



Internet pornography exposures amongst young people in Malaysia: A cross-sectional study looking into the role of gender and perceived realism versus the actual sexual activities

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ABSTRACT

Despite the wide accessibility to internet, pornography activities among youths are not well described in conservative countries like Malaysia. This study aimed to determine the prevalence, elicit gender differences and identify associated factors of pornographic exposure including perceived realism among college students. This cross-sectional study was conducted among students aged 18 to 25 years from seven colleges in Penang, Malaysia. A self-administered questionnaire was used to obtain data on socio-demographic characteristics, pornography exposure, pattern of use, sexual exposure and perceived realism. Among 986 participants, the prevalence of lifetime pornography exposure was 74.5%. More males (71.7%) were exposed to pornography, had started at earlier age, were frequent users and using the internet alone at home ($p < 0.001$). Males had higher odds of having exposure (Adjusted odds ratio, AOR = 20.44, 95% CI: 12.50 – 33.42, $p < 0.001$), whilst those who perceived pornography as real had lower odds of having pornographic exposure (AOR = 0.64, 95% CI: 0.43–0.94, $p = 0.02$). There is a high prevalence of pornography exposure among Malaysian college students, especially involving males. Easy access to pornographic materials at home facilitates this activity. Gender and perceived realism determined their pornographic exposure. Thus, parental monitoring of online access and planning structured activities to occupy free time are recommended at an early age.

1. Introduction

Pornography is defined as any material that creates or increases sexual emotions or sexual thoughts (Harkness, Mullan, & Blaszczyński, 2015). The materials may contain an image or description of sexual organs or sexual acts such as vaginal sex, oral sex, anal sex, masturbation, rape, and bestiality. Previously, dominant media outlets for pornography usage were magazines, video compact discs, digital video discs and television. However, the evolution of the digital age through the internet and smartphone has made the internet as the primary source of pornography (Hald & Mulya, 2013), mainly because of its accessibility, affordability, and anonymity property. The easy access of internet by individuals has encouraged watching pornography alone at home (Hald & Mulya, 2013).

Pornography usage is common among adolescents and young adults,

which is explained by their developing and curious mind. During adolescence, the brain is hyper-responsive by perceived rewards while the impulse control and response inhibition are not fully developed, thus leading to a poor decision making (Brown & Wisco, 2019). Pornography use stimulates the reward pathway in the brain, which releases dopamine, leading to self-gratification and impulsivity (Brown & Wisco, 2019). Coupled with the social transition of going to college and meeting new people, the hormonal and physical changes, developing brain and curiosities drives the young people to experiment new things like watching pornography.

The reported lifetime pornography exposure among young people was in the range of 62% to 87% (Hald & Mulya, 2013; Lim, Agius, Carrotte, Vella, & Hellard, 2017; Romito & Beltramini, 2015). Males started the pornography viewing earlier during their school years and tend to use it more frequently and excessively compared to females

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(Hald & Mulya, 2013; Hald, Kuyper, Adam, & de Wit, 2013; Lim et al., 2017). This pattern of men dominating activity often persists into adulthood (Hald & Mulya, 2013). The pornography viewing increases with age and it also involves those of higher academic achievers, homosexual or bisexual people (Ševčíková & Daneback, 2014; Vandebosch, 2015; Downing, Schrimshaw, Scheinmann, Antebi-Gruszka, & Hirshfield, 2017).

Pornography use has been shown to be associated with psychological and mental health problems such as low self-esteem, poor life satisfaction, feeling of personal insecurities, low quality of life and depression (Kohut & Stulhofer, 2018). The relationship of pornography and depression is bidirectional. Men who felt pornography use was immoral yet still did it for a number of times were found to have depression while those who did not see it as morally wrong, they used pornography as a way of coping with their depression (Perry, 2018). Apart from that, the frequent pornography usage would subject the users to pornography addiction and unsafe sexual activities (Peter & Valkenburg, 2016; Manaf, Tahir, & Sidi, 2014; Awaluddin, Ahmad, & Saleh, 2015). Pornography addiction is a significant problem nowadays as those involved are willing to spend a lot of money to satisfy their craving for pornographic viewing, and in order to achieve this, they may not hesitate to be involved in stealing or gambling (Wéry & Billieux, 2016; Cheney, Kamusiime, & Mekonnen Yimer, 2017).

In conservative countries like Malaysia, pornography is a taboo subject and pornography viewing is seen as a sinful act as it depicts a negative social side and immoral individual value. Despite these restrictions, it does still occur discreetly. Two studies that looked into sexual activity among youths had reported the prevalence of pornography usage was between 25.3% and 39.5% (Manaf et al., 2014; Awaluddin et al., 2015). Existing literature in Malaysia has shown the positive relationship between pornographic exposure and early sexual initiation, permissive attitude towards premarital sex, premarital sexual activity, multiple sexual partners and unsafe sexual practices (Manaf et al., 2014; Awaluddin et al., 2015).

Perceived realism has been used to explain the relationship between pornographic exposure or use and sexual activity among adolescents (Baams et al., 2015). Perceived realism is when the audience perceive the content of a material to be real. The sexual acts depict in the media may be seen as fun and risk-free (Baams et al., 2015) motivating the adolescents to try and hence practicing the sexual activities. For both male and female adolescents, those with high perceived realism were found to be correlated with development of sexualized media consumption and permissive attitude towards sexual activity (Baams et al., 2015). This relationship is of concern as uncontrolled exposure to the sexually explicit material may lead to other untoward behaviours. It may promote aggression, risky sexual behaviours, objectivity of women and hyper-gendered masculinity and hyper-femininity behaviours (Wright & Stulhofer, 2019). There are also concerns that young minds may not be able to perceive the differences between real life sex and relationship from what they view from the pornographic materials (Wright & Stulhofer, 2019). These 'unrealistic' relationships viewed by them may taint their mind and form their future behaviour. With scarce data on this especially in our region, this aspect of pornography use warrants further studies. Until now, there are limited studies especially from conservative countries like Malaysia that have looked and describe specifically on the pattern of pornographic activities among the youths. This study was undertaken, realizing there is easy access to the internet and the possibility of our youths to be involved in the pornographic activity. This study aimed to describe gender differences in pornographic activity and determine associated factors of lifetime pornography exposure among college students in Penang, Malaysia.

2. Method and materials

2.1. Study site and data collection

This was a cross-sectional study conducted from June to November 2018 amongst students from seven selected colleges in Central Seberang Prai, Penang, Malaysia. This state was chosen due to logistic reason as the main researcher was based in Penang. Inclusion criteria were Malaysian students, aged between 18 and 25 years old and able to read and understand either Malay or English. Participation was voluntary, and thus, those who did not give consent were excluded without prejudice. The estimated number of college students in Central Seberang Prai was 20,000 and using prevalence formula with a finite population (Naing, Winn, & Rusli, 2006), the prevalence of pornography usage of 40% (Awaluddin et al., 2015), with design effect of 2 and response rate of 30%, hence the minimum sample required was 915. The number of students recruited from each college was proportionate to the proportion of the students in the college over the estimated total number of college students in the district.

The location and timing of data collection were largely dependent on respective college administrators in order to minimise the disruption of the students' academic activities. On the day of data collection, students were gathered in an assigned area such as a lecture hall or tutorial room, where they were briefed on the study protocol and explained on the definition of pornography. Participants were encouraged to ask any questions including the meaning of pornography during this briefing session. Those who agreed to participate had to give their written consent. In order to ensure anonymity, the consent forms were collected from the students first before they responded to a set of questionnaires. Students sat separately and were not allowed to discuss with friends while answering the questionnaires as to avoid any possible bias.

2.2. Study instrument

This study used a set of self-administered anonymous questionnaire. The first part of the questionnaire collected information on the socio-demographic data of the participants. The second part was on participants' lifetime exposure to pornography using three items. The section began with a statement that defines pornography. Pornography was defined as any material that include image or description of sexual organs or sexual acts that create or increase sexual emotions or sexual thoughts (Harkness et al., 2015). Participants were reminded that materials that do not contain clear and obvious sexual act or use for educational purposes should not be considered as pornography. They were allowed to clarify any of the questions with the field researcher who was present throughout the session. The items were: 'Have you ever been exposed to pornography?', 'Have you ever watched pornography?' and 'Have you ever read pornography material?'. Those who answered yes to any of these three questions were considered as have had an exposure to pornography.

Only those who had ever exposed to pornography were requested to answer the third part of the questionnaire on the pattern of pornography use over the last six months. These questions were adapted with permission from the Pornography Consumption Questionnaire (Hald et al., 2013). The questions covered the age of exposure, the amount of money spent, frequency, sources, and the location for the pornographic activity. The final part of the questionnaire looked into participants' perceived realism, sexual activity for the past six months, and their sexual orientation. Perceived realism was assessed on their agreement to this question: 'In your opinion, does pornography portray a realistic picture of sex?' using the 7-point type of Likert scale from strongly disagree (1) to strongly agree (7). Those who chose somewhat agree, agree and strongly agree were classified as perceiving pornography as real while those who otherwise were classified as not perceiving pornography as real.

For sexual status, participants had to choose yes or no to this

question: *Are you actively having sexual intercourse with anyone (for the past 6 months)?* Participants were classified as being sexually active if they chose 'yes' and not sexually active if they chose 'no'. Sexual orientation was assessed using this single leading statement: *'You are interested to have sexual activity with a partner of the ...'* and participants had to choose one of three options: *'opposite sex (heterosexual)'*, *'same sex (homosexual)'* and *'both sex (bisexual)'*.

The questionnaire was reviewed by two Family Medicine Specialists for its content validity. It underwent a standard translation process into the Malay language by two linguists. Although this study had involved college students but they had different level of academic qualification and English proficiency, as some of them were from technical and vocational institutions and English was not the main medium of instruction. Having both languages would allow options for them and reducing the risk of giving incorrect responses due to linguistic issue. Subsequently, the questionnaire was given to 13 college students for face validity. They were requested to comment on the appropriateness of word and phrases used in the questionnaire and they did not report any difficulty in answering the questions. Additionally, a feasibility study was done among 90 students from a college in a neighbouring district. The total time spent for students to answer the questionnaire was between 20 and 30 min. Questions on the pornographic exposure showed a good internal consistency with Cronbach alpha of 0.71.

2.3. Statistical analyses

Data were entered into IBM SPSS software version 22. Descriptive analysis was used for the prevalence of lifetime pornography exposure and the pattern of pornography usage stratified by gender. Bivariate analysis was used to look for a significant difference between the patterns of usage between gender. Multivariate logistic regression analysis was conducted to identify factors associated with life-time pornography exposure. P-value of <0.05 was set as significant.

2.4. Ethical consideration

This research was registered in the National Medical Research Registry (NMRR 35044S1) and received ethical review and clearance from Research and Ethics Committee of researchers' academic institution (FF-2017–353). Permission to carry out this study at colleges was obtained from the Ministry of Higher Education of Malaysia and respective college administrators. Students' involvement was entirely voluntary and their decision did not affect their academic activities. All participants had given their written consent. This study used an anonymous self-administered questionnaire and confidentiality was maintained throughout the research process. Due to the nature of the questionnaire, it did not allow the researchers to detect any related issues like compulsive addiction resulting from the pornographic exposure. Nevertheless, students were given researchers' contact details in the information sheet should they need any further assistance.

3. Results

A total of 995 students were available during the data collection. All of them agreed to participate and received the questionnaires. However, nine students were excluded due to incomplete answers on pornography exposure, making a total of 986 responses available for the final analysis. The socio-demographic characteristics of the students is shown in [table 1](#). The median age of the respondent was 19 (IQR = 1) years old with males (56.5%) slightly more than females (43.5%). The majority of the students (98.8%) were not married, studying for diploma (62.5%) and from the Malay ethnicity (90.8%). The median household income was RM2,000 (IQR = 3,400). Among those who declared their sexual status, 4.1% (37/907) were sexually active over the last six months.

Table 1
Socio-demographic characteristics of participants (n = 986).

Variables	n (%)
Age [mean (SD)] years	19.13 (±1.56)
Gender	
Male	557 (56.5)
Female	429 (43.5)
Ethnicity	
Malay	895 (90.8)
Chinese	11 (1.1)
Indian	73 (7.4)
Others	7 (0.7)
Marital status	
Not married	974 (98.8)
Married	12 (1.2)
Program	
Certificate	306 (31.0)
Diploma	616 (62.5)
Degree	64 (6.5)
Free internet availability (hostel/house)	
Yes	515 (52.2)
No	471 (47.8)
Family monthly household income, RM [median (IQR)]	2000.00 (±3400.00)

3.1. Gender difference in the pattern of pornography

There is a significant difference between male and female students, as shown in [table 2](#). The prevalence of lifetime pornography exposure was 74.5%, with more male students had been exposed to pornography compared to female students ($p < 0.001$).

In both genders, watching pornographic videos or movies (61.4%) was more popular than reading pornographic materials (42.2%) with male students dominating the activities ($p < 0.001$). Male students had earlier exposure to pornography by a year and they spent more time on pornography than their female counterparts ($p < 0.001$). The majority of students accessed pornography for free; with only 10.7% of them (79 / 735) spent money on the activity over the last six months. Most of those who spent money were males (91.1%), and they paid more (median: RM 10.00, IQR: 25.00) than female students (RM 5.00, IQR: 7.00) ($p < 0.001$). Majority of those who had ever exposed to pornography, watched it while they were alone (84.6%), at home (84.2%) and using the internet as a source (88.4%), with these activities being significantly more common among male compared to female students ($p < 0.001$ to 0.004).

3.2. Factors associated with pornographic exposure

Simple logistic regression (SLR) showed that lifetime pornography exposure was associated with being male ($p < 0.001$), internet availability ($p = 0.01$), perceived realism ($p < 0.01$), and being sexually active ($p = 0.02$). Ethnicity, education program, family monthly income, and sexual orientation were found not to be significant ($p > 0.05$) ([Table 3](#)). When all the variables with $p < 0.25$ from the SLR were included in the multivariate logistic regression analysis using the enter method, only two variables remained significant. Males students showed higher odds to have pornographic exposure compared to female students (AOR = 20.44, 95% CI: 12.50–33.42, $p < 0.001$). Perceived realism showed the converse, those who agreed that pornography portrayed a realistic picture of sex, had lower odds to have pornographic exposure (AOR = 0.64, 95% CI: 0.43–0.94, $p = 0.02$).

4. Discussion

The prevalence of lifetime pornography exposure among youths in this study was 74.5%, with more male compared to female students. This finding was comparable to a study done among university students in Indonesia, which showed that 79.4% of total participants had been exposed to pornography and predominantly among the males ([Hald &](#)

Table 2
Prevalence and pattern of pornographic viewing stratified by gender (n = 986).

Variables	All N (%)	Male n (%)	Female n (%)	P-value
Lifetime exposure to pornography				
Yes	735 (74.5)	527 (71.7)	208 (28.3)	<0.001
No	251 (25.5)	30 (12.0)	221 (88.0)	
Ever watched pornography				
Yes	605 (61.4)	496 (82.0)	109 (18.0)	<0.001
No	381 (38.6)	61 (16.0)	320 (84.0)	
Ever read pornography				
Yes	416 (42.2)	328 (78.9)	88 (21.1)	<0.001
No	570 (57.8)	229 (40.2)	341 (59.8)	
Age expose to pornography (n = 675)				
mean (SD) years	-	14.1 (±2.1)	15.8 (±2.5)	<0.001
Frequency of usage (n = 735)				
Never & < one month	400 (54.4)	227 (56.8)	173 (43.2)	<0.001
≥ one month	335 (45.6)	300 (89.5)	35 (10.4)	
Sources of pornography (n = 561)				
Internet	496 (88.4)	405 (81.7)	91 (18.3)	<0.001
Others	65 (11.6)	36 (55.4)	29 (44.6)	
Location of usage (n = 621)				
At home	523 (84.2)	428 (81.8)	95 (18.2)	<0.001
Others	98 (15.8)	57 (58.2)	41 (41.8)	
Interpersonal context of usage (n = 630)				
Alone	533 (84.6)	428 (80.3)	105 (19.7)	0.004
Others	97 (15.4)	65 (67.0)	32 (33.0)	
Frequency of paid pornography (n = 735)				
Never	645 (87.8)	448 (69.5)	197 (30.5)	<0.001
Once and more	90 (12.2)	79 (87.8)	11 (12.2)	
Money spent per month (RM) (n = 79)				
Minimum		0.5	1	
Maximum		400	1000	
Median (IQR)		10.00 (±25.00)	5.00 (±7.00)	<0.001

Table 3
Bivariate and multivariate analysis of factors associated with lifetime pornography exposure (n = 986).

Variables	Simple logistic regression				Multiple logistic regression analysis			
	Wald	Crude Odds Ratio	95% confidence intervals	P-value	Wald	Adjusted Odds Ratio	95% confidence intervals	P-value
Age (mean) years	0.49	0.97	0.89–1.06	0.484	0.58	1.05	0.93–1.18	0.448
Gender: Male [Female]	192.20	18.66	12.34–28.23	<0.001	144.69	20.43	12.50–33.42	<0.001
Ethnicity: Malay [Non-Malay]	1.48	1.34	0.84–2.14	0.223	1.80	1.57	0.81–3.02	0.180
Internet availability: Yes [No]	11.13	0.61	0.45–0.81	0.001	0.01	0.99	0.66–1.50	0.970
Family monthly income: Low [High]	3.16	0.75	0.55–1.03	0.075	1.07	0.80	0.53–1.21	0.300
Perceived realism: Agree [Disagree]	9.85	0.60	0.43–0.82	0.002	5.06	0.64	0.43–0.94	0.020
Sexually active: Yes [No]	4.75	3.73	1.14–12.20	0.029	3.35	3.36	0.92–12.42	0.070
Education program: Diploma and higher [Certificate]	0.02	1.02	0.75–1.40	0.890	-	-	-	-
Sexual orientation: Non-heterosexual [Heterosexual]	0.31	0.55	0.07–4.52	0.580	-	-	-	-

Mulya, 2013). However, the prevalence found in this study was higher than the two previous local studies, and even if only limited to watching pornography, the prevalence (61.4%) was still significantly two times higher (Manaf et al., 2014; Awaluddin et al., 2015). This increased in trend is related to the current advancement in internet coverage and technology, accessibility to free internet and ownership of handheld devices. In 2017 alone, it was reported that 80% of Malaysians, especially youngsters had owned and used a smartphone and the internet (MCMC, 2017) and this figure is expected to be higher in the coming years.

The high prevalence of pornography exposure is significant and is an eye-opener to a conservative country such as Malaysia. Unchecked pornography exposure will expose the youths at risk for other high-risk behaviours such as sex without barriers and sex with multiple partners. Unexpectedly, this study failed to show a significant relationship between pornographic exposure and sexual activity, while many previous studies had reported otherwise (Manaf et al., 2014; Awaluddin et al., 2015; Morgan, 2011). Only 4% of the students declared that they were sexually active, and this is consistent with earlier local studies (Manaf et al., 2014; Awaluddin et al., 2015). The fact that many of the students had pornographic exposure but were not sexually active could be related to the cultural norms. The passive engagement to pornography material could be due to two factors. Firstly, premarital sex is considered unacceptable behaviour in the Malaysian context hence the avoidance. Secondly, the religion factor in which most participants were Malay background whom were Muslims and this might deter them from performing the actual sexual act as compared to viewing it, as it is viewed as sinful in Islam.

This study has further confirmed that the internet as the most common source of pornography (Hald & Mulya, 2013). Most of the pornographic users in this study had access to the pornographic materials through free internet, and only a small proportion of them had spent money on their activity. A similar pattern was seen among university students in Belgium; with only 4% of the online sexual activity users spent money on their activity (Wéry & Billieux, 2016). Previously, there is a barrier in accessing pornographic materials as the user need to purchase it through shops or cinemas, which may expose them to the sellers. However, the internet had provided a shortcut from all of this, making pornography readily available through a finger tap, relatively cheap if not free, and with perceived (or true) anonymity.

Malaysian male youths tend to dominate the pornographic viewing, mainly using videos from the internet, at home and alone. The male predominance pattern remained true in the final analysis. The odds of male students to have pornography exposure was 20 times more than the female students. Males were consistently found to be the primary user of pornography in many studies elsewhere (Hald & Mulya, 2013; Lim et al., 2017; Hald et al., 2013). The male students viewed pornography more frequently and were exposed to pornography at an earlier age compared to female students (Lim et al., 2017; Morgan, 2011).

Either the evolutionary or the biological theory can explain this male predominance pattern. The evolutionary theory proposed that there is a difference in relationship strategy between gender, whereby males are more focused on a short-term relationship with little or no commitment to the partner, which of having in pornography. In contrast, females are more into a long-term relationship. They look for a partner who is able to protect them, high on resources, and willing to look after their children. Pornography is seen as temporary and could not fulfil the females' wishes and, thus, their infrequent usage (Hald, 2006). From a biological perspective, a study utilizing functional brain magnetic resonant imaging (MRI) showed men were more sensitive in response to visual sexual stimuli than women (Strahler, Kruse, Wehrum-Osinsky, Klucken, & Stark, 2018).

Majority of the students, especially males, viewed pornography alone and at home. This finding correlates with findings from studies conducted in both Western and Asian populations, where the majority of pornography users seen pornography alone and at home (Hald & Mulya, 2013; Carroll, Busby, Willoughby, & Brown, 2017). Understandably, pornography usage in public is still considered as an unacceptable behaviour. Particularly in the Malaysian context, where not many people can accept the practice or even holding a discussion on pornography in open society. Thus, users tend to do it alone. Another possible reason is a bidirectional relationship between pornography and loneliness. In which, pornography users tend to be loners, and they use pornography as a maladaptive coping strategy. Whereas, on the other hand, pornography itself may cause loneliness (Butler, Pereyra, Draper, Leonhardt, & Skinner, 2018).

It is also interesting to observe the main source of the pornography exposure was mainly through the internet. Although the study was conducted during pre-COVID-19 era, without any intervention the internet pornography use is most likely holding through now. It is acknowledged that COVID-19 situation has imposed various levels of lockdowns to many countries including Malaysia (Aziz, Othman, Lugova, & Suleiman, 2020). As part of preventive measures to curb the spread of COVID, many of educational institutions were either closed or conducted the classes online, resulting in the students confined at homes, alone by themselves thus relied to the internet for escapisms. A survey that compared the internet usages before and after the pandemic involving students including Malaysians has demonstrated a significant increase in streaming services and social media during the pandemic, with strong relationship to symptoms of depression and loneliness (Fernandes, Biswas, Mansukhani, Casarin & Essau, 2020). Although this study did not specifically relate to pornography behaviours, the shared elements of excessive internet usage and loneliness with unchecked supervision from parents might predispose them to pornography contents. Free access has further reinforced the increase usage of pornography during the COVID-19 lockdown period affecting people across the globe including Asians (Mestre-Bach, Blycker, & Potenza, 2020).

Many activities were prohibited during the lockdown period and this include meeting and dating their partners causing mental distress to some. Therefore, some may have adjusted to the 'new norms' by spending more time on the internet and watching pornography as their ways of coping with the distress. On the other hand, frequent and excessive use of pornography may lead to further mental distress, a viscous cycle. Studies have shown the ill impacts of pornography that include addiction, psychological and mental distress (Kohut & Stulhofer, 2018; Perry, 2018; Peter & Valkenburg, 2016), impairment in social relationship and functioning (Király, Potenza, & Stein, 2020) as well as other risky behaviour like delinquency and substance use (Mori, Temple. Brown & Madigan, 2019). Therefore, there is a need to examine the pornographic use and its sequelae especially during the COVID-19 pandemic in more detail to confirm this relationship. In preventing youths from the negative sequelae, experts have recommended structured activities, regular exercise, adequate sleep, learning new skills to cope with stress such as relaxation technique, keep updated on the COVID-19 from a reliable source and regular self and family time (Király

et al., 2020).

Perceived realism was significantly associated with pornographic exposure. Those who perceived pornography as real showed lower odds of having lifetime pornographic exposure. This is conflicting with the earlier study that showed perceived realism was associated with a higher risk of pornographic usage (Peter & Valkenburg, 2010). Premarital sex and pornographic viewing are not well accepted in Malaysian culture. Thus, those who perceived the pornography as real would avoid performing the activity. This also could be related to their media literacy; they critically analyse the behaviour and decide not to be exposed to it (Baams et al., 2015).

This study provides new knowledge on sexual health topics especially in conservative countries like Malaysia, the prevalence of pornographic exposure is high especially among male college students. Although this study demonstrated a relatively low percentage of participants performing actual sexual activities, the high pornography exposures amongst the young adults should alerted authorities in curbing this behaviour. The high number of participants recruited for this study reduces the margin of error, making the finding more robust and reliable (Asiamah, Mensah, & Oteng-Abayie, 2017). However, it is essential to mention the limitations of this study. The group of students selected from each college was recruited based on the college administrators' suggestion. Thus, the finding does not exclude finding by chance, which can be overcome by random sampling. However, bearing in mind that the topic studied is sensitive. Therefore, students were recruited in clusters, and according to what was offered by the college administrators to minimize disruption in academic activities.

As this study was conducted among college students in Central Seberang Perai Penang, the findings may not necessarily represent the college students in other parts of Malaysia. Albeit our effort of assuring confidentiality and anonymity, biases may still exist. This study requested the participants to report their activities in the past, potentially there is a risk of recall bias and not necessarily reflect their actual pornography exposure or sexual activity. In addition, there is also a risk of social reliability bias especially when reporting socially unaccepted behaviour like sexual activity and hence underreporting of their actual activity. Nevertheless, the findings have given an insight on the gravity of the problem and risk associated with Malaysian young people if this high pornographic exposure is not being managed appropriately. Finally, this study only examined pornography exposure in general and did not specifically looked into types of pornography, related activities such as masturbation, sexting or chatting and the impacts of pornography to their life. There are reported cases in Malaysia that showed crime acts related to pornography exposure that include voyeuristic disorder (Lung, Sidi, Salleh & Tajuddin, 2018) and exhibitionism (Chet, Lin, Sidi, Zakaria, & Yahaya, 2018). Thus, future study may want to examine the pornography activity among the young people in more detail.

5. Conclusions

The prevalence of lifetime pornography exposure among the students was 74.5%, predominantly among male college students in Malaysia. Most of the pornography users had the materials for free from the internet and used it alone at home. Being a male is an independent risk factor for lifetime internet exposure, and many of them had frequently watched pornography more than once a month and began at about 14 years old. Perceiving pornography as real will deter them from being involved with it, this relationship needs to be explored further in future research.

Based on these findings and public health interest, policymakers may want to consider to perform screening for pornography exposure as early as during secondary schooling years and to render appropriate intervention and prevent untoward complications including pornography addiction and unsafe sexual activity. Parents also need to be aware on the need to control internet use among their children as unsupervised

use might expose them to pornography. In addition, college administrators and non-governmental organizations may want to increase structured programs and activities involving the youths. Thus, reducing their free time alone at home viewing or reading pornographic materials.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.abrep.2021.100350>.

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