THE PREVALENCE OF CYBERBULLYING AND ITS ASSOCIATED FACTORS AMONG YOUNG ADOLESCENTS IN PENANG, MALAYSIA

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Abstract

Introduction: Cyberbullying is a growing public health menace although research into the topic is very much lacking in Malaysia. This study aimed to determine the prevalence of cyberbullying among Malaysian adolescents and its association to gender, internet use pattern and offline bullying.

Methods: This study adopts a cross-sectional methodology among Malaysian adolescents' (N=882, 13 to 14 years old) through both the dimensions of victimization and perpetration using the European Cyberbullying Intervention Project Questionnaire (ECIPQ).

Results: The result shows that if the period of the cyberbullying experience is confined to the past one month, the prevalence cyber-victimization and cyber-perpetration are 31.6% and 20.9% respectively. The prevalence however increased by more than 2-fold when it was extended to the past 3-months experience (73.7% and 64.2% respectively). Online harassment seems to dominate the prevalence of various types of cyberbullying in both cyber-victimization and cyber-perpetration dimensions (60.4% and 55.4% respectively). Both offline victims (AOR 2.40, $p<0.001$) and perpetrators (AOR 2.21, $p<0.001$), daily internet users (AOR 1.81, $p<0.05$), electronic gadget owners (AOR 2.44, $p<0.05$), social media (AOR 2.70, $p<0.05$) and instant messaging app users (AOR 2.37, $p<0.05$) have higher probability of becoming a cyber-victim. Offline perpetrators (AOR 3.05, $p<0.001$), daily internet users (AOR 1.81, $p<0.05$), social media (AOR 2.88, $p<0.05$) and instant messaging app users (AOR 3.00, $p<0.05$) have a higher probability of cyber-perpetration. There seems to be no association of age of first internet use and usage of real identity online to cyberbullying.

Conclusion: Relevant agencies must raise the alarm on the burden of cyberbullying among school going adolescent. Cyber-parenting must be emphasized as an important component of cyber education. Behavioural intervention and communication skills must integrate with online social media experiences and primarily adopted in cyberbullying prevention.

Keywords: *Cyberbullying, ECIPQ, Cyber-victimization, Cyber-perpetration, Adolescent*

Introduction

Cyberbullying is a worldwide phenomenon which has the potential to spread rapidly across different ages and cultures. Worldwide estimates of cyber victimization fall within a wide range of 5% to 72% while for cyber-perpetration, they range from 4% to 33% (1). One of the main factors of inconsistencies in prevalence is attributed to the various operational definitions applied (12). The need to come out with a fairly strong, consistent and reliable cross-cultural measurement and definition has brought forth a working committee, - The International Cyberbullying Think Tank held in the United States of America (USA) had included participants from various disciplines such as public health, social science, education and psychology (12). The committee suggests future cyberbullying research to draw methods used in offline bullying research. Research in offline bullying has been successfully using the definition by Olweus for long (21), in producing frameworks and standard research measurement tools. The criteria based on this definition are aggressive deliberate acts, done in repetition, causing harm and that the victim is unable to defend him/herself. Subsequently, the committee defined cyberbullying as *"An aggressive act perpetrated via any electronic forms of contact in repetition where the victim finds it difficult to defend him/herself"* in which electronic forms of contact include mobile phones and other internet-dependent technologies (21).

The afore-mentioned inconsistent methodology has resulted in variations that have contributed to difficulty in comparing the cyberbullying burden over the multiple associated factors. Globally, common factors which are generally studied in relation to cyberbullying are gender, internet use pattern and offline bullying (12). While most studies suggest a higher prevalence of cyber perpetration among males, cyber victimization presents ambiguous results although frequently showing a female preponderance (2, 4, 13). With respect to the pattern of internet usage, multiple studies seem to be congruent in associating cyberbullying to the frequency of internet usage, social media profile ownership and usage of instant messaging apps (11, 13-16). However, countries with middle to high income status accompanied by an established education system have been linked with a lower prevalence of cyberbullying even with the presence of a high internet use pattern (17). An additional specific vulnerability is related to offline bullying; by far consistent in its association to cyberbullying (2, 9, 11). The prevalence of cyberbullying was perceived to have surpassed offline bullying (18); however, disputed by a recent study among adolescents in England (19). Cross-cultural differences were also accounted to the varying cyberbullying burdens in addition to the discrepancy in the methodology (20).

Albeit the inconclusive evidence on the extent of the burden, there is a strong consensus that the transformation of the online platform has brought negative effects so rapidly to public health (22). Various studies have shown a relation between cyberbullying and poor mental health outcomes (6, 22, 23). Experts theorize the possibility of cyberbullying as a maladaptive behaviour although more evidence is required to prove the same (12). However, there is still a lack of cyberbullying research, especially in the middle income countries like Malaysia, especially those which explore risks encountered by adolescents who use the online platform (11). One of the very few such studies conducted on Malaysian adolescents by Marret et al. in 2017 reported a victimization prevalence at 53% (11). The study also offered a foremost glance to Malaysian students' online perpetration prevalence at 30%. Another cross-sectional study conducted in 2018 among students aged between 9 to 16 years-old revealed that 4% of the students experienced online victimization (24). It is noted that both studies were conducted to study the cyberbullying experience of the past 12-months solely based on the two categories; namely, online harassment and unwanted sexual solicitation.

Therefore, the objective of this study was to determine the prevalence of cyberbullying among Malaysian adolescents and its

association to gender, internet use pattern and offline bullying. The study aims to complement the local evidence on cyberbullying in Malaysia; adopting the latest evidence-based definition and measurement criteria.

Sample

This cross-sectional study was carried out from June 2018 to November 2018 among 13 to 14-year old adolescents randomly selected from 16 public schools in t Penang, Malaysia. The said range of age was chosen due to the evidence suggesting that cyberbullying incidents mostly happen at ages 14 to 16 (2, 11). On the other hand, Penang was chosen due to its high mobile user penetration rate (25) and high-speed internet access (26). For each selected school, two to three Form 1 or Form 2 classes were randomly chosen. Sample size assumption was calculated based on previous studies (4, 7, 11) and inflated by 30% which yielded a sample size of approximately 700.

Procedure

A self-administered questionnaire was used. The inclusion criteria were Form 1 and Form 2 students whose parents have consented for the study while the exclusion criteria were students who admitted to have never used the internet. Participants were briefed to ensure that they understand their voluntarism to participate in the survey, confidentiality of their responses and that the survey will not affect their exam grades or school performance in any way. Each survey session ended with a 15-minutes talk on a brief description of cyberbullying and its impact and also to encourage students to reach out for help through the given contact information. Approvals from the University of Malaya Research Ethical Committee (UM. TNC2/UMREC – 223) and the Ministry of Education, Malaysia (KPM.600-3/2/3-eras (1139) were obtained to conduct the study.

Instrument

The whole instrument consists of 4 parts namely socio-demographic, pattern of internet usage, cyberbullying and offline bullying. The European Cyberbullying Intervention Project Questionnaire (ECIPQ) was chosen for this study to measure cyberbullying (27) for its more precise measurement found in a separate systematic review by Berne et al (28). examining various cyberbullying measurement tools. The questionnaire was chosen after taking into consideration that it was used to test the multi-ethnic population in Europe, it also assesses the current chatrooms/social networking sites and questions which are simple and clear, and is suitable for the age of respondents of this study. The ECIPQ is a 22-itemed questionnaire with 5 options or scores for frequency ranging from *0 never, 1 once or twice, 2 once a month, 3 once a week and 4 almost daily*. Each item measures a context of cyberbullying based on the categorization by Willard (29). Cyberbullying was operationally defined as score of 2 or more in any of the items. The questionnaire was translated into Bahasa Malaysia via the back to back translation process by the language experts, assisted through a cognitive debriefing process with parents and teenagers. A reliability study among 89 students yielding Cronbach Alpha values of 0.89 and 0.83 for cyber-victim and cyber-perpetration subscales respectively.

The question regarding offline bullying was adopted from the 2012 Global School Health Survey (GSHS) which defines offline bullying experience in the past month based on Olweus definition (30).

Statistical Analysis

The data were analysed by using the Statistical Package for Social Sciences (SPPS) version 25.0. The descriptive statistics of pattern of internet usage, cyber-bullying, sub-types of cyber-bullying and offline bullying were reported in proportions. The data were further analysed according to the gender of the respondents. Missing data only accounted for 3%; thus the listwise deletion method was used to handle the missing data. The multiple logistic regression was used to estimate the probability of cyber-victimization and cyber-perpetration of the participants according to their gender, ethnicity, pattern of internet usage and offline bullying experiences.

Sociodemographic Characteristics

The response rate was 99% out of the total of 889 students. Four respondents were removed for their incomplete responses. Three respondents who had never used the internet were also excluded, thus making the final number of only 882 respondents. Of the 882 respondents, 53.6% were female. The sample comprised a majority of Malay respondents (79.0%) followed by Indians (10.2%), Chinese (9.3%) while 1.5% of the respondents came from f other ethnicities.

Pattern of Internet Usage

Internet use prevalence was at 99.6%, of those 540 (61.2%) were using it almost every day. Most of the respondents first started using the internet during their primary school (67.9%). Electronic gadget ownership was at 87.7%. Social media profile ownership was 89.6% with 44.6% of them having three or more profiles. Approximately two-thirds of the social media owners were using their true identities. A staggering 91.8% of the respondents have used the instant messaging app services. The results are presented in Table 1.

Prevalence of Offline Bullying and Cyberbullying

Table 1 shows that offline bullying victimization and perpetration was 12.8% and 1.7% respectively. With regards to cyberbullying, cyber-victimization prevalence is at 31.6% while the cyber-perpetration is at 20.9%. Both figures on cyberbullying prevalence include 15.0% of those with overlapping status of cyber victims and perpetrators. The prevalence increases by more than 2-folds to 73.7% and 64.2% respectively for cyber-victimization and cyber-perpetration when a defined period of 3 months is used.

Table 1: Prevalence of Pattern of Internet Usage, Offline Bullying and Cyberbullying by Gender

Characteristics	Gender, n (%)			Total, n (%)
	Male (N=409)	Female (N=473)	p-value	
Frequency of Internet Use			0.028	
Seldom	48 (11.7)	81 (17.1)		129 (14.6)
1 to 5 times a week	111 (27.1)	102 (21.6)		213 (24.1)
Almost everyday	250 (61.1)	290 (61.3)		540 (61.2)
Period of First Internet Use			0.072	
Before Primary	66 (16.1)	52 (11.0)		118 (13.4)
Primary School	266 (65.0)	333 (70.4)		599 (67.9)
Second-ary School	77 (18.8)	88 (18.6)		165 (18.7)
Electronic Gadget Ownership	368 (90.0)	406 (85.8)	0.061	774 (87.8)
Ownership of Social Media Profile	374 (91.4)	417 (88.2)	0.110	791 (89.7)
Number of Social Media Profile			0.012	
None	35 (8.6)	56 (11.8)		91 (10.3)
1	103 (25.2)	84 (17.8)		187 (21.2)
2	122 (29.8)	129 (27.3)		251 (28.5)
3 or more	149 (36.4)	204 (43.1)		353 (40.0)

Usage of Instant messaging App	374 (91.4)	436 (92.2)	0.691	810 (91.8)
Number of Instant Messaging App Used			0.120	
None	35 (8.60)	37 (7.80)		72 (8.2)
1	135 (33.0)	181 (38.3)		316 (35.8)
2	140 (34.2)	129 (27.3)		269 (30.5)
3 or more	99 (24.2)	126 (26.6)		225 (25.5)
Usage of Real Identity Online*	231 (64.7)	297 (72.4)	0.071	528 (71.6)
Offline Bullying				
Victim	60 (14.7)	52 (11.0)	0.106	112 (12.8)
Perpetrator	67 (16.4)	36 (7.6)	<0.001	103 (11.7)
Cyberbullying				
Victim	152 (30.6)	127 (26.8)	0.001	279 (31.6)
Perpetrator	91 (22.6)	93 (19.7)	0.361	184 (20.9)
Victim-Perpetrator	68 (16.6)	64 (13.5)	0.246	132 (15.0)
Non-Involvement	234 (57.2)	319 (49.5)	0.091	553 (62.7)

P-value significance of <0.05 is bolded
*denominator is those who owns social media profile

Sub-type Prevalence of Cyberbullying

Although the ECPIQ corresponded to the general cyberbullying classification by Willard, the questions were altered in such a way that it would reflect a non-stereotypical simple language with an attempt to improve the understanding and reduce the desirability biasness.

Table 2 intends to group the responses and describe their prevalence. For both cyber victimization and perpetration, harassment accounts for more than half of the type of cyberbullying faced by the respondents. Outing, trickery and masquerade together only accounted approximately 14% and 20% for cyber victimization and perpetration respectively.

Table 2: Prevalence of Cyberbullying by Types

Cyber victimization, N=279	Average %
Online harassment and flaming	60.4
Exclusion	29.8
Denigration	22.9
Stalking	18.2
Outing and trickery	8.6
Masquerade	5.8
Cyber perpetration, N=184	**Average %**
Online harassment and flaming	55.4
Exclusion	35.3
Denigration	21.8
Stalking	16.3
Outing and trickery	12.3
Masquerade	8.7

Association between Cyber-bullying and socio-demographic, pattern of internet usage and offline bullying

The results of the logistic regression were summarized as odds ratio and adjusted odds ratio in Table 3. Interestingly, males have 1.5 times higher probability of being cyber victims as compared to females, while there was no association in the context of cyber victimization. Both offline bullying victims and perpetrators were at two to three times higher probability of both cyber victimization and perpetration. The daily internet use was significantly associated with cyber victims and perpetrators with an odds ratio of 1.81. Lastly, those who owned an electronic gadget and used either the social media or instant messaging apps were at two to three times having a higher probability of cyber victimization and perpetration.

Table 3: Association between Cyberbullying and Socio-demographic, Internet Use Pattern and Offline Bullying

Characteristic	Odds of Cyber-Victim		Odds of Cyber-Perpetrator	
	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
Gender				
Male	1.61 (1.21, 2.14)**	1.50 (1.09, 2.04)*	1.17 (0.85, 1.62)	-
Female	1	1	1	-
Ethnicity				
Malay	1	1	1	-
Chinese	1.07 (0.66, 1.73)	#	1.03 (0.60, 1.80)	-
Indian	0.27 (0.14, 0.52)**	0.28 (0.14,0.56)**	0.74 (0.41, 1.32)	-
Others	0.59 (0.16, 2.15)	#	0.67 (0.15, 3.05)	-
Traditional Bullying				
Victim	2.78 (1.86, 4.16)**	2.40 (1.54, 3.72)**	1.90 (1.22, 2.93)**	#
Perpetrator	2.97 (1.96, 4.51)**	2.21 (1.40, 3.50)**	3.24 (2.11, 5.00)**	3.05 (2.00, 4.86)**
Frequency of Internet Use				
Seldom	1	1	1	1
Few times a week (1 – 5 times)	1.35 (0.81, 2.26)	#	1.55 (0.81, 2.95)	#
Almost everyday	2.01 (1.27, 3.16)**	1.81 (1.11, 2.94)*	2.48 (1.40, 4.40)**	1.81 (1.02, 3.35)*
Period of First Internet Use				
Before Primary	1.77 (1.07, 2.92)*	#	1.43 (0.81, 2.50)	-
Primary School	1.21 (0.83, 1.77)	#	1.00 (0.65, 1.54)	-
Secondary School	1	1	1	-
Electronic Gadget Ownership	2.74 (1.60, 4.70)**	2.44 (1.05, 3.78)*	1.90 (1.05, 3.40)*	#
Ownership of Social Media Profile	4.72 (2.34, 9.54)**	2.70 (1.13, 6.40)*	4.11 (1.77, 9.57)**	2.88 (1.06, 7.84)*

*p<0.05, **p<0.001, # not significant

Discussion

The rapid advancement of the cyber world begs updated data so we do not miss the alarming development of the negative effects. Moreover, public health fraternity is in need of devising strategies to address the issue of cyberbullying. This study contributes to these extents particularly in the context of Malaysia. The following are the significant findings of this study.

As previously stated, a decent comparison of cyberbullying data based on previous literatures is hard due to the wide range of prevalence reported as a result of varying definitions and measuring methods. However, the results of this study may imply a higher level of prevalence for both cyber victimization and perpetration than those that have been previously reported locally (11, 24) considering the effect of short cyberbullying experience re-call period used in this study. One of the main reasons for this higher prevalence could be due to the sensitivity of the measuring methodology adopted in this study to pick up the various kinds of cyberbullying. Some of the evidence-based methods have been shown to inflate the prevalence data (1, 12).

Besides the methodology in which the measurement was designed, the extensive use of internet especially in the line of social networking may give rise to the higher prevalence. This is further supported by the significant association of cyberbullying to social media ownership and instant messaging apps used, consistent with previous local studies (11, 31-33). Online social networking has cropped into the lives of adolescents appealing to the developing behaviour of curiosity and need for social communication. Social networking provides a medium of

interconnectivity and communication which is essentially why cyberbullying behaviour, commonly associated with social aggression, is common through that platform (29, 33). Currently, there are still no adequate formalized, well implemented strategies which aim at adolescents to address the ethics of online social communication (32, 34). While countries like Malaysia are striving for their citizens to be equipped with a comprehensive digital knowledge in the future and a country driven by digital economy (35), the surge may leave effects such as cyberbullying unchecked and rising. Thus, relevant parties must play important roles to highlight the negative impact and to initiate practical solutions supported by scientific evidence.

The cyberbullying prevalence could also be explained by the relatively high percentage of electronic gadget ownership. Although the questionnaire was not designed to identify the type of electronic gadget, smartphone ownership especially among adolescents has increased tremendously with time (25, 36). Schools formally banned the use or sometimes even the possession of smartphones in the classroom (37). The fact that adolescents still own them may suggest parents who seem to be more acceptable in providing the hand-held devices. Studies have shown that parents can be more lenient in providing for their children in an attempt to build and maintain good rapport especially in the case where the line between the pros and cons of technology is unclear (38, 39). In these studies, most parents are also digitally ill-equipped as compared to their children causing a mismatch between guidance demand and the parental digital literacy. The innate adolescent impulsive behaviour (40) coupled with a retardation in the guidance in addition to gadget ownership, may resort an adolescent to negative actions online, in this case cyberbullying.

In addition, this study finds an intriguing result pertaining to gender and cyberbullying prevalence. Males are at a higher risk of cyber victimization as compared to females. This finding is rather consistent with previous local studies which suggest a cultural conditioning (7, 11). The social norm of Asian culture to be preposterously tolerant about boys being victimized or perpetrated in contrast to girls, may account for the difference to western countries' observations. The finding is important to reflect a cross-cultural difference.

Lastly, a higher prevalence of online harassment type of cyberbullying is consistent with other research findings (11, 41, 42). There is a noteworthy discussion that more of the prevalent sub-types of cyber-bullying, be it a victim or perpetrator, is related to behavioural factors rather than technical aspects. Technical competence can be surmised as skills related to the handling of the internet processes such as blocking, anti-spam, anti-virus, privacy setting and etc (43). However, digital competence also includes socio-emotional competence which governs the behaviour of an individual when he/she goes online (43). Socio-emotional competence plays a role in all the sub-types of cyber-bullying but is very prominently reflected in the categories of online harassment, exclusion and cyber-stalking since these are acts which are less shielded solely through technical interventions (43). The fact that these sub-types are predominant and consistent through various studies suggesting the significant implication of cognitive and behavioural interventions in addressing cyberbullying. The idea is further strengthened by the close relation of cyber-bullying with offline bullying and yet another field that has proven successful interventions in the area of cognition and behaviour management programmes (44).

Conclusion

This study has emphasized the growing burden of cyberbullying and the need to address it immediately. The importance of behavioural and social elements suggests programmes that impart social communication skills, cognitive development and emotional resilience to address cyberbullying as an act of aggression similar to offline bullying, resulting in cost-saving measures from high expenditure on technical-based interventions. Gender differences emphasizes the value of local evidences. Lastly, parental digital education

must be explicitly communicated amidst the common idea of the internet paradox; the reason for the complexity on deciding the right ethical and safe cyber practices for their children.

To the best of knowledge, this is one of the few local study to use a previously validated cyberbullying questionnaire to describe prevalence of cyber victimization, cyber perpetration and cyber victim-perpetration among adolescents and explore on associated factors. The study is not without its limitations. The cross-sectional design restricts inferences to a pure association that lacks a causality pathway. Social desirability biasness is a well-known error in studies using a self-assessment questionnaire although mitigating effort was made by maintaining simple but common language, refraining from using stereotypical words and reducing the re-call period. Many other factors such as social status and support, parental involvement, mental health and substance abuse were not included although they are found in other studies. Future studies should use validated questionnaires such as the ECIPQ to explore other variables especially in exploring the socio-behavioural factors of cyberbullying.

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