

Pornography consumption and sexual health among emerging adults from Malaysia: an observational study

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ABSTRACT

Background. Despite the high prevalence, few studies have examined pornography consumption among emerging adults in Malaysia. The current study examined the attitudes, motivations, and behaviours related to pornography consumption and their association with sexual health.

Methods. Using a cross-sectional survey that was conducted online, a convenience sample of 319 Malaysians aged 18–30 years ($M = 23.05$, $s.d. = 2.55$) reported their attitudes and behaviours related to pornography consumption, including the degree of problematic consumption, and completed measures of sexual health. These included sexual satisfaction, awareness of sexual feelings, sexual self-reflection, sexual assertiveness, embarrassment during partnered sex, and genital image. To capture pornography genre preferences, participants also reported the keywords that they typically use to search for pornography. These open-ended responses were thematically coded. **Results.** Between 60 and 70% of participants reported positive attitudes toward pornography and 81.2% ($N = 259$) reported lifetime intentional exposure to pornography. Gender differences were present in pornography consumption attitudes, motivations, preferences, and behaviours. Problematic pornography consumption, and not consumption frequency, was associated with poorer sexual satisfaction. Among women and not men, more frequent consumption was associated with more sexual self-reflection and positive feelings about their genitals. Sexual embarrassment was higher among women who consume pornography more problematically and among men who consumed pornography more frequently. **Conclusions.** Pornography consumption attitudes and behaviours appear rather universal. However, the benefits of pornography consumption frequency and disadvantages associated with problematic consumption appear to be more relevant for women's than men's sexual health, specifically sexual self-reflection, genital image, and sexual embarrassment.

Keywords: genital image, Malaysia, pornography consumption, preferences, sexual assertiveness, sexual awareness, sexual satisfaction, sexual self-consciousness, sexual self-reflection.

Introduction

Pornography refers to the explicit depictions and/or descriptions of the genitals and sexual acts,^{1,2} which is predominantly used to achieve sexual arousal and pleasure.³ Given that sexual health encompasses one's overall well being in relation to sexuality, which includes a positive approach to sexuality and a right to pleasurable and safe sexual experiences,⁴ it can be argued that pornography plays a valuable role in sexual health maintenance. While there is some support for this in the literature, a meta-analysis of 50 studies revealed that pornography consumption was generally associated with lower sexual and relational satisfaction, especially among men.⁵ However, the generalisability of these findings remains questionable. In addition to a dearth of studies with Asian samples, recent reviews also highlight the lack of focus on positive sexual health outcomes that go beyond satisfaction.^{6–8}

Pornography exposure rates have been reported to vary globally from 41% (Taiwan) to 84% (Australia).⁹ In Malaysia, a multiethnic South East Asian country where open discussions on sex are discouraged¹⁰ and depictions of sex in the media are prohibited

due to cultural and religious constraints, the pornography exposure rate for emerging adults has been reported to be 74.5%.¹¹ This high exposure rate may be problematic given Malaysians' poor sexual health literacy and access to formal sex education,^{12,13} which may encourage their reliance on pornography as an uncomprehensive source of knowledge and script to guide the development of their sexuality.⁷ Indeed, recent evidence suggests that more sexually conservative countries may be particularly vulnerable to problematic pornography consumption.¹⁴

Thus, the aim of the current study was twofold. First, we described how young Malaysians were consuming pornography. Because past studies have highlighted that high-frequency consumption itself may not be detrimental to sexual health,¹⁵ the current work also examined the degree of problematic pornography consumption (severity of consumption). Our first research question (RQ) was:

RQ1: What are the attitudes, motivations, preferences, and behaviours related to pornography consumption in our sample of Malaysian emerging adults?

Second, we examined how pornography consumption (frequency and severity) was associated with sexual health. In addition to sexual satisfaction, we examined awareness or consciousness of sexual feelings,¹⁶ sexual self-reflection,¹⁷ sexual assertiveness,¹⁶ embarrassment during sex,¹⁸ and genital image or genital satisfaction,¹⁹ which have been found to correlate with various components of sexual well being, as markers of sexual health. Researchers have posited that pornography consumption can shape sexual perceptions through social comparisons.²⁰ Pornography consumers expose themselves to the bodies and sexual performance of pornographic actors, which are likely (unrealistically) superior to theirs. These upward comparisons may reduce their sexual and genital satisfaction and increase distracting thoughts and concerns related to their appearance or performance, thus increasing negative feelings such as embarrassment during partnered sex. These cognitive distractions also reduce the limited cognitive resources available for one to practice assertive behaviours during sex.²¹ However, higher consumption has been linked to more sexual acceptance, openness, and pleasure,²² which may promote greater sexual agency (assertiveness, consciousness), self-reflection, and satisfaction. Additionally, there is some empirical evidence on the benefits of pornography consumption on genital image.²³ Given the mixed findings and gaps in the literature, our second research question asked:

RQ2: Is pornography consumption associated with sexual health outcomes?

Lastly, studies have consistently demonstrated gender differences in pornography consumption practices and outcomes.^{1,5,24–26} However, how they vary has not always been consistent. For instance, although findings from a meta-analysis show that more frequent consumption tends to be linked to poorer sexual satisfaction among men,⁵ findings from a recent study that was conducted with

Malaysian emerging adults found that more problematic consumption was linked to more psychological distress among women and not men.²⁶ Thus, our third RQ asked:

RQ3: Do associations between pornography consumption and sexual health vary by gender?

Methods

Study design and participants

We analysed data from part of a larger cross-sectional study on interpersonal experiences and well being, which was approved by the Human Research Ethics Committee of the authors' institution (Monash University Malaysia). Data were collected using an online survey from May to October 2020. To qualify for participation, participants needed to be aged 18–30 years, Malaysian by nationality, comfortable with completing a questionnaire in English, and comfortable with responding to questions about their close relationships and sexual experiences.

To recruit the participants, student researchers from a private university in Selangor (the most developed and populous state in Malaysia) promoted the study on their personal and public social media accounts. Individuals who registered for the study were sent a formal invitation to participate via email. This email contained the link to the survey and the explanatory statement, which detailed the information about the study, the consent process (where completion of the survey implies consent), and participant confidentiality. Upon completion, participants were paid MYR30 (approximately USD6.35) and asked to sign a document that acknowledged their participation in the study and receipt of the honorarium. They were also asked to share information about the study with their contacts.

A total of 386 responses to our online questionnaire were recorded. After removing duplicates and incomplete responses, we were left with 319 participants who were aged 23.05 years on average (s.d. = 2.55) and mostly identified as heterosexual and ethnically Chinese (demographic information in Table 1). This exceeds the G*Power 3.1²⁷ estimated sample size of $N = 223$, which is required to obtain an increase of $r^2 = 0.042$ ²⁶ in our models with two interaction terms and 13 predictors at a power of 0.80.

Variable measures

Prior to the presentation of the measures related to pornography consumption, participants read the following statement: 'In the context of this research, we define pornography as any kind of material aiming at creating or enhancing sexual feelings or thoughts in the recipient and, at the same time containing explicit exposure and/or descriptions of the genitals and clear and explicit sexual acts such as vaginal intercourse, anal intercourse, oral sex,

Table 1. Description of participant characteristics.

Variable	N	%	Variable	N	%
Sex			Hometown		
Male	133	42	Rural	23	7
Female	186	58	Sub-urban	112	35
Relationship status			Urban		
In a relationship	144	45	Sexually active within 4 weeks		
Single	175	55	No	93	29
Ethnicity			Yes		
Malay	79	25	Ever had partnered sex		
Chinese	167	52	No	114	36
Indian	51	16	Yes		
Others	22	7	Ever had solo sex		
Religion			No		
Islam	82	26	Yes		
Buddhism	96	30	Ever been exposed to pornography		
Hinduism	21	6	No	28	9
Christianity	82	26	Yes		
Taoism	6	2	Ever consumed pornography intentionally		
Sikhism	3	1	No	60	19
Atheist/Agnostic	29	9	Yes		
Sexual orientation			Age at first pornography exposure (years)		
Heterosexual	268	84	<10	17	6
Bisexual	28	9	10–14	154	53
Homosexual	11	3	15–19	92	32
Asexual or greysexual	12	4	≥20	27	9
Current living status			Missing		
Not living with parents	105	33			
Living with parents	214	67			
Pornography consumption variables (N = 259)					
Pornography consumption frequency			Pornography consumption recency		
Less than once a month	74	29	Within the last 12 months		
About once a month	17	6	Within the last 6 months		
2–3 times a month	54	21	Within the last month		
1–2 times per week	32	12	Within the last week		
Multiple times per week	59	23	Within the last 24 h		
Daily	15	6			
Multiple times per day	8	3			
Pornography consumption during masturbation					
Never	43	17			
Rarely	22	9			
Occasionally	16	6			
Sometimes	24	9			
Often	27	10			
Very often	58	22			
All the time	69	27			

masturbation, bondage, sadomasochism, rape, urine sex, animal sex, and so on.¹

All participants were presented with the measures related to pornography consumption attitude and history, and sexual health (except for the Sexual Self-Consciousness Scale,¹⁸ which was only completed by those with partnered sex experience). Only those who indicated that they consumed pornography intentionally completed the measures related to current practices, motivations, and feelings related to pornography consumption.

Pornography consumption measures

All participants rated their agreement to four self-developed statements about their attitude toward pornography consumption on a seven-point Likert scale, and how positive/good or negative/bad they felt about pornography consumption and the pornography industry on a seven-point semantic differential scale (Table 2). Then, participants reported their age of first exposure and whether they have consumed pornography intentionally.

Participants who have consumed pornography intentionally completed single-item measures of recency of consumption, frequency of consumption, and frequency of consumption during masturbation (see Table 1 for response options). Higher scores reflected more recent and frequent consumption. They also completed the short version of the Problematic Pornography Consumption Scale (PPCS-6),²⁸ which consisted of six items rated on a scale of 1 (*never*) to 7 (*all the time*). Item scores were averaged to form the problematic pornography consumption variable score. Scores of ≥ 3.33 (or 20 out of 42) were considered problematic consumption.

They then indicated how they access pornography and who knows about their pornography consumption using checkboxes. The response options were 'VPN' (virtual private network), 'found sites that are not banned', 'social media', 'live streaming', 'downloading/torrents', and 'paid subscription'. Participants were also provided with a text box to include open-ended responses. The response options for people who know about pornography consumption were 'parents', 'siblings', 'friends', and 'relationship partner'. To capture pornography genre preferences, participants responded to an open-ended question: 'What are some of the terms or keywords that you search for when looking up pornography?'. These were self-developed items.

Next, participants rated their agreement to 10 items adapted from the study by Paul and Shim²⁹ to measure motivations for consuming pornography. They then rated how frequently they felt three positive and four negative emotions after consuming pornography.³⁰ We included 'depressed' and 'empowered' given that pornography consumption has been linked to increased depression, especially among women,³¹ and feelings of empowerment.³²

Sexual health measures

The five-item Global Measure of Sexual Satisfaction (GMSEX) was used to capture sexual satisfaction.³³ To measure sexual satisfaction more holistically, we modified the root question to: 'In general, how would you describe your *overall sex life*? Note that this encompasses sexual activity, which includes masturbation, foreplay, caressing, oral sex, and sexual intercourse'. Participants rated their overall sex life on five seven-point bipolar scales.

Participants completed the Sexual Consciousness and Sexual Assertiveness subscales of the Sexual Awareness Questionnaire.¹⁶ The former consisted of six items that measure the degree of attentiveness to internal sexual cues, whereas the latter consisted of seven items that measure the degree of independence when making decisions about sex. All items were rated on a scale of 0 (*not at all characteristic of me*) to 4 (*very characteristic of me*).

The abbreviated four-item version of the Female Genital Self-Image Scale was used to assess participants' feelings and beliefs about their genitals.³⁴ Participants indicated the extent to which each of the four statements described themselves on a scale of 1 (*does not describe me at all*) to 7 (*describes me very well*).

The sexual self-reflection subscale of the Female Sexual Subjectivity Inventory, which consisted of five items rated on a scale of 1 (*not at all true for me*) to 7 (*very true for me*), was used to measure the extent to which participants engage in introspection and reflection on their sexuality and sexual experiences.¹⁷ Even though these scales were originally designed for women, the items are gender-neutral and appropriate for use with other genders.

Only participants with partnered sexual experience completed the sexual embarrassment subscale of the Sexual Self-Consciousness Scale, where they rated their agreement to six items on a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).¹⁸

For all the sexual health measures, item scores were averaged to form the variable score. All scales had good internal consistency (α s = 0.76–0.95) and showed good factorial validity (Supplementary Table S1).

Sociodemographic indicators and control variables

Participants reported their age, sex, ethnicity, sexual orientation, partnered sexual experience, relationship status, and whether they have engaged in any form of sexual activity in the past 4 weeks. Subjective socioeconomic status (SES) was measured using the McArthur Scale of Subjective Social Status, with possible scores ranging from 1 to 10.³⁵

We also measured religiosity and sexual desire as control variables, given their associations with our variables of interest.^{9,31} Participants reported their degree of religiosity using a single item with a seven-point scale. Two (gender-neutral) items from the desire subscale of the Female Sexual Function Index³⁶ were used to capture the extent to which participants felt sexual desire over the past 4 weeks. Higher scores indicated higher SES, religiosity, and sexual desire.

Table 2. Attitudes toward, motivations for, feelings after, and behaviours related to pornography consumption for the overall sample and comparisons by gender.

Item	Total		Male		Female		t-test	d
	M	s.d.	M	s.d.	M	s.d.		
Attitude toward pornography and pornography consumption	(N = 319)		(N = 133)		(N = 186)			
There are benefits to viewing pornography	4.73	1.63	5.06	1.52	4.49	1.66	3.13**	0.36
Viewing pornography is okay in moderation	4.85	1.76	5.23	1.64	4.59	1.80	3.25**	0.37
I find viewing pornography enjoyable	4.71	1.66	5.50	1.19	4.14	1.72	8.37***	0.90
I don't mind others looking at pornography	5.13	1.60	5.48	1.35	4.88	1.72	3.49***	0.38
Feelings about watching or consuming pornography	3.88	1.75	4.43	1.72	3.49	1.66	4.90***	0.56
Feelings about the pornography industry	3.31	1.78	3.80	1.86	2.96	1.64	4.27***	0.49
Pornography consumption history	(N = 290)		(N = 129)		(N = 161)			
How old were you (in years) when you were first exposed to porn?	14.34	3.50	12.84	2.45	15.54	3.75	-7.36***	0.83
Feelings after pornography consumption	(N = 259)		(N = 121)		(N = 138)			
Positive affect	4.00	1.68	4.36	1.57	3.68	1.70	3.34***	0.42
Sexually aroused	4.97	1.77	5.03	1.85	4.91	1.71	0.58	0.07
Empowered	2.92	1.85	3.20	2.00	2.67	1.67	2.30*	0.29
Depressed	2.09	1.60	2.31	1.75	1.89	1.43	2.11*	0.27
Guilty	3.41	2.20	3.40	2.22	3.42	2.20	-0.09	0.01
Disgusted	2.94	1.99	2.79	1.86	3.07	2.09	-1.13	0.14
Embarrassed	2.93	2.00	2.76	1.98	3.09	2.02	-1.13	0.16
Motivation for pornography consumption (N = 259)								
To get sexually aroused or turned on	5.38	1.54	5.71	1.24	5.09	1.64	3.29***	0.41
To learn about sex	5.14	1.61	5.14	1.64	5.13	1.59	0.50	0.01
As something to do with relationship partner	3.86	1.86	4.01	1.81	3.74	1.91	1.16	0.14
Interest shared with friends	2.56	1.77	2.90	1.89	2.26	1.61	2.92**	0.37
Visual aid during masturbation	5.34	1.81	6.03	1.00	4.74	2.13	6.39***	0.76
Visual aid prior to or during sex with partner	3.14	1.87	3.31	1.91	3.00	1.84	1.31	0.16
Pass time or relieve stress	4.24	1.97	4.67	1.78	3.87	2.05	3.36***	0.42
Feel like you have to	2.98	1.97	3.55	2.01	2.48	1.81	4.47***	0.56
Hobby	2.32	1.63	2.58	1.76	2.09	1.48	2.41*	0.30
Fantasy	3.38	2.13	3.91	2.18	2.91	1.97	3.86***	0.48
Pornography consumption behaviours (N = 259)								
Recency of consumption	3.49	1.34	4.10	1.07	2.95	1.33	7.71***	0.95
Frequency of consumption	3.24	1.79	4.18	1.59	2.41	1.54	9.09***	1.13
I watch pornography when I masturbate	4.62	2.22	5.57	1.63	3.79	2.34	7.18***	0.87
Problematic pornography consumption	2.61	1.28	3.25	1.31	2.05	0.95	8.36***	1.06

Scores for all variables ranged from 1 to 7 except for age, which ranged from 5 to 27 years, and recency of pornography consumption, which ranged from 1 to 5. For items related to attitudes and motivation, response anchors were 1 (*strongly disagree*) and 7 (*strongly agree*). For items related to feelings, response anchors were 1 (*never or almost never*) and 7 (*always or almost always*). Higher scores reflected more positive attitudes, more endorsement of motivations, and more frequency of experience. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Statistical analysis

Data were analysed using SPSS (IBM Corporation), starting with the computation of descriptive statistics. Because pornography consumption and its outcomes differ by gender, we examined gender differences in pornography consumption variables using independent samples *t*-tests, and in preferred

pornography genre using chi-squared tests of independence. Pearson's correlations examining the associations between demographics, pornography consumption, and sexual health variables were computed for men and women separately. Finally, hierarchical linear regressions were run to examine the associations between pornography consumption behaviours and sexual health outcomes. Two-way interaction terms were

Table 3. Comparison of keywords used to search for pornography between men and women.

Themes and subthemes	Total (N = 220)		Male (N = 114)		Female (N = 106)		X ²	phi
	n	%	n	%	n	%		
Sexual behaviours	132	60.0	54	47.4	78	73.6	15.73***	0.27
Sexual activity mentioned	48	21.8	21	18.4	27	25.5	1.60	0.09
Description of sexual behaviour or context	39	17.7	13	11.4	26	24.5	6.49*	0.17
Related to orgasms	26	11.8	13	11.4	13	12.3	0.04	0.01
Kink, non-traditional preferences, and practices	20	9.1	6	5.3	14	13.2	4.20*	0.14
Hardcore	23	10.5	13	11.4	10	9.4	0.23	-0.03
Softcore	17	7.7	5	4.4	12	11.3	3.71 [†]	0.13
Explicit mention of the word 'sex'	14	6.4	2	1.8	12	11.3	8.44**	0.20
Target characteristics	98	44.5	67	58.8	31	29.2	19.39***	-0.30
Ethnicity	43	19.5	34	29.8	9	8.5	15.90***	-0.27
Body part mentioned	26	11.8	16	14.0	10	9.4	1.12	-0.07
Age or experience related	24	10.9	18	15.8	6	5.7	5.80*	-0.16
Description related to size	20	9.1	13	11.4	7	6.6	1.53	-0.08
Action words	11	5.0	6	5.3	5	4.7	0.03	-0.01
Role or occupation ^A	9	4.1	5	4.4	4	3.8	0.05	-0.02
Gender ^A	8	3.6	3	2.6	5	4.7	0.68	0.06
Other description of physical appearance ^A	5	2.3	4	3.5	1	0.9	1.63	-0.08
Name of pornstar ^A	5	2.3	5	4.4	0	0.0	4.76*	-0.15
Other description of target ^A	4	1.8	4	3.5	0	0.0	3.79 [†]	-0.13
Media/production characteristics	52	23.6	29	25.4	23	21.7	0.43	-0.04
Genre	26	11.8	16	14	10	9.4	1.12	-0.07
Explicit mention of the word 'porn'	10	4.5	2	1.8	8	7.5	4.25*	0.14
Camera perspective	10	4.5	8	7.0	2	1.9	3.33 [†]	-0.12
Mention of video format ^A	8	3.6	2	1.8	6	5.7	2.39	0.10
Other media-related description ^A	3	1.4	3	2.6	0	0.0	2.83 [†]	-0.11
Context of interaction	41	18.6	20	17.5	21	19.8	0.19	0.03
Sexual orientation	21	9.5	9	7.9	12	11.3	0.75	0.06
Relationship between targets	16	7.3	10	8.8	6	5.7	0.79	-0.06
Venue ^A	3	1.4	0	0.0	3	2.8	3.27 [†]	0.12
Seen by others ^A	3	1.4	1	0.9	2	1.9	0.42	0.04
Tools, clothing, and accessories ^A	8	3.6	5	4.4	3	2.8	0.38	-0.04

^A50% of cells have an expected count of <5.

[†]P < 0.10, *P < 0.05, **P < 0.01, ***P < 0.001.

computed and included in the models to test the moderating role of gender in the association between pornography consumption behaviours and sexual health.

Results

Pornography consumption attitudes and behaviours

Between 60 and 70% of participants indicated that they somewhat agree, agree, or strongly agree that there are

benefits to viewing pornography, viewing pornography is ok in moderation, viewing pornography is enjoyable, and they do not mind others consuming pornography. As shown in Table 2, men reported more positive attitudes than women.

Of 319 participants, 28 have not been exposed to pornography. Of the 259 participants who have consumed pornography intentionally, their age of exposure ranged from 5 to 27 years ($M = 14.2$, $s.d. = 3.3$). Men tended to be younger than women during exposure (Table 2). About half of those who have consumed pornography intentionally indicated that their friends (51.0%) and relationship partners

Table 4. Correlations between demographic, pornography consumption, and sexual health variables ($N = 259$).

	Age	SES	Religiosity	Sexual desire	Recency of PC	Frequency of PC	Problematic PC	Sexual satisfaction	Sexual assertiveness	Sexual self-reflection	Sexual consciousness	Genital image	Sexual embarrassment
Age	1	-0.02	0.12	0.10	-0.04	0.00	-0.04	0.04	0.03	-0.01	0.17*	0.13	-0.07
SES	0.16	1	0.15	0.10	0.05	0.13	0.02	0.36***	0.16	0.05	0.27***	0.22*	-0.15
Religiosity	-0.04	0.04	1	-0.09	-0.23**	-0.26***	0.01	0.01	0.02	-0.14	-0.10	0.00	0.24*
Sexual desire	0.04	-0.19*	-0.20*	1	0.42***	0.48***	0.42***	0.27***	0.39***	0.39***	0.49***	0.28***	-0.22*
Recency of PC	-0.34***	-0.19*	-0.23**	0.29***	1	0.79***	0.43***	0.05	0.24**	0.31***	0.43***	0.09	-0.05
Frequency of PC	-0.24**	-0.15	-0.25**	0.31***	0.78***	1	0.55***	0.02	0.17	0.32***	0.34***	0.18*	0.00
Problematic PC	0.07	-0.16	-0.07	0.12	0.27***	0.38***	1	-0.05	0.16	0.17*	0.28***	-0.01	0.22*
Sexual satisfaction	0.12	0.02	0.02	0.04	-0.09	-0.09	-0.10	1	0.44***	0.26***	0.40***	0.42***	-0.40***
Sexual assertiveness	0.00	-0.01	0.07	0.34***	0.13	0.06	0.09	0.30***	1	0.38***	0.58***	0.56***	-0.45***
Sexual self-reflection	0.07	-0.13	-0.06	0.28***	0.05	0.06	0.16	0.08	0.30***	1	0.41***	0.25***	-0.05
Sexual consciousness	0.14	-0.08	0.16	0.55***	0.16	0.13	0.06	0.20**	0.45***	0.33***	1	0.39***	-0.35***
Genital image	0.11	-0.02	0.19*	0.20*	-0.10	-0.07	0.01	0.39***	0.29***	0.03	0.30***	1	-0.56***
Sexual embarrassment	-0.25*	-0.13	-0.07	-0.02	0.12	0.26**	0.12	-0.34***	-0.41***	0.09	-0.24*	-0.40***	1
α	-	-	-	0.90	-	-	0.84	0.93	0.76	0.82	0.95	0.85	0.85

Males' correlations appear below the diagonal (1); females' correlations appear above the diagonal (1).

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

PC, pornography consumption; -, not applicable.

Of the keywords related to media or production characteristics, most participants searched for amateur (6.4%) or animated (5.5%) pornography genres. Keywords related to sexual orientation and the nature of the relationship depicted were most popularly used to describe the context of interaction. The most used terms were related to lesbian (lesbian, girl-on-girl; 5.9%) and familial (stepmom, stepsister; 4.1%) interactions. No gender differences were found.

Pornography consumption and sexual health

Given the high correlation between frequency and recency of pornography consumption ($r_s = 0.78-0.79$; Table 4), recency of pornography consumption was excluded from the hierarchical linear regression models. Age, religiosity, SES, sexual desire, lifetime partnered sex, relationship status, sexual orientation, and ethnicity were entered in Step 1 as control variables given their established associations with our variables under examination.^{9,18,31} Problematic pornography consumption, frequency of pornography consumption, and gender were entered in Step 2. The two-way interactions between pornography consumption variables and gender were entered in Step 3. This model was run with sexual satisfaction, sexual assertiveness, sexual self-reflection, sexual consciousness, genital image, and sexual embarrassment as outcome variables. Results from these models are summarised in Tables 5 and 6.

Overall, the addition of the interaction terms improved the model for sexual self-reflection, genital image ($P_s < 0.05$), and marginally for sexual embarrassment, $P = 0.075$; however, this was not found for the models with sexual satisfaction, assertiveness, and consciousness as outcome variables ($P_s > 0.250$). For these, we report findings from Model 2 where the interaction terms were excluded.

Sexual satisfaction

As shown in Table 5, only higher SES, lifetime partnered sex, being in a relationship, and less problematic pornography consumption were significantly associated with higher sexual satisfaction. No other associations or moderation by gender were present.

Sexual assertiveness

No associations were found between pornography consumption and sexual assertiveness. Only higher sexual desire, being in a relationship, identifying as non-heterosexual, and identifying as female were associated with higher sexual assertiveness.

Sexual self-reflection

Gender significantly moderated the association between the frequency of pornography consumption and sexual self-reflection ($P = 0.014$). Simple slopes analyses revealed that

Table 5. Results from hierarchical linear regressions with sexual satisfaction, assertiveness, and self-reflection as outcome variables (standardised coefficients).

	Sexual satisfaction			Sexual assertiveness			Sexual self-reflection		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Age	-0.04	-0.04	-0.04	-0.08	-0.08	-0.08	0.01	0.01	-0.02
Religiosity	0.06	0.08	0.08	0.09	0.09	0.09	-0.01	-0.01	-0.00
SES	0.16**	0.15**	0.16**	0.06	0.07	0.07	-0.03	-0.02	-0.03
Sex desire	0.01	0.09	0.10	0.27***	0.32***	0.32***	0.32***	0.34***	0.34***
Lifetime partnered sex	0.13*	0.13*	0.13*	0.08	0.07	0.7	0.09	0.09	0.09
Relationship status	-0.49***	-0.47***	-0.47***	-0.31***	-0.28***	-0.28***	0.04	0.05	0.06
Ethnicity	0.05	0.06	0.06	-0.09	-0.09	-0.09	0.00	-0.00	-0.01
Sexual orientation	-0.06	-0.07	-0.07	-0.13*	-0.12*	-0.12*	-0.20***	-0.19**	-0.18**
Problematic PC		-0.13*	-0.09		0.05	0.08		0.07	0.13
Frequency of PC		0.01	0.02		-0.02	-0.03		0.00	-0.17
Gender		0.06	0.19		0.15*	0.18		0.12	-0.03
Problematic PC × Gender			-0.14			-0.07			-0.20
Frequency of PC × Gender			0.01			0.04			0.35*
Model R ²	0.34***	0.36***	0.36***	0.25***	0.26***	0.26***	0.17***	0.18***	0.20***
F(ΔR ²)		2.61 [†]	0.59		1.73	0.11		1.00	3.07*

Lifetime partnered sex was dummy-coded as 0 = no experience, 1 = with experience; relationship status was coded as 0 = in a relationship, 1 = single; ethnicity as 0 = others, 1 = Chinese; sexual orientation as 0 = others, 1 = heterosexual; and gender as 0 = male, 1 = female. Moderation results remain unchanged when models were tested without the control variables. Blank cells indicate no data.

[†] $P < 0.10$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

PC, pornography consumption.

Table 6. Results from hierarchical linear regressions with sexual consciousness, genital image, and sexual embarrassment as outcome variables (standardised coefficients).

	Sexual consciousness			Genital image			Sexual embarrassment		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Age	0.04	0.05	0.05	0.06	0.07	0.04	-0.19**	-0.16*	-0.13 [†]
Religiosity	0.07	0.09	0.09	0.15*	0.17*	0.18**	0.05	0.06	0.04
SES	0.11*	0.11*	0.10*	0.09	0.08	0.07	-0.14 [†]	-0.13 [†]	-0.13 [†]
Sex desire	0.44***	0.42***	0.41***	0.23***	0.23**	0.24**	-0.23**	-0.24**	-0.24**
Lifetime partnered sex	0.14*	0.14*	0.14*	0.08	0.09	0.08	–	–	–
Relationship status	-0.17**	-0.17**	-0.16**	-0.17*	-0.17*	-0.17*	0.22**	0.22**	0.22**
Ethnicity	-0.07	-0.08	-0.09	0.04	0.05	0.04	-0.11	-0.15 [†]	-0.13 [†]
Sexual orientation	-0.03	-0.00	-0.00	-0.09	-0.09	-0.07	0.04	0.07	0.06
Problematic PC		0.01	-0.00		-0.10	0.02		0.14	0.03
Frequency of PC		0.16*	0.10		0.07	-0.07		0.15	0.29*
Gender		0.16*	0.02		-0.02	0.04		0.26**	0.24
Problematic PC × Gender			0.03			-0.36*			0.35 [†]
Frequency of PC × Gender			0.11			0.32*			-0.34*
Model R ²	0.35***	0.37***	0.38***	0.15***	0.16***	0.18***	0.16***	0.22***	0.24***
F(ΔR ²)		3.02*	0.64		0.66	3.55*		4.20**	2.63 [†]

Lifetime partnered sex was dummy-coded as 0 = no experience, 1 = with experience; relationship status was coded as 0 = in a relationship, 1 = single; ethnicity as 0 = others, 1 = Chinese; sexual orientation as 0 = others, 1 = heterosexual; and gender as 0 = male, 1 = female.

Moderation results remain unchanged when models were tested without the control variables, except for the model with genital image as the outcome variable. When the control variables were excluded from the model with genital image as the outcome variable, the interaction between pornography consumption frequency and gender remained significant ($\beta = 0.54$, $P = 0.012$), whereas the interaction between problematic pornography consumption and gender was not significant ($\beta = -0.36$, $P = 0.136$). Despite its non-significance, the pattern of findings related to the latter interaction term remains the same. Blank cells indicate no data.

[†] $P < 0.10$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

PC, pornography consumption.

among women, more frequent pornography consumption was marginally associated with more sexual self-reflection ($B = 0.17$, 95% CI [-0.02, 0.35], $t = 1.77$, $P = 0.079$). No association was found among men ($B = -0.13$, 95% CI [-0.30, 0.04], $t = -1.55$, $P = 0.123$). In addition to that, sexual desire and identifying as non-heterosexual were also found to be associated with higher sexual self-reflection.

Sexual consciousness

As shown in Table 6, the frequency of pornography consumption was positively associated with sexual consciousness regardless of gender. Other correlates of higher awareness of sexual feelings included having higher SES, more sexual desire, lifetime experience of partnered sex, being in a relationship, and being female. No other significant associations were present.

Genital image

Gender moderated the associations between problematic pornography consumption and genital image ($P = 0.020$) and frequency of pornography consumption and genital image ($P = 0.026$). Less problematic ($B = -0.43$, 95% CI [-0.74, -0.12], $t = -2.73$, $P = 0.007$) and more frequent pornography consumption ($B = 0.27$, 95% CI [0.03, 0.44],

$t = 2.29$, $P = 0.023$) were associated with more positive genital evaluations among women. No significant associations were found for men, $P_s > 0.500$. Genital evaluations were generally more positive among individuals who reported more religiosity, more sexual desire, and being in a relationship.

Sexual embarrassment

The relationships between problematic ($P = 0.057$) and frequency of pornography consumption ($P = 0.049$) and sexual embarrassment also varied by gender. Problematic pornography consumption was positively associated with embarrassment during sex ($B = 0.27$, 95% CI [0.06, 0.49], $t = 2.50$, $P = 0.013$) among women, but not men ($P = 0.805$). In contrast, more frequent pornography consumption was associated with more sexual embarrassment among men ($B = 0.16$, 95% CI [0.02, 0.29], $t = 2.29$, $P = 0.023$), but not women ($P = 0.673$). Other correlates of sexual embarrassment included lower sexual desire and being single.

Discussion

Using a cross-sectional survey, the current research examined the attitudes, motivations, and behaviours related to

pornography consumption and their association with sexual health in a convenience sample of Malaysian emerging adults. Our findings revealed that most men and women have consumed pornography intentionally, hold positive attitudes toward pornography consumption, and were most likely to consume pornography for sexual gratification. Our sample's average consumption frequency (about weekly) largely matched other Malaysian samples.^{11,26} Men generally felt more positive about pornography and consumed it more frequently and problematically than women.³

The degree of problematic consumption, as measured by the PPCS-6 in the current sample, is comparable to adult users of a popular Hungarian pornography site.²⁸ Because data were collected during the nationwide lockdown due to the coronavirus disease 2019 (COVID-19) pandemic, it remains uncertain if this finding reflects a global increase in pornography use that has been observed during this period,³⁸ the typical consumption pattern of active consumers,²⁸ or the increased problematic consumption tendencies of more conservative populations.¹⁴

Participants mostly searched for pornography using keywords that described sexual behaviours and target characteristics. 'Japanese' and 'Asian' were frequently used keywords in the current sample, which reflects consumers' preferences for pornography with actors who are culturally similar to them.³⁹ Men were more likely to describe the actors' physical appearance than women, whereas women used more keywords with adjectives describing sexual behaviours, less explicit sexual behaviours,¹ and kink or non-traditional sexual practices.³⁹ Our findings may reflect men's tendency to objectify pornography actors for sexual pleasure,⁴⁰ and women's reliance on contextual cues (e.g. sexual stimuli or fantasies) to stimulate sexual arousal and desire.⁴¹ Additionally, the female bias in the preference for kink or BDSM pornography could have also been shaped by popular culture such as the release of the erotic film and book series, *50 Shades of Grey*.^{42,43}

Consistent with past research, the top two reasons for pornography consumption were related to sexual arousal and pleasure.⁴⁴ Men were consistently more likely to endorse these reasons than women. The third most endorsed reason, which did not vary across gender, was to learn about sex. Pornography may be used as a substitute for formal sex education or a preferred platform for (more conservative) individuals to explore their sexuality privately.^{7,13} Overall, we found that men were more likely than women to use pornography to cope with negative feelings, as a hobby, or because they felt like they had to. Men were also more likely to feel good, empowered, and depressed after consuming pornography. These findings suggest that men may be inclined to use pornography as a coping tool for emotion regulation. Despite its efficacy in providing temporary relief,⁴⁵ consuming pornography to distract oneself from negative emotions may eventually lead to problematic consumption,⁴⁶ which can be damaging to sexual health.⁴⁷

The detrimental effect of pornography consumption among men has been recently shown in a three-wave longitudinal study conducted with French-speaking young adults.⁴⁸ More frequent consumption was associated with reductions in men's perception of their competence as a sexual being and their overall sexual functioning, whereas an opposite pattern was found among women. Similarly, we found that, although men and women who consumed pornography more frequently were generally more aware of their sexual feelings, only women who consumed pornography more frequently evaluated their genitals more positively and reflected more on their sex lives. Although it is plausible that women who are more curious and positive about their sexuality tend to seek out more pornography,⁴⁹ pornography could also shape women's beliefs about their genitals through exposure to diverse body types⁷ and promote more reflection through exposure to a variety of sexual practices that challenge their existing sexual scripts.⁵⁰ This is consistent with our finding of women's preference for pornography featuring kink and non-traditional sexual practices. Women's reduced specification of target characteristics may also expose them to a larger variety of body types. Further research is needed to test these speculated associations between pornography preferences and sexual health. Men, in contrast, who consumed pornography more often, reported more embarrassment during partnered sex. This may be attributed to men's heightened pressure to perform sexually, which may be amplified by the increased opportunities for upward sexual comparison that comes with more frequent consumption.^{18,25} Alternatively, it is also possible that men who feel more self-conscious in partnered sexual situations tend to avoid partnered sex and thus rely more on pornography to fulfil their sexual and relational needs.⁵¹

Besides consumption frequency, we also found unique contributions of problematic pornography consumption to sexual health. First, more problematic consumption, and not consumption frequency, was associated with less sexual satisfaction in men and women.⁴⁷ Second, only women, and not men, who consumed pornography more problematically reported poorer genital image and more embarrassment during partnered sex. Pornography consumption behaviours were not associated with sexual assertiveness. These findings reinforce the recommendations by Bőthe *et al.* for research on pornography consumption to examine both the frequency and severity of consumption.⁴⁷ Extending on previous research that has shown female-centric benefits of pornography consumption,^{48,50} the current research suggests that there may also be female-centric consequences of problematic consumption on sexual health.

Strengths and limitations

Our study was the first to examine the motivation and preferences of pornography consumers in Malaysia, and one

of the few to examine how pornography consumption frequency and severity relate to sexual agency and self-reflection. However, the current findings may be limited by our reliance on a cross-sectional design and convenience sampling. First, the inclusion criterion of being comfortable with answering questions about sex may have deterred individuals who are more sexually conservative from participating in our study. Second, the ethnicity breakdown of our sample (52% Chinese and 25% Malay) does not match Malaysian population estimates (23% Chinese and 58% Malay).⁵² Although we do not claim that our findings are representative of the Malaysian population, we note that our findings on pornography consumption frequency and prevalence are similar to those from a recent study that was conducted with predominantly Malay participants, who tend to be more sexually conservative due to their religious beliefs.¹¹ Moreover, we did not examine the role of other important moderators of pornography consumption effects.⁶ Despite obtaining findings that are consistent with past research that used longitudinal designs and large surveys,^{47,48} larger sample sizes with participants from other states in Malaysia with a variety of sexual experiences and a more in-depth examination of moderating variables would help improve the generalisability of our findings.

Conclusion

With the expansion of the internet and globalisation, pornography has become more accessible, and sexual content has become more prevalent in mainstream media.⁵³ Indeed, Malaysians remain active consumers of pornography despite its ban in Malaysia. Our findings corroborate past findings on the important role of pornography as a source of sexual pleasure and education, the sexual health benefits of frequent consumption among women, as well as the unique and negative contribution of problematic consumption to sexual health. Thus, rather than enforcing a blanket ban on pornography, which is ineffective and may potentially impede sexual health maintenance, young Malaysians need to be provided easy access to credible knowledge to help them make informed decisions about their sexual health. In addition to holistic sex education that reduces young Malaysians' reliance on pornography for sexual knowledge, educational institutions could also administer pornography literacy programs to encourage young Malaysians to be critical and informed consumers of pornography.⁵⁴

Supplementary material

Supplementary material is available [online](#).

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Data availability. The data that support the findings of this study are available from the corresponding author, PHG, upon reasonable request.

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