Letter to the Editor

Social media use and depressive symptoms among Hong Kong young adults during the period of 2019 extradition bill controversy

1. Introduction

In March 2019, the Hong Kong government has proposed a highly controversial bill on amending the Fugitive Offenders Ordinance and Mutual Legal Assistance in Criminal Matters Ordinance, commonly known as the extradition bill. The introduction of this bill induced enormous controversies in the Hong Kong society due to the possible extradition to China. Before the second reading of the bill (scheduled on June 12, 2019), more than 1 million Hong Kong people demonstrated on June 9 daytime to show their concerns. On June 12, a few thousand protestors attempted to block the traffic around Legislative Council to the second reading of the bill. After the government had declined to withdraw the bill, another demonstration on June 16 with 2 million protestors expressed their concerns again.

In June 2019 with a lot of civil movements, news had been updated more frequently than usual, and social media played a critical role in information update. A survey among 2014 Occupy Central movement participants showed that the general public relied on social media and online news rather than traditional media like newspaper and television for information (Cheng and Chan, 2016). Similar findings also occurred in other Asian countries that nearly all young adults had used social media (Mamun et al., 2019) and social media was their most popular internet activity (Simcharoen et al., 2018). A population-based survey conducted between June 22 and July 7 in Hong Kong found that the prevalence of mild depression was 9.1%, representing a new high when compared with the data from 2011 to 2017 (Cheung, 2019). Here, we investigated the link between social media use on depressive symptoms in young adults during the period of 2019 Hong Kong extradition bill controversy.

2. Methods

This study was conducted immediately after the anti-extradition bill rally on June 16, 2019. Invitations were sent through emails and Whatsapp messages to university students aged 20–27 who had participated in a study on smartphone usage in 2017–2018 ($n = 237$). Ethical approval was obtained from Hong Kong Polytechnic University. Written consent was obtained from all participants at baseline. Participants returned the completed online questionnaire from June 20, 2019 to July 4, 2019. They responded to questions concerning their opinions toward the extradition bill, participation in civil contests, social media usage pattern, and depression symptoms measured by the Chinese version of the Patient Health Questionnaire-9 (PHQ-9) which had been validated in Hong Kong (Yu et al., 2012), and those with a total score of 5 or above was classified as depression (Yu et al., 2012).

3. Results

A total of 95 participants (40%) completed the online questionnaire, and 29 (31%) had at least mild depressive symptoms. Table 1 shows that, those who participated in anti-extradition bill night-time protest on June 9 and occupation of Hong Kong Legislative Council on June 12, published original posts or photos in social media on extradition bill, used Wechat, debated with people in social media who post political opinion that different with the participants, had not voted in 2016 Legislative Council Election or Election Committee Subsector Election, and did not support extradition bill amendment were more likely to be depressed. A stepwise logistic regression was fitted with all variables showing $p < 0.2$ with depressive status entered in the model. Table 1 shows the final model.

4. Discussion

Our results showed that social media usage was associated with depressive symptoms, and the effect is independent of the level of participation in civil movement, another important factor of depression symptoms. Participants who debated with people in social media who post a political opinion that differed with them and published original photos in social media were more likely to be depressed. We can expect that these people to also be more emotionally involved in the anti-extradition bill movement, and acted everything within their ability to voice out their standpoint, thus being more vulnerable with mental health distress. Our result showed that participation in the rallies on June 9 and 16 did not affect depressive symptoms. It is expected as both rallies were in general peaceful. However, protests on June 9 and June 12 were more violent, and Hong Kong police had to use pepper spray, tear gas, bean bag rounds, and rubber bullets on June 12 to control the crowd occupying the government headquarters. Given the violent nature of these events, witnesses may suffer from PTSD symptoms (Lau et al., 2017).

Studies showed about 8% of Hong Kong general population suffered from mild or more severe depression (Lau et al., 2017; Ni et al., 2017) and young adults were the most vulnerable population with mental health distress during 2014 Occupy Central movement in Hong Kong (Lau et al., 2017). During the anti-extradition bill period, the prevalence of mild depression was much higher (31%), and a total of 5 young adults aged 21 to 35 committed suicide and expressed their opinion in their suicide notes. These facts reflected that the anti-extradition bill movements had a much stronger impact on Hong Kong people than any other civil movements occurred before, and we hope that our results can help to identify potential depressive people for early treatment.

Table 1
Descriptive statistics and results of logistic regression (*n* = 95).

Variable	Not depressed (PHQ < 5, n = 66)	Depressed (PHQ ≥ 5, n = 29)	*p*-value	Odds ratio[a]	95% CI
	Frequency (%)				
Gender			0.68		
Male	21 (72%)	8 (28%)			
Female	45 (68%)	21 (32%)			
Economic status			0.93		
Full-time student	36 (69%)	16 (31%)			
Graduated, have a part-time job	12 (67%)	6 (33%)			
Graduated, have a full-time job	18 (72%)	7 (28%)			
Participated in anti-extradition bill daytime rally on June 9			0.39		
Yes	15 (63%)	9 (37%)			
No	51 (72%)	20 (28%)			
Participated in anti-extradition bill night-time protest on June 9			0.004		
Yes	1 (17%)	5 (83%)		59.92**	3.80, 943.91
No	65 (73%)	24 (27%)		Ref	
Participated in anti-extradition bill occupation of Hong Kong Legislative Council on June 12			0.004		
Yes	4 (33%)	8 (67%)			
No	62 (75%)	21 (25%)			
Participated in anti-extradition bill daytime rally on June 16			0.44		
Yes	24 (65%)	13 (35%)			
No	42 (72%)	16 (28%)			
Published original posts in social media on extradition bill			0.007		
Yes	9 (45%)	11 (55%)			
No	57 (76%)	18 (24%)			
Published original photos in social media on extradition bill			< 0.001		
Yes	13 (42%)	18 (58%)		4.99**	1.616, 15.43
No	53 (83%)	11 (17%)		Ref	
Shared posts in social media on extradition bill			0.22		
Yes	21 (62%)	13 (38%)			
No	45 (74%)	16 (26%)			
Shared photos in social media on extradition bill			0.22		
Yes	23 (62%)	14 (38%)			
No	43 (74%)	15 (26%)			
Facebook user			0.08		
Yes	55 (67%)	27 (33%)			
No	11 (92%)	1 (83%)			
Instagram user			0.17		
Yes	65 (71%)	27 (29%)			
No	1 (33%)	2 (67%)			
Twitter user			0.82		
Yes	10 (67%)	5 (33%)			
No	55 (70%)	24 (30%)			
Telegram user			0.30		
Yes	18 (62%)	11 (38%)			
No	48 (73%)	18 (27%)			
Wechat user			0.044		
Yes	24 (59%)	17 (41%)			
No	42 (78%)	12 (22%)			
Snapchat user			0.41		
Yes	24 (59%)	17 (41%)			
No	42 (67%)	21 (33%)			
Debated with people in social media who post political opinion that differed with yours			0.003		
Yes	5 (36%)	9 (64%)		8.18*	1.37, 48.99
No	60 (75%)	20 (25%)		Ref	
Participated in 2014 Occupy Central movement			0.48		
Yes	18 (64%)	10 (36%)			
No	48 (72%)	19 (28%)			
Ever participated in vigil of "1989 Tiananmen Square protest" held each year			0.28		
Yes	8 (57%)	6 (43%)			
No	58 (72%)	23 (28%)			
Had voted in 2015 District Councils Election			0.21		
Yes	22 (79%)	6 (21%)			
No	44 (66%)	23 (34%)			
Had voted in 2016 Legislative Council Election			0.048		
Yes	35 (80%)	9 (20%)		0.12*	0.02, 0.60
No	31 (61%)	20 (39%)		Ref	
Had voted in 2016 Election Committee Subsector Election			0.03		
Yes	17 (89%)	2 (11%)			
No	49 (65%)	27 (36%)			
	Mean (SD)				
Age (20-27)	22.5 (1.9)	22.5 (1.6)	0.94		
Understanding of extradition bill amendment (0-10)	6.6 (1.7)	7.1 (2.2)	0.17		

(*continued on next page*)

Table 1 (*continued*)

Variable	Not depressed (PHQ < 5, n = 66)	Depressed (PHQ ≥ 5, n = 29)	p-value	Odds ratio[a]	95% CI
Support for extradition bill amendment (0-10)	2.2 (2.4)	1.1 (1.5)	0.04		
Perceived number of participants in anti-extradition bill daytime rally on 9 June (Organizer: 1.03 m, Hong Kong Police: 240k)	908k (198k)	923k (158k)	0.72		
Perceived number of participants in anti-extradition bill daytime rally on 16 June (Organizer: 2 m, Hong Kong Police: 338k)	1.7 m (0.4 m)	1.7 m (0.4 m)	0.94		
Frequency in seeing political opinion different with yours when using social media (0-10)	4.8 (2.5)	5.3 (2.0)	0.40		

[a] Odds ratio from stepwise logistic regression (Nagelkerke R^2 = 0.46).

* / ** / *** significant at 5% / 1% / 0.1% level.

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The sole author was responsible for all parts of the manuscript.

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Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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