



Pornography Use: What Do Cross-Cultural Patterns Tell Us?

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18.1 Introduction

Pornography—the representation and depiction of sexuality and sexual acts for public consumption—has been richly portrayed in ancient Greek and Roman civilizations [1]. Undoubtedly, the tradition long pre-dated these civilizations: depictions of erect penises date back to the Stone Age era and the bas-reliefs of Egyptian culture [2], as much symbols of fertility as male prowess. Manuals regarding sex and love-making have permeated the ages, from Ovid’s *The Art of Love* and Plato’s *Symposium*, to the infamous *Kama Sutra* [3, 4]. In contrast to the public display of sexuality, the desire for privacy regarding the expression of sexual behavior appears to be primarily a human characteristic, although whether such need was associated with more recent Western civilizations is not known. Most other species advertise their sexuality as a means of revealing fertility and asserting dominance within species and social groups. Secrecy among non-humans surrounding sexual behavior appears mainly to be a mechanism designed to ensure safety rather than an expression of modesty.

What has changed over the centuries has been the production and potential distribution of (and thus access to) pornography. Although historical documentation appears to be scant, one can, for example, imagine the potential impact of media transitions on the production (and proliferation) of pornography, including the invention of the printing press, still photography, cinema, and eventually home video and CD players—these latter developments removing much of the public stigma associated with pornography use, as consumption became possible in the privacy of the home.

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Furthermore, although changes in the production, depiction, and format of pornography had long affected the availability of pornography, its *distribution* has also played an important role. Many societies have attempted to regulate the distribution of pornographic materials on moral grounds by banning depictions of nudity, sex acts in general, specific sex acts, specific participants (e.g., children), and so on, and by making possession of such materials either by individuals or production firms a criminal offense.

Now, of course, the situation is radically changed; in the age of the internet, the major barriers to pornography use are no longer relevant. Specifically, pornography is mass produced, can be viewed in private (and secretly), and can be accessed by nearly anyone living anywhere who has access to the internet—essentially obviating the once-limiting role of societal restriction. In one recent study involving Australian and Danish male participants, the average frequency of porn viewing was 3–4x/week, with sessions typically lasting 15–30 min. The first use of porn averaged around 13 years, with most males becoming regular users by 16–17 [5].

18.2 Effects of Pornography

Social restriction on access to pornography is predicated on the assumption that pornography imparts negative effects to individuals and thus to society at large. Traditionally, these effects have been framed as moral or religious issues—ones involving temptation, sin, depravity, and consequences of self-indulgence, promiscuity, infidelity, and threat to the family unit. More recently, these negative consequences have found secular parallels, often ones involving psychological health and social welfare. Such purported detrimental consequences include, but are not limited to:

1. Effects on the individual's sexual response, for example men experiencing erectile dysfunction with their partner because their sexual experiences do not mirror the highly arousing situations portrayed in the pornographic materials [6].
2. Potential addiction to pornography in the sense that stronger, more potent (and often more deviant) pornography is required to achieve arousal, as the individual becomes habituated to lower levels of stimulation [7].
3. Effects on relationships, where sex with one's partner may pale in comparison with the sex acts and models depicted visually (often on screen)—partners may be less willing to engage in those specific sex acts, and/or may not be as sexually provocative as the models.
4. Focus on the physical characteristics of sexuality, including objectification of possible sex partners only as vessels of pleasure, at the expense of encouraging a more holistic view of sex that involves emotional, attachment, and cognitive elements. Such issues become particularly relevant with respect to sexual violence [8, 9].
5. Encouragement of higher risk sexual activities, including specific sexual behaviors such as anal sex, kink (e.g., sado-masochism), group sex, and so on, as well

as riskier sexual overtures based on assumptions that (most often) women in pornography are representative of all women's promiscuity/willingness to engage in sex [10, 11].

In many situations, men *have* been found to endorse one or more of the above negative effects, particularly, for example, if they have just viewed a pornographic clip [5]. They might, for example, express interest in a greater variety of behaviors with their partner, see their partner as less adequate, and indicate the desire for activities that might induce greater arousal. However, the more salient questions revolve around the longer-term effects of pornography on sexual response and relationships, and these are more difficult to discern.

18.3 Empirical Findings Regarding the Mixed Effects of Pornography

Much research has been conducted on the ill-effects of pornography on viewers,¹ and although it is difficult to reach uniform or singular conclusions, several possibilities exist [12]. The first is that pornography use may have negative effects on sexual functioning and relationships in some individuals, but it is by no means inevitable. The second is that pornography use might be viewed as a "risk" factor for negative effects rather than a cause: that is, many individuals who use pornography seem largely unaffected by it. And third, a variety of possible outcomes might result from pornography use, some negative and some positive, depending on complex factors involving usage frequency, type of pornography, personality traits, relationship factors, and cultural expectations.

18.3.1 Pleasure and Instruction/Education

Pornography is often used as stimulus materials for masturbation by both men and women. For example, young Croatian women positively associated pornography with masturbation and self-pleasure [13]. Among men from three European countries, one analysis reported that 70% regularly used pornography during masturbation [14]. Research carried out in southern Africa suggests that girls view pornography as a means for both education and pleasure [15], a sentiment somewhat echoed by Black and Hispanic youth in the USA as well as gender non-conforming Canadians who watched pornography for instructional purposes, entertainment, and sexual stimulation [16, 17]. Interestingly, most men perceive more positive effects from pornography use than negative effects, although the perception of positive effects does not guarantee positive outcomes [5, 17, 18].

¹We restrict our discussion to the effects of pornography on viewers and not on those who participate in the industry. Although data are scant, pornography may encourage negative social outcomes such as sex trafficking, racial and sexual stereotyping, and sexually transmitted diseases.

18.3.2 Risky Sexual Behaviors

Under some circumstances, pornography can have clear negative consequences. For example, the Black and Hispanic youth in the above study often copied the behaviors they saw in pornographic material, sometimes to the detriment of their dating relationships [16]. Furthermore, to the extent that youth might mimic behaviors depicted in pornography, content involving sexual violence may increase aggressive tendencies, particularly toward women, with some research showing an overall positive association between pornography use and attitudes supporting violence against women [19]. However, in a separate analysis, these authors readily acknowledged that cultural and contextual differences may play a key role regarding such associations [8]. In Kenya, among adolescent and minor males and females, for example, pornographic video shows combined with alcohol at local “brew dens” increased risky sexual outcomes, including forced sex, gang rape, multiple partners, and particular female vulnerability due to unequal power dynamics [20]. In such contexts, pornographic material may well establish unrealistic assumptions and expectations about the nature of sexual interactions with partners and about what partners (particularly women) are apt to enjoy. In contrast, a recent study of Croatian adolescents found no association between the frequency of pornography use and risky sexual behaviors defined in terms of condom use and multiple partners [21].

18.3.3 Sexual Satisfaction and Performance

Given that pornography may establish unrealistic norms for sexual performance and behavior in the eyes of some viewers, it has also been suggested that the male and female models acting in pornography set up unrealistic expectations regarding body physique and sexual prowess. Among Dutch men, frequent exposure to pornography increased body dissatisfaction, particularly with respect to abdominal appearance, less so to penis size [22], although this relationship was not observed in women from the same study or a separate sample of Scandinavian men [23]. In fact, in the latter study, the authors concluded that “pornography may expand the sexual scripts of both men and women, and may have a positive, although modest, influence on sexual self-esteem of young male adults.” Regarding the use of pornography and sexual performance in men, a recent overview reported mixed findings, with some tendency toward decreased sexual satisfaction among frequent users, but no clear effects on erectile or ejaculatory function [24, 25].

18.3.4 Relationship Issues

Although numerous studies initially suggested negative associations between pornography use and relationship satisfaction [26], more carefully controlled analyses provide either minimal or no support for such associations. For example,

pornography use is unassociated, or becomes unassociated, with relational happiness once masturbation is controlled, as masturbation tends to be negatively related to relational happiness in men and women [27], a finding that was, in part, confirmed by an independent study on the topic [28]. In addition, an attempted replication failed to support the idea that men, but not women, in committed relationships found their partners less attractive when exposed to erotica, thus calling the original findings into question [29]. Indeed, one study suggests that sexual satisfaction with the partner may be bolstered by promoting sexual variety [28], and other research involving both men and women indicates that participants most often perceived no negative effects from pornography on their relationships and identified positive outcomes that included improved communication as well as increased sexual comfort and experimentation. Less frequently, negative outcomes were identified, such as unrealistic expectations, decreased desire, and increased insecurity [30].

All in all, then, pornography use has the potential to exert both positive and negative consequences, with no broad generalized conclusion possible. Clearly, the way in which the content is presented, the content itself (e.g., violent or not), and the perceived realism of the content (is it perceived more as fantasy than as a realistic depiction of sexual interactions?) are all likely to affect outcomes. In addition, the cultural context and expectations surrounding the viewing of pornography are relevant. In a social system that views pornography as sinful and forbids masturbation, the use of pornography which entices the individual to masturbate may cause great distress and guilt and lead to rejection of sexuality as a pleasurable, intimate activity. On the other hand, in a more open social system that tolerates sexual variation, couples may find pornography piques their interest, suggests new ways toward mutually enhanced sexual satisfaction, and improves sexual communication.

18.4 Aims of this Analysis

Here we take a cross-cultural look at pornography use, with the goal of describing patterns and trends across various regions of the world. Use patterns included overall frequency of use, usage per capita when available, time spent visiting websites, and type of content and actors, with some information further parsed by gender and age. We also explored relationships between pornography use and several global/sociocultural variables of interest. These included two World Health Organization (WHO) indices, one on Human Development (Human Development Index: HDI) and the other on gender inequality (Gender Inequality Index (GII)) [31]. We also generated a Trans/Homophobia Index (THI) and a measure of Internet Use. We selected these indices as they provide a number of proxy measures for general openness/tolerance to sexuality and sexual variation, the assumption being that greater societal openness may be related to greater advances in human development, greater gender equality, and greater tolerance toward variations in sexual behavior and identity.

18.5 Description of the Pornhub Websites and Their Source/Data Collection

The primary source of data for our glance at worldwide pornography use is known as PORNHUB (PHUB: pornhub.com). Based in Montreal, it is one of the most popular global porn websites and can be accessed generally by anyone having access to the internet, unless such websites are specifically blocked. A variety of language options exists for user interaction with this website.

We used data primarily from the past 3 years in review [32–34], along with information from the PHUB “information#privacy” link [35]. The general public can access the website as either registered or unregistered users. Unregistered users provide no disclosing information but have access to short length video clips of various genres (e.g., heterosexual, gay/lesbian, and hentai (animated)). However, they cannot download videos, and ads that might corrupt their device are not screened out. In contrast, registered users are entitled to membership perks that include: longer and full-length videos; higher technical quality videos such as 1080p HD or 4 K; ability to download files in HD; access to the 30,000+ library of full-length DVDs; no ads; improved security through better encrypted information when on the website; and cross-membership on other porn sites such as RedTube and YouPorn. Thus, registered users not only receive many more perks but also provide more information about themselves. The percent of registered to unregistered users is not discernible from the data reports, but PHUB reports that 22 million users were registered in 2017 [33].

18.5.1 Data PHUB Collects on Website Users

The website [35] collects different data on unregistered and registered persons. For unregistered users, the site collects technical data such as IP address (removing information in the working dataset that could identify a specific site or individual, thereby assuring anonymity), browser type and version, time zone setting and location, and device and operating system while on the website. In addition, any voluntary information the user submits, such as might be related to a contest or web-based survey, is recorded. And finally, usage data are collected, including amount of time spent on the site as well as linkage/time to specific portions/options/links within the website, such as time spent on a specific video and searches during the session.

Registered users create an account with PHUB, and therefore, in addition to the technical and usage information collected on unregistered users, data on username, date of birth, gender, contact, and financial transaction are collected. Submitted data regarding preferences, specific interests, feedback, and survey responses are noted, as well as marketing and communication data related to receiving emails, marketing notices, and contact from third-party vendors.

No personal data are shared, but other information is aggregated to create annual statistical reports that are released at the end of the year. Data include categories

such as traffic by countries, type of pornography and specific performers, time spent on the website, gender and age breakdown, devices and operating systems (such as Windows, Mac OS, chrome OS, etc.), and traffic during sporting events/TV events and holidays.

18.5.2 How PHUB Collects Data

PHUB collects data through a number of processes. These include direct interactions that occur while the person uses the webpages, such as search queries, filling out forms for surveys, or registering for the website. PHUB also uses automated technologies or interactions such as “cookies” and third-party analytics such as Google Analytics (cookies enable communication between the web server and the web browsers and are a part of most website visitations and are in fact required to operate many websites). PHUB uses three types of cookies: analytical, which allows counting and recognizing the number of users, and helps improve the users’ experience by finding what they want; functionality, which enhances a person’s experience on the website and allows recognition upon returning to the website; and targeting, which records the visit, the pages visited, and the links followed.

In addition to cookies, PHUB uses third-party analytics such as Google Analytics and DoubleClick (provided by Google Inc., USA) which collect IP addresses, device and software identifiers, website behaviors, and referring and exit URLs. If a user has an account with Google Services such as Google Plus or YouTube where gender and age are required, Google Analytics can link the Google profile to a site and, using browser history, can estimate the age and gender of the users.

18.5.3 Limitations of the Dataset

Obviously, users have access to a number of pornography websites, with PHUB being only one of several major access portals. As such, it captures only a portion of pornography use, and there are likely biases as to which portion it might capture (e.g., persons with certain native languages, etc.). Furthermore, specific parts of the world are underrepresented or not represented at all on PHUB website data, presumably because the information is sparse, the inability to adequately verify the information, or their website is specifically blocked. Furthermore, complete sets of data are not reported on all users, and therefore, some data may be affected by the ratio of registered to non-registered users. Finally, although *internet* pornography is among the most popular sources, it is not the only source, with videos, magazines, cable TV, and other sources available to users. Nevertheless, PHUB provides at least *one* window into worldwide pornography use, and it catalogs and analyzes data more extensively than is available through other sources. Having noted such limitations, the reader should view the following analyses as suggestive trends regarding worldwide pornography use without necessarily assuming they are rigorous and incontrovertible.

18.6 Pornography Use Among PHUB users

From 2016 to 2018, PHUB recorded 23 billion hits, 28.5 billion, and most recently, 33.5 billion, thus showing overall rapid growth in pornography use [32–34]. They further report that in 2018 the site had about 64,000 new visitors *per minute*. The top 20 countries in 2014 (the first year of such reporting) and in 2018 based on the number of overall visits (not adjusted per capita) account for about 80% of the daily traffic [36]. Box 18.1 lists the top 20 usage countries in 2014 and 2018, with information showing changes in ranks of various countries between the 4 years. Notable are the very large increases in rank in pornography visits in Japan and the Philippines, offset by relatively small decreases in 11 other countries, with Russia showing the largest decrease. Egypt and Romania, both on the 2014 list, dropped off the 2018 list. And Ukraine and South Africa joined the top 20 on the 2018 list.

Broadly speaking, users from Eastern countries spent more time per visit on the website than those from Western countries, with Middle Eastern and Asian users spending the most time *per visit* on the websites. Users from Pakistan, the UAE, Egypt, Qatar, Saudi Arabia, and India had the highest “bounce back” rate in 2018, signaling that they quickly enter and exit the websites, probably due to the perceived risqué nature of the behavior. Types of pornography vary across worldwide regions, with Box 18.2 providing a listing of the top types of pornography viewed in order of preference in 2018.

Box 18.1 Top 20 countries for PHUB visits based on total hits

2014	2018
1. United States	1. United States
2. United Kingdom	2. United Kingdom
3. Canada	3. India (+1)*
4. India	4. Japan (+11)*
5. Germany	5. Canada (–2)**
6. France	6. France
7. Italy	7. Germany (–2)**
8. Australia	8. Italy (–1)
9. Brazil	9. Australia (–1)**
10. Mexico	10. Philippines (+9)*
11. Spain	11. Mexico (–1)**
12. Russia	12. Brazil (–3)**
13. Netherlands	13. Spain (–2)**
14. Poland	14. Poland
15. Japan	15. Netherlands (–2)**
16. Sweden	16. Ukraine
17. Argentina	17. Sweden (–1)**
18. Egypt	18. Argentina (–1)**
19. Philippines	19. Russia (–7)**
20. Romania	20. South Africa

*Represents increase in rank; **Represents decrease in rank

Box 18.2 Linked Content in Order from Most Preferred for 2018

Preferred content/actor
Lesbian
Japanese
MILF
Ebony
Hentai
Anal
Mature
Threesomes
Big Tits
Big Dick
Amateur
Teen
Transgender
Creampie
Cartoon
Babe
Indian
Gangbang
Bondage

Table 18.1 Use by gender across regions, 2016

Region	Women	Men
Asia/Southeast Asia	27%	73%
USA/Canada	25%	75%
Western/Central Europe	26.3%	73.7%
Latin/South America	31.6%	68.3%
Africa (Sub-Saharan)	33%	67%
Middle East/Gulf Countries	NA	NA
Asian Subcontinent	30%	70%
Australia and New Zealand	29%	71%
Central Asia (Russia/the Stans)	27%	73%

NA not available: minimal or no information was available on countries in this region

18.6.1 General Patterns of Use Across Regions

To obtain a description of usage in various regions of the world, we aggregated country data from the PHUB website into nine world regions, and provide highlights of trends within those regions, including frequency of use, time spent on the site, and type of preferred activity or content. Regions were established primarily on the basis of proximity, but cohesion regarding cultural/religious backgrounds was also considered (see Table 18.1 for a listing of the nine regions). For regions where data were incomplete, we included subsets of countries that could provide at least a glimpse of that region.

East Asia/Southeast Asia (Including China) In this region, both the Philippines and South Korea increased greatly in rank in 2017, by 49 and 20 spots respectively, in line with a trend of growing usage in Southeast Asia. The Philippines was also among those countries showing the highest average times per visit, typically around 13 min; Thailand showed a large increase in average time per visit since the past year. Preferred content for this region was Hentai, that is, overtly sexualized animated characters.

Canada/USA Canada and the USA both fall within the top several countries each year. However, per capita data, which are only provided sporadically within the PHUB webpages, suggest relative usage rates much lower than some other countries/regions. The typical amount of time per visit was slightly over 10 min for these countries. For the past 3 years, the top search was Lesbian content.

Western and Central Europe Many European countries fell within the top 20 hits for the past several years, including France, Italy, Spain, and Germany. Again, however, when rank is adjusted per capita, many European countries ranked substantially lower. On average, visitors from these countries spent 8–9 min/visit. Preferred content was Teen, Lesbian, and Anal in 2016, and Anal, MILF, and Hentai (the last seen primarily in countries nearest Asia) in 2017.

Latin and South America Several countries from this region, such as Mexico, Argentina, and Brazil, are consistently in the top 20. Countries like Cuba and Columbia both showed notably high increases in rank by 26 and 17 spots, respectively. Average time per visit was about 12 min for South America. Preferred content over the 2016–2018 span included Anal, Lesbian, and Hentai.

Australia and New Zealand Australia was in the top 20 for the past 3 years, with an average time per visit of 9–10 min. Data for New Zealand were generally limited. Preferred content choice was Lesbian for the past 3 years.

Central Asia (Russia and the Stans) Russia has been among the top 20 usage countries, generally scoring in the lower tier. Time spent per visit for Russia was typically low, around 7 min. Pakistan and Kazakhstan had large rank increases in 2017 and 2018 respectively, 23 places for Pakistan, and 33 places Kazakhstan. MILF, Anal, Big Dick, and most recently, Lesbian, have led in content choice.

Sub-Saharan Africa Only minimal information is available on African countries, and only South Africa has appeared in the top 20, added to the list in 2018. Ethiopia showed a large rank increase of 68 places in 2017. The most popular content choice was Ebony where performers are typically black or persons of color.

Asian Subcontinent (Including India) India has been among the top 5 countries for the past several years—perhaps the result of its large population—with an average time per visit of about 8 min. Popular content choice included MILF, Lesbian, and Threesome in 2018.

Middle East/Gulf Countries/East Northern Africa Most of these countries are Muslim, but Israel is also included. However, due to restrictions on data collection and site access, information is scant and may be unreliable. None of these countries fell in the top 20. However, several countries such as Turkey, Syria, and Libya had large increases in usage rank, anywhere from 17 to 31 spots. Popular content choices included Arab, Anal, and Lesbian.

18.6.2 Use by Gender Across Regions

Tables 18.1, 18.2, and 18.3 provide information regarding PHUB use broken down by region and gender for the years 2016–2018. Not surprisingly, across all 3 years, use was male-dominated in all regions, a ratio of about 7:3. The USA/Canada, Western/Central Europe, and Central Asia showed the greatest difference in gender use, although women’s use increased or held fast in nearly all world regions from 2016 to 2018, except Latin/South America, where it decreased slightly. Proportion of women’s use was highest in sub-Saharan Africa.

18.6.3 Use by Age Across Regions

The mean age of PHUB users for 2018 was 35.5 worldwide. Tables 18.4 and 18.5 provide data regarding user age by region for the years 2016 and 2018. In 2016, about 28% of users were 18–24, 34% were 25–34, and 38% were 35 and older. In 2018, a greater percent of users (closer to 45%) was 35 and older, with Latin/

Table 18.2 Use by gender across regions, 2017

Region	Women	Men
East Asia/Southeast Asia	27.5%	72.5%
USA/Canada	25%	75%
Western/Central Europe	25.8%	74.1%
Latin/South America	31%	69%
Africa (Sub-Saharan)	32%	68%
Middle East/Gulf Countries	NA	NA
Asian Subcontinent	30%	70%
Australia and New Zealand	28%	72%
Central Asia (Russia/the Stans)	26%	74%

Table 18.3 Use by gender across regions, 2018

Region	Women	Men
Asia/Southeast Asia	31.5%	68.5%
USA/Canada	28.5%	71.5%
Western/Central Europe	28%	72%
Latin/South America	30%	70%
Africa (sub-Saharan)	35%	65%
Middle East/Gulf Countries	NA	NA
Asian Sub continents	30%	70%
Australia/New Zealand	30%	70%
Central Asia (Russia/the Stans)	27%	73%

Table 18.4 Use by age across regions, 2016

Region	18–24 yrs old	25–34 yrs old	35 and older
Asia/Southeast Asia	33%	34.5%	33%
USA/Canada	26%	31%	43%
Western/Central Europe	26%	31%	43%
Latin/South America	25%	37%	38%
Sub-Saharan Africa	37%	32%	31%
Middle East/Gulf Countries	NA	NA	NA
Asian Subcontinent	48%	28%	24%
Central Asia	23%	38%	39%
Australia/New Zealand	22%	36%	47%

Table 18.5 Use by age across regions, 2018

Region	18–24 yrs old	25–34 yrs old	35 and older
Asia/Southeast Asia	24%	36%	41%
USA/Canada	20%	31%	40%
Western/Central Europe	23%	36%	42%
Latin/South America	24%	36%	60%
Sub-Saharan Africa	22%	42%	36%
Middle East/Gulf Countries	NA	NA	NA
Asian Subcontinent	44%	41%	15%
Central Asia	17%	38%	45%
Australia/New Zealand	20%	29%	51%

South America, Australia/New Zealand, and Asia/Southeast Asia leading in this age category. In 2018, the percent of users in the 18–24 year range was fairly consistent over regions, with the exception of India, where a high percentage of users (44%) were 18–24, with 85% included in the 18–34 year range. In Russia, the Philippines, Sweden, and South Africa, 38–42% of the users were 25–34.

18.7 Relationships Between Pornography Use and Other Indices (Table 18.6)

To give further context to worldwide pornography use, we juxtaposed parameters of pornography use with a number of other indices drawn from WHO—the Human Development Index (HDI) and the Gender Inequality Index (GII)—as well as several other data sources. From these other sources, we calculated (i) a Trans/Homophobia Index (THI) based on visual mapping from the International Lesbian, Gay, Bisexual, Trans, and Intersex Association on sexual orientation laws in the world [37], and (ii) an Internet Use score based on the percentage of the population within a region that uses the internet [38].

Specifically, the *HDI* represents three broad constructs, each defined quantitatively; these include a long and healthy life (longevity), knowledge (an education index), and a decent standard of living (per capita income). The *HDI* is expressed as a number between 0 and 1.0, with higher scores indicating higher levels of human development (and vice versa). The *GII* is comprised of three components:

Table 18.6 Relationship between pornography use and sociocultural indices

Region	Top-20 relative position	Percentage female use	Type of pornography first, second, third preferred	Human development index	Gender inequality index	Trans/homophobia index	Internet use
Asia/SE Asia	2.00	30%	Hentai, MILF, Lesbian	0.83	0.22	4.0	47%
USA/Canada	1.00	25%	Lesbian, MILF, Ebony	0.93	0.14	2.5	84%
Western and Central Europe	1.50	26%	Lesbian, MILF, Mature	0.91	0.09	1.4	82%
Latin and South America	1.75	31%	Lesbian, Anal, Hentai	0.78	0.35	1.5	57%
Sub-Saharan Africa	3.00	32%	Ebony, Lesbian, MILF	0.45	0.62	4.2	20%
Middle East/Gulf Counties	3.00	N/A	Arab, Anal, Lesbian	0.76	0.60	4.6	59%
Asian Sub-Continent	1.00	30%	MILF, Lesbian, Threesome	0.61	0.51	3.7	36%
Austria and New Zealand	1.00	28%	Lesbian, MILF, Threesome	0.93	0.12	1.0	87%
Central Asia	2.25	27%	Hentai, MILF, Anal	0.71	0.30	3.8	76%

Notes: N/A: Little to no information was available on Pornhub on countries in this region. *Top-20 Position* ranges from 1.0 to 3.0, with 1 = in the top 20, 2 = partly in the top 20, 3 = not in the top 20. *Human Development Index* ranges from 0.0 to 1.0, with greater values indicating greater human development. *Gender Inequality Index* ranges from 0.0 to 1.0, with greater values indicating greater gender inequality. *Homophobia Index* ranges from 1.0 to 5.0, with greater values indicating greater trans/homophobia. *Internet Use* indicates the percentage of the population that uses the internet in that specific region

reproductive health, empowerment, and the labor market. Reproductive health indicators are maternal mortality ratio and adolescent birth rate. Empowerment is represented by the share of parliamentary seats held by women and share of population with some secondary education by gender. The labor market is indicated by participation in the labor force by gender. The value of GII ranges between 0 and 1.0, with 0 being 0% inequality, indicating women fare equally in comparison with men and 1 being 100% inequality, indicating women fare poorly in comparison with men. The THI is based on data presented in a map on State-Sponsored Homophobia, an ILGA report by Lucas Ramón Mendos (ilga.org). The map distinguishes among a number of categories of tolerance, ranging from protection against discrimination to criminalization of consensual same-sex sexual acts. For our purposes, these categories were compressed into 5, ranging from 1 = protection, 2 = limited or uneven protection, 3 = neutral, 4 = some criminalization, 5 = harsh criminalization [10 years

to execution]). Ratings represent a general regional average. Finally, the Internet Use score was represented by a percentage between 0 and 1.0, with higher scores representing greater access.

Using the Kendall's tau b non-parametric correlation procedure, we analyzed whether position in or out of the top 20 (1 = yes; 2 = partly; 3 = no, with regions represented by the average of the constituent countries) was related to the various regional sociocultural indices. We also tested whether the percent of female usage for a region was related to these indices (Table 18.6).

Several associations emerged. Higher overall use was correlated significantly with higher HDI ($r_t = 0.59, p = 0.053$) and lower homophobia ($r_t = -0.65, p = 0.019$). Higher percent of female usage was significantly correlated with lower HDI ($r_t = -0.59, p = 0.044$), lower gender equality ($r_t = -0.62, p = 0.034$), and lower Internet access ($r_t = -0.62, p = 0.034$). Several of the indices themselves were correlated. For example, the HDI was negatively correlated with the Gender Inequality Index ($r_t = -0.70$: higher HDI score meant lower Gender Inequality) and positively correlated with Internet Use ($r_t = 0.65$), and the Gender Inequality Index and Trans/Homophobia Index were positively correlated ($r_t = 0.56$: the higher the gender inequality, the higher the trans/homophobia).

18.8 Discussion of General Trends

Limitations of the available data on PHUB place restrictions on the strength and validity of the conclusions that might be drawn. The focus of the data on the top 20 countries based on overall number of visits, along with the lack of comprehensive per capita based data, makes country-to-country comparisons difficult. In addition, the lack of detailed information on lower usage countries makes it difficult to discern patterns within those regions. Indeed, one confounding factor affecting visits to PHUB is that of internet access, which varies widely across regions of the world, and tends to be lower in developing and least developed countries [39]. Nevertheless, we were able to discern several interesting patterns.

18.8.1 Trends Across Regions of the World

We begin by noting that most countries in the top 20 have well-developed infrastructures—regions such as Western/Central Europe, North America/Mexico, and portions of South America and Asia. However, *changes* in usage provide clues regarding *trends* in pornography use. For example, we note that two Asian countries—Japan and the Philippines—entered the “top 20” club in 2018, reflecting apparent rapid growth in usage in that world region and further buoyed by South Korea's large increase in rank and Thailand's large increase in the amount of time spent per visit.

A second notable pattern was the rapidly increasing use of internet pornography in developing and less developed countries/regions, even in regions that have strong

religious strictures against pornography use. Islamic countries such as Pakistan, UAE, Egypt, Qatar, Saudi Arabia, and Hindu countries such as India showed the highest bounce back rates in the world (suggesting risk/fear of getting caught), yet Pakistan, Kazakhstan, Turkey, Syria, and Libya all showed large rank increases during 2017–2018. Visitors from Middle Eastern and Central Asian countries spend the most time per visit overall on the websites, and India has been consistently appearing among the top 5 user countries.

Whereas selection of particular actors of color (Ebony, Indian, Japanese) is readily understood, somewhat surprising is that Lesbian was among the top preferred content choices, and Transgender appeared in the top 13. Whether such preferences stem from curiosity, erotic value for both heterosexual and homosexual individuals [40, 41], or particular user characteristics is not determinable from the data, but nevertheless raise interesting questions regarding user demographics.

What might we conclude from such trends? Primarily that Internet use is growing rapidly across all cultures and in all parts of the world, and will probably continue to do so as Internet access/use increases in various parts of the world. Furthermore, the idea that individuals from specific geopolitical regions or from specific religious traditions have not been exposed to, or are less vulnerable to the alluring effects of, pornography can no longer be assumed. Furthermore, based on content preference, users are regularly being exposed to variations in sexuality that, 10–15 years ago, would have been considered marginal, deviant, and generally unthinkable. Indeed, such behaviors are probably often not within the users' own (or peers') sexual experiences and yet may, because of their frequent portrayal in pornographic material, lead some to conclude that such activities represent normative behavior (e.g., group sex, anal sex, inflicting pain, and so on).

18.8.2 Trends Related to Gender, Age, and World Region

Interestingly, about 28% of users are women, with—as of 2018—even higher proportions in Africa, Latin America, and Asia. Furthermore, a general trend since 2016 indicates that women constitute an increasing segment of internet pornography users throughout the world. Finally, the relatively frequent use by 18–24-year-olds suggests that young adults—whose sex lives may be as yet uninitiated or still in formative development—may be unduly influenced by pornography exposure. As indicated in studies from several developing nations, internet pornography may be a major source for sex education for some youth; and in fact, it may be the *only* source of sex education for many young adults [15, 16]. And this phenomenon may also extend to viewers under the age of 18, as only recently have measures been implemented to attempt to verify users' ages on pornography websites such as PHUB.

In many countries or regions of the world, no formal sex education is offered to youth; in other regions, sex education may be handled informally through family members or friends, but such information often lacks accuracy and may be strongly culturally influenced (see Ch. 1 in this volume). For this reason, exceedingly easy

access to pornography may raise an alarm, as it may be the only education regarding sexual activities, sex roles, and expectations that young men or women receive. Given the potentially skewed perspective imparted by such exposure, the need for formal sex education that promotes healthy sexuality and relationships becomes critically important. Indeed, authors of various chapters in this book from around the world (see Chaps. 3, 8, 9, and 11) lament the inadequate or absent sex education for both youth and professionals in their cultures/regions/countries. Perhaps the most cogent argument for sex education—long seen as an invitation for adolescent sex in many cultures—might now be that it provides the better alternative to the growing prevalence of non-intentional pornography-based sex education.

18.8.3 World Regional Trends Related to Various Sociocultural Indices

Several relationships among indices were to be expected, others raise new questions. For example, the finding that pornography use and internet access were related is neither surprising nor novel. Also as expected, pornography use was associated with greater human development (health, knowledge, and standard of living) and lower homophobia, generally affirming that more advanced and well-off societies tend to be more tolerant of sexual diversity and, along with it, pornography use. Perhaps less intuitive was the finding that greater female use within a region was associated with greater gender inequality and greater trans/homophobia. This finding, together with the pattern of preferred lesbian content in a number of regions, may support the idea that, at least for some instances, individuals on the sexual margins (trans, gay, lesbian) may disproportionately rely on internet pornography both for a sense of validation/group identity, and for sex education (see Chaps. 4 and 7 for discussion of such assumptions). Such findings suggest that although widespread access to internet pornography has potential liabilities/downsides, in some instances it may serve important functions, especially for those individuals who may feel outside the sexual conventions within their social systems.

18.9 Conclusions and Implications for Practice

Perhaps the most important implication for practitioners is the recognition that online pornography is used by a wide variety of individuals throughout the world, both men and women as well as young, middle-aged, and mature adults. All religious, ethnic, and racial groups appear to participate in this activity. Although access may be driven by the erotic value of the content, in many instances pornography may satisfy curiosity and serve an educational role. Practitioners should recognize, therefore, that what men and women perceive as usual and customary may have been derived from their experience with pornography; such information might range from sexual position and type, technique, relationships between the sexes, racial and sexual stereotypes, and what is deemed pleasurable and desirable. In fact, an individual's understanding of sexuality based on pornography viewing vs. the

actual reality of sexual intimacy with a partner may be quite disparate, with young viewers not recognizing the fantasy world that pornography is often intended to create. Thus, men and women from many parts of the world may have little or no information regarding sexuality, or alternatively they may have grossly *inaccurate* information regarding sexual acts, intimacy, and relationships derived from pornography use.

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