfere with actual developmental tasks by negatively impacting academic achievement and other indicators of success for young adults.

Keywords: Facebook Use, University Students, Mental Health, Palestine.

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INTRODUCTION

The human need and desire for social interaction especially in the period of young adulthood are not debatable. Online social networks have created systems allowing for easy, accessible, low-cost social connectivity, even for people isolated by geographical, cultural, and political circumstances. Facebook is the largest of these networks which boosted over 2 billion active users in 2019 with over half of its members being in the age group of 18-34 years [1]. Social Networks are used by 52% of adolescents and 82% of young adults on a regular basis [2].

Palestinian social media users are on the rise at an accelerated rate. In 2017, there were

1.6 active social media users, with Facebook and WhatsApp being the most widely used social media platforms [3]. Palestine ranked as the fourth country in the Arab world in new Facebook users (as percentage of population) in the first half of 2018. In Palestine, 70% of Facebook users are youth, and 55.4% are males [4].

Youth in Palestine have few social and leisure opportunities open to them. Villages, refugee camps, and cities are separated by military checkpoints with few options for transportation after sundown and during periods of escalated conflict. Further heightened cultural restrictions on face to face communication and activities between genders and social clas-

ses further complicate the venues for social interaction. There are limited leisure time activities available, especially for older adolescents. In this environment Facebook offers a free, unsupervised, accessible, and consistent avenue for talking with friends, meeting new people, forming and enhancing social relationships as well as creating a previously non-existent leisure time activity [5].

Despite of its popularity concern is growing that excessive Facebook or social media use leads to a decreased interest in real-life activities and relationships as well as magnifying anti-social behavior due to the lack of supervision and accountability on social media for youth [6,7]. Studies have identified negative social media behaviors in younger populations including the posting of bizarre statuses, uploading images with violent or inappropriate content, and initiating conflicts, including cyber-bullying [8,9]. Prior research has shown that overdependence on feedback from peers on social media may affect an individual's behavioral choices, particularly in youth with low self-esteem [10].

Some investigations have linked social media use with influencing subjective well-being negatively through interference with time/ financial management. Studies have suggested that social network use leads to an actual decrease in grade point average achievement in even moderate use students [10].

The American Psychological Association has described high utilizes as evidencing symptoms of addiction including symptoms of tolerance, withdraws and continued use in the face of negative life consequences including loss of sleep, decrease in grades and relationship conflicts [11]. Jelenick et al. evaluated

social network use related to clinical depression and found no relationship between the variables in their population of university students in a Midwestern community in the United States [12].

However, these results may have limitations when generalized to youth having higher levels of environmental stress (poverty, occupation, cultural restriction, etc.), fewer alternatives opportunities for socialization, and when expanded to include a larger range of mental health risk (including a variety of symptoms) and not limited to a clinical level of depression. The aim of this study is to evaluate the effect of excessive Facebook use on the level of mental health symptoms and perception of academic achievement on university students in Palestine.

METHODS

Study design and participants

The study was completed at a major university, which is one of the largest provider of higher education in Palestine, including students from all areas of the West Bank territories and a wide variety of socioeconomic identifiers. The sample population was students in three main schools (Faculty of Arts, Humanities, and Social Sciences, Faculty of Engineering, Mathematics, and Sciences, & Faculty of Medicine and Health Sciences). The study population consisted of all male and female students who were registered in the records of the university for the academic year 2014/2015. The common classes that were attended by the target student population were chosen to select the sample of participants using a systematic random sampling technique. Of those who agreed, every 5th student received the questionnaires; 1003 surveys were

distributed and 922 completed and included in analysis.

Study tool

A self-administered questionnaire was used as a study instrument which included three separate measures. The first section is about background characteristics of the participants and their Perceived negative effect of Facebook on educational performance, the second is the Facebook Intensity Scale (FIS), and the last section is the Depression Anxiety Stress Scale (DASS). The questionnaire was constructed by the investigators based on literature review [13–15]. The entire investigative package of instruments was tested with a pilot sample of 80 participants at the initiation of the study to ensure the clarity, time, ease of administration, and reliability. Minor changes were made on the basis of feedback from the pilot test. The questionnaire included information on demographic data, Facebook usage, the perceived negative effect of Facebook on educational performance, and emotional discomfort (depressive, anxiety, and stress symptoms).

FIS was used to measure Facebook usage including both frequency and duration, as well as incorporating emotional connectedness to the site and its integration into individuals' daily activities. The scale was constructed by Ellison 2007[16] that contains 6 questions. The used Arabic language version was validated by a front and back translation process by three bilingual experts in related fields, who are familiar with the area of study. The Cronbach's alpha was calculated for this scale using the pilot study and was found to be 0.78.

The perceived negative effect of Facebook on educational performance was deter-

mined by specifically created questions including Facebook use during study time/lecture time, the belief that using Facebook decreased concentration and affected GPA, and the participant's feeling that they were "addicted" to Facebook. These questions were built based on the literature. The Cronbach's alpha was calculated for this section using the pilot study and was found to be 0.61.

To measure emotional discomfort, the DASS21 was used. It is a subclass of the full DASS42 used for research purposes to measure depressive, anxiety, and stress symptoms in the participant. It produces similar results to the full DASS42, but takes half the time for administration. The Arabic version of the scale was validated and the reliability was checked by Mousiest al [15]. For this study, Cronbach's alpha was calculated using the pilot study and was found to be 0.93. The results of the DASS21 are classified into normal, mild, moderate, severe, and extremely severe [17].

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Statistical analysis

The FIS scores for each individual and its mean was used for comparison. The variable "Time spent on Facebook" was compacted into 2 categories (2 hours or less, and more

than 2 hours) based on the average time of Facebook use mentioned in the literature [16]. The variable "Total number of Facebook friends" was collapsed into 2 categories (300 or fewer friends, and more than 300 friends) based on the average number of Facebook friends mentioned in other article [16]. The proportion of each study variable was calculated. The association between study variables was assessed using Chi-square test, independent t-test, and Spearman's Correlation as appropriate with the significance level set at 0.05.

Ethical approval

Approval was given from the Institutional Review Board (IRB) at ANU, and permission to distribute the questionnaire was obtained from the university administration. Students were given information about the study and the voluntary nature of participation. Their privacy and confidentiality were assured; no identifying information (name, ID, DOB, etc.) was included.

RESULTS

A total of 938 out of 1003 participants returned valid questionnaires with a response rate of 93.5%. 922 of them (98.3%) reported that they have accounts on Facebook. The mean age of participants was 19.74 (± 1.33) years, and 570 of them (61.9%) were females. The sample contained students from all targeted faculties and all academic years distributed as shown in the table below (Table 1).

When asked about the average time per day they spent on Facebook last week, 375 (40.7%) of the respondents spent "more than 2 hours. Concerning the total Facebook friends, 262 students (28.4%) reported having more than 300 friend son Face-book. Table 1 shows

the detailed answers on participants' characteristics and their Face-book use.

Table (1): Socio-demographic and Facebook use Characteristics of respondents (n= 922).

Characteristic	Frequency (%)
Gender	
Males	351 (38.1)
Females	570 (61.9)
Faculty	
Faculty of Arts, Humanities and Social Sciences	456 (49.6)
Faculty of Engineering, Mathematics and Science	230 (25.0)
Faculty of Medicine & Health Sciences	234 (25.4)
Year of study	
First-year	388 (42.3)
Second-year	225 (24.5)
Third-year	167 (18.3)
\geq Fourth-year	137 (14.9)
Daily Time spent on Facebook	
< 1 Hours	353 (38.3)
1-2 Hours	193 (21.0)
2-3 Hours	136(14.7)
> 3 Hours	239 (26.0)
Total Facebook Friends	
<100	210 (22.8)
100-200	253 (27.5)
200-300	196 (21.3)
> 300	262(28.4)

Facebook Intensity Scale (FIS)

Of the participants, 648 (70.3%) agreed that Facebook is part of their daily activities, and also that it is part of their everyday routine, and 112 (12.1%) reported that they are proud to tell others that they are on Facebook.

418 students (45.3%) feel out of touch when they don't log onto Facebook for a while, and 499 (54.1%) of the respondents feel that they have become part of a Facebook "society". 370 students (40.5%) stated that they would feel sorry if Facebook shut down. The FIS score for each participant was calculated in order to use in the comparison between different groups. Details are shown in Table 2.

Table (2): Distribution of participant's answer on the Facebook Intensity Scale.

Question	Disagree (%)	Neutral (%)	Agree (%)
"Facebook is part of my everyday activity"	16.2	13.5	70.3
"I am proud to tell people I'm on Facebook"	52.4	35.6	12.1
"Facebook has become part of my daily routine"	17.3	12.3	70.3
"I feel out of touch when I haven't logged onto Facebook for a while"	38.1	16.6	45.3
"I feel I am part of the Facebook community"	20.7	25.2	54.1
"I would be sorry if Facebook shut down"	40.5	19.5	39.9

Facebook use and educational performance:

Table 3 shows the impact of Facebook use on the perceived educational performance of the participants. Facebook use during study hours was reported by 647 (70.1%) participants and this was found to be significantly associated with time spent on Facebook ($p < 0.001$), the number of Facebook Friends ($p = 0.035$), and FIS ($p < 0.001$). Surprisingly, the results showed that 237 students (25.7%) use Facebook during lecture time, and this was found to be significantly higher among those who spent more time on Facebook ($p < 0.001$), those who have more Facebook friends ($p < 0.001$), and among those with higher FIS score ($p < 0.001$). Moreover, 510 students (55.3%) reported that Facebook use decreases their concentration in the lectures and/or independent studying, and 450 students (48.8%) think that Facebook affected their GPA negatively. Again, these were found to be significantly related to time spent on Facebook and FIS scores.

Finally, respondents were asked if they felt addicted to Facebook, 322 students (35%) reported thinking that they are addicted to Facebook and cannot live without it. This also was significantly associated with time ($p < 0.001$), number of Facebook friends ($p < 0.001$), and FIS score ($p < 0.001$).

Table (3): Association between educational performance and time, friends, and FIS (n=922).

Effects on education	Time n (%)		Friends n (%)		FIS Mean (SD) [#]
	≤ 2 hrs [*]	>2hrs [*]	≤ 300 [*]	>300 [*]	
Using Facebook during study hours					
Yes	350 (64.1)	296 (78.9)	449 (68.1)	197 (75.2)	19.8 (4.71)
No	196 (35.9)	79 (21.1)	210 (31.9)	65 (24.8)	17.6 (4.82)
P value	<0.001		0.035		<0.001
Using Facebook during lecture time					
Yes	99 (18.2)	137 (36.6)	143 (21.8)	93 (35.5)	21.2 (4.74)
No	445 (81.8)	237 (63.4)	513 (78.2)	169 (64.5)	18.4 (4.69)
P value	<0.001		<0.001		<0.001
Using Facebook decreases your concentration					
Yes	279 (51.1)	230 (61.3)	364 (55.2)	145 (55.3)	19.8 (4.82)
No	267 (48.9)	145 (38.7)	295 (44.8)	117 (44.7)	18.3 (4.80)
P value	0.002		0.976		<0.001
Using Facebook affects your GPA					
Yes	239 (43.9)	210 (56.0)	314 (47.7)	135 (51.5)	20.2 (4.70)
No	306 (56.1)	165 (44.0)	344 (52.3)	127 (48.5)	18.2 (4.79)
P value	<0.001		0.297		<0.001
Feeling that you are addicted to Facebook					
Yes	103 (18.9)	219 (58.4)	199 (30.2)	122 (46.6)	22.5 (3.80)
No	443 (81.1)	156 (41.6)	460 (69.8)	140 (53.4)	17.4 (4.38)
P value	<0.001		<0.001		<0.001

^{*} Chi Square test. [#] Independent sample t-test.

Depression, Anxiety, and Stress Scale (DASS):

Respondents completed a 21-question scale measuring their emotional discomfort (depressive, anxiety, and stress symptoms) when away from Facebook due to an event that they do not have any control over. Of the respondents, 392 students (42.5%) admitted that they suffered from depressive symptoms (at some level) in this situation. Also, 271 students (29.4%) suffered from general anxiety symptoms and 27.8% suffered from general

stress symptoms. Table 4 contains the classification of emotional discomfort among respondents.

Table (4): Depressive, Anxiety, and Stress symptoms among Facebook users (n=922).

Level	Depression Frequency (%)	Anxiety Frequency (%)	Stress Frequency (%)
Normal	530 (57.5)	651 (70.6)	666 (72.2)
Mild	115 (12.5)	89 (9.7)	96 (10.4)
Moderate	189 (20.5)	56 (6.1)	98 (10.6)
Severe	54 (5.9)	50 (5.4)	46 (5.1)
Extremely Severe	34 (3.7)	76 (8.2)	16 (1.7)

Table 5 reflects the correlation between DASS scales, time spent on Facebook, number of Facebook friends, and FIS. Spearman's correlation coefficients were calculated for the above-mentioned variables. A correlation coefficient of 0.33 ($p < 0.001$), 0.21 ($p < 0.001$),

and 0.31 ($p < 0.001$) was found between FIS and DASS subscales (depressive, anxiety, and stress symptoms, respectively), indicating a significant relationship between them. Also, a significant relationship was found between DASS subscales, time spent on Facebook, and the total number of Facebook friends.

Table (5): Spearman's Correlation between the FIS, Time, Friends, Depression, Anxiety, and Stress.

Item	FIS	Time	Friends	Depression	Anxiety	Stress
FIS	1					
Time	0.477*	1				
Friends	0.222*	0.212*	1			
Depression	0.327*	0.246*	0.112*	1		
Anxiety	0.209*	0.193*	0.090*	0.634*	1	
Stress	0.314*	0.261*	0.079**	0.680*	0.602*	1

*Correlation is significant at the * 0.01 level ** 0.05 level (2-tailed).*

DISCUSSION

This study showed that the vast majority of university students use Facebook and that a significant sub-population intensive users, demonstrating indicators of 'addiction' (distress when unable to use Facebook, feeling that they cannot live without Facebook, etc.).

The participants reported that they use Facebook mostly to communicate with family and friends, followed by entertainment and spending leisure time. Thirty-five percent of the participants feel that they are addicted to Facebook and cannot live without it.

This investigation revealed a perceived negative effect of Facebook use on the participant's educational performance (decreased concentration, and decreased GPA), and this was found to be significantly associated with the hours spent on Facebook use and FIS score. These results are similar to previous findings in Pakistan in 2012, which showed a negative effect of Facebook use on academic performance with greater effects on male students [18].

Concerning psychological effects, the results demonstrated that the intensity of Facebook use was significantly associated with rates of negative emotional state as evidenced by depressive, anxiety and stress symptoms. These results contradict similar studies in the US and the Philippines, which did not show any relationship between the two factors. In general, the negative emotional symptoms were more frequent among the studied Palestinian populations than those reported in the other studies [13, 14]. Current data showed that the time spent on Facebook in hours per day is significantly associated with an increase in depressive, anxiety and stress symptoms among users. A strong relationship was found between the total number of Facebook friends and negative emotional state.

It is possible that the data reflect a particular vulnerability that is specific to a Palestinian context. Palestine is a nation under military occupation that affects the population in a myriad of ways particularly young adults, which make up the greater part of the population. Young adults are restricted in travel both in their communities, and in international travel (related to economic and political realities), leaving them with few options to expand their social networks in ways common to young people in other countries [5]. Further

there are very few venues for leisure and entertainment due the geopolitical situation. There are limited cinemas, sports arenas, concert halls, bowling alleys, museums, open parks, etc. where young people can meet, socialize or engage in unsupervised activities.

There are potential limitations of this study. The first is the cross-sectional design of this study can't definitely prove a causal relationship between the study variables, but rather supporting a hypothesis and this is a common limitation in all cross-sectional studies. The study lacks data on real association between the actual GPA and the use of Facebook, it reflects only the student's opinions on Facebook. Finally, data is almost 5 years old, so this should be taken into consideration while interpreting the findings of this study.

Conclusion and Recommendation

In this study, it was concluded that excessive Facebook use in a Palestinian student population is related to higher levels of a mental health risk as evidenced by symptoms of depression, anxiety and stress. Further it was demonstrated that higher levels of Facebook use are related to perceived negative academic achievement.

Based on the study findings it is recommended that students become better informed about the risks of high utilization of social media and they should be introduced to behavioral methods of managing Facebook use and avoiding its abuse. It is also likely that offering students a more diverse, accessible venue of social activities and opportunities for social connectivity will decrease mental health risk for the population in general and lead to higher levels of academic motivation, a reduction in distractibility, and increased educational suc-

cess. Further investigation into gender differences, age difference, and the variation in type of use would assist the community in identifying those most at risk for excessive social media use and its potential negative life impacts.

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COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this paper.

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