

Consumption of pornographic materials among early adolescents in Hong Kong: profiles and psychosocial correlates

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Abstract

Consumption of pornographic materials was examined in 3328 Secondary 1 students in Hong Kong. Results showed that over 90% of the respondents had never consumed pornographic materials in the past year. Compared to traditional pornography, internet pornography was the most common medium that participants used when viewing pornographic materials. Males reported a higher level of pornography exposure than females did. Results showed that different measures of positive youth development and family functioning were related to adolescents' consumption of pornographic materials. In general, higher levels of positive youth development and better family functioning were related to a lower level of pornography consumption. The relative contribution of positive youth development and family factors to consumption of pornographic materials was also explored.

Keywords: Chinese adolescents; family functioning; positive youth development; Project P.A.T.H.S., pornographic material consumption.

Introduction

There are increasing concerns regarding the effects of sexualized media on the psychosexual development of adolescents. Sexual curiosity is the major reason for consumption of pornography among adolescents (1, 2). Studies showed that mass media

were the most important sources of sexual information among adolescents and young adults (3–6). In view of the proliferation of sexually explicit materials, Fisher and Barak (7) suggested that future research should focus on “a) personality characteristics that incline individuals to seek out sexually explicit materials ... b) the effects of contact with sexually explicit media on individuals who chose to consume such material” (p. 315). It is noteworthy that previous studies mainly focused on the effects of pornography exposure among late adolescents and young adults (8–11) and there is not much research on consumption of pornographic materials in early adolescents. Hence, it is important to address this research gap.

Researchers argued that early exposure to pornography during adolescence might be associated with negative developmental outcomes, such as premarital sexual permissiveness, promiscuous sexual activity, sexually compulsive behavior, and distorted beliefs of sexual activity (1, 12–14). When adolescents were asked to recall their first exposure to a sexual medium, negative emotions and physical responses (i.e., disgust, shock, embarrassment, anger, crying, sadness, guilt, and confusion) were reported, and these results were more salient for 12-year-olds or younger (15). Past research investigating the influence of sexually explicit materials mainly examined traditional print pornography, with very few focusing on the potential harms of internet pornography. Mental health practitioners and researchers viewed this new medium, which is extremely popular among adolescents, as a growing menace. This might be related to the easy accessibility, affordability, and anonymity of the internet (1). Adolescents often use the internet for non-recreational (e.g., doing homework and project) and recreational purposes (e.g., playing online video games, watching videos, visiting social networking sites). Given that the internet becomes an integral part of adolescents' life, factors related to online pornography exposure should be examined.

Similar to other places, there is a rising trend of internet use in Hong Kong. Research findings showed that the percentage of internet users rose from 40% in 2000 to 69% in 2008, in which internet use among young adults (aged from 18 to 30 years) grew from 70% in 2000 to 98% in 2008 (16). According to the statistics of the Hong Kong Census (17), the rates of internet use among early adolescents (aged 10–14 years) have remarkably increased (i.e., 73% in 2000 to 99% in 2009). The prevalence of internet use was also supported by the increasing amount of online hours per week among Chinese adolescents (18, 19). Prolonged internet usage is susceptible to greater risk of internet addiction. This is supported by a study of 6121 Chinese middle and high school students, where about 20% of the respondents were at risk for internet addiction (19). Furthermore, Shek et al. (19) found

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Received June 5, 2011; accepted August 6, 2011

that the frequency of leisure-time activities replacing internet activities was a significant predictor of internet addiction. The negative consequences of internet addiction were invariant across cultures. As the internet becomes more pervasive and popular among adolescents, identifying factors related to this type of pornographic materials would help us to reduce its impact among Hong Kong adolescents in the future.

As the existing literature on consumption of pornographic materials is mainly based on Western populations, nothing is known about the pattern of pornography consumption and factors related to this behavior in Chinese contexts. Against this background, there are two purposes of this paper. First, descriptive profiles on pornographic material consumption in early Chinese adolescents are reported. Second, findings on the relationships between psychosocial correlates (including basic demographic factors, positive youth development qualities and family functioning) and exposure to traditional and internet pornography in Hong Kong are presented.

Methods

The data reported in this paper were derived from the first wave of a 6-year longitudinal study of adolescent development and their families in Hong Kong. The longitudinal study is a component of the extension phase of the Project P.A.T.H.S. which is financially supported by the Hong Kong Jockey Club Charities Trust. A total of 3328 Secondary 1 students (Grade 7) from 28 schools participated in this study. Among the participants, 1719 (52%) were boys and 1572 (48%) were girls – 37 of them did not respond to the question. The mean age of the participants was 12.6 years old ($SD=0.74$). The demographic information of the participants is shown in Table 1.

During data collection, the purpose of the study was mentioned and confidentiality of the collected data was repeatedly emphasized to all students in attendance on the day of testing. School, parental, and student consent had been obtained prior to data collection. All participants responded to all scales in the questionnaire in a self-administration format. Adequate time was provided for the participants to complete the questionnaire. A trained research assistant was present throughout the administration process.

Instruments

The Chinese Positive Youth Development Scale (CPYDS)

The Chinese Positive Youth Development Scale (CPYDS) (20) was developed to assess positive youth development. The CPYDS has 15 subscales, including bonding (BO), resilience (RE), social competence (SC), recognition for positive behavior (PB), emotional competence (EC), cognitive competence (CC), behavioral competence (BC), moral competence (MC), self-determination (SD), self-efficacy (SE), clear and positive identity (SI), beliefs in the future (BF), prosocial involvement (PI), prosocial norms (PN), and spirituality (SP). The details of the items can be seen in Shek et al. (20). A 6-point Likert scale (1=strongly disagree to 6=strongly agree) was used to assess the responses of the participants.

Using multigroup confirmatory factor analyses (MCFA), Shek and Ma (21) showed that the 15 basic dimensions of the CPYDS

Table 1 Demographic information of the respondents (n=3328).

	n	%
Gender		
Male	1719	52
Female	1572	48
Place of birth		
Hong Kong	2590	78
Mainland China	655	20
Others	64	2
Location of schools		
Hong Kong Island	5	18
Kowloon	7	25
New territories	16	57
Parents' employment status		
Both parents were employed	1643	57
Either father/mother was employed	956	33
Both parents were unemployed	305	11
Receiving financial aids		
Yes	225	7
No	2606	79
Others	465	14

could be subsumed under four higher-order factors, including cognitive-behavioral competencies (CBC), prosocial attributes (PA), positive identity (PID), and general positive youth development qualities (GPYDQ). Evidence of factorial invariance in terms of configuration, first-order factor loadings, second-order factor loadings, intercepts of measured variable, and intercepts of first-order latent factor, was found. In short, existing research findings showed that the CPYDS is a valid and reliable instrument.

The Chinese Family Assessment Instrument (CFAI)

The Chinese Family Assessment Instrument (CFAI) was used to assess family functioning. In the present study, three subscales, including mutuality (mutual support, love, and concern among family members), communication (frequency and nature of interaction among family members), conflicts and harmony (presence of conflicts and harmonious behavior in the family) were examined. The five response options were "very similar," "somewhat similar," "neither similar nor dissimilar," "somewhat dissimilar," and "very dissimilar." A higher total score on the subscales indicated a higher level of positive family functioning. The reliability and validity of the CFAI were supported in previous studies (22–25). Furthermore, multigroup confirmatory factor analyses (MCFA) showed the existence of two higher-order factors (i.e., family interaction and parenting) and factorial invariance of the CFAI across gender and subgroups (26).

Exposure to pornographic materials

Twelve items were used to assess the consumption of two types of pornographic materials during the last year. They were internet pornography (e.g., pornographic stories, pictures, videos, and websites) and traditional pornography (e.g., pornographic movies, rental films, movies on cable TV, magazines, books, and comics). Participants answered on a 6-point Likert scale (0=never; 1≤1 time a week; 2=1–3 times a week; 3=about 1 time a week; 4=several times a week; 5=daily). A composite score was calculated by averaging all 12 item scores in order to obtain the mean of the overall exposure to

pornographic materials. The same method was used to calculate the mean consumption scores of traditional and internet pornographic materials.

Family background characteristics

An item was asked to assess whether participants received financial aids (known as CSSA-comprehensive social security assistance) from the government of Hong Kong. For example “Your family is now receiving CSSA?” (1=Yes, 0=No). Another item was used to assess the immigrant status of the participants (0=Hong Kong, 1=mainland China, 2=others).

Perceived academic and school performance

Three items were tested to examine participants’ perceptions on their academic and school competence. For example: “Compared to your classmates, you think your academic performance is ...?”; “Are you satisfied with your academic results?”; “You perceive your school conduct is, ...?” There are five response options (“very bad,” “bad,” “average,” “good,” and “very good”). A composite score was calculated by averaging all item scores in order to obtain the mean of the overall academic and school competence (ASC).

Results

Reliability analyses showed that all subscales had acceptable internal consistency (Table 2). The prevalence of pornography consumption among Hong Kong adolescents is shown in Tables 3 and 4. Over 90% of adolescents reported they had never consumed pornographic materials over the past year. Compared to the traditional pornographic materials (mean rank=111.18), the degree of adolescents’ exposure to the internet pornographic materials was significantly higher (mean rank=223.87, $Z=-16.19$, $p<0.01$).

Significant differences were found in gender and immigrant status, but not in family economic background (Table 5). Males (mean rank=1707.02) had a higher level of pornography consumption than females (mean rank=1579.28) ($U=-6.41$, $p<0.01$). Participants who were born in mainland China (mean rank=1729.47) reported a higher level of pornography consumption than those who were born in Hong Kong did (mean rank=1637.92, $U=-3.78$, $p<0.01$) It is noteworthy that these differences were consistent in different types of pornographic materials.

Analyses based on Pearson’s correlation showed that all positive youth development and family functioning measures were negatively correlated (ranging from -0.06 to -0.19) with the overall pornography exposure. In general, higher levels of positive youth development and family functioning were related to lower levels of pornography consumption (Table 2).

To further examine the influence of individual and family background characteristics (i.e., age, gender, immigrant status, socioeconomic background) on the consumption of pornographic materials, multiple regression analyses were performed with individual and family factors as the predictors and different types of pornographic materials as the

criterion variables. The findings based on multiple regression analyses can be seen in Table 6. Age, gender, and immigrant status were significant predictors on pornographic materials. Results showed that higher levels of pornography exposure were found in older male participants, especially those who were born in mainland China. Also, results revealed that general positive youth development qualities second-order factor (GPYDS), prosocial attributes second-order factor (PA), and family mutuality negatively predicted overall pornography exposure. However, it is noteworthy that cognitive-behavioral second-order factor (CBC) and positive identity second-order factor (PID) positively predicted past year pornography exposure. Overall, both positive youth development and family functioning negatively predicted adolescents’ pornography consumption.

Discussion

The goal of the current study was to examine the prevalence and psychosocial correlates of pornography consumption among Hong Kong Chinese early adolescents. There are several unique characteristics of the present study. First, in view of the paucity of pornography research in non-Western contexts, a large Chinese sample was employed to provide a broader and comprehensive understanding of pornography consumption in different cultures. In fact, this is the first known scientific study of consumption of pornographic materials in different Chinese contexts. Second, two validated measures of positive youth development and family functioning in the Chinese contexts were used. Given the majority of this research area was conducted in Western countries, this study adds to the growing literature on pornography consumption. It sheds light on adolescent consumption of pornography and design of appropriate programs for Chinese adolescents.

More than 90% of the participants reported that they had not read or watched pornographic materials in the past 12 months. These results were generally lower than those shown in Western populations (27–29). Given the younger age of the present study population, it is no surprise that the prevalence of pornography exposure was lower than those found in past research. In addition, sexual inhibition in the Chinese culture may also account for the findings.

Focusing exclusively on early adolescents, the present study extended past research by exploring whether the correlates of pornography consumption would vary by the types of pornographic materials – traditional and internet pornography. Results showed that early adolescents consumed pornographic materials mostly from the internet. As there are few studies comparing internet-based vs. traditional media in the consumption for pornographic materials, the current study is a pioneering work in pornography research.

In line with Western and Asian countries (9, 11, 30, 31), the present study showed that Chinese males reported a higher degree of pornography exposure than Chinese females did, regardless of the types of pornographic materials. These findings highlighted the importance of providing help for adolescents, particularly males, regarding the consumption of

Table 2 Descriptive statistics, internal consistency and correlations among variables.

	M (SD)	α (mean) ^a	Overall pornography, $\alpha=0.91$	Internet pornography, $\alpha=0.92$	Traditional pornography, $\alpha=0.86$
			r	r	r
ASC	3.12 (0.67)	0.67 (0.40)	-0.06 ^b	-0.07 ^b	-0.02
Positive youth development					
CBC	4.45 (0.75)	0.82 (0.61)	-0.09 ^b	-0.09 ^b	-0.07 ^b
PA	4.50 (0.89)	0.74 (0.59)	-0.19 ^b	-0.19 ^b	-0.15 ^b
GPYDQ	4.58 (0.71)	0.88 (0.48)	-0.17 ^b	-0.16 ^b	-0.14 ^b
PID	4.24 (0.96)	0.82 (0.69)	-0.09 ^b	-0.09 ^b	-0.08 ^b
Family functioning					
Mutuality	3.89 (0.89)	0.87 (0.70)	-0.13 ^b	-0.12 ^b	-0.10 ^b
Harmony	3.81 (0.92)	0.76 (0.51)	-0.11 ^b	-0.10 ^b	-0.08 ^b
Communication	3.51 (1.01)	0.81 (0.59)	-0.11 ^b	-0.11 ^b	-0.09 ^b

ASC, Academic and school competence; CBC, cognitive-behavioral competencies second-order factor; PA, prosocial attributes second-order factor; GPYDQ, general positive youth development qualities second-order factor; PID, positive identity second-order factor. ^aMean inter-item correlations. ^b $p < 0.01$.

Table 3 Past year exposure to internet and traditional pornographic materials.

	Never, %	<1 time a month, %	1-3 times a month, %	About 1 time a week, %	Several times a week, %	Daily, %
Internet						
Pornographic stories	94.1	4.4	0.8	0.2	0.4	0.2
Pornographic pictures (exposed genitals)	93.0	5.6	0.8	0.2	0.3	0.1
Pornographic videos (exposed genitals)	93.7	4.4	1.0	0.3	0.4	0.1
Sexual intercourse pictures (including comics)	93.6	4.4	1.1	0.3	0.4	0.2
Sexual intercourse videos (including cartoons)	93.3	4.6	1.0	0.4	0.5	0.1
Pornographic website	95.2	3.5	0.8	0.4	0.1	0.1
Traditional						
Pornographic movies	99.2	0.6	0.1	0.0	0.0	0.0
Pornographic rental films	99.5	0.3	0.0	0.1	0.0	0.0
Pornographic movies on cable TV	98.3	1.4	0.1	0.0	0.1	0.0
Pornographic magazines	98.7	0.9	0.2	0.1	0.1	0.1
Pornographic books	98.6	1.0	0.1	0.1	0.1	0.1
Pornographic comics	97.1	2.1	0.4	0.2	0.1	0.1

Table 4 Past year exposure to internet and traditional pornographic materials by gender.

	Never, %		Attempted, %	
	Male	Female	Male	Female
Internet				
Pornographic stories	93.6	94.8	6.4	5.2
Pornographic pictures (exposed genitals)	90.6	95.7	9.4	4.3
Pornographic videos (exposed genitals)	91.0	96.9	9.0	3.1
Sexual intercourse pictures (including comics)	92.3	95.2	7.7	4.8
Sexual intercourse videos (including cartoons)	91.4	95.6	8.6	4.4
Pornographic website	92.6	98.0	7.4	2.0
Traditional				
Pornographic movies	98.7	99.9	1.3	0.1
Pornographic rental films	99.3	99.8	0.7	0.2
Pornographic movies on cable TV	97.5	99.2	2.5	0.8
Pornographic magazines	98.3	99.2	1.7	0.8
Pornographic books	98.4	98.9	1.6	1.1
Pornographic comics	97.3	97.0	2.7	3.0

Table 5 Mean rank differences among different types of pornographic materials by gender, immigrant status, and family economic background.

	Overall pornography		Internet pornography		Traditional pornography	
	Mean ^a	U	Mean ^a	U	Mean ^a	U
Gender						
Male	1707.02	-6.41 ^b	1687.70	-6.50 ^b	1640.83	-1.99 ^b
Female	1579.28		1562.97		1616.13	
Immigrant status						
Hong Kong	1637.92	-3.78 ^b	1619.67	-3.88 ^b	1636.55	-0.90
Mainland China	1729.47		1710.34		1649.98	
Receiving financial aids						
No	1413.70	-0.67	1397.44	-0.41	1399.68	-1.09
Yes	1436.33		1410.91		1422.94	

^aMean rank. ^b $p < 0.01$.

pornographic materials. Males were more sexually exciting and likely to engage in sexual aggression than females after consuming pornographic materials (32, 33). This is further supported by a study based on a sample of Chinese male young adults. Lam and Chan (10) found that repeated exposure to internet pornography was associated with premarital sexual permissiveness and sexual harassment proclivity. Regarding the effects of pornography exposure, a comprehensive sex education program that addresses an appropriate attitudes and values of sexual behavior is needed. It is noteworthy that in the extension phase of the Project P.A.T.H.S., new teaching units on sex education are designed.

Similar to Korean adolescents, negative relationships were shown between problem behaviors and psychological factors (30). These inverse relationships between positive youth development qualities and the degree of exposure to pornographic materials supported the notion that a higher level of positive youth development qualities would predict a lower level of youth health risk behaviors (34, 35). In particular, prosocial attributes second-order factor and general positively youth development qualities second-order factor negatively predicted exposure to pornographic materials. This might be related to the conservative views towards sexuality and low prevalence of early sexual behaviors in Hong Kong (36, 37). It is important to note that some positive youth developmental qualities were positively related to consumption of pornographic materials. One possibility is that young people with better cognitive competence and positive identity may overestimate their self-control ability, thus attempting to explore pornographic materials. Also, higher social competence may induce peer support for the consumption of pornographic materials.

Research findings based on quantitative and qualitative research showed that pornography consumption can lead to normalization of sexual behavior and increasing likelihood of engaging in high-risk sexual activities, such as having multiple sexual partners, infections, and pregnancy (32, 38–40). Adolescents exposed to the sexually explicit materials would likely be sexually inspired by the sexual content, motivate to experiment different sex acts, and thus affect their actual sex life (41). Under the influence of this socializing effect, adolescents

might follow a norm of relationship sex and have exaggerated and distorted beliefs of sexual activity among peers (40, 42). To help adolescents to be aware of the potential impact of this exposure, practitioners, parents, and teachers should work together to educate them to obtain reliable health information, especially on the internet, and to establish an honest and open discussion about responsible sexual behavior. This is of paramount importance, as a study by Fok (43) showed that Hong Kong students perceived a discrepancy between the actual and expected sex education programs that were implemented in their schools. Therefore, educators should put more effort in promoting correct sex attitudes and values among Hong Kong adolescents.

In line with previous findings (44), family mutuality was a significant predictor to the consumption of pornographic materials. These findings further supported the beneficial effects of moral competence on reducing adolescents' pornography exposure with the presence of an open family communication atmosphere (45). Contrary to our expectations, socioeconomic status failed to predict this problem behavior. Perhaps, other family related factors, such as parental control, and satisfaction of parent-child relationship, should also be added to unravel the complex relationship among these variables in the future. In addition, financial hardship may also restrain the availability of pornographic materials in adolescents experiencing economic disadvantage.

Another factor that should be examined in future studies is whether the consumption of pornography is voluntary or not. Researchers noted that the possibility of inadvertent and unintentional exposure to pornography, especially in the peer-to-peer file-sharing network that serves as a popular means of downloading music and videos (46, 47). Based on a sample of 1500 young internet users aged 10–17 years old, about 66% reported that they encountered unwanted exposed to pornography when surfing the internet (48). Deliberate pornography was associated with high-risk sexual behaviors and detrimental to reproductive health (33, 49, 50). Previous studies demonstrated that the adverse effects of unwanted exposure were more salient for youth with vulnerable characteristics, such as depression, and offline interpersonal victimization (48). Future research should be conducted to solicit the information about their reason for visitation of sexual materials.

Table 6 Regression analyses based on individual and family related factors.

Predictor	Overall pornography			Internet pornography			Traditional pornography		
	R	R ²	β ^a	R	R ²	β ^a	R	R ²	β ^a
Block 1:									
Age			0.04 ^b			0.05 ^c			
Gender ^d			-0.09 ^c			-0.11 ^c			-0.04 ^b
Model	0.10	0.01		0.12	0.01		0.04	0.002	
Block 2:									
Immigrant status ^e			0.04 ^b			0.05 ^b			
Family economic status ^f									
Model	0.06	0.003		0.06	0.003		0.04	0.002	
Block 3:									
ASC									
Family functioning									
Mutuality			-0.07 ^b			-0.07 ^b			
Harmony									
Communication									
Positive youth development									
CBC			0.08 ^b						0.10 ^c
PA			-0.17 ^c			-0.17 ^c			-0.12 ^c
GPYDQ			-0.10 ^c			-0.09 ^b			-0.10 ^b
PID						0.08 ^b			
Model	0.22	0.05		0.21	0.05		0.18	0.03	

ASC, Academic and school competence; CBC, cognitive-behavioral competencies second-order factor; PA, prosocial attributes second-order factor; GPYDQ, general positive youth development qualities second-order factor; PID, positive identity second-order factor. ^aStandardized coefficients. ^b $p < 0.05$. ^c $p < 0.01$. ^dGender (0=male; 1=female). ^eImmigrant status (only two levels were examined, i.e., 0=Hong Kong, 1=mainland China). ^fReceiving financial aids (0=no; 1=yes).

Also, other significant factors related to pornography exposure were not examined in the present study. For example, it would be interesting to test the relationship between exposure to pornographic materials and sexual behaviors. It seems that adolescents are more sexually aroused after reading or watching sexually explicit materials, and therefore would be likely to engage in sexual behaviors. This is supported by studies showing the positive association between exposure to internet pornography and high-risk sexual behaviors among adolescents (13, 51) and adults (52). Similar results were also found in a sample of Taiwanese adolescents (49). More work is needed to explore the impact of pornography exposure on adolescents' attitudes towards sexual behaviors in the future.

Several limitations of the current study must be noted. First, our study is based on respondents' self-report. Although anonymity and confidentiality were maintained in this study, social-desirability and other bias cannot not be eliminated. Second, as the present findings are based on Hong Kong adolescents, caution should be taken when generalized to other Chinese cultures, such as mainland China and Taiwan. Third, cross-sectional design of the study might rule out the causal relationship of the variables under investigation. More research should be conducted to examine the developmental effects of these psychological correlates among adolescents. This notion is reinforced by the recent findings which demonstrated that positive youth development programs, such as the Project P.A.T.H.S. can help to reduce their negative behaviors among Hong Kong adolescents (53, 54).

Despite the above limitations, the present study shows the important linkages between positive youth development qualities and pornography consumption among Hong Kong early adolescents. More efforts in promoting media literacy among this specific population should be emphasized. As Hald (28) argued, "future research (should) focus on these situational, interpersonal, interpersonal, and behavioral characteristics of pornography consumption in addition to actual prevalence rates of consumption in different cultures" (p. 584). Obviously, our findings represent a positive response to this request. The present study sheds light on addressing the issue of contemporary pornography among Hong Kong adolescents. One recommended strategy is to implement school-based positive youth development programs, such as the Project P.A.T.H.S. in Hong Kong (55–57).

Acknowledgments

The preparation for this paper and the Project P.A.T.H.S. were financially supported by The Hong Kong Jockey Club Charities Trust.

Conflict of interest statement

Authors' conflict of interest disclosure: The authors stated that there are no conflicts of interest regarding the publication of this article. Research funding played no role in the study design; in the collection, analysis, and interpretation of data; in the writing of the report; or in the decision to submit the report for publication.

Research funding: None declared.
Employment or leadership: None declared.
Honorarium: None declared.

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