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"Sex A Bit"

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1. PORNOGRAPHY?

1.1. DEFINITION FOR THE DIGITAL AGE

Ashton et al (2019) reported that typing the word "porn" into Google on the 10th of May 2017 resulted in over two billion websites [1]. They stated: "This content is created more rapidly than researchers can measure or describe" (Ashton et al 2019 p144).

How to define "pornography" in such a world? In 1950, the term covered images of semi-nude women in the newly appeared magazine "Playboy", but now "[N]ot only are the parameters of such a definition nebulous, but encapsulating the scope of the content is impossible in the age of the internet" (Ashton et al 2019 p144).

Because of the elusiveness of a definition of pornography, some researchers prefer to use other terms like "sexually explicit material" or "sexually explicit internet material" (Ashton et al 2019).

Many researchers also side-step the problem and do not include a definition in their work. For example, Short et al (2012) found that only around one in eight articles on pornography between 2001 and 2011 had a definition. Most definitions were different to each other. "Deciding on a definition is only part of the challenge: applying it is a complex endeavour" (Ashton et al 2019 p145).

The most commonly used definition is "media basically construed as intended to entertain or arouse erotic desire" (Hald et al 2014 quoted in Ashton et al 2019). But in the "digital age" this definition has limitations which led Ashton et al (2019) to ask three questions:

- "How do we define pornography?"

- "How do we apply this definition to content?"

- "What is the scope of the content to be considered?" (p146).

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[1] Doing the same thing at 10.00 GMT on 22nd January 2020 produced 2 3260 000 000 results.

These researchers performed a literature search of social science articles (not related to crime or child pornography) including the term "porn" between 1st January 2016 and 11th May 2017. This produced forty-nine eligible papers [2], of which 67% had no definition of pornography included. Of the remaining sixteen articles, nine proposed their own definition (while the others used definitions from previous work) (table 1.1).

- "written, pictorial, or audio-visual representations depicting nudity or sexual behaviour".

- "media used or intended to increase sexual arousal. Such material generally portrays images of nudity and depictions of sexual behaviours".

- "sexually explicit material, and Internet pornography as Web sites containing sexually graphic material".

- "media content depicting nudity and explicit sexual acts".

(Source: Table 1 pp148-150 Ashton et al 2019)

Table 1.1 - Examples of definitions of pornography used by researchers.

A thematic analysis of the definitions produced four common components:

i) Content - Varied, but "sexual material" was most commonly used. Though this is not without problems.

ii) Intention of the producer - Profit is important, though not always the case as in freely available online material. Ashton et al (2019) saw the "primary intent to arouse" as crucial as it "differentiates pornography from other material where the main intention of the producer is, for example, to develop a character or story (such as sex scenes in a film) or to provoke a viewer to reflect on shocking or controversial socio-political events (such as in the visual arts), even though arousal may be a secondary or indirect consequence" (p152).

iii) Contextual judgement - Ashton et al (2019) stated: "While acknowledgement of context is important, it does, of course, introduce a potential lack of definitional consensus... Accordingly, we propose that context must be considered and acknowledged (both in a reflexive process and in analysis) by researchers who employ the definition" (p152).

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[2] I used the same two databases on 23rd January 2020 and found 58 articles for 2017-20. I did not check if any articles were duplications or eligible.

iv) Perception of the consumer - Because of the variety of readings of consumers of pornography, including their views would be difficult for Ashton et al (2019). though "consumer perspectives should be acknowledged and discussed in reports of research on pornography" (p157) (appendix 1A).

Putting all the information together, Ashton et al (2019) proposed the following "working definition" for pornography: "Material deemed sexual, given the context, that has the primary intention of sexually arousing the consumer" (p157).

Ashton et al (2019) then reflected on this definition in relation to digital technology. Firstly, in relation to content, recent technological changes have transformed the access, production, and experience of pornography. "Technological developments mean that pornography is no longer restricted to static presentations of images or text to a passive audience; it is interactive and immersive. The consumer's ability to interact with pornography has the potential to alter consumption in ways beyond that envisaged by the producer. New kinds of experiences enabled by virtual reality technology and online games present further challenges in determining the best components of a definition of pornography" (Ashton et al 2019 p159).
Next, the context, which has been called the "pornification" of culture (Paasonen et al 2007). One example of this is the use of highly sexualised images in advertising, which Ashton et al (2019) argued are not pornography because the "primary intention of the producers is not to arouse the consumer but to sell a product or promote a musician" (p161).

However, Ashton et al (2019) wanted to add consent in relation to producer intention in a definition for the digital age. They referred particularly to "sexting" (sending "nude" selfies, which can get shared without permission) and "revenge porn" (publication of sexual material on the web without consent of the person depicted). "The complexities introduced by mobile technology mean that consent must be part of a definition of pornography that can be used consistently and applied by researchers" (Ashton et al 2019 p162).
Ashton et al (2019) continued: "Our position is consistent with that of the Australian Government's Children's eSafety Commissioner, who stated that the term 'revenge porn' 'can imply fault or blame on behalf of the victim' and called for the use of the alternative terms 'non-consensual sharing of intimate images' or 'non-consensual sharing of private sexual images' and, where appropriate, 'online sexual violation' or 'online sexual abuse'" (p162).

In conclusion, Ashton et al (2019) accepted the difficulties in defining pornography, but emphasised consideration of both participants and potential consumers, and technological developments. They ended with this definition: "Pornography: 'Material deemed sexual, given the context, that has the primary intention of sexually arousing the consumer, and is produced and distributed with the consent of all persons involved'" (Ashton et al 2019 p163).

1.2. DISTRIBUTION OF PORNOGRAPHY

Koba (2018) presented a socio-sexuality circuit model of how pornographic content circulates: "Porn is bought, downloaded, streamed, hired and shared via mobile phones, blogs and other file-sharing sites. It disseminates in a 'community of exchange in which participants are simultaneously vendor and consumer' (Attwood 2007). Its social movements are so fluid that its distribution and consumption often defies censorship attempts. Porn is 'a circuitry always on the move' (Tziallas 2016)" (Koba 2018 p320).

The data underlying the model came from an anonymous quantitative survey of 676 South Africans, and in-depth interviews with twenty-five of them. The research covered beliefs/perceptions, feelings, and consumption/use of pornography.

Koba (2018) began to explain the model: "Porn invariably assumes commodity status in a global economy organised around the visual consumption of images... and it is therefore impossible to talk of how consumers engage with explicit images without considering the nature of those images as 'visual goods'" (p322). For example, two interviewees quoted in the article reported limited access to Internet pornography based on income (eg: "Sheila" said: "If I had more money on my credit card then I would pay fourteen dollars a month subscription fee" [for "porn channel"]; p324). Even free websites cost money in terms of Internet access. These are "buyers" (Koba 2018).

Koba (2018) continued: "Even though it became clear from my respondents that scarcity of financial capital curbed their porn consumption, many revealed that they had social networks that enabled them to consume porn" (p325). For example, "Kholo" described "a clandestine world of pornography comradeship" (Koba 2018) - "when your friends discover that you watch porn... then they say 'oh I have this' and then the exchanges began... and it was very under the carpet. Nobody knew about it and all of them were keeping it a secret... you know and you discover that there's an entire industry and then that's when I actually started getting porn for free now... and

there's an exchange and you start to collect. You start to have a collection" (p325). These are "borrowers" and "bargainers" (Koba 2018).

Koba (2018) developed the model further: "Like an electrical circuit, the socio-sexual circuit contains conductors (paths of easy porn circulation) and resistors (paths of resistant porn circulation). Buyers share porn the least, while bargainers and borrowers are most responsible for the high-speed circulation of explicit material. The pattern of porn movement in a socio-sexual circuit means that material circulates from and between those who have and those who do not, and from those who do not have to those who do. This also explains why most consumers' first experience and access to explicit content is frequently located outside financial trade and at a young age" (p328). Another way to see it is as the "sharing economy" (or "collaborative consumption") (Botsman and Rogers 2010) with the emphasis on "community" and "social ties".
"Litha", for example, described his "community": "My friends and I have a BBM [Blackberry Mobile] group where they give me links or post pictures for us to discuss. We always discuss the [porn] texts and compare to our sexual experience. So we'll say 'I start off in X position because penetration is a lot easier' etc. Also, my friends often show me their sex partners sex pics" (p329).
Another aspect of the sharing was "'if I enjoyed it, others will enjoy it too'. Consumers shared porn to validate their own enjoyment by inviting others to share in their own sense of pleasure" (Koba 2018 p329). But there were cases where this backfired, and relationships suffered (eg: "Emmanuel's" friend gave him "gay porn" which was not to his taste).

Koba (2018) found that "porn sharing" was a form of sexual advice. "Dume" was asked for advice by a virgin friend and gave him porn in response, for instance. Williams (1999) described pornography as "our cultural lexicon for talking about sex. It may also become a way for people to directly talk to each other about sex in situations where they deem it difficult to do so" (Koba 2018 p330).
Koba (2018) ended: "The circulation and consumption of pornographic material in society transcends economic and financial directives. Porn is not just bought, but traded, shared, borrowed, pirated and freely given away. It is this dual nature of porn to be both a commodified good and a gift commodity that is best captured by the socio-sexual circuit model I propose... to help theorise how porn is consumed and how it permeates barriers, even among those who have no financial means. In any socio-sexual circuit, buyers, bargainers and borrowers all play

a unique role in accessing and disseminating porn"
(p331).

1.3. APPENDIX 1A - POSITIVE VIEWS AND CENSORSHIP

Ashley (2019) wrote an article entitled "Tumblr porn eulogy" about the social media site in the early 2010s. Ashley (2019) stated: "Its leniency to NSFW [not safe at work [3]] media meant that Tumblr became part of the modern-day 'real girl next door' sex work revolution, removed from the traditional adult industry and not homogenised and dictated to by old-fashioned porn company ideals. On Tumblr you could record yourself masturbating or fucking your girlfriend with a strap on and sell directly to your community of followers without putting yourself on an intimidating porn site and paying them a huge percentage of your revenue. Your porn promo posts sat right next to your memes. Some users sold pin badges and patches, some sold homemade porn and worn underwear. Sites like Tumblr allowed people to do sex work and be independent and accessible, integrated with other communities in a way we aren't permitted to be elsewhere" (p361).

Continuing on: "People who would have been dismissed as 'not marketable' to mainstream porn sites sold their porn and did well. It allowed people with disabilities, young parents, people of colour and trans and gender-non-conforming folk (identities that make up a large majority of the community of sex workers and who are too often ostracised by a traditional, capitalist workplace) to make rent. It paid off people's student loans and vet's bills. It fed people's families. And it did all this from a space that felt safer, that felt more under our control" (Ashley 2019 p361).

Ashley (2019) lamented the loss of this as Tumblr (social media and the Internet) changed by the end of the decade: "No longer a space for communities, the internet is for corporations. The pervasiveness of surveillance capitalism attempts to increasingly monitor and link every step we take online to our personal data" (p361).

1.3.1. Censorship and Extreme Pornography

"Extreme pornography" in English law covers "non-consensual sexual penetration; acts that appear to threaten a person's life; acts that inflict serious harm on the breasts, genitalia, or anus; and acts of necrophilia and bestiality" (Cowen 2016 p509). Possession

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[3] An acronym suggesting Internet material that is better viewed in private.

of depictions of these acts can lead to prosecution. For some people, laws like this are censorship.

Debates on pornography and censorship usually refer to John Stuart Mill and the harm principle (writing in the mid-19th century). Put simply, individuals should be free to do as they want unless it harms someone else [4]. To quote Mill (1977): "the only purpose for which power can be rightfully exercised over any member of a civilised community, against his will, is to prevent harm to others" (quoted in Cowen 2016).

Cowen (2016) explained: "A Millian liberal framework defends tractable notions of private conduct and free expression. While Mill himself did not comment on the issue of pornography, this framework implies a right to possess and share pornography that consenting adults produce (at least in private, voluntary, non-commercial settings)" (p512).

But that does not mean that there should be no restrictions on pornography. Cowen (2016) again: "a Millian approach supports vigorous prosecution, or powerful civil remedies, wherever pornographic expression is used to target and harm specific individuals. In other words, when pornographic material is deployed with the intent or the effect of encouraging criminal acts, including inducing fear and harassment or assault of women and others, then it is rightly restricted and very wrong to ignore. A paradigmatic example of this is the phenomenon of 'revenge porn', where perpetrators shame and threaten victims with compromising images published on the Internet... A Millian endorses criminal penalties for those sharing explicit images that violate the privacy of those depicted, or designed to cause distress to specific individuals. Legitimate penalties extend to individuals hosting sites or otherwise facilitating or commercially benefiting from these acts" (p516).

Cowen (2016) saw much of this debate about "extreme pornography" as about the availability of materials on the Internet. Hartley (2013) noted the positive side of the Internet: "{P}reviously marginalised people now have access to the means of production. Rather than being treated as some kind of freak show, pierced, tattoed, disabled, queer and trans folk can now make movies that speak to their sensibilities and create communities that support and foster them and their sexual relations" (quoted in Cowen 2016).

Cowen (2016) picked up the point: "Since violent and extreme behaviours and ideas are a feature of both society and many people's imaginations, it is inevitable that some pornographic material will reflect that in the

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[4] McGlynn and Ward (2014) were critical of Mill as he "provided no definition as to what might constitute 'harm'" (quoted in Cowen 2016).

form of extreme themes" (p517).

1.3.2. Age Verification

The UK Government has proposed a law that requires publishers of online pornography to stop access by individuals under eighteen years old. This law "is based on two premises: firstly that many young people watch pornography online, and secondly that doing so causes them harm. Both of these premises are contentious" (Blake 2019 p228).

Blake (2019) put forward arguments against such legislation and issues that arise, including:

i) Adult concern for young people and Internet pornography is not matched by the teenagers themselves. "Research consulting young people shows that many teenagers do not feel ready to have sex, and see porn as an alternative to real-life experimentation which carries less risk of sexually transmitted infection transmission, pregnancy or emotional hurt" (Blake 2019 p229).

ii) The harm to minority groups. For example, niche websites and sex bloggers "play a valuable social role in promoting knowledge-sharing, empathy and acceptance, consent and safe practice, and building community" (Blake 2019 pp229-230). Age verification legislation could be seen as a form of censorship, or encouraging self-censorship.

There will also be consequences for independent sex workers who have websites as a means of business. These sites usually include erotic images, and so would be covered by pornography legislation. "Sex workers who lose business after installing age verification may instead be obliged to work for managers, or on the street, to maintain their income. This will put them at greater risk of violence, exploitation and abuse" (Blake 2019 p230).

iii) Further social exclusion. "Not every adult over 18 years old has the necessary documentation to verify their age. Credit cards and credit checks require a certain level of financial security; proof of address requires stable housing. Passports and driving licences may be inaccessible to people with disabilities, those without citizenship or those living in poverty. Age verification therefore risks entrenching a classist hierarchy whereby privileged adults are able to access online porn, and less privileged adults are not" (Blake 2019 p231).

iv) Risk to user privacy through, for example, the hacking of website records.

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2. SEXUAL CONSUMPTION

2.1. CONSUMER PREFERENCES

"Research into consumer preferences and marketing with regards to pornography content is relatively under-developed compared to research into consumer preferences and marketing with regards to most other types of products... in part because consumers of pornography are more reluctant to answer questions on this issue than consumers of (say) baked beans or barbed-wire fencing. The development of the internet has enabled researchers to track some types of pornography preferences, for example through data on the popularity of specific pornography-related search terms or the availability of download data relating to pornography websites" (Barnett 2019 p193).

However, Barnett (2019) argued that DVD sales were a better measure of consumer preferences. He stated: "An individual who purchases a DVD is more concerned with purchasing the type of content that they like, as opposed to an individual watching free content on Pornhub, who may sometimes be content to part-watch (to them) less interesting items before finding one entirely suited to their tastes" (pp193-194). This is probably true also for specific sub-genre subscription websites and paid-for Internet content.

Barnett (2019) made this point: "It is worth considering, given the huge amount of free pornography now available on numerous tube sites, why pornography DVDs are still a saleable commodity. Both adultdvdempire and cduniverse [5] are (presumably) still currently selling enough pornography DVDs for it to be worthwhile for them

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[5] Top two websites selling adult DVDs.

to maintain their large stocks, but why might some individuals choose to pay for something they can easily get for free? A number of reasons can perhaps be adduced for this. Firstly, purchasing DVDs allows a different sort of control over the material and a different viewing experience compared to watching tube sites, and also facilitates the amassing of a permanent collection. Secondly, some individuals may not want their internet search history to show the viewing of pornography. Thirdly, in some regions of the world, internet pornography might be censored/banned and/or difficult to access. Fourthly, it is true that the amount of pornography available online is massive, but if (for example) an individual wants to view every scene produced containing a particular porn star, then every scene will not be available to watch for free online" (p206).

2.1.1. Expo Attendees

Jackson et al (2018) began: "Most research on sexual consumption focuses entirely on one type of industry at a time, examining pornography, sex work, strip clubs, or sex tourism singularly... Yet there is increasing evidence that sexualised consumption is part of an array of leisure and consumer activities that reflect a variety of sexual and non-sexual identities and expressions... In other words, linking different forms of sexual consumption can help us better understand sexual consumption generally" (p241).

Jackson et al (2018) linked sexual consumption with a survey of 481 attendees at the 2009 Adult Entertainment Expo (AEE) in Las Vegas. "While the expo is a typical industry convention, drawing retailers, manufacturers, talent, and producers for networking and business development opportunities, the AEE also invites fans for the last several days of the convention for an opportunity to meet their favourite stars or purchase the latest porn. Attendees, both fans and trade, travel from across the United States as well as internationally to meet famous adult film actresses, browse production company booths, as well as network with retailers. Many 'booths' provide impressive staging, audio, and lighting, sometimes a dance pole or plush chairs, and a few host live sex-themed shows like two performers simulating masturbation on stage, creating a sexualised carnival atmosphere" (Jackson et al 2018 pp245-246).

This research fits with the concept of "porn cultures" (Comella 2014), "as a way to begin thinking about the different elements that comprise contemporary porn cultures: consumers and their wallets, performers and their handlers, new and increasingly diverse market niches, and the various people behind the scenes and in

front of the cameras who make it all possible, from tech gurus and graphic designers, to adult-industry lawyers and public relations experts" (Comella 2014 quoted in Jackson et al 2018).

"Porn tourism" is a term used to parallel "sex tourism", where individuals (males usually) travel to a place to seek local prostitutes primarily. Visiting the AEE is an example of "porn tourism", though the two may overlap (Mars et al 2017).

Jackson et al (2018) asked AEE attendees about their interest in four sex-related activities available in Las Vegas - strip clubs, swingers clubs, meeting someone for sex, and paying someone for sex - and the likelihood of partaking (as well as non-sexual activities like gambling and sightseeing). Respondents also gave details of their relationship status (categorised as non-exclusive dating/single (NE); committed but non-traditional open relationship (CO); committed monogamy (CM)), and their entourage (travelling alone, with spouse/partner, or with companion who not spouse/partner).

The majority of the respondents were heterosexual White males (over three-quarters). In terms of relationship status, 53% said CM, 33% NE, and the remainder CO. Half of the respondents had travelled with non-spouse companion, one-third with spouse/partner, and the remainder alone.

Respondents in the CO and NE categories were more interested in the four sex-related activities than the CM group. Jackson et al (2018) explained: "This study challenges research which infers that the majority of men who engage in sex tourism are seeking an opportunity to cheat away from home [...] We find that tourism does not seem to be associated with sexual infidelity among visitors in exclusive relationships. The odds of engaging in all forms of sex tourism decreases among participants who report being in a relationship that does not permit sexual activity outside the partnership. This suggests that many who engage in sexualised activities in a destination like Las Vegas are either not in a current relationship or are in a relationship that permits certain levels of sexual activity with other people" (p250).

2.2. GENDER DIFFERENCES

Mitricheva et al (2019) began: "Sexual activity is a natural, goal-directed behaviour for all species and genders, while arousal and desire are often expressed in different ways in men and women. In particular, it is widely assumed that there are sex differences in response to visual sexual stimuli that lead to a larger sexual arousal in men than in women" (p15671).

These researchers challenged this gender difference with a meta-analysis of sixty-one functional magnetic resonance imaging (fMRI) studies that presented erotic visual stimuli to men and women of different sexual orientation [6]. In total, there were 1850 participants (nearly three-quarters male) without a history of psychiatric disorders (appendix 2A).

"Exposure to visual sexual stimuli, in contrast to presentation of sexually neutral figures such as sport activity and landscapes, was consistently reported to induce robust significant activations of insula, middle and inferior occipital and fusiform gyrus, amygdala, caudate, claustrum, globus pallidus, pulvinar, and substantia nigra" ["arousal network"] (Mitricheva et al 2019 p15672). There was no significant difference between men and women in these brain areas [7].

Mitricheva et al (2019) explained the findings of difference in previous fMRI studies as "due to various factors, including hormonal status, opposing attitudes toward sexual material, differentially pronounced arousal, varying levels of sexual motivation, or simply due to insufficient sample sizes" (p15674). Often neuroimaging studies only used heterosexual men (Mitricheva et al 2019).

The studies in the meta-analysis "varied considerably" in quality of reporting of methodological details (Mitricheva et al 2019).

2.3. INTERNET PORNOGRAPHY

Internet pornography (IP) fits with the "triple A engine" of anonymity, accessibility, and affordability (Cooper et al 2000). "Overall, IP is anonymous because many individuals perceive their online activity to be unknown; it is accessible because there are millions of pornographic Web sites...; and it is affordable because the many competing pornography sites help reduce pricing, even as much as to offer free pornography" (Short et al 2015 p571) [8].

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[6] Explanations of differences in the brains of men and women generally are so often based on neuroimaging, which produces a visual picture of the brain showing colour-coded areas. "Many people didn't appreciate, however, that these weren't real-time photographs of the brain in action, but the end product of a long chain of mathematical processing. The colour coding was chosen by the imaging software to make the most of the real but infinitesimal differences between activity averaged... across groups or tasks" (Rippon 2019 p29).

[7] Gender is often less important than other factors in explaining differences between individuals. For example, playing computer or video games is a better predictor of spatial skills than gender (Terlecki and Newcombe 2005). "The concept of the female brain or the male brain is outdated and inaccurate. Every person's brain is unique. The values comes from knowing where these individual differences come from and what they might mean for the brain's owners" (Rippon 2019 p31).

[8] The numbers on IP use are quite mind-blowing. One website, Pornhub.com reported in 2016 that

The negative effects of IP are most often reported as compulsions or addictions, relationship problems (including loneliness and social isolation), and sexually deviant behaviours. But there are also positive effects, including "more candid online conversations that offer users an opportunity to learn and explore their sexuality in a way that is perceived harmless and secure... new options for romantic and sexual enactment... For homosexuals, the Internet is a useful source for building virtual communities in regard to sexual interests and topics" (Short et al 2015 p572).

In terms of the motives for IP use, these include "curiosity, desire for sexual arousal, excitement, pleasure, emotional avoidance, and the enhancement of offline sexual encounters... distractions, education, coping, exploring sexual fantasies, socialising, buying sex materials, meeting sexual partners and support for sexual concerns" (Short et al 2015 p572).

Who are the viewers of IP? Men aged 18-25 years old most frequently, but individuals with conservative values less likely (Short et al 2015).

Individuals with religious values could be classed as part of this latter group. Nelson et al (2010) reported that non-viewers of IP had higher levels of recent and past individual or family religious practices than viewers.

But, at the same time, there is evidence that individuals with religious beliefs struggle with IP use (despite classing it as sinful, say) (eg: 40% of US Evangelical Protestant Christian clergy members) (Short et al 2015).

Short et al (2015) investigated the relationship between IP and religious values further in their online survey of 223 adults at a Texas university. The vast majority were female, and the average age was 25 years old. Around three-quarters of the respondents self-identified as "religious" (specifically, Christian), and the rest as "non-religious" (including "spiritual", agnostic, and atheist).

The survey took around thirty minutes to complete, and included the following measures:

i) Duke University Religiosity Index (DUREL) (Koenig et al 1997) - Five items (eg: "How often do you attend church or other religious meetings?") (rated from 1 "more

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4599 billion hours of pornography videos were watched globally, for example (Bothe et al 2018).

than once/week" to 6 "never"). A lower score signifies a higher level of religiosity.

    ii) Intrinsic/Extrinsic Revised (I/E-R) (Gorusch and McPherson 1989) - Fourteen items covering the motivation for religious activities, like "I go to church because it helps me to make friends" (extrinsic motivation) or "I enjoy reading about my religion" (intrinsic motivation). Each item was scored from 0 to 4.

    iii) Value Living Questionnaire (VLQ) (Wilson et al 2010) - Rating of life domains (eg: family; friends; spirituality) in a ten-point scale.

    iv) IP - "Ever" viewed (yes/no), "currently" [9] (yes/no), and, if so, frequency (minutes per week) and type. Also whether IP viewing had interfered with life's domains (eg: marriage; job/school; health).

    Based on the answers to the IP use questions, the respondents were divided into three groups: never, occasionally, and frequently.
    Religious individuals were significantly more likely to be in the "never" group, as seen in significantly lower DUREL scores (figure 2.1), and high intrinsic motivation on the I/E-R. Individuals who endorsed living more spiritually on the VLQ were also less likely (irrelevant of being religious or non-religious). All in all, "individuals who endorsed living in congruence to their spiritual values, were less likely ever use IP... and currently use IP..." (Short et al 2015 p579).
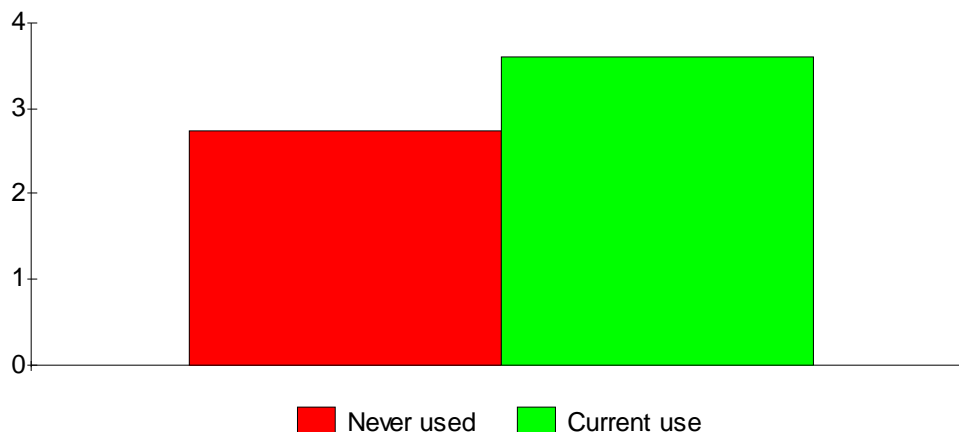
(Data from table 2 p578 Short et al 2015)

Figure 2.1 - Mean total DUREL scores (where a lower score is higher religious values) and IP use.

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[9] Defined vaguely as "fairly recently".

Short et al (2015) stated: "Although this study revealed that more religiosity related to less IP use implying that it could be a protective factor for IP use, more research is needed to investigate how religiosity is related to the reason for use. Overall, it is unclear why religious individuals view IP [10]. It may be similar to the typical reason for use (eg: pleasure and curiosity); however it may also be due to issues related to religiosity. More specifically, having pornography prohibited by one's religion may create a diathesis in the religious individual, where they seek pornography out more because it is prohibited and taboo" (p581).

This study was entirely self-reported. "Thus, self-serving biases might inhibit honest responses to sensitive questions. For example, respondents may develop the tendency to report less IP use in order to avoid internal shame" (Short et al 2015 p581).

2.4. MEASURING PORNOGRAPHY USE

Kohut et al (2020) made the bold statement: "A great deal of pornography research relies on dubious measurement" (p722). For example, over the last fifty years of research, the prevalence of pornography use (PU) ranges from 10 to 99% of men and from 0 to 88% of women depending on the study (Kohut et al 2020).

Prevalence rates will vary between samples because of differences between those involved in the samples (eg: US vs Chinese students), but "[L]arge ranges in estimates of pornography use are still reported when comparing studies that are relatively homogenous with respect to sample characteristics" (Kohut et al 2020 p722) (eg: Us students vary between 59 and 99% depending on the study). A key issue for Kohut et al (2020) is how PU is conceptualised and measured.

Consequently, these researchers reviewed PU measurement in the social and behavioural sciences in the last decade (2009-2018). The first problem is defining pornography, and what to include in the subject of study. "In popular parlance, there are highly diverse ways to refer to sexual representations: pornography; obscenity; erotica; smut; in addition, to a plethora of other variants like filthy, indecent, bawdy, adult, X-rated, or dirty pictures/text/magazine/videos/films, and materials" (Kohut et al 2020 p723).

In a sample of 100 studies, Kohut et al (2020) found that 57 used an idiosyncratic measure of PU (ie: not found in any other study). Of the forty-three studies using a common measure, eleven worked with the General

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[10] A group of Evangelical Christians, for example, reported IP use for relief from life pressures and stress as the main reason (Huson 2005 quoted in Short et al 2015).

Social Survey definition - "X-rated movie" or "website for sexually explicit material" - which was most popular (Kohut et al 2020).

The studies also varied in other ways including (Kohut et al 2020):

a) Wording of questions directly (eg: using the word "pornography") or indirectly (eg: "X-rated movie" or "adult material").

b) Whether the questions asked about pornography broadly or specific types.

c) The social context of use (eg: alone or with others).

d) "Assessment window" (eg: in last week vs six months).

e) Response options (eg: "often"; "once a day"; age of first use; time spent using).

One way to address these problems is through the development of psychometric scales (ie: reliable and valid measures) - for example, the Pornography Consumption Questionnaire (Hald 2006). "This lengthy 65 item tool was used to examine patterns of pornography use within the past 12 months, frequency of exposure, duration of use, age of first exposure, content preferences, the amount of money spent in such pursuits, the social context of use, and any accompanying sexual behaviour. Pornography use was assessed directly, and the instrument's instructions provided participants with a working definition of 'pornography'" (Kohut et al 2020 p728).

Despite the strengths of this scale and others, Kohut et al (2020) felt that they "still fall short" because the concept of PU is not addressed. For example, the term "implies that researchers are specifically interested in motivated and purposive exposure to pornography rather than accidental, coerced, or forced exposure" (Kohut et al 2020 p731) [11].

Kohut et al (2020) explained their position: "It is

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[11] Kohut et al (2020) proposed this definition for voluntary self-exposure to pornography: "Using pornography means to intentionally look at, read, or listen to: (a) pictures, videos, or films that depict nude individuals or people having sex; or (b) written or audio material that describes nude individuals, or people having sex. Using pornography does not involve viewing or interacting with actual, live, nude individuals, or participating in interactive sexual experiences with other human beings in person or online. For example, participating in live sex chat or a camshow, and getting a "lapdance" in a stripclub are not considered pornography use" (p737).

our belief that if we truly wish to understand the prevalence, antecedents, correlates, and effects of pornography use, then conceptualisations of the use of such materials should go beyond intentional self-exposure by considering other pornography-related behaviours. Take the case of a man who looks at pornographic images in a magazine compared to a man who looks at pornographic images online. On the surface, these may seem like very similar exposure behaviours, but they stem from fundamentally different acquisition behaviours that should also be considered" (p732).

Buying a physical magazine is a different behaviour (eg: going to a shop; being seen by others; paying for the product) to viewing on the Internet. The latter requires "a reasonable Internet connection, but if that is available, it can be done with little to no effort, involves a universe of content choices that are not limited to what physical purveyors decide to stock their stores, it can be consumed at no cost, and does not directly require that other people become aware of one's behaviour. Given these differences, it is no wonder that the acquisition of physical pornography has declined with the availability of the Internet of pornography. In this contemporary context, it is likely to us that those who continue to seek offline pornography represent a unique individual difference profile among pornography users (eg: more likely to be male, higher attraction to pornography, low in social desirability, etc), some characteristics of which may be relevant for studying the assumed antecedents and consequences of pornography use" (Kohut et al 2020 p732).

After their reflections on the problems of the measurement of PU, Kohut et al (2020) produced this definition: "Pornography use is a common but stigmatised behaviour, in which one or more people intentionally expose themselves to representations of nudity which may or may not include depictions of sexual behaviour, or who seek out, create, modify, exchange, or store such materials. Pornography use can involve one or more types of online and offline materials, and can occur in a variety of locational, social, and behavioural contexts. The extent and nature of such behaviours are regulated and shaped by a combination of personal and social hedonic motives, as well as other individual differences and environmental factors. Pornography use can evoke immediate sexual and affective responses, and may contribute to more lasting cognitive, affective, and behavioural changes" (p733).

This definition is "a general theory of 'pornography use' that is meant to inform the development of specific operational definitions in survey research" (Kohut et al 2020 p733).

The wide variety of content of pornography was also a relevant issue for these researchers. Hald and Stulhofer (2016), for example, distinguished twenty-seven types, but Internet sites have hundreds or even thousands of different "genres". "A great deal of work still needs to be done to understand how best to differentiate the content of pornography" (Kohut et al 2020 p736).

Kohut et al (2020) concluded that there was a need for "a more limited set of standardised measurement practices", but, at the same time, accepted that "there may not be a one-size-fits-all solution that works equally well across research programmes" (p736). They proposed four questions for researchers developing a measure of PU:

"(1) What is the theoretical basis for this measure?
(2) Is a new measure necessary?
(3) How can this measure be validated?
(4) How does one obtain evidence of reliability?" (Kohut et al 2020 p737).

2.5. NON-PROBLEMATIC HIGH-FREQUENCY USE

"Problematic pornography use" (PPU) is a term that has been used to represent a manifestation of "compulsive sexual behaviour disorder" (Bothe et al 2020).
But Bothe et al (2020) commented: "When examining problematic behaviours that may derive from natural human drives or needs (eg: sexuality), it may be difficult to precisely segregate 'normal' and 'problematic' behaviours. The quantity or frequency of the behaviour in which individuals engage in the given behaviour could be a potential indicator of problems. However, individuals' sexual drives and desires may vary substantially, and this variability may be considered normal if the behaviour does not cause impairment or functional problems for individuals" (p794).
Some research has distinguished between two groups with heavy pornography use - non-problematic high-frequency use (NPHFU) and problematic high-frequency use (PHFU). For example, Brown et al (2017) found that, among male college students, these two groups varied on pornography acceptance, sexual permissiveness, and motivations for pornography use.
Other studies have classified three groups - eg: compulsive, highly distressed non-compulsive, and recreational use (Vaillancourt-Morel et al 2017).

Bothe et al (2020) performed three online studies to investigate the profile groups of pornography use.

Study 1 - Over 14 000 respondents (at least eighteen

years old) were recruited in January 2017 via a popular Hungarian news website, and the eligibility criteria was watched pornography at least once in the past six months. A variety of measures were completed including the Problematic Pornography Consumption Scale (PPCS) (Bothe et al 2018) (appendix 2B), and the Sexual Abuse History Questionnaire (Leserman et al 1995).

Statistical analysis of the data produced three groupings [12]:

	i) Non-problematic low-frequency use (69% of the sample);
	ii) NPHFU (24%);
	iii) PHFU (7%).

There was little difference between the latter two groups in terms of demographic characteristics, and frequency of pornography use. Discomfort about pornography was higher for the PHFU group.

Study 2 - This involved 483 respondents recruited in April 2018 via a "public topic-irrelevant Facebook page" (in Hungarian). As well as some of the measures from the previous study, there were traditional personality questions. The three groups, as Study 1, were found in approximately the same numbers. No personality differences were found between the NPHFU and PHFU groups.

Study 3 - The sample here came from a popular Hungarian pornography site in December 2017 (n = 672). Measures of psychological health (eg: self-esteem; depression) were included instead of traditional personality questions. The three groups emerged from the analysis, but there were differences this time between the PHFU and NPHFU groups. "The PHFU class had higher levels of depression, boredom susceptibility, relatedness frustration, competence frustration, and overall basic psychological needs frustration and lower levels of self-esteem and relatedness satisfaction" (Bothe et al 2020 p802).

Overall, the frequency of pornography use was not an indicator of PPU or not. But basic psychological needs did vary between the groups. For example, in terms of high- and low-frequency use, "individuals who feel being hindered in their volition may turn to pornography to reduce or alleviate negative feelings deriving from autonomy frustration as pornography viewing may provide considerable freedom of choice with a wide variety of content or permit expression through fantasy in areas that may not be readily achievable in real life" (Bothe

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[12] Statistical analysis is very common in the social sciences, but is it always necessary (appendix 2C)?

et al 2020 p803).

It was concluded that PPU was not due to a single characteristic, but to "a combination of or interplay between individual personality features and social and societal contexts" (Bothe et al 2020 p804).

The data were self-reported. As well as honesty of replies, there is always the issue of self-awareness. "Some individuals may perceive that their pornography use as only generating minimal problems in their life, despite functional impairment (eg: decreased sleep time, decreased work productivity) leading to their identification as having NPHFU instead of PHFU. Other more nuanced effects (eg: on relationship satisfaction, relationship discord, and sexual connection between partners) may not be captured by the current measures and may impact health and functioning in more subtle ways (Bothe et al 2020 p805).

Bothe et al (2020) accepted other limitations: "Individuals' views of the impact of pornography consumption on these and other domains of functioning may change over time, thus highlighting the need for longitudinal studies. All studies were conducted in Hungary; thus, the results may not generalise to other countries and cultures. For example, Hungary may be considered as a moderately religious country (54.6% of the Hungarian people reported being religious). Thus, the ratio of PPU may be lower or higher in countries with lower or higher levels of religiosity, respectively" (Bothe et al 2020 p805).

2.6. SOCIO-SEXUALITY

"Tinder" is a "location-based mobile dating service app", which has "commonly been seen as a sex app in the public discourse, primarily relating the use of the app to casual sex encounters" (Grontvedt et al 2019 p109) [13].

What about the evidence? Individual differences exist in seeking casual sex instead of a more stable romantic relationship, and this has been called "socio-sexual orientation" (Simpson and Gangestad 1991). These researchers developed the Socio-Sexual Orientation Inventory (SOI) to measure it (conceptualised as behaviour, attitudes, and desire).

Studies have found a positive association between SOI score and mobile dating app use (eg: Botnen et al 2018) - ie: "less restricted individuals used dating apps more than more restricted individuals" (Grontvedt et al 2019 p110).

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[13] Tinder is part of the changes in recent years in dating behaviour (appendices 2D and 2E).

Grontvedt et al (2019) expanded on this work, and hypothesised that "socio-sexuality will be positively associated with number of matches, meet ups, and number of one-night stands following Tinder use, but not with number of people met with an interest in a long-term committed relationship" (p110).

The participants were 269 heterosexual students in Trondheim, Norway (aged below thirty years old). Questions were asked about their Tinder use, and sexual and romantic relationships, and the nine-item SOI-R (Penke and Asendorpf 2008) (table 2.1) was completed.

• Behaviour
With how many partners have you had sexual intercourse on one and only one occasion? (0, 1, 2, 3, 4, 5-6, 7-9, 10-19, 20 or more)

• Attitudes
Sex without love is OK (9 points from strongly disagree to strongly agree)

• Desire
How often do you have fantasies about having sex with someone you are not in committed romantic relationship with? (never, very seldom, about once every two to three months, about once a month, about once every two weeks, about once a week, several times a week, nearly every day, at least once a day)

A higher score is a more "unrestricted" socio-sexuality (ie: more likely to have casual sex and see it as positive)

(Source: Penke and Asendorpf 2008)

Table 2.1 - Example of items from SOI-R.

The average number of reported matches was 111 for men and 124 for women. A match is where both parties "like" the other's photograph/profile (technically, right swipe, where left swipe is the desire to meet). Almost half of the participants reported meeting up following a Tinder match. The vast majority of participants (80%) did not achieve a sexual encounter via Tinder. "The typical pattern seems to be that half of Tinder users who had matches actually met up with at least one of their matches, and the large majority never had sex nor had a meeting with an interest for a long-term relationship" (Grontvedt et al 2019 p112).

In terms of associations, "the number of one-night stands following Tinder use was positively associated with participant age, socio-sexual attitudes, length of Tinder use, number of matches, and one-night stands outside of Tinder" (Grontvedt et al 2019 p112). Further analysis found that unrestricted socio-sexual attitudes predicted achieving casual sex, but was the opposite for long-term romantic relationships (which, to some degree, was the hypothesis). Number of meet-ups was associated

with long-term relationships. "There was a positive association between one-night stands and meetings with an interest in a long-term committed romantic relationship. Possible explanations of this finding are that users of Tinder have multiple, non-mutually exclusive reasons for app use, and that some relationships develop from what were initially one-night stands" (Grontvedt et al 2019 p116).

Grontvedt et al (2019) summed up: "A large number of matches are required in order to achieve a sexual encounter. This challenges the suggestion that Tinder is a sex app that is contributing to a general increase in the amount of casual sex and social diseases in society and number of sexual partners for users directly" (p116) [14]. In the main, individuals who achieved one-night stands via Tinder also did so using other methods (47 of 54 participants).

The researchers accepted two main limitations to their study:

i) The measurement of Tinder use from self-reports. Grontvedt et al (2019) stated: "The app may be installed or deleted several times. Accuracy of recall of past behaviour and outcomes is obviously a challenge, including statistics on, eg: matches, particularly for those who have deleted the app. Memory of matches for former users may be less precise than for current Tinder users who may check their matches data in the app, although there was no difference between the two former user groups in number of matches. This difference may be due to individual differences: individuals who achieve more matches are maybe more likely to stay on Tinder resulting in a survivorship bias" (p116).

ii) The sample was from a "highly sexually liberal and gender egalitarian population" (and more so than US students in other studies) (Grontvedt et al 2019).

2.6.1. Personality

Timmermans and De Caluwe (2017a) investigated the personality differences in the use of Tinder or not for finding dates.
Studies comparing online daters and non-users have been performed (eg: Internet daters lower on extraversion in a German study; Aretz et al 2010), as well as mobile dating app users versus non-users (eg: users more sociable, impulsive, and interested in sex; Carpenter and

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[14] The Rhode Island state government claimed an increase in HIV and sexually transmitted diseases through app-related casual sex (Grontvedt et al 2019).

McEwan 2016 [15]).

Timmermans and De Caluwe (2017a) recruited 502 single 18-29 year-olds in Belgium. A measure of the "Big Five" personality traits [16] was completed online, along with the Tinder Motives Scale (TMS) (Timmermans and De Caluwe 2017b) (which covers thirteen motives including peer pressure, curiosity, and relationship seeking). There were 378 individuals using Tinder and 124 never users.

At a group level, Tinder users scored significantly higher on Extraversion and Openness to Experience, and lower on Conscientiousness than non-users. There was no difference on the other two traits (figure 2.2).

The top motives for Tinder use on the TMS were "pass time entertainment", curiosity, and socialising.

The researchers struggled to find young adults who had never used Tinder, and it was later discovered that many of the non-user group were in committed relationships (Timmermans and De Caluwe 2017a).
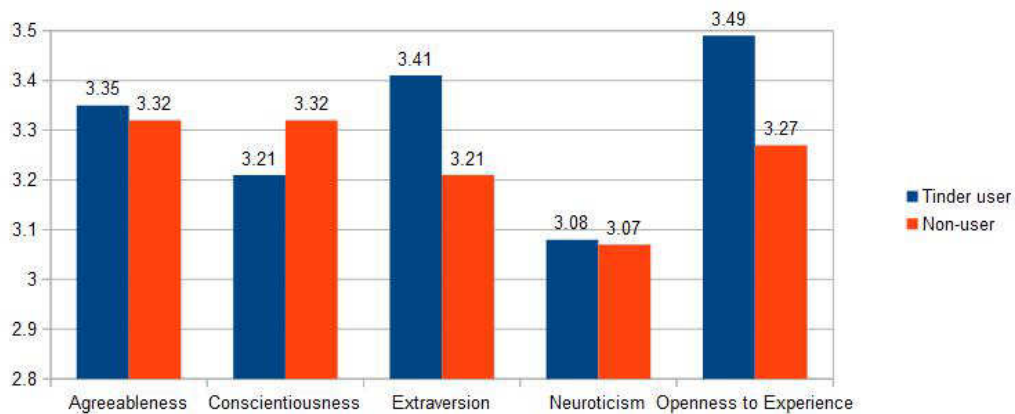
(Data from Timmermans and De Caluwe 2017a table 3 p77)

Figure 2.2 - Mean scores on "Big Five" personality traits (out of five).

2.7. APPENDIX 2A - NEUROIMAGING DATA

Lindquist (2020) commented: "For most types of big data, from genome sequences to medical images, there is no single 'best' way to process the data" (p36). This is seen in the case of functional magnetic resonance imaging (fMRI) in a study where seventy research teams that analysed the same data produced different findings

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[15] The sample size was only 57 users (Timmermans and De Caluwe 2017a).

[16] Agreeableness, Conscientiousness, Extraversion, Neuroticism, Openness to Experience.

(Botvinik-Nezer et al 2020).

fMRI produces a series of images of the active brain, and these are processed by the computer software in a series of stages. The decisions made by researchers (eg: threshold of cell activity to measure; statistical modelling used) will influence which brain regions appear active (Lindquist 2020) [17].

Botvinik-Nezer et al (2020) gave the different research teams fMRI data from 108 individuals performing decision-related tasks, and asked them to test nine hypotheses about the brain areas active. No two teams chose "identical workflows to analyse the data, resulting in substantial variation in the results" (Lindquist 2020 p36).

2.8. APPENDIX 2B - PROBLEMATIC PORNOGRAPHY CONSUMPTION SCALE (PPCS)

Bothe et al (2018) outlined their motivation to produce "a multi-dimensional, theory-driven instrument with strong psychometric properties that can assess individual differences in online pornography use to distinguish between problematic and non-problematic users and the potential negative consequences of pornography consumption on different groups" (p395).

In their review, Short et al (2012) noted that 95% of researchers into PPU in the previous decade employed questionnaires and scales created by others.

Two popular scales are:

a) The Cyber Pornography Use Inventory (CPUI-9) (Grubbs et al 2015) - Nine items covering three factors:

- Perceived compulsivity (eg: "I feel unable to stop my use of online pornography").

- Emotional distress (eg: "I feel ashamed after viewing pornography online").

- Access Efforts (eg: "I have put off important priorities to view pornography").

b) Problematic Pornography Use Scale (PPUS) (Kor et al 2014) - Twelve items covering four factors:

- Distress and functional problems (eg: "I continued using pornography despite the danger of harming myself physically (for example: difficulty getting an erection due to extensive use, difficulty reaching an orgasm in

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[17] These are "researcher degrees of freedom" (Wicherts et al 2016).

ways that do not include pornography)").

- Excessive use (eg: "I spend too much time planning to and using pornography").

- Control difficulties (eg: "I have been unsuccessful in my efforts to reduce or control the frequency I use pornography in my life").

- Use to escape/avoid negative emotions (eg: "I have used pornography while experiencing unpleasant or difficult feelings (for example: depression, sorrow, anxiety, boredom, restlessness, shame or nervousness)".

Bothe et al (2018) made this criticism: "Most of the pre-existing psychometric scales did not have a strong theoretical underpinning, and they assessed only frequency of pornography use and/or time spent using it" (p396).

The PPCS used the theoretical basis of Griffiths's addiction components model (eg: Griffiths 2001). There are six core elements to PPU taken from this model:

i) Salience - importance of pornography in the individual's life (eg: PPCS item: "I thought about how good it would be to watch porn").

ii) Mood modification - subjective experience of viewing pornography (eg: "Watching porn got rid of my negative feelings").

iii) Conflict - within the individual (eg: wanting to cut down but unable), and with others (eg: significant other) (eg: "I neglected other leisure activities as a result of watching porn").

iv) Tolerance - more pornography is needed to achieve the mood modification (eg: "I felt that I had to watch more and more porn for satisfaction").

v) Relapse - returning after abstinence (eg: "I resisted watching porn for only a little while before I relapsed").

vi) Withdrawal - unpleasant feelings when pornography not viewed for a certain period (eg: "I became agitated when I was unable to watch porn").

The validation of the PPCS involved 722 adults recruited via Facebook in Hungary in June 2016. The original version of the scale had twenty-four items, and this was reduced to eighteen to give three items for each of the core elements. Each item is scored from 1

("never") to 7 ("all the time") for the past six months.

Based on details of pornography use, and answers to other questionnaires, the participants were grouped into three - non-problematic users (79.5% of the sample), low-risk users (16.8%), and at-risk users (3.6%). The latter group scored significantly higher on the PPCS than the other two groups, and the low-risk users were significantly higher than the non-problematic users.

Duration of viewing or frequency of watching varied between the groups, but not enough to distinguish PPU from non-PPU. Bothe et al (2018) explained: "Despite the fact that frequent use of pornography is an essential part of problematic pornography use, frequency alone cannot be considered a satisfactory definition of this phenomenon. It is possible that individuals visit online pornography websites on a regular basis, but they can stop this activity when it is necessary" (p403).

2.9. APPENDIX 2C - DATA ANALYSIS

Fife (2020) referred to a "methodological introspection of sorts" in recent years in psychology in relation to null hypothesis statistical testing (NHST), and the "replication crisis". Cohen (eg: 1994) was a strong critic of NHST. Fife (2020) read Cohen as saying that there was "no one alternative to NHST; rather, statistical analysis requires a rather large toolbox in which each tool is adapted to the circumstances under which it is most appropriate. The tool might be, for example, Bayes factors, confidence intervals, effect sizes, single-subject designs, pre-registration, and/or graphical data analysis" (p1055). This led Fife (2020) to recommend an eight-step model of data analysis (table 2.2).

There are a number of potential problems with NHST including (Fife 2020):

i) Violation of the assumptions of statistical tests - "It would be like choosing to compute the mean on highly skewed data; one can do it, but the information gleaned may be misleading. If the wrong model is chosen, one might have a false positive or false negative" (Fife 2020 p1056).

ii) "Fishing", multiple testing, or "p-hacking" - Analysing data in many different ways until a significant difference is found rather than setting out the planned analysis before data collection.

iii) Type II errors and the "file-drawer problem" - This is the situation of "false negatives" and consequently not publishing the findings.

Step	Comment
1. State the theoretical hypothesis.	State a strong hypothesis prior to data collection beginning, including the level of probability for significance, which does not have to be p<0.05 (the commonly used level in psychology).
2. Assess psychometric properties of variables.	Improve the reliability of a measure.
3. Plot univariate distributions.	The use of histograms and bar charts.
4. Plot a graphic to match the theoretical hypothesis.	Use the appropriate graphical representation of the data (eg: linear regression and scattergram).
5. Study residuals	Helps in seeing the outliers.
6. Interpret parameter estimates and effect sizes.	Based on the graphical representation, does the data look as if a significant difference will exist?
7. Make a decision on the basis of decision criteria (if appropriate).	Is statistical testing worthwhile based on the previous step?
8. Replicate on a new set of data.	"Encourages cumulative and reproducible science" (p1059).

(Source: Fife 2020 table 1 p1059)

Table 2.2 - Eight-Step Model of Data Analysis.

The implications of Fife's (2020) model could include analysis sections of reports without p-values, conclusions based on graphical interpretations, and "conclusions that are hedged with uncertainty and/or ambiguity" (p1072).

Fife (2020) advised journals "to never reject an article simply because it uses a non-standard approach for arriving at substantive conclusions. Rather, the approach should be evaluated in terms of how well it fits the needs of the situation and whether the assumptions of the model are reasonably met. If the model is appropriate and reasonable, there is no reason authors' attempts at ingenuity should count against them" (p1073).

He ended that "the discipline of psychology is at a crossroads. We can continue to participate in NHST-based psychology, and the problems we have recently encountered will persist. Or, we can revolutionise the way we think about analysis, listen to the messages the data are trying to tell us, and uncover truths previously buried behind ANOVA summary tables and p values" (Fife 2020 p1073).

2.10. APPENDIX 2D - DATING BEHAVIOUR

Dating apps are viewed by some as the end of

monogamy and stable, long-term romantic relationships. For example, Bauman (2003) entitled his book "Liquid Love". He argued that "the solidity and security once provided by life-long partnerships has been 'liquefied' by rampant individualisation and technological change. He believes internet dating is symptomatic of social and technological change that transforms modern courtship into a type of commodified game" (Hobbs et al 2017 p271). Hobbs et al (2017) explored digital dating apps in this context.

Technological changes have been impacting sex and relationships before dating apps, and including the contraceptive pill, which Giddens (1992) described as leading to "plastic sexuality" (ie: greater sexual freedom), "confluent love", and "pure relationships". "Confluent love" "refers to love that is active and contingent, and is distinct from the ideal of 'romantic love' in that it is not seen as something that is 'forever after' but lasts for as long as both remain invested in the relationship" (Hobbs et al 2017 p273). The "pure relationship" is "an ideal type where a relationship is based on sexual and emotional equality and continues only for as long as both parties derive mutual satisfaction" (Hobbs et al 2017 p273). Put together, relationships are short-term with great emphasis on satisfaction.

Beck and Beck-Gernsheim (1995) argued that the "flimsy" nature of relationships has produced change. "Unlike previous generations, people today are confronted with an endless series of choices as part of constructing, adjusting, and developing the unions they form with others. They suggest that there is a slight unravelling in the bonds of romantic couple relationships because people are seemingly aware that their partnerships often do not last and are therefore wary of investing too much into them. This 'risk aversion' leads people to invest more in themselves, and in a range of other relationships, especially friendships. Despite an increasing tendency towards individualisation, Beck and Beck-Gernsheim believe that people still idealise love" (Hobbs et al 2017 p273).

Hobbs et al (2017) recruited interviewees via social media in Australia for their study, and six volunteers were interviewed in-depth in late 2015 (out of 365 general survey respondents).

Hobbs et al (2017) stated: "While data collected for this study suggest that dating apps are not giving rise to a rampant hook-up culture that is supplanting monogamy or long-term relationships, both the survey responses and interviews revealed that some individuals are using the technology to engage in casual sexual encounters. Indeed, many of the interviewees believed that the apps gave them

an unprecedented ability to find sexual partners without requiring them to engage in further social interaction" (p277).

For example, "Alice" (in her 30s) said this about Tinder: "I'd just write 'sex'? so that was very direct, and it seemed to work for me, and then everyone knew where they stood... as a single parent you're so socially isolated [and] you're financially just screwed [and] it's really tough, so you're trying to see as many people in the shortest amount of space and then you're trying to use up the time that you have to yourself, which is not that often" (p277). She saw Tinder as giving her control in another way after a "painful break-up": "[Using Tinder to find sex] was part of my journey... I liked the way that I could make men behave in a way that traditionally women have behaved... I felt like I was in complete control of everything and I just wish more women could experience that and not feel bad about themselves and their bodies. So that's what the dating apps did for me... I got my power back" (p277).

Tinder was also useful in meeting new people. "Amy" (in her 20s) explained her motivations for its use: "Probably more for hook-ups in in the beginning... It was just about meeting new people as well I guess. Not with the intention of making friends, but it was kind of just getting out and meeting different sorts of guys to the ones that I've hung out with in my social circle in the past" (Hobbs et al 2017 p278).

Using Tinder regularly meant working on one's profile (what Hobbs et al 2017 called "self-commodification and self-branding"). "Tim" (in his 20s) described this episode: "He's in my student housing and he's like 'Man, I don't I don't have much success on Tinder'. So I ask 'Can I look at your profile and can I change it for you?' So I get him a different picture and I make his profile his 'buyer' – he didn't have a buyer. I made his profile a buyer, and said 'You can always go back' and it blew up! It was almost like in the movies" (p280). The phrase "buyer" is an interesting link to sales techniques (Hobbs et al 2017).

Hobbs et al (2017) summed up: "The exploratory findings offered by this study suggest that users of dating apps view them as welcome intermediaries in the search for companionship, love, sex and intimacy. Unlike the argument advanced by Bauman, dating apps and internet dating more broadly are not 'liquefying' ideals like romantic love, monogamy or a commitment to longer-term relationship. Indeed, the data suggest that a majority of individuals continue to value and seek these social phenomena, and are merely using the technology as a means to pursue meaningful partnerships. This study's participants felt they have more romantic and relationship possibilities than previous generations, and

that the technologies give them greater agency with regard to pursuing and meeting potential lovers and companions" (p281).

This study involved volunteers recruited via social media who used dating apps. The researchers made no claims about their typicality.

2.11. APPENDIX 2E - COMPUTATIONAL SOCIAL SCIENCE

"Computational social scientists" have emerged in recent years, and they are "exploring massive and unruly data sets, extracting meaning from society's digital imprint" (Ledford 2020 p328). This is "big data".

One criticism is that researchers "look only at patterns and do not consider the causes, or that they draw weighty conclusions from incomplete and messy data - often gained from social-media platforms and other sources that are lacking in data hygiene" (Ledford 2020 p329). This concern was not helped by an article in 2008 in "Wired" magazine that saw "big data" as spelling the end to social science theory (Anderson 2008).

Another criticism is that "big data" attracts an interest in "toy" problems (ie: not deep questions about behaviour), particularly with studies of Twitter (Ledford 2020). For example, an early study (Salganik et al 2006) of "big data" investigated popular music choices and the influence of others on the choices (Ledford 2020).

A "hedonometer" (a positivity score out of nine) has been developed based on the rating of tweets each day as positive or negative as compared to a database of over 10 000 words (eg: Frank et al 2013). In mid-March 2020 it was the lowest since it began in 2008 (News In Brief 2020).

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3. CONTENT OF PORNOGRAPHY

3.1. CONTENT ANALYSIS

Content analysis is a method that codes the descriptive characteristics of a medium. It has been used with pornographic videos, magazines, cartoons, static images and texts, and, in recent years, online material (Vannier et al 2014).

Vannier et al (2014) believed that the first content analysis of free online pornographic videos was by Gorman et al (2010). These researchers analysed forty-five randomly selected videos from fifteen popular adults websites.

Vannier et al (2014) extended this work, but concentrated on two age-related search terms in pornography - "teen" (older teenage and early 20s females) and "MILF" ("mother I'd like to fuck") (women in their 40s and 50s) [18]. A total of fifty videos for each term was sampled from ten adult websites. The videos chosen had the following criteria - at least one minute in length, and included only a heterosexual couple.

The coding of the material had three main areas:

i) Descriptive characteristics - eg: portrayed age of male participant; location of encounter; degree of nudity.

ii) Sexual behaviours - A list of behaviours were coded as "present" or "absent", as well as condom use.

iii) Power - eg: portrayed sexual experience of each participant based on dialogue (eg: "I've never done that before") or descriptors (eg: "Teen's First Anal"); portrayed occupation of participants; exploitation (eg: exchange of sex for money).

Inter-rater reliability was measured between the two independent raters at around 90% overall (ie: agreement of categories of coding). The sampling took place between November 2011 and January 2012.

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[18] These terms can be fluid in their use - eg: MILF can cover late 20s and early 30s.

In terms of the descriptive characteristics, for example, the male actors were portrayed as mature in the majority of videos, and over 90% of performers of both sexes were White (compared to three-quarters in Gorman et al 2010). The setting of private, indoors was most common, while female performers were more likely to have no pubic hair. The most common sexual behaviours were vaginal intercourse, and fellatio. Condom use was seen in two videos (the same as Gorman et al 2010 - ie: 2%).

Males were not presented as more sexually experienced, and only as higher status in a quarter of videos. Exploitation was depicted in one-fifth of the sample. overall, "male actors were depicted more often as in control of the pace/direction of sexual activity, and female actors were portrayed more often as the victims of exploitation" (Vannier et al 2014 p260).

Leaving aside the age of the female performers, there was little difference in other characteristics between the "teen" and "MILF" videos. The exception was that "female actors in MILF videos more often initiated the sexual activity, controlled the pace/direction of sexual activity, and had a role with a higher occupational status than did female actors in teen videos" (Vannier et al 2014 p261).

Vannier et al (2014) concluded: "Our data suggest that free, easily accessible, online pornographic videos may follow a standard script. Videos from our teen and MILF samples possessed remarkably similar characteristics across video type..." (p261).

This "script" (or scripts) may influence the perceptions of "normal" or "typical" sexual behaviour, and there is concerns over these norms, including pubic hair removal, lack of condom use, and "even 'raunch culture' [Levy 2005], in which women's sexuality is perceived as a performance and women are encouraged to sexually objectify themselves by stripping, exposing themselves publicly, and objectifying other women" (Vannier et al 2014 p262).

Another concern related to persuasion. "In all videos where persuasion occurred, the actors who expressed reluctance or hesitance were eventually convinced to engage in sexual activity and appeared to enjoy the sexual activity they had originally resisted. These portrayals may normalise what is known in the research literature as 'token resistance'. Token resistance is defined as occurring when an individual, usually a woman, says 'no when they mean yes and that their protests are not to be taken seriously' (Muehlenhard and Hollabaugh 1988...). Indeed, for both men and women, more frequent viewing of pornography is associated with stronger beliefs that women engage in token resistance... These beliefs can have negative consequences; endorsing token resistance

beliefs is associated with high rates of female-directed sexual aggression" (Vannier et al 2014 p262).

On the positive side, Vannier et al (2014) pointed out that the videos "such as those found in our sample, may play a role in normalising more active or agentic roles for women, improve viewers' comfort around sexual matters, increase their curiosity about or arousal toward some sexual activities or types of partners, and possibly reduce some shame or guilt by viewing female models who appear to relish these activities" (p262).

Vannier et al (2014) admitted: "More research is needed to examine the association between viewing specific genres of pornography and the endorsement of various sexual scripts" (p262).

This study did not include material from paid/specialist (or hard to reach/access) websites for "teen" and "MILF" material, as well as the many other genres of pornography, "such as those based on race, physical characteristics (eg: obesity, large breasts), specific sexual behaviours (eg: masturbation, anal, oral), or type of video (eg: webcam, hidden camera, amateur)" (Vannier et al 2014 p263).

Vannier et al (2014) added: "we did not distinguish between amateur (eg: featuring unpaid actors, home movies, and low production quality) and professional (eg: featuring paid actors and filmed by production companies) videos" (p262). The material was heterosexual pornography involving two actors only.

3.1.1. Klaassen and Peter (2015)

A content analysis by Klaassen and Peter (2015) focused on gender inequality in Internet pornography – ie: "a perception and treatment of women as inferior in objectification, distribution of power, and violence" (p721). Developing these three dimensions of gender inequality:

a) Objectification – This can be sub-divided into two: instrumentality, and dehumanisation. "Instrumentality refers to treating someone as a tool for one's own purposes, whose experience and feelings (if any) are unimportant... In pornography, instrumentality implies the exclusive or predominant use of someone's body or body parts for another person's sexual gratification... Dehumanisation refers to the denial of human characteristics, through which people are no longer viewed as having feelings and thoughts" (Klaassen and Peter 2015 p722).

b) Power – This can be defined as "the capacity to produce intended effects, and in particular, the ability

to influence the behaviour of another person" (Dunbar and Burgoon 2005 quoted in Klaassen and Peter 2015). For example, women depicted in sexually submissive roles and men in dominant ones in pornography.

c) Violence - This includes overt physical acts, like slapping, and coerced sexual activity. Previous studies of pornographic videos report a prevalence of coerced sex in between 3 to 20% of scenes (Klaassen and Peter 2015). "These differences may be a result of the selected samples and units of analysis. Researchers who reported a lower prevalence of coerced sex included videos that were not sexually explicit (eg: R rated) and included scenes that were not sexual... By contrast, coerced sex occurred more frequently when only explicit sex scenes were studied" (Klaassen and Peter 2015 pp723-724).

Klaassen and Peter (2015) performed a quantitative content analysis on the 400 most popular videos in February 2013 from the "top four popular erotic Web sites... primarily aimed at a heterosexual audience" (p724) [19]. The unit of analysis was the first scene of each video where sexually explicit activity was involved. The coding of categories was undertaken independently by two male and two female Dutch adults.

The dimensions of gender inequality were operationalised in the following ways [20]:

- Instrumentality - eg: an index of close-ups of body parts.

- Dehumanisation - "(the absence of) initiation of sex and (of) own pleasure or enjoyment as a reason for sex" (p725).

- Power - eg: role of performers (eg: boss-secretary).

- Violence - A list of fourteen physically violent acts.

In terms of the findings, Klaassen and Peter (2015) stated that "women were more likely to be instrumentalised than men, as indicated by a strong focus on women's sexual body parts as well as on sex acts and orgasms in which men rather than women gained sexual pleasure. However, there was no evidence of a general dehumanisation of women. Notably, men were more likely to

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[19] Three-quarters of the sample depicted a heterosexual couple.

[20] Klaassen and Peter (2015) explained: "In 2011, we conducted a pilot study of 100 mainstream pornographic Internet videos in which we tested most of the coding categories relevant to the present study" (p725).

be dehumanised than women in that men's faces were rarely shown" (p727). Power was presented equally in terms of the roles enacted, but "power differences became prevalent in the context of sexual activities as men were more likely depicted as dominant and women as submissive" (Klaassen and Peter 2015 p728).

Violent acts were "rather infrequently depicted" (apart from spanking [21] and gagging), but when they did happen, women were the victims in the majority of cases. "Although uncommon, men and women were equally likely to be depicted as 'victims' in non-consensual sexual activity or being intoxicated. However, women were more likely victimised by manipulation" (Klaassen and Peter 2015 p728).

The researchers distinguished the genre of "amateur" videos based on the tags (24% of total sample). The remainder were viewed as professional. In "amateur" videos women were more likely to be dehumanised, to be submissive, and have more coerced sex through manipulation, but there was less physical violence than professional videos.

Klaassen and Peter (2015) felt that their research had produced a complex picture of gender inequality in Internet pornographic videos. There was evidence of the instrumentality of women for men's sexual pleasure, which "anti-pornography feminists" have highlighted, but, in contrast, "women were not generally dehumanised" (p730).

In line with pro-pornography feminists", "women in pornographic Internet videos were not denied sexual desire and pleasure (appendix 3A). Roughly in the same way as men, women were depicted as sexual beings who do not passively wait for sex but actively initiate it, very often based on mutual consent. Women were also not generally disempowered: They were often portrayed as being in the same social and professional positions as men" (Klaassen and Peter 2015 p731).

Klaassen and Peter (2015) were not naive: "it remains unclear whether our finding represents a genuine empowerment of women in pornography or merely reflects broader societal trends in Western(ised) countries. Similarly, the shift toward women in more powerful social and professional positions did not translate into female agency during the sexual activities, in which women often assumed sexually submissive roles, while men were dominant" (p731).

These researchers ended: "our findings suggest that debates about pornography may benefit from distinguishing

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[21] Note that "the conceptualisation of spanking as sexual violence has been described as over-inclusive if it does not take into account whether spanking is consensual and whether people enjoy it" (Klaassen and Peter 2015 p730).

between different types and genres within pornography and
a turn toward a more nuanced conceptualisation of
pornography as pornographies. Broadly speaking, what we
found for amateur videos may be more in line with what
traditional feminists and conservatives have in mind when
they argue about pornography, whereas what we found for
professional videos may rather merge with what liberals
think of when they argue about pornography" (Klaassen and
Peter 2015 p731).

The researchers accepted that other genres were not
considered which may represent gender inequality in a
different way (eg: "female-friendly"; "gangbang").

3.2. "CUCKOLD PORN"

"Cuckolding" is "a fetish and porn sub-genre,
wherein a tormented white cuckold is 'forced' to watch
his white wife have sex with a black man (but he often
joins in)" (Lokke 2019 p212).

Cuckoldry has existed in plays throughout history,
for example. "At its most basic, the cuckold is used to
explore the anxieties of a wounded patriarchy, whose
fears of sexual failure are made benign through mockery.
As early modern Europe became obsessed with the trope and
its symbols, cuckold became a common epithet for shaming
and abuse. In seventeenth-century England, for instance,
most defamation cases hinged on whether or not
individuals were in fact cuckolds or whores" (Lokke 2019
p213).

"Cuckold porn" combines "a host of queer pleasures
and anxieties: black/white homo-erotic desire, white
female desire for the black male body, and our collective
anxieties regarding monogamy and the institution of
marriage as well as the ambivalent and precarious social
positionality of blackness (here specifically black
manhood)" (Ariane Cruz in Chude-Sokei et al 2016 quoted
in Lokke 2019).

Lokke (2019) was clear: "Despite the subtleties of
these transgressive pleasures, cuckold porn ultimately
acts to reaffirm heterosexist, white masculinity" (p214).

Lokke (2019) viewed an opportunity sample of the
first 100 hits on an adult video posting website tagged
"cuckold". Only sixty-seven were classed as "traditional"
cuckold videos (ie: Black cuckold of White husband with
White wife), and 21 videos featured a White cuckold
(usually described as "a stud"). "So, on one level, race
clearly is not a necessary condition for a video to be a
cuckold porn text. The sub-genre as a whole, however, is
undeniably obsessed with, if not predicated on, inter-
racial sex. The cuckold and his wife/girlfriend
are almost always white, and the cuckolder is black two-
thirds of the time. The near irrelevance of black women

(and women of colour, generally) to the fantasy is made
well apparent" (Lokke 2019 pp215-216) [22].

    Lokke (2019) drew out a number of points from
"cuckold porn":

    i) The links to inter-racial sex and porn in the
context of US history - "inter-racial porn often relies
on stereotypes that have their basis in the plantation
South, many of which concern white women. Black men were
considered to have a savage desire for white women, and
miscegenation laws were particularly obsessed with
preventing their interaction. Driven into the psyche of
young black men, the taboo forbade a black man to even
gaze at a white woman, evinced in the history of
lynchings from slavery to the killing of Emmett Till in
1955" (Lokke 2019 p216).

    ii) The punishment of the wife - Williams (2005)
commented that "part of the pleasure proffered by the
film is the spectacle of women having sex with such
frankly unlovely men [...] represent[ing] a kind of
punishment on the women" (quoted in Lokke 2019). Lokke
(2019) noted the growth of "young/old" videos (ie:
"teens" with "geriatric" men). "The white male pleasure
in seeing a white woman penetrated by a black penis is
not always some transgressive or queer act, but can
simply be a desire to see her penetrated by something
coded abnormal or animal. If the cuckold fetish is the
eroticisation of fears of female infidelity or
disinterest, the punishing blackness of the cuckolder

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[22] Cruz (2015) commented: *"Slavery, itself a kind of 'slime', remains an active marketplace for the
production of Black female sexuality and its representations. The impact of chattel slavery and the
pervasive rape of Black female slaves on modern constructions and representations of Black women has
been well theorised, in particular by a number of Black feminist scholars who have worked to rupture
what Darlene Clark Hine [1989] terms the 'culture of dissemblance', the politics of silence shrouding
expressions of Black female sexuality" (pp409-410). She focused her analysis on "race play" in
bondage/discipline, dominance/submission, and sado-masochism (BDSM) Internet pornography. "Race
play is a BDSM practice that explicitly uses race to script power exchange and the dynamics of
domination and submission. Most commonly an inter-racial erotic play, race play employs racism, often
involving the exchange of racist language, role-playing, and the construction of racist scenes.
Eroticising not just racism, but the miscegenation taboo, racial difference, and (hyper) racialisation
itself, race play is deeply controversial and contradictory in BDSM communities and beyond" (Cruz
2015 pp410-411).
        Cruz (2015) coined the term "racial sexual alterity" to describe "the perceived entangled racial
and sexual otherness that characterises the lived experience of Black womanhood. Historically, this
alterity has been produced (pseudo)scientifically, theoretically, and aesthetically, and inscribed
corporeally as well as psychically. Racial sexual alterity signifies the ways Black womanhood is
constituted, not produced solely, via a dynamic invention of racial and sexual otherness. Hence it does
not signify a fixed core. It expresses the importance of both race and sexuality as complex social
constructions that are imposed on the Black female body. It designates a particular, not static nor
essential, socio-cultural experience of subjectivity; one where sexual categories of difference are always
linked to systems of power and social hierarchies" (p411).

provides some solace for the white male" (Lokke 2019 p216).

iii) The use of "cuck" on social media - In recent years, the use of "cuck" (or "cuckservative") has appeared, particularly among US right-wing (or alt-right) groups. "While white supremacists find in cuckoldry an allegory for white genocide, for other groups, including men's rights activists, cuck is a byword for 'incel' (involuntary celibates) or 'beta' masculinity. Both use cuck memes to express their ideology" (Lokke 2019 p218).

"Cuck memes" have "metastasised" to be "part of a lexicon of entitlement and perceived victimhood - with intentions more or less racist or masculinist, depending on the user" (Lokke 2019 p220). In the masculinist use, a "cuck" is an insult towards a man, who is a "beta" (ie: not an "alpha" man). In the "manosphere" (which includes men's rights activists, "pick-up artists", and "gamer/geek culture"; Ging 2019; appendix 3B), "labelling one a cuck has little to do with miscegenation fears and is more concerned with the supposed pathologising of male sexuality by feminism" (Lokke 2019 p220).

The aggression towards feminism (women) in "cuck memes" is "expressing the fears of abdicating, or a belief in having had stolen, their 'rightful' patriarchal role. This is a foundational anxiety of all cuckoldry texts, and one reintroduced, eroticised, racialised, and popularised by cuckold porn. The influence is most apparent in those who use racist cuck memes, as they often rely on the specific imagery of interracial cuckold porn, and more generally its previously uncommon, racialised conception of cuckoldry. Further, in both cuckold porn and the manosphere, where 'cuck' is used as a synonym for victims of feminist conspiracies, there have developed variants of equivocating masculinities which, on the surface, subvert heteronormative aspects of hegemonic masculinity, yet ultimately reaffirm poisonous, masculinist attitudes" (Lokke 2019 p221).

3.3. APPENDIX 3A - PRO- AND ANTI-PORNOGRAPHY TYPES

"Pro-pornography feminists" argue that specific types of pornography can lead to female sexual empowerment. The types include "feminist pornography" or "for women pornography" [23] - ie: content usually created by women that includes "displays of genuine female

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[23] Fritz and Paul (2017) pointed out that "the For Women category is simply a categorisation for videos and does not necessarily reflect the intent of the creator of the content. The idea behind the category is that women may desire less aggressive depictions of sexual acts and more focus on female pleasure in pornography... The For Women category is also considered a Mainstream category and therefore may be different, but again not necessarily mutually exclusive, from Feminist pornography" (p640).

pleasure and empowerment" (Fritz and Paul 2017 p639). The alternative view is that "mainstream pornography" (produced by and for men) objectifies women.

Fritz and Paul (2017) investigated sexually objectifying [24] and sexually agentic sexual scripts with a content analysis of 300 pornographic scenes. One hundred scenes from three categories were collected in November 2014 - "feminist pornography" (from two websites nominated for the "Feminist Porn Awards" - one "heterosexual" and one "queer"), "for women" and "mainstream" (both from the most popular websites).

Sexual objectification was coded in each scene as present (1) or absent (0) using seven indicators, and giving an overall score of 0-7. The indicators were "double penetration" (two or more penises penetrating the woman's body at the same time), "cumshot" (on the woman), "stripping", "focus on genitals" (for more than two seconds), "gaping" ("excessive stretching of the rectum or vagina"), "verbal aggression", and "physical aggression".

A sexual agency index was created similarly, but with four indicators - "orgasm", "direction" (instructing sexual partner what is wanted), "self-touch", and "initiation" (first instance of sexual contact) (Fritz and Paul 2017).

It was predicted that the "mainstream pornography" would have higher sexual objectification scores than the other types. The data partly supported this prediction as "mainstream" had a significantly higher score than "feminist" only (figure 3.1).
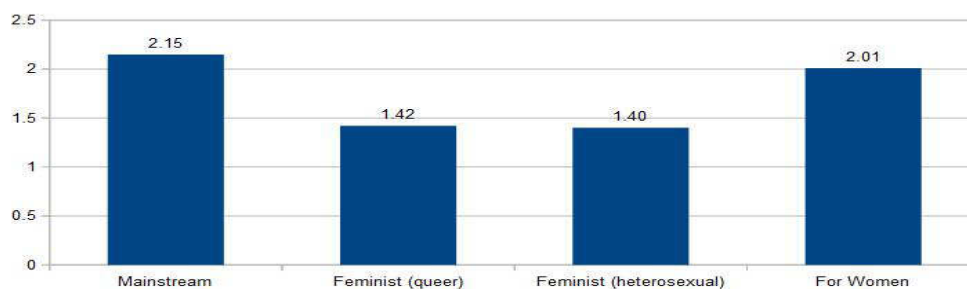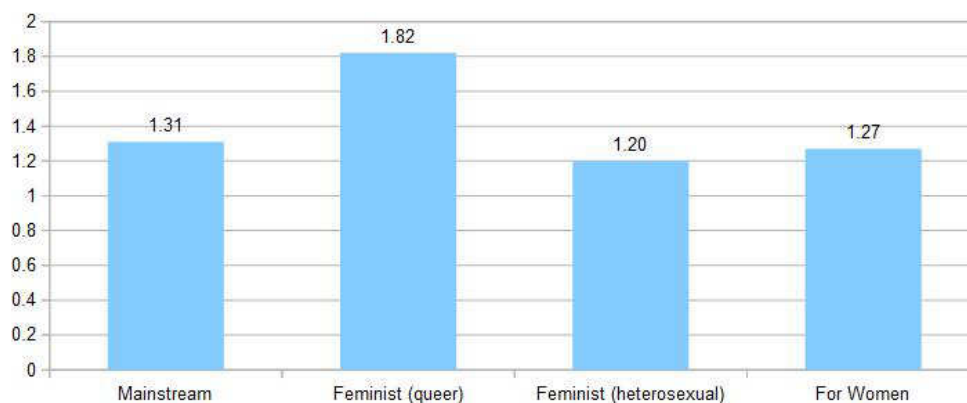

(A higher score = greater sexual objectification of women)

Figure 3.1 - Mean sexual objectification score (out of 7) of the different types of pornography.

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[24] Fredrickson and Roberts (1997) defined sexual objectification as when "a woman's body, body parts, or sexual functions are separated out from her person, reduced to the status of mere instruments, or regarded as if they were capable of representing her" (quoted in Fritz and Paul 2017). Direct objectification includes sexual aggression, while indirect objectification is "conceptualised as the idea of gaze and the body as an object for, particularly, male pleasure... For example, pornography that focuses on the vulva instead of incorporating a woman's face during sex is associating the vulva as representing the whole sexual self" (Fritz and Paul 2017 p641).

A second prediction by the researchers was that "feminist pornography" would have higher sexual agency scores, and this was supported for the queer type (figure 3.2).

(A higher score = greater female sexual agency)

Figure 3.2 - Mean sexual agency score (out of 4) of the different types of pornography.

Overall, "a gender gap was present and persistent throughout categories, with men being depicted as objectified less than women were across categories" (Fritz and Paul 2017 p647).

Fritz and Paul (2017) continued that "there were still more ways that women could be objectified in pornography that men cannot or are not. Acts like double penetration, gaping, and external cumshots are ways in which pornography visually represents the objectification of women and to which there are no male equivalents. Simply put, in pornography there are more ways to make women sex objects than there are for men. This finding is in line with objectification theory's assumption that women are the gender more likely to be objectified in society and media. Even in pornography aimed at women, there are still persistent and problematic gender divides and displays of women's bodies as objects. Mainstream pornography, however, does systematically objectify women more than men, as well as more than other categories of pornography" (p648).

This study had the following methodological limitations:

i) The sample size of the scenes was quite small, particularly for the "feminist pornography" (50 "heterosexual" and fifty "queer"). "Additionally, results suggest that within Feminist content there may be many

different sub-categories beyond queer and heterosexual such as BDSM [25]" (Fritz and Paul 2017 p649).

ii) The sexual objectification and agency indexes were simply present or absent for the behaviours, while "a more nuanced or qualitative measure might be useful. For example, there is no difference in men and women directing sexual behaviour within categories, suggesting neither men nor women are completely orchestrating the sexual experience. However, because of lack of depth on what kind of directions were given, these data are unable to provide us with a greater picture of what type of direction is or is not happening. For example, we do not know if the direction was all confirmatory (eg: 'keep doing that') or possibly redirecting (eg: 'touch me here'). Future research should further attempt to conceptualise sexual agency both within the context of the scene and individuals" (Fritz and Paul 2017 p649).

iii) The limitations of quantitative content analysis as a method. "Content analyses by nature isolate text in order to analyse it based on strict and rigid codes. The actual experience of women watching Feminist, For Women or Mainstream pornography may not fit into these rigid codes. For example, a woman may find that she needs to perform an orgasm for her male partner, thus not making her orgasm an indicator of agency but of objectification as a sexual performer. Or a woman may find stripping to be incredibly arousing for herself and thus sexually agentic. Future work should investigate how female viewers of pornography are interpreting and experiencing the sexual scripts in pornography" (Fritz and Paul 2017 p649).

Fritz and Paul (2017) ended their article thus: "Within typical Mainstream pornography, women may learn the sexual script of self-objectification, which may lead to anxiety, body dissatisfaction, and a lack of sexual enjoyment. Additionally, heterosexual pornography is not providing women with scripts of sexual agency and empowerment. Of course though, men may also be learning to be dominant and disregard the agency of their sexual partners. Overall, this dynamic creates a less enjoyable sexual experience for both parties" (p650).

3.4. APPENDIX 3B - GING (2019) AND "MANOSPHERE"

Messner (2016) described three key changes that "facilitate the current gender-political conjecture,

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[25] Bondage, dominance and sado-masochism.

namely, the institutionalisation and professionalisation of feminism, the emergence of a widespread post-feminist cultural sensibility, and the development of a neoliberal economy" (Ging 2019 p639). Ging (2019) continued her explanation: "Messner asserts that post-feminism's taken-for-granted discourse of equality won, combined with a widespread 'decline of males' rhetoric engendered by deindustrialisation, has created fertile ground for a resurgent men's rights movement. However, for Messner (2016), the institutional deck is stacked against overt anti-feminist backlash; he argues instead that the key danger is posed by a 'kinder, gentler' variety of men's rights, taking the form of a neoliberal, professionally institutionalised 'moderate men's rights strategy that skirts analysis of structural inequalities in favour of a common-sense celebration of individual choice for women and men'... Messner rightly claims that this form of gender politics is both pervasive and problematic" (p639).

Ging (2019) explored the "anti-feminist backlash" in the "manosphere" of the Internet. "Men's rights activists" (MRA) are at the forefront with blogs, forums, communities and sub-cultures. "Central to the politics of the manosphere is the concept of the Red Pill, an analogy which derives from the 1999 film 'The Matrix', in which Neo is given the choice of taking one of the two pills. Taking the blue pill means switching off and living a life of delusion; taking the red pill means becoming enlightened to life's ugly truths. The Red Pill philosophy purports to awaken men to feminism's misandry and brainwashing, and is the key concept that unites all of these communities" (Ging 2019 p640).

Ging (2019) analysed thirty-eight websites covering five "interest groups" - MRAs, men going their own way (MGTOW), pick-up artists (PUAs)/game, traditional Christian conservatives (TradCons), and "gamer/geek culture".

Social media and the Internet "have radically increased the flow of anti-feminist ideas and information across groups, platforms, and geographical boundaries. Hyperlinking to and reposting articles, blog entries, memes, and videos have enabled the rapid spread and homogenisation of MRA rhetoric throughout the Anglophone world and beyond" (Ging 2019 pp644-645).

The most striking feature of the manosphere for Ging (2019) was "its extreme misogyny and proclivity for personal attacks" (p645).

Another characteristic was the use of evolutionary psychology-based arguments to confirm traditional gender roles and positions. The "manosphere's engagement with this field is limited to the superficial interpretation and recycling of theories to support a recurring catalogue of claims: that women are irrational,

hypergamous [26], hardwired to pair with alpha males, and need to be dominated. Moreover, these evolutionary biological concepts have been heavily masculinised and geekified to give rise to a uniquely misogynist, heterosexist, and racist lexicon, which includes terms such as cuck (a weak man whose girlfriend cheats on him, usually with black men), negging (giving backhanded compliments designed to undermine women's confidence), friendzoning (sexually rejecting a man because he is a friend), going caveman (sexually dominating a woman), zero night stand (having sex without staying the night), shit testing [testing a man's willingness to face conflict head-on - as a man who fights against her will fight for her], the bitch shield (female defence against unwanted male attention), and pawning (using attractive women to demonstrate high SMV or sexual-market value)" (Ging 2019 p649).

Ging (2019) ended: "It is difficult to determine the extent to which the expressions of aggrieved entitlement that characterise the manosphere are genuinely felt and/or strategically motivated. Certainly, white male privilege has been disturbed by a number of well-documented factors; destabilisation of the labour market and the alleged 'feminization' of the post-industrial workplace...; downward mobility, wage stagnation, and underemployment...; and a growing recognition of the rights of women, lesbian, gay, bisexual, queer, transgender people, and people of colour. What is clear from this analysis, however, is that these hybrid masculinities [27] are increasingly adept at confounding certain gender expectations in their attempts to defeat feminism and secure various online spaces as homosocial" (p652).

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[26] The tendency to marry a man of a higher social class or status.

[27] "Hybrid masculinities" is used to describe the different "types" within the manosphere, like "geek masculinity" and "beta males", as distinct from Connell's (eg: 1995) "hegemonic" and "subordinate" masculinities. For Bridges and Pascoe (2014), "these hybrid masculinities symbolically distance men from hegemonic masculinity, while simultaneously compounding existing social and symbolic boundaries. In other words, they 'work to conceal systems of power and inequality in historically new ways'" (Ging 2019 p642).

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4. SAME-SEX ORIENTATION

4.1. GENETICS

Depending on the study, between 2 to 10% of individuals report engaging in sex with same-sex partners (either exclusively or in addition to sex with opposite-sex partners) (Ganna et al 2019). "The biological factors that contribute to sexual preference are largely unknown, but genetic influences are suggested by the observation that same-sex sexual behaviour appears to run in families and is concordant more often in genetically identical (monozygotic) twin pairs than in fraternal twin pairs or siblings" (Ganna et al 2019 p1).

If there is a genetic basis, what genes are involved? To answer this question for same-sex sexual behaviour, Ganna et al (2019) reported a genome-wide association study (GWAS) with the UK Biobank and volunteers from "23andMe" in the USA. The UK Biobank sample included 4.1% of males and 2.8% of females who reported ever having had sex with a same-sex partner from around 400 000 40-70 year-olds. The "23andMe" sample were customers using the consumer genotyping service who had volunteered to complete a survey about sexual orientation (over 68 000).

Replication data came from the Molecular Genetics Study of Sexual Orientation (MGSOSO) (over 2000 US adult males), Add Health (4755 young US adults), and Child and Adolescent Twin Study in Sweden (CATSS) (over 8000 Swedish adolescents).

The GWAS produced common loci (gene positions on the chromosome) related to same-sex behaviour. But, Ganna et al (2019) explained, "the underlying genetic architecture is highly complex; there is certainly no single genetic determinant (sometimes referred to as the 'gay gene' in the media). Rather, many loci with individually small effects, spread across the whole genome and partly overlapping in females and males, additively contribute to individual differences in predisposition to same-sex sexual behaviour. All measured common variants together explain only part of the genetic heritability at the population level and do not allow meaningful prediction of an individual's sexual preference" (p6). Put simply, many genes are involved and they have a small influence on the variation in sexual preference (estimated at 8-25%) (Ganna et al 2019).

Ganna et al (2019) continued: "We determined that the genetic effects that differentiate heterosexual from same-sex sexual behaviour are not the same as those that differ among non-heterosexuals with lower versus higher proportions of same-sex partners. This finding suggests that on the genetic level, there is no single dimension from opposite-sex to same-sex preference. The existence of such a dimension, in which the more someone is attracted to the same-sex the less they are attracted to the opposite-sex, is the premise of the Kinsey scale [Kinsey et al 1948], a research tool ubiquitously used to measure sexual orientation. Another measure, the Klein Grid [Klein 1993], retains the same premise but separately measures sexual attraction, behaviour, fantasies, and identification (as well as non-sexual preferences); however, we found that these sexual measures are influenced by similar genetic factors. Overall, our findings suggest that the most popular measures are based on a misconception of the underlying structure of sexual orientation and may need to be rethought. In particular, using separate measures of attraction to the opposite sex and attraction to the same sex, such as in the Sell Assessment of Sexual Orientation [Sell 1997], would remove the assumption that these variables are perfectly inversely related and would enable more nuanced exploration of the full diversity of sexual orientation, including bisexuality and asexuality" (p6).

4.2. METHODOLOGICAL ISSUES

i) Sexual orientation - Different terms were used in different studies: had sex with, sexual identity, or attracted to (table 4.1). Ultimately, self-reported binary coding was used (heterosexual/non-heterosexual) was used Ganna et al (2019), and they argued that this "follows from previous work proposing that sexual preference is taxonic rather than dimensional in structure, with individuals reporting exclusively opposite-sex preference differing from individuals reporting any same-sex preference" (Ganna et al 2019 p1).

However, the researchers acknowledged that "grouping phrase 'non-heterosexuals' has the potential to present messages of othering (that is, undesirable marginalisation of another person or group on the basis of their sexual expression) — by defining an 'outgroup' in reference to an 'ingroup' and implying that 'non-heterosexual behaviour' may have a negative connotation, whereas 'heterosexual behaviour' may have a positive one. We wish to make clear that our choice of language is not meant to forward messages of othering on the basis of sexual behaviour" (Ganna et al 2019 p2) (figure 4.1).

UK Biobank

- "Have you ever had sexual intercourse with someone of the same-sex?" (where "sexual intercourse includes vaginal, oral or anal intercourse") (pS4); yes/no.

"23andMe"

- "Sexual Orientation Survey": sexual identity ("how do you label, identify, or think of yourself?"; pS6); sexual attraction; sexual experience; sexual fantasies (each answered on a seven-point scale).

Add Health

- "romantically attracted to members of the same-sex"; yes/no.

MGSOSO

- "Which statement best describes your sexual feelings during the last year: sexual feelings only toward females (0), most sexual feelings toward females but an occasional fantasy about males (1), most feelings toward females but some definite fantasy about males (2), sexual feelings about equally divided between males and females - no strong preference for one or the other (3), most sexual feelings toward males but some definite sexual fantasy about females (4), most sexual feelings toward males but an occasional fantasy about a female (5), sexual feelings toward males only (6)" (pS9) [28].

CATSS

- "a) What sex do the people have that you have usually felt sexually attracted to? and b) What sex do the people have that you voluntarily had sex with? The possible answers were the following: 1) Only girls/women, 2) Mostly girls/women, seldom boys/men, 3) Both, but girls/women more often than boys/men, 4) Girls/women and boys/men about equally often, 5) Both, but boys/men more often than girls/women, 6) Mostly boys/men, seldom girls/women, 7) Only boys/men" (pS10).

(Source: Ganna et al 2019 supplementary material)

Table 4.1 - Questions about sexual orientation in different studies.

ii) GWAS - Put simply, this method looks for the correlation of all genes when comparing two groups. There is a large amount of data and a lot of statistical analysis (appendix 4A).
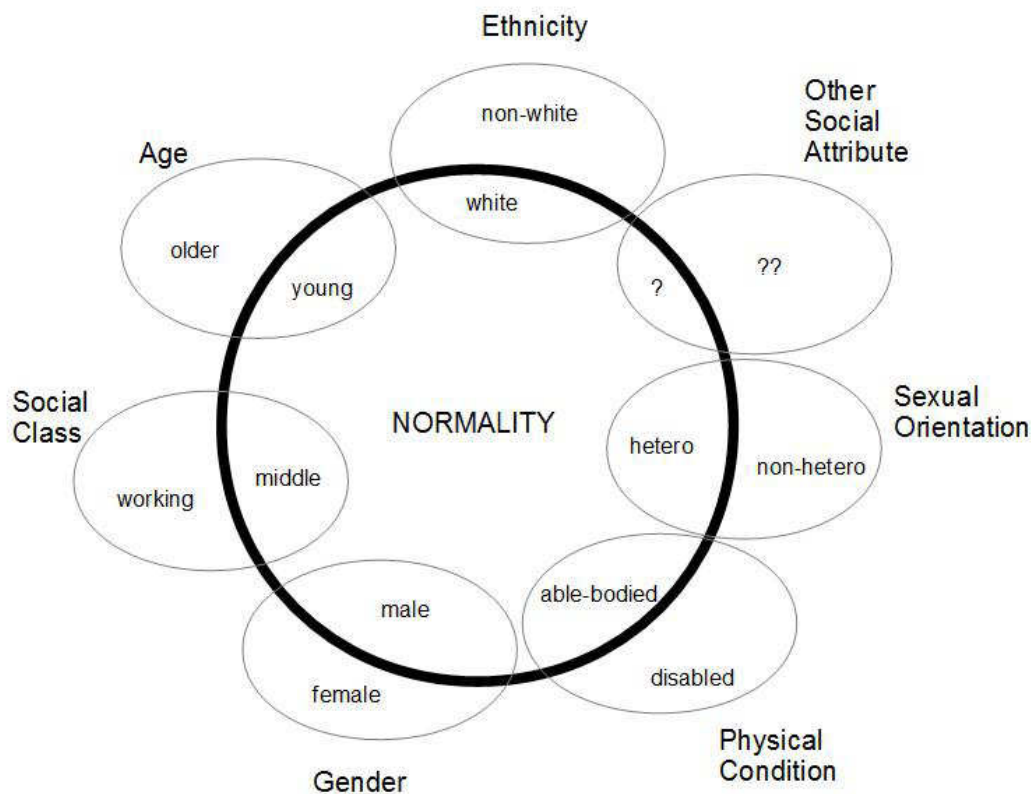
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[28] Based On Kinsey Scale.

Figure 4.1 - A representation of social aspects of identity and "normality" and "othering".

4.3. APPENDIX 4A - CRITIQUE OF GENETIC STUDIES

Genome-wide association studies (GWAS) have identified a number of genes (or loci) associated with the susceptibility to different psychiatric conditions (eg: bipolar disorder; Stahl et al 2019). But explaining the biological mechanism behind these genes is a different thing (ie: how the gene leads to the psychiatric condition).

Flint and Ideker (2019) voice their concerns: "The construction of gene and protein networks, whether made from correlated expression of transcripts or the interaction partners of proteins, can either be lauded as a way to transform information about genetic risk loci from genes to aetiological mechanisms, or derided as an uninformative exercise, flawed not only by the poverty of the data upon which it relies, but more fundamentally by its departure from reductionist explanations of how things work in biology" (p1).

General suggestions have been made - for example, disorders of the synapse (linked to specific genes) is behind schizophrenia. Flint and Ideker (2019) remained unconvinced: "What we really want to know when we ask about the biological causes of psychosis is what is wrong with the synapse, and how does that explain psychiatric phenomena?" (p2).

These researchers offered some reasons for the failure to find specific biological mechanisms, including:

a) Researchers make decisions in their analysis because "a set of genes associated with a disease, does not fall out of the data like factors from a principal component analysis. Translation of genetic loci to genes is more often a matter of faith than of rigorous proof" (Flint and Ideker 2019 p2).

b) There is a difference between knowing about a gene and knowing about its interaction with other genes.

c) GWAS can produce networks where "everything correlates with everything at some level, including both upstream causes and the multiple consequent downstream effects. The result is an enormous hairball in which, to a first approximation, every gene interacts with every other gene" (Flint and Ideker 2019 p3).

d) The large number of genes, potentially tens of thousands, involved as psychiatric conditions are polygenic (Flint and Ideker 2019).

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