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An independent academic psychologist, based in England, who has written extensively on different areas of psychology with an emphasis on the critical stance towards traditional ideas.

A complete listing of his writings at <http://psychologywritings.synthasite.com/>.

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# **1. HETEROSEXUAL ANAL INTERCOURSE**

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## **1.1. INTRODUCTION**

The prevalence of heterosexual anal intercourse (AnI) appears from general population surveys to have increased in recent years in the USA, for example. But it is possible that now there is "less stigma attached to anal intercourse, and respondents to these general population surveys may be more comfortable admitting to the behaviour" (Reynolds et al 2015a p983) <sup>1</sup>.

There are public health implications to AnI, including increased risk of human immunodeficiency virus (HIV) transmission. The HIV transmission risk is also a concern with ethnic minorities women, and drug users in the USA (Reynolds et al 2015a).

Seeking a historical context, McBride and Fortenberry (2010) reported a claim that nearly one-third of erotic ceramic vases from fourth century Peru depicted AnI. There are also images in other art, including Chinese and Japanese woodblock prints and painted handscrolls (16-19th century), and erotic French lithography (19-20th century). "Today, images of heterosexual anal sex are so highly prevalent in pornographic films and Web sites that the sites advertise material based on whether it includes anal sex (eg: '100% vaginal', 'no anal', '100% anal', and 'double penetration')" (McBride and Fortenberry 2010 pp123-124).

The popularity of AnI in image and act has "prompted some news media to suggest that anal sex is the 'new oral

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<sup>1</sup> Halperin (1999) suggested that the stigma attached to AnI was "primarily linked to the prejudice against male homosexual behaviour and the cultural concern with sanitation" (Faustino 2020 p241). Psychology Miscellany No.154; October 2021; ISSN: 1754-2200; Kevin Brewer

sex', another behaviour that was once stigmatised but is now accepted as highly prevalent" (McBride and Fortenberry 2010 p124).

## 1.2. REYNOLDS ET AL

Reynolds et al (2015a) were interested in why women engage in AnI. The reasons suggested previously include the influence of media images, or "complex gender relationships that privilege male pleasure and female subjugation" (Reynolds et al 2015a p984). The issue of gender and power has been studied in relation to women's ability to demand condom use generally (eg: DePadilla et al 2011).

Reynolds et al (2015a) recruited thirty-two heterosexual women from an outpatient drug treatment programme, and a HIV and sexually transmitted infections treatment programme in Long Beach, California for four focus groups (group interviews). All respondents had previously said "yes" to the question, "Have you ever in your life had receptive anal sex (your partner's penis in your butt/anus)?".

This seems a straightforward question, but the researchers found later that some women "did not count it [AnI] as such if a man did not ejaculate or if the woman insisted he withdraw because of pain" (Reynolds et al 2015a p985) (appendix 1A). Reynolds et al (2015a) also wanted to distinguish AnI from "anal sex", which includes anal-oral contact, and penetration by finger, say, or object <sup>2</sup>.

The average age of the participants was mid-30s, and the sample was about one-third White, Black/African American, and Latino. Participation in the focus groups of about 7-10 people was rewarded with \$50 cash. Informed consent was obtained at the beginning of the group, and also separately for recording of the discussions. Five main aspects of AnI were discussed - frequency (in lifetime; with current partner); context (eg: type of partner - regular or casual); role of alcohol and illicit substances; information about the male partner (eg: bisexual); other information (eg: use of lubricants).

Analysis of the transcriptions of the discussions led to six main reasons why the women engaged in AnI (in order of popularity):

- i) The women were "high"/under the influence of

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<sup>2</sup> McBride and Fortenberry (2010) noted over two hundred slang terms for AnI and anal sex on the Internet, but "many refer to same-sex rather than opposite-sex behaviour" (p123).

alcohol/illicit substances - This was the most common reason, and categorised as mentioned by about two-thirds of participants <sup>3</sup>. For example, one woman from Group 1 said: "Every time I have had anal sex it was because I was either extremely drunk or extremely loaded; every time I have had anal sex I was on drugs" (p986).

This category included being more interested in AnI when high, the "drugs as making them do something they would not ordinarily do" (Reynolds et al 2015a p986), or that AnI was too painful when not high.

ii) Coercion/no consent/did not know that she could refuse - Around half the women described a situation involving this category.

The inability to refuse was linked to the women's low self-esteem often, as a participant in Group 1 explained: "That's how low I felt in myself, that it was ok. It got to be where he started doing this on a regular basis. I didn't feel like I was worth nothing that I allowed him to do it. And I guess because I did not speak up for myself, he really started taking advantage of me. He started doing it to me in my booty-painfully!" (p987).

This category included occasions clearly without consent, as described by a woman in Group 3: "The very first two times I ever had sex I was raped and I was sodomised" (p988).

iii) The women's own desire - Just under half of the respondents described an experience related to this reason, particularly with a trusted partner. For example, a woman in Group 1 said: "I wanted it. I wanted to give it a try. It was done to express our love for one another and I wanted to like do more. I wanted it. I wanted us both to try it. I wanted to do anything I can. I wanted the ultimate workout and he gave it to me" (p987).

iv) "Exchange situations" - Categorised as mentioned by about one-third of women, AnI in exchange for money and/or drugs.

v) To please a male partner - In response to the man's request or offered "just to please my dude" (woman in Group 3; p988). This reason was given by just under 30% of the women.

vi) To avoid vaginal sex - Three women admitted to AnI because they were "on their period" at the time.

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<sup>3</sup> The women were placed into more than one category by the researchers.  
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In terms of the women's perception of risk, two categories each were distinguished by researchers with "risky" and "not risky":

a) Risky

- Male partner's sexual history
- Lack of, or inappropriate protection

b) Not risky

- Trust partner
- Long-term commitment

The researchers were able to also distinguish factors that made the experience of AnI positive or negative for the women. These included:

- Positive experience - eg: a partner who was sensitive (eg: "If he is taking his time and stuff and lubricating, then it's all right"; Group 1 participant; p990).
- Negative experience - eg: physical side effects (eg: a woman in Group 1 said that afterwards in the toilet, "I wiped my shit and there was blood on the fucking thing"; p990).

Reflecting on their findings, Reynolds et al (2015a) observed: "Even in consensual situations, we found that the majority of anal intercourse episodes reported on in this study were initiated by the men, in some cases surprising the women, who either did not expect anal intercourse during the specific encounter or had never done it before. Several women said that the men wanted to have anal intercourse with them in order to initiate them into something they had never experienced before" (p992). McBride and Fortenberry (2010) talked of the "exotic" with heterosexual AnI, and the idea of the man "gifting" a woman with something special. Some women would also "only have anal intercourse with special male partners or on special occasions, suggesting that anal intercourse may act as a 'gift' from the women to these special partners" (Reynolds et al 2015a p992).

To sum up, "only a handful of the participants actually enjoyed anal intercourse. Pain as an insurmountable barrier to anal intercourse... Even among the participants who did seem to enjoy anal intercourse, most expressed an explicit preference for vaginal intercourse over anal intercourse and described several

specific factors which needed to be in place for them to enjoy the anal intercourse experience. Women who enjoyed anal intercourse specified the need for a partner who was experienced in the use of lubricants and who used them to make anal intercourse more pleasurable for the women. Conversely, women with male partners who were more egocentric about their own needs, or lacking experience with lubricant use, or both, during the encounter almost unanimously described the encounter as painful" (Reynolds et al 2015a p993).

Concerning further research, Reynolds et al (2015a) noted the women's perception of risk, and the issue of consent. The former being linked more to trusting the partner than actual health risk. With consent, Reynolds et al (2015a) asked: "What constitutes consent for a new experience such as anal intercourse, the first time it happens? Or when it is unplanned and not discussed prior to engaging in sexual activity?" (p994).

Table 1.1 summarises the main strengths and weaknesses of the study.

#### Strengths

1. Ability to investigate a topic that is usually difficult to study (eg: due to embarrassment and stigma).
2. Focus groups allowed the women to talk in a group as opposed to one-to-one with an interviewer, which may feel threatening. Comments from one participant may trigger memories from another, or give quieter members more confidence to speak about their experiences.
3. Group interviews allow more participants to be questioned in a quicker time than with individual interviews.

#### Weaknesses

1. A specific, small volunteer sample - Drug-users, low-income, receiving treatment, willing to talk about the subject, and English speakers.
2. Not equal answers given by all members - "While focus groups are very good at uncovering the range of experience, they are not good at uncovering how common any one experience might be. This is because not every person was asked or required to answer every question. A participant's silence does not necessarily mean that they did not have the experience" (Reynolds et al 2015a p993).
3. The language used - eg: "anal intercourse" means different things to different people.

Table 1.1 - Main strengths and weaknesses of Reynolds et al (2015a).



### 1.2.1. Diary Method

An alternative method to surveys is the diary method, where individuals record details of certain events as they happen or soon after for a set period of time.

Reynolds et al (2015b) used this method based on a smartphone with 138 women (18-45 years old) with illicit drug use for a twelve-week period. Eighty-four women completed the study. A smartphone app was used to collect data on mood, sexual behaviour, and drug use.

The women were volunteers in the USA, who were required to complete the diary once per day, with monetary incentives for completion. This was \$5 per week for the first eight weeks of the study, and \$20 per week subsequently. "Many women who dropped out of the study after 2 months expressed that the necessity of completing the diary every day was burdensome. The increase in the weekly incentive from \$5 to \$20 for weeks 9-12 was the reason many of the women completing the study gave for their continued participation. Without that additional cash incentive, it is likely that completion of the full 12 weeks would have been lower than it was" (Reynolds et al 2015b pp2330-2331).

With the diary method, there was a within-participants element (ie: how the individual differs over time), and the comparison of individuals was a between-participants aspects (Reynolds et al 2015b).

The mean diary completion was 67 days (out of the possible 84), and a total of 6997 diary-days (ie: number of days times number of participants). The focus of analysis was 1606 diary-days during which interaction with a male sexual partner was logged. Of these days, 18% included reports of AnI.

Analysing the within-participants data, AnI was associated with vaginal intercourse, oral sex, wanting sex, and the use of methamphetamines and/or cocaine. The same associations were found with the between-participants analysis, except for oral sex.

So, two points arose from the study. Firstly, AnI was associated with illicit drug use, which the researchers hypothesised. Reynolds et al (2015b) pointed out that with previous cross-sectional studies that had found an association between drug use and AnI, the drug use "may have only occurred many days, weeks or months before or after the anal intercourse. In the current study, we are now able to demonstrate that the days on which women took cocaine or methamphetamine were also the days on which they had anal intercourse" (p2330).

Secondly, AnI was more likely to be reported on days with other sexual behaviours. "This is consistent with other studies that have reported that anal intercourse is seldom an isolated sexual event, but takes place within the context of other sexual behaviors and is also associated with positive mood" (Reynolds et al 2015b pp2329-2330).

None of the women had prior experience with smartphones, and there were some issues related to the "chaotic lives" of the participants. Reynolds et al (2015b) explained that issues like "lack of stable housing, drug use, lack of resources, and the challenges of simply getting through each day were factors in the high numbers of women who were dropped from the study because they reported the smart phones to be lost or stolen" (p2330).

Also Reynolds et al (2015b) reported that "many of the women expressed frustration at the learning curve they experienced in using this new technology. We were told by the women that they were not sure whether the data were actually uploaded to the server when they pressed the 'submit' button at the end of each diary entry and many telephone calls that occurred were participants calling into ensure that their data had been received and that they were on track for that week's incentive" (p2330).

The participants received a six-digit identification number for logging into the app and a four-digit PIN for using the phone. Recall of these is quite demanding for women with "chaotic lives". But as well as the monetary incentive, all costs of use of the phones were paid by the researchers (ie: unlimited talk, text and Internet access), and women who completed the study could keep the phone. Reynolds et al (2015b) reported that the women were "very happy to have the opportunity to have the smart phone and to become familiar with its functionality. Many expressed that they had seen or heard about smartphones, but that owning one was beyond their means and they were thrilled to have the opportunity offered by the study. One unanticipated benefit for many of women in the study was the camera that was available on all of the phones. Many women in the study had criminal justice involvement and had lost custody of their children and only saw them on court-monitored visiting days. These women were able to photograph their children using the smart phones and had the pictures on the phones to remind them of their children on days they did not have visits" (p2331).

### 1.3. OTHER RESEARCH

#### 1.3.1. How Much and Why

A meta-analysis by Owen et al (2015) found that the prevalence of heterosexual AnI varied between 0% and 49% depending upon the country and year of the study.

Factors associated with AnI among women from studies include being younger at first vaginal intercourse, frequent intercourse, higher number of lifetime sexual partners, not using a condom at last intercourse, a history of STI, having intercourse when intoxicated, having sex in exchange for money or drugs, and "having a male partner who has more power in a couple's decision-making" (Meuwly et al 2021 p1) (appendix 1B).

Meuwly et al (2021) compared heterosexual men and women who had or had not engaged in AnI using data from the 2017 Swiss national study on sexual health and behaviours. This study involved 7142 24-26 year-olds surveyed on 30th September 2016. Meuwly et al (2021) analysed data on 3892 individuals who self-identified as heterosexual (of 4760 participants who answered the questions about AnI).

AnI was defined as a penis or an object in the anus, "meaning that a man can also be receptive" (Meuwly et al 2021 p2).

Among the female respondents, 55% had never experienced AnI, 17% once, and the remainder more than once. All but five of the "experienced" group (n = 834) had vaginal intercourse in their lives before AnI (mean of 4.5 years before).

Looking at the three groups (never, once, and multiple AnI) in more detail, significant associations included:

- Never - older at first sexual experience; higher rate of condom use at last intercourse.
- Multiple - more lifetime sexual partners; a history of STI; intercourse while intoxicated; "having accepted intercourse unwillingly".
- Multiple/once - history of sexual assault and abuse; sex in exchange for money or gifts; divorced parents.

In terms of the reasons given for AnI, "I was  
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curious, I was eager to try" was most popular (62% of "experienced" respondents), followed by "I was in love" (15%), and "I did it but I had no desire to" (11%).

Concerning the male respondents, the three groups were never (56%), once (12%), and 32% more than once. Many of the same associations were evident in the "experienced" groups as with the female respondents. Curiosity was the number one reason given by far (88%).

Meuwly et al (2021) summed up: "This study shows that AnI was a common practice among this sample of young adults in Switzerland, with near to 45% of heterosexual women and men having experienced it, without any gender difference" (p6).

A Finnish study of the similar age group found about half had experienced AnI, while a US survey reported around one-third (Meuwly et al 2021).

Though the sample was nationally representative of Swiss adults of that age, the response rate was low. Data were collected online after a postal approach to participate. Meuwly et al (2021) reflected: "The fact that sexual health and behaviour are sensitive issues and that potential participants may not be at ease answering through the web (even if it was secured) could be an explanation. Moreover, we could only contact participants through postal mail and having to connect to the website and introduce a code might have reduced the likelihood of answering compared to having received the invitation electronically" (pp6-7). So, potential "volunteer bias".

Also the possibility of "recall bias" as individuals were asked to remember their first experiences. However, the researchers used the "life history calendar" (LHC) approach. "In the LHC, participants were asked to identify the occurrence of different key events in their life such as moving to a new residence or finishing school. Therefore, other personal events such as first sexual intercourse could be placed in time by referencing it to other milestones of their life" (Meuwly et al 2021 p2).

Some information was not collected (eg: if the participants played a receptive or insertive role in AnI).

In terms of the wider behaviours of "anal sex", McBride et al (2008 in McBride and Fortenberry 2010) found that 53% of 266 heterosexual men had inserted a finger into their female partner's anus (in the last month), and 24% had put their mouth on their partner's anus.

Hensel et al (2008), for instance, asked adolescent women to keep a diary of sexual behaviour. Days with both AnI and vaginal intercourse were associated with alcohol use, being younger, greater sexual interest, and negative mood, for example. Days with AnI only were associated with vaginal bleeding, for example.

Another possible factor in heterosexual AnI is maintaining virginity. There is a small amount of evidence in relation to abstinence-based sexuality education that AnI may not be viewed as sex (McBride and Fortenberry 2010).

McBride and Fortenberry (2010) performed a brief analysis of chat rooms and other media sources in 2007, and found six positive themes related to heterosexual AnI:

- a) Intimate-trust-gifting - more intimate than "regular sex".
- b) Novelty-variety.
- c) Control-domination.
- d) Taboo-forbidden-erotic.
- e) Pain-pleasure.
- f) Relationship status-context.

The themes were based on comments by men and women.

Savitz and Rosen (1988) surveyed forty-six women involved in street prostitution, and most reported AnI with paying customers (of which over half stated no enjoyment). A large number of the women (over three-quarters) engaged in AnI with their personal lovers (and 10% reported not enjoying it).

### **1.3.2. Health Risks**

AnI "exposes the recipient to a higher risk of sexually transmitted infections (STI) than vaginal intercourse<sup>4</sup>, due to the increased possibility of abrasion and the decreased protective humoral immune barrier of the anal mucosae compared to the vaginal one... This risk is well known among MSM [men who have sex with men], but is rarely brought up and appears to be underestimated by a substantial proportion of the heterosexual population... Indeed, few prevention campaigns address that risk among heterosexual

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<sup>4</sup> Eg: gonorrhoea, chlamydia, and herpes, along with anal human papillomavirus (HPV), and anal cancers (McBride and Fortenberry 2010).

individuals..." (Meuwly et al 2021 p1). But many women erroneously believe the risk of HIV and STI are lower with AnI than vaginal intercourse (Scheidell et al 2020).

Risk of HIV acquisition from unprotected receptive AnI is higher than with unprotected receptive vaginal intercourse. The pooled estimates from systematic reviews suggest a risk of 0.08% from the latter compared to 1.25% with unprotected AnI (Stannah et al 2020).

Modelling studies have tried to estimate the percentage of HIV infections due to heterosexual AnI (eg: 38% among high-risk women in the USA; Elmes 2016 in Stannah et al 2020). A modelling of data from Papua New Guinea (Kelly-Hanku et al 2013) calculated that if 20% of all women practised AnI in 10% of sex acts, and 90% of these acts were condomless, new HIV infections would be 40% greater than vaginal intercourse only (Stannah et al 2020).

Stannah et al (2020) reviewed the longitudinal studies published between 1980 and September 2018 on heterosexual AnI and HIV incidence. Seventeen relevant studies were found. Overall, women reporting AnI were more likely to acquire HIV than those not reporting AnI (over twice the risk). This difference was less for high-risk women, surprisingly. But Stannah et al (2020) felt that this "may partly reflect their exposure to multiple competing risk factors such as high rates of STIs and genital ulcer diseases, large numbers of commercial and/or high-risk partners, differential levels of partner ART [anti-retroviral therapy] use, and differential frequencies of ejaculation by sex act" (p677). In other words, these women's HIV risk was already high from vaginal intercourse.

Most of the studies found were performed in Africa, and with high-risk women (eg: female sex workers). The sample sizes and follow-up periods varied as did the mode of questioning (eg: face-to-face vs self-administered computer interview). Other methodological issues included controlling for potential confounders (eg: other partner characteristics), and "exposure misclassification". AnI is stigmatised, and often misunderstood. Some local languages in Africa, like Zulu (South Africa) and Shona (Zimbabwe) have no word for AnI, and so there is a risk that questions will be misinterpreted (eg: AnI as vaginal intercourse but in a different position) (Stannah et al 2020). Some definitions of AnI included ejaculation and others did not. It is possible that "women may not identify anal penetration without ejaculation as anal

intercourse" (Stannah et al 2020 p678).

Stigma associated with a behaviour usually means under-reporting. For example, one study in the 1970s involving multiple interviews with gynaecology patients found that the women denied engaging in AnI in the first interview, but "only acknowledged and discussed this aspect of their sexuality at the second or third interview" (McBride and Fortenberry 2010 p126).

A concern for public health, "[C]ondom use for anal intercourse among heterosexuals is typically low, with less use for anal intercourse than for vaginal intercourse" (McBride and Fortenberry 2010 p126). No perceived risk has been reported by married couples who engage in AnI, and college students, as the main reason for no condoms. This is followed by no pregnancy risk (McBride and Fortenberry 2010). "Further, condom breakage, slippage, and discomfort occur more commonly during anal intercourse than vaginal intercourse, which may serve as a further disincentive to use" (McBride and Fortenberry 2010 p127).

There are also potential health risks with lubricants and other products, including reactions to silicone-based or petroleum-based lubricants, desensitising creams (eg: active agent lidocaine), and cream for "anal bleaching" <sup>5</sup> (McBride and Fortenberry 2010).

#### **1.4. IMAGES AND DISCOURSES**

Heterosexual AnI is prevalent in heterosexual pornography (Faustino 2020). Dines (2010) saw its popularity as reflecting "a power expression over women, given the potential pain caused by violent and careless penetration" (Faustino 2020 p242).

Faustino (2020) found that power was one of a number of themes around AnI in popular media. Popular lifestyle magazines, women's magazines, men's magazines, online media, and television and films for the period 1998-2018 were included.

The dominant discourses ("often intersecting and inevitably conflicting") identified in relation to female AnI were <sup>6</sup>:

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<sup>5</sup> Lightening of the dark skin around the anus for cosmetic purposes (McBride and Fortenberry 2010).

<sup>6</sup> There was also a discourse around men and receptive anal sex - "pegging" (a woman penetrating a man wearing a strap-on dildo) (Faustino 2020).

a) Sexual liberation - "Rooted in a 'permissive discourse [Hollway 1984], the rhetoric of liberation frames the recent popularisation of anal sex as a reaction against cultural repression and control of sexuality" (Faustino 2020 p244).

b) Male sex drive, and women as gatekeepers - Some of the media portrayed men as "obsessed" with AnI, and this was linked to power ("act of phallic domination"; Hardy 2006). At the same time, women were portrayed as setting the sexual boundaries (ie: agreeing to AnI).

c) Female empowerment - Similar to the discourse of sexual liberation, but with the emphasis on female sexual agency and pleasure (appendix 1C). However, there is ambivalence here, in relation to choice. "The dominant meanings attributed to anal sex are translated into different evaluations of choice: the choice to engage in anal sex is an empowering one, that embraces pleasure and enhances intimacy; on the contrary, the choice not to engage is seen as not truly a choice, but a conditioned reflex caused by a repressive socialisation and its imprinted repulsion towards the anus" (Faustino 2020 p251).

As with so many discourses about sexual behaviour and women, there were contradictions. Faustino (2020) summed up and ended: "Women are compelled to try and enjoy anal sex, but still told they should preserve it to the right partners and do it for the right reasons, not to trivialise anal sex by '[undertaking it with] a random dude or at a random moment' ["Women's Health" magazine in 2018]. Women are incited to be sexually liberated, while at the same time sexually scrutinised and immersed in a double standard. After all, the combination of the dominant discourses at play seem to leave women with a high chance of failure: if women choose not to try anal sex in the first place, they risk being perceived as socially repressed and unwilling to overcome culturally embedded fears and a sense of guilt. Alternatively, if women engage in anal sex and do not enjoy it, or if they do experience it as painful or distressful, they seem to have failed to do it properly - either by failing to relax, be in the right mindset or use the right amount of lubrication. In the context of heteronormalising anal sex, the empowerment discourse may in fact turn out as a 'false friend', paradoxically undermining women's possibilities to address factors of pressure, disempowered positions and gendered inequities at play"



(pp255-256) .

#### **1.4.1. Pornography**

Zillman and Bryant (1982) noted that pornography displays sex in a particular manner, and "the primary ethos portrayed in pornography is one of sexual callousness, meaning sex is focused on the self, is viewed as instrumental rather than relational, and is often occurring outside of committed relationships. Further, pornography portrays and normalises a range of sexual acts, including physically demanding and/or potentially painful acts (nearly always depicted as pleasurable) that frequently do not align with most people's sexual practices in real life" (Ezzell et al 2020 p461).

Bridges et al (2016) found an association between use of pornography and desire for certain sexual behaviours with a partner, including aggression (eg: choking), and "uncommon and/or degrading acts (eg: anal sex, double penetration, and ass-to-mouth" (Ezzell et al 2020 p461).

Ezzell et al (2020) developed this research by investigating frequency of pornography use and the liking of certain sexual behaviours with a partner. The participants were a convenience sample of 1359 self-identified heterosexual US young adults recruited online. Frequency of pornography use for masturbation was measured on an eight-point scale (from "never" (0) to "daily or almost daily" (7)).

Two categories of sexual behaviour commonly shown in pornography were covered in terms of tried, liked, and being the target of:

a) "Aggressor behaviours" - spanking (light, and hard enough to leave a mark on the skin), pulling hair, slapping a partner, choking, tying up a partner, and role-playing rape.

b) "Degrading/uncommon behaviours" - engaging in double penetration (2 men, 1 woman), anal sex, ass-to-mouth, oral sex (woman kneeling, man standing), ejaculation on a woman's face or in her mouth, and name-calling (eg: slut, whore).

In terms of the first category, both men and women reported similar levels of trying, liking, and being the target. But for the degrading/uncommon behaviours,

significantly more men reported liking them than women. For example, 64% of male respondents reported liking anal sex compared to 17% of female respondents.

For the association between frequency of pornography use and the sexual behaviours studied, only two were significant. "For female respondents, greater pornography consumption was associated with greater self-reported liking of being spanked lightly. And, for male respondents, greater pornography consumption was associated with greater self-reported liking of ejaculating on a woman's face or mouth" (Ezzell et al 2020 p466). Ezzell et al (2020) concluded that "when it comes to enjoying the aggressive and/or degrading acts frequently presented in pornography, our findings suggest that gender matters, but the frequency of pornography consumption does not" (p468).

Ezzell et al (2020) did not ask respondents why they did or did not enjoy particular sexual behaviours. But Herbenick et al (2017), for example, found that 86% of female respondents reported anal sex as "not appealing" or "not at all appealing" compared to 90% describing vaginal sex as "very" or "somewhat" appealing.

Ezzell et al (2020) asked this question about their findings and the above research: "if the majority of women do not report liking the degrading and uncommon sexual acts that are frequently depicted in pornography, why do the majority of men in our sample, presumably many of whom are the sexual partners of women who do not enjoy these acts, report enjoyment?" (p469).

The researchers answered thus: "We did not ask if the female respondents who reporting not liking pornographic sexual behaviours had communicated their dislike to their male partners <sup>7</sup>. Previous research has found that male and, sometimes, female respondents prioritise male sexual pleasure in heterosexual encounters... even above female experiences of physical and emotional pain... It may, thus, be the case that men did not know that their female partners were unhappy with the experience. In the absence of stated or performed dislike, the men may have assumed their female partners were happy, affirming the positive expectation that women enjoy pornographic sexual acts in keeping with the phallocratic narrative of mainstream pornography. However, also in keeping with the primacy put on male pleasure in heterosexual encounters, it may be the case

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<sup>7</sup> Krishnamurti and Loewenstein (2012) made the distinction between wanting (ie: the motivation to engage in a behaviour) and liking (ie: the enjoyment of the behaviour). The authors noted that "wanting and liking do not necessarily coincide" (quoted in Ezzell et al 2020).

that the women's experiences would not matter (as much) to the men even if they did know the women were unhappy" (Ezzell et al 2020 p469).

This would fit with the "pornographic sexual script" of "sexual callousness"<sup>8</sup>. Ezzell et al (2020) explained that not only is male pleasure primary, but "that women's lack of pleasure, and even pain, could be a source of pleasure for some men" (p469). They continued that "although women's expectations of pleasure may run up against a disconfirming experience of pain, discomfort, or degradation, men may well be learning to experience the engagement of degrading acts as pleasurable because they are degrading (to women)" (Ezzell et al 2020 p469).

Ezzell et al's (2020) methodology had the following limitations:

i) Cross-sectional data meant that the temporality of the data could not be established (ie: pornography use before participation in sexual behaviour seen).

ii) Most of the sample were students (87%), and non-Hispanic White (90%), which limits the generalisability of the findings.

iii) No definition of "pornography" was included, and details were not collected of the type of material consumed.

iv) The recall of information - "asking respondents to reflect back on whether they enjoyed an experience relies on episodic memory, which does not necessarily correspond well with what the experience was during the activity. There may be factors that bias the encoding process of the experience, and reports of likeability should be considered as accounts of an experience..., but not necessarily as reports of the activity as it was originally experienced" (Ezzell et al 2020 p470).

v) No details of the context of the sexual behaviour collected, including consent. The different behaviours "may have occurred in the context of implied or explicit consensual encounters or may have occurred in the context of sexual assault, which would certainly shape the context of reported enjoyment" (Ezzell et al 2020 p470).

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<sup>8</sup> Ezzell et al (2020) explained: "Sexualised media provide us with sexual scripts, a sub-category of social scripts that focus on 'culturally available messages that define what 'counts' as sex, how to recognise sexual situations, and what to do in a sexual encounter' (Frith and Kitzinger 2001)" (p462). Psychology Miscellany No.154; October 2021; ISSN: 1754-2200; Kevin Brewer

## 1.5. CONCLUSION

McBride and Fortenberry (2010) commented: "Anal sex is clearly part of the contemporary heterosexual sexual repertoire and has been for centuries. However, to consider anal sex predominantly as a marginal or atypical heterosexual behaviour contributes to its continued stigmatisation. That stigma never contributes to sexual health is among the many harsh lessons of the worldwide epidemics of HIV and AIDS" (p132).

## 1.6. APPENDIX 1A - UNDERSTANDING TERMS

The perception of terms is important. For example, penile-anal intercourse (PAI) is not necessarily viewed as "having sex" among heterosexuals (eg: a quarter of UK male undergraduates did not view it so and around one-fifth of females) (McBride et al 2017).

McBride et al (2017) analysed US data to see if PAI, oral-anal (OA) contact, and manual-anal (MA) contact were viewed as "having sex". Data from a 2007 online survey covering over 3200 heterosexual adults were available.

A series of questions began: "Would you say you 'had sex' with someone if the most intimate behaviour you engaged in was...":

i) "You put your penis in a person's anus" (asked to men; PAI-insertive), or "A person put his penis in your anus" (asked to women; PAI-receptive).

ii) "A person touched, fondled, or manually (hand) stimulated your anus (fingering)" (MA-rec), or "You..." (MA-give).

iii) "A person licked, sucked, or orally (mouth) stimulated your anus (rimming)" (OA-rec), or "You..." (OA-give).

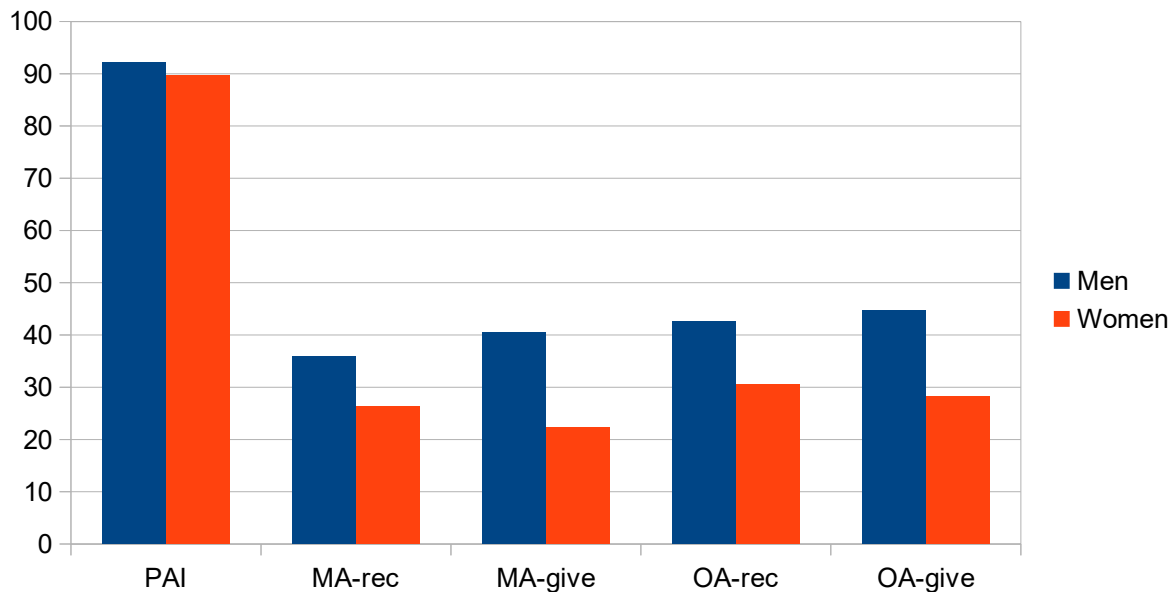
"Generally speaking, the likelihood of labelling a behaviour as having had sex was positively associated with increasing age" (McBride et al 2017 p1168). In terms of gender, men were more likely to categorise a behaviour as "having sex" (figure 1.1). Having engaged in the behaviour was also associated with describing it as "had sex".

Overall, around 90% of the participants viewed PAI as "having sex", which was higher than previous studies with undergraduates. The differences in the labelling of

behaviours highlighted "the fact that there are not universal understandings of what behaviours constitute sex in US culture" (McBride et al 2017 p1169).

This study did not investigate non-consensual sexual behaviours, but other research has found that many women did not view such experiences as "having sex" (McBride et al 2017).

The sample was self-selected via online advertisements about a survey of sexual behaviours.



(Data McBride et al 2017 table 1 p1168)

(PAI = penile-anal intercourse; OA = oral-anal; MA = manual-anal)

Figure 1.1 - Percentage of respondents that viewed certain behaviours as "having sex".

## 1.7. APPENDIX 1B - CHILDHOOD TRAUMATIC EXPERIENCES

Childhood traumatic experiences (CTEs) have been linked to risky female sexual behaviour generally (Scheidell et al 2020). The traumagenic dynamics framework (Finkelhor and Browne 1985) describes CTEs (or originally child sexual abuse) as affecting "the development of positive relationship dynamics, self-esteem and mental health, and that these elements may then shape sexual behaviour" (Scheidell et al 2020 p23).

What is the relationship between CTEs and heterosexual AnI? Scheidell et al (2020) investigated this question by analysing data from the National Longitudinal Study of Adolescent to Adult Health (Add

Health). This longitudinal study began in 1994-5 (Wave 1) with around 20 000 nationally representative US adolescents, and data has been collected in 1996 (Wave 2), 2001-2 (Wave 3), and 2007-8 (Wave 4). Complete data on 4876 women were available.

Nine self-reported CTEs were measured at Wave 1 (11-21 years old) (table 1.2), and each one was scored as present or absent.

- Neglect - "having been left alone when an adult should have been present" or not having basic needs met on six or more occasions before eleven years old.
- Emotional abuse - "a parent or adult caregiver having said hurtful things or made the respondent feel unloved six or more times before the age of 18".
- Physical abuse - "having been slapped, hit, kicked, or thrown by a parent or adult caregiver six or more times".
- Sexual abuse - "a parent or adult caregiver having touched or made the respondent touch them in a sexual manner or having forced sexual relations at least once" before eleven years old.
- Parental binge drinking - parent-reported consumption of five or more alcoholic drinks on at least one occasion in the previous month.
- Parental incarceration - mother/father or mother/father figure having spent time in prison before the respondent was eighteen years old.
- Witnessed violence - seen someone shot or stabbed in previous year.
- Threatened with violence - another person having pulled a knife or gun on the respondent in the previous year.
- Experience of violence - been shot or stabbed in previous year.

(Source: Scheidell et al 2020 pp24-25)

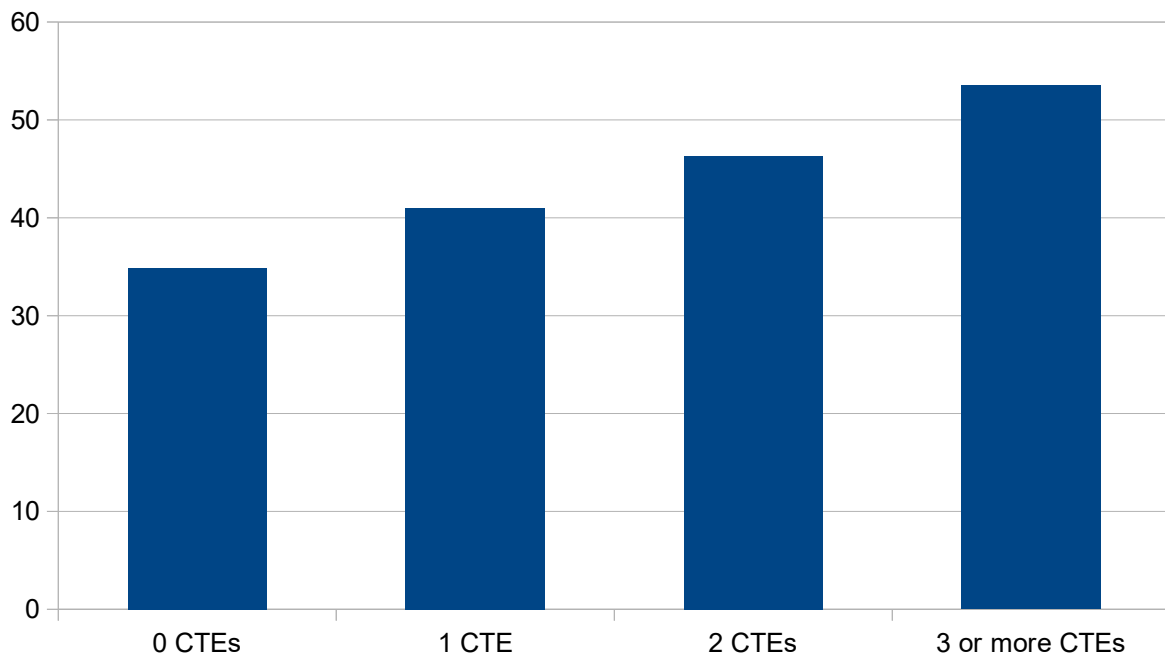
#### Table 1.2 - Measurement of CTEs.

At Wave 4 (24-34 years old), participants were asked if they had ever had AnI, and the age of first experience if so. Other measured variables included socio-demographic characteristics, and mediating variables like depression, self-esteem, drug use, intimate partner violence, and sex trade involvement.

Around 40% of women reported AnI. For each CTE, the

prevalence of AnI was higher for women who had undergone the trauma than not. The prevalence of AnI was 35% among women with no history of CTEs compared to 41% with one CTE and 54% with three or more CTEs (figure 1.2).

Women in the CTE group were more likely to have experienced mediators like depression and low self-esteem, and the mediators were associated with increased risk of AnI. The strongest associations were pressured to have sex, and having sex with partners who use injection drugs.



(Data from Scheidell et al 2020 table 1 p26)

Figure 1.2 - Prevalence of AnI based on CTEs (%).

After adjusting for socio-demographic characteristics, it was calculated that one unit increase in CTEs (eg: from 1 to 2 CTEs experienced) was associated with a 16% increase in the prevalence of AnI.

Scheidell et al (2020) stated that the findings suggested "that women with a history of childhood traumatic experiences may have increased prevalence of engaging in anal intercourse, and that any potential pathways connected to relationship characteristics and drug use are likely complex" (p27) (ie: the transgenic dynamics framework was neither supported or not).

Scheidell et al (2020) continued: "Irrespective of childhood traumatic experiences, engagement in anal

intercourse was reported by a sizeable percentage of the young adult women in our study, mirroring estimates from other nationally representative U.S. samples, in which approximately one-third of women reported having had anal intercourse" (p28) (eg: 2013 National HIV Behavioural Surveillance survey; 2006-2008 National Survey of Family Growth). The researchers emphasised: "While engaging in anal intercourse is not in itself a behaviour in need of prevention – and women frequently describe it as enjoyable – when it takes place in the context of trauma, coercion or reduced sexual autonomy, the risk of STDs, including HIV, is likely increased" (Scheidell et al 2020 p27).

The data of ADD Health were self-reported in retrospect. Details about the variables were limited (eg: timing and length of CTEs), particularly as the analysis reduced the scores to present or absent. Also no information was collected on AnI as protected or unprotected, nor the women's perceptions of the experience. "Future research should examine the full context in which AnI occurs, including whether specific aspects of women's relationships may influence their engagement in the behaviour, and whether those aspects vary in association with experiences of childhood trauma" (Scheidell et al 2020 p28).

Due to drop-out from Add Health, the women in the analysis were more likely to be White, and to have higher educational qualifications, and less likely to have experienced childhood poverty than national averages (Scheidell et al 2020).

## **1.8. APPENDIX 1C - POST-FEMINISM**

The concept of "post-feminism" (eg: Gill 2007b) has been used to describe "a sensibility marked by the shift from objectification to subjectification, an emphasis upon self-surveillance and monitoring, and a focus on individualism and consumer culture, among other features" (Faustino 2021 p1050). Faustino (2021) continued: "The turn to empowerment and choice is a key feature of a post-feminist media culture (Gill 2007b), whereby the overt discourse of female submission has been abandoned and replaced by a discourse of women's agency and desire – although this discourse often coexists with women's goal of finding, keeping and pleasing a male partner" (p1050).

Practically, post-feminism can be seen in what Gill (2009) called "intimate entrepreneurship" (a



"professional approach" towards relationships). "Rather than a product of spontaneous interaction, sex and relationships are represented as demanding effort, investment and planning. This entrepreneurial attitude establishes that intimate goals, tasks and strategies should be carefully determined, demanding a whole range of 'intimate work' that goes beyond bodily discipline and extends to multiple spheres of intimate surveillance and self-construction. Women are positioned as actively desiring subjects and agentic sexual personas, tutored to be restlessly devoted to their sexual upgrade, re-invention and upskilling. The injunction to avoid sexual routine and to become a 'sexual adventurer' is translated into several suggestions, such as watching porn together, engaging in anal sex or creating an erotic movie" (Faustino 2021 pp1050-1051).

Faustino (2021), however, remained sceptical in that "women are still coached and guided to understand, predict and adjust themselves to men's behaviours, motivations and reactions. Importantly, though, this set of injunctions is repacked as 'something you are doing 'for yourself'' (Gill 2009), and not an imposed self-sacrifice that should be done for the sake of a partner's pleasure" (p1051).

Faustino (2021) considered AnI in this context, and, in particular, how it was represented in the woman's magazine, "Cosmopolitan" (or "Cosmo"). Sixty-seven relevant articles were found published between 2005 and 2019.

The findings were presented in three main groups:

1. "The anal revolution" - Articles that described a change in attitude/behaviour in relation to AnI, "from taboo to trendy, from forbidden to popular" (Faustino 2021 p1053).

2. "Male perspective" - Articles about male behaviour (eg: "8 things guys think during anal sex"), often portraying male desire as uncontrollable (eg: anal sex as a "new 'must-try'"). Status and power were also important for men (eg: "if your vagina is the club, your butt is the VIP area"; "Not everyone has been there, kind of like Mount Everest"; p1054).

"The metaphors of space and territory are intrinsically allied to representations of power: women's bodies are represented as something to be conquered, possessed and ranked according to its accessibility. The metaphor of the club and its 'VIP area' seems to perceive

women's bodies as designed for others' pleasure and satisfaction: not a body of one's own, but a public place for others' enjoyment. Furthermore, the metaphor of Mount Everest points to anal sex as a distinctive, memorable and elitist achievement, also suggesting an idea of male conquest and competition: the analogy with a place whose access requires considerable effort depicts anal sex as a reward and achievement after such endeavours" (Faustino 2021 p1054).

3. "Female perspective" - "Women's experiences with anal sex are depicted as substantially different from men's: 'Anal sex tops the 'must try' list for many guys... but it's not exactly up there for most women'" (Faustino 2021 p1055).

Faustino (2021) outlined three representations here:

i) "Independent women who are in charge of everything" - Articles around women's agency and pleasure.

ii) "Sexual gatekeepers" - The construction of anal sex as a special kind of intimacy, but also discussions on "bad girls" and "sluts" and anal sex. Though the latter articles were about debunking the "myth", Faustino (2021) pointed out that "by affirming that anal sex is increasingly common among heterosexual couples and inferring that 'we all can't be sluts', the discursive construction of the 'slut' as the 'other' and the deviant ... is maintained" (p1057). The point is the woman is responsible in both cases as sexual gatekeeper for having AnI, and there will be consequences to the decisions made.

iii) "Sexual entrepreneurs" - Articles about the risks, and techniques that presented anal sex "as a sexual act that requires certain skills and preparation and poses certain (manageable) risks, but that is ultimately rewarded with pleasure, intimacy and an upskilled sexual life. Anal sex seems particularly illustrative of the mediated intimacy described by Gill (2009), demanding that women self-discipline in a process that covers nutrition, digestion, cleaning and communication. Women's sexuality is constructed as a continuous work in progress, where a vigilant, super-conscious sexual self must take the lead... - before, during and after anal sex" (Faustino 2021 p1058).

Faustino (2021) noted that, overall, the articles were varied, and even contradictory: "Although anal sex is promoted as potentially pleasurable and intimacy-boosting, the right to not try it is undoubtedly underlined. However, it co-exists with the idea that men will try - and push - women's boundaries on the matter" (p1059). Pro-anal sex articles as well as those about coercion.

But "since male pressure is often naturalised, women's personal right to refuse to engage in anal sex demands an individual stance against such pressure, as well as implying to remain apart from 'the anal revolution'. The conflicting messages render the statement 'if you don't even want to give it a go in the first place, of course that's perfectly fine' a kind of 'feminist health warning', in Gill's (2007a) words: women are told they are free to refuse anal sex, but such personal freedom must be enacted up against male - and societal - pressure. Gendered norms that legitimise male pressure and ultimately sustain a 'culture of coercion' are not effectively questioned. Consent is portrayed as something women can give or withdraw in a context where they are expected to be pressured: claiming 'Viva consent!' co-exists with male entitlement and does not actively challenge it" (Faustino 2021 pp1059-1060).

Faustino (2021) ended: "In conclusion, the common feature of Cosmopolitan's discourse could be framed as 'men are obsessed, but women should do it for themselves'" (p1060).

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## **2. EVOLUTION AND CULTURAL EVOLUTION**

- 2.1. Evolution
- 2.2. Behavioural convergence
- 2.3. Epigenetics
- 2.4. Cultural evolution
  - 2.4.1. Biological and cultural inheritance
- 2.5. References

### **2.1. EVOLUTION**

The Leader (2020) described evolutionary theory as in the midst of an upgrade as ideas from genetics are "brought under the wing of evolution" (p5). These ideas include (Arnold et al 2020):

i) Genetic determinism is a myth as the environment influences the observable characteristics (phenotypes) produced by a given set of genes.

ii) Gene activity is regulated by other genes rather than simply a gene coding for a particular trait, and natural selection favours connections that work well.

iii) Selection could favour co-operating groups with shared culture (cultural group selection).

iv) The role of epigenetics and "epigenetic inheritance".

v) "Plasticity-level evolution" - The ability of species to have one of two different body types depending on the environment. For example, tadpoles of spadefoot toads develop with different body parts if they are placed in ponds with different foods (eg: to eat algae or fairy shrimps) (Arnold et al 2020).

vi) "Niche construction" - Species can modify their environment and change the selection pressures acting on them, like humans and farming. Consequently, selection pressure on digestive enzymes to process milk protein, for instance (Arnold et al 2020).

vii) "Genetic drift" - A gene may become dominated in a population "purely by chance" (Arnold et al 2020 p46).

Human urban environments may be involved here for non-human species. Miles et al (2019) observed: "Evidence Psychology Miscellany No.154; October 2021; ISSN: 1754-2200; Kevin Brewer

is growing that human modification of landscapes has dramatically altered evolutionary processes. In urban population genetic studies, urbanisation is typically predicted to act as a barrier that isolates populations of species, leading to increased genetic drift within populations and reduced gene flow between populations. However, urbanisation may also facilitate dispersal among populations, leading to higher genetic diversity within and lower differentiation between urban populations" (p4138). These processes can be called "non-adaptive evolution", and occur due to habitat fragmentation, changes in resources, pollution, and interactions with humans, for instance (Miles et al 2019).

The "urban fragmentation model" describes negative consequences, while the "urban facilitation model" sees positive consequences for non-human species' genes from urbanisation.

A review of 167 published urban population genetics studies by Miles et al (2019) found "a weak signature of reduced within-population genetic diversity, and no evidence of consistently increased between-population genetic differentiation associated with urbanisation" (p4138).

viii) "Horizontal gene transfer" - Microbes can acquire genes from each other (ie: non-related organisms).

ix) "Developmental bias" - Some variations appear more frequently than others in evolutionary history. This is also called "genetic evolvability" or "adaptive plasticity" (Brun-Usan et al 2020).

Brun-Usan et al (2020) modelled the evolution of traits and found support for these ideas. Put another way, selecting for phenotypic plasticity is better than selecting for specific phenotypes.

x) Categorising distinct forms of life into species has helped in understanding evolution, but genetic sequencing has shown how common interbreeding between species (or introgression) is.

## **2.2. BEHAVIOURAL CONVERGENCE**

In the debate about the influence of evolution, as opposed to culture, on the development of human societies, Barsbai et al (2021) have provided evidence of the importance of local ecological conditions. These

researchers analysed 339 hunter-gatherer societies <sup>9</sup> on fifteen behavioural variables <sup>10</sup> (eg: diet composition; social group size; movement patterns).

They found that the variations in human behaviours converged "on the same characteristics that are most common in birds and mammals in the same local regions of the world... In other words, in places where hunter-gatherers are more polygynous, there also tend to be more polygynous bird and mammal species. These patterns appear to be driven by ecological and habitat similarity, not by locational proximity per se" (Hill and Boyd 2021 pp235; 236) (table 2.1).

#### Foraging Behaviours

- In areas where human populations rely on terrestrial vertebrates for food, mammals and birds also do.
- In areas where humans rely on aquatic organisms for food, mammals and birds eat fish.
- There is an association between humans and food storage, and mammals/birds and food hoarding.
- Longer daily foraging trips by humans is mirrored in mammals, while birds migrate further.

#### Reproductive Behaviours

- Common patterns between humans, mammals, and birds in age of first reproduction (eg: all younger than the average in an area).
- Common patterns of males monopolising matings (eg: human men with multiple wives).
- Splits between mating partners more common in some areas.

#### Social Behaviours

- Fathers more active in providing resources to offspring in certain areas.
- More dense human communities mirrored in mammals and birds.
- Size of social groups vary between areas.

Table 2.1 - Some conclusions from Barsbai et al (2021) based on the type of behaviour.

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<sup>9</sup> Barsbai et al (2021) explained: "Our focus is on small-scale, subsistence-foraging human populations because these populations are generally tied to a specific location. Additionally, their reliance on acquiring food from the available local resources means that we are more likely to detect ecological influences on their behavior, should they exist" (p293).

<sup>10</sup> Six foraging, five reproductive, and four social behaviours.



This supports the evolutionary perspective called "human behavioural ecology" (Hill and Boyd 2021) <sup>11</sup>.

For example, in the African rainforests live the Mbuti population who not store food very much, and in the surrounding 25 km radius only 4% of 171 mammal species hoard food (Barsbai et al 2021).

However, it is a mistake to conclude from this that culture is unimportant" (Hill and Boyd 2021 p236). Barsbai et al (2021) explained much of the variation between groups by ecological factors, but that still allows room for cultural history to also play a role. "Culture and genes are linked in a tight co-evolutionary embrace, and this leads to complex patterns of genetic and cultural co-adaptation" (Hill and Boyd 2021 p236). For example, the strength of kin networks in a society can be seen as a product of ecological factors, like co-operative intensive agriculture, and of cultural history (eg: attitudes of religious authorities to kin marriage) (Hill and Boyd 2021).

### **2.3. EPIGENETICS**

"Epigenetics is the study of changes in gene activity that can be transmitted through cell divisions but cannot be explained by changes in the DNA sequence. Epigenetic mechanisms are central to gene regulation, phenotypic plasticity, development and the preservation of genome integrity" (Ashe et al 2021 p1) <sup>12</sup>.

Three main kinds of epigenetic states have been observed - chromatin modification, DNA methylation, and small interfering RNA molecules (Ashe et al 2021).

What is the role of epigenetics in evolution?  
"Epigenetic mechanisms are often held to make a minor contribution to evolutionary change because epigenetic states are typically erased and reset at every generation, and are therefore, not heritable" (Ashe et al 2021 p1).

But there is evidence that epigenetic variations do impact evolutionary changes in a number of ways including that some epigenetic states are transmitted intergenerationally ("epigenetic inheritance"), and

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<sup>11</sup> "Wherever they live, animals display diverse behaviors to cope with the many challenges they face — from foraging for food to finding shelter and protection to meeting with mates for reproduction. In any particular environment, a diversity of behavioral solutions might be expected given the differences in how animals experience and exploit their environment, especially if species fill specific niches to reduce resource competition. At the same time, local ecological constraints might only permit a certain range of behaviors. In this case, species with similar behaviors would be expected to assemble in a given environment" (Barsbai et al 2021 p292).

<sup>12</sup> The term "epigenetics" was coined by Waddington (1942).

epigenetic processes can be involved in gene mutations (Ashe et al 2021).

## 2.4. CULTURAL EVOLUTION

The field of cultural evolution "attempts to understand the dynamics and diversity of culture from an evolutionary perspective, from the small-scale transmission of cultural variants between individuals to the emergence of large-scale distributions of these variants" (Boon et al 2021 p1). So cultural change is viewed "to some extent analogous to genetic change" (Boon et al 2021 p1).

Boon et al (2021) informally surveyed researchers in the field and found an almost fifty-fifty split on key issues like:

- Cultural traits as analogous to biological replicators.
- The principles of genetic evolution apply to cultural evolution.
- Small-scale experiments can help understand large-scale cultural patterns.
- Non-human animal "culture" is different to human culture.

Presenting an overview of the field of cultural evolution, Boon et al (2021) identified three themes:

1. The assumptions and model of cultural evolution - eg: cultural traits are transmitted independently of each other.

Two main approaches to human cultural evolution can be distinguished: "One, which originates in population-genetic style modelling, emphasises how cultural selection causes some cultural variants to be favoured and gradually increase in frequency over others. The other, which draws more from cognitive science, holds that cultural change is driven by the biased transformation of cultural variants by individuals in non-random and consistent directions" (Mesoudi 2021 p1).

The former ("cultural selection") focuses on Psychology Miscellany No.154; October 2021; ISSN: 1754-2200; Kevin Brewer

"selection-like learning biases" (eg: copying older, prestigious or successful individuals over others ("context biases"), or copying certain kinds of traits over others, like use of effective tools ("content biases")) (Mesoudi 2021). Cultural change is seen as "primarily a population-level process, where small, often random changes (akin to cultural mutation) that happen to be effective are selectively copied over time" (Mesoudi 2021).

The other approach ("biased transformations") downplays direct copying of others, but sees the acquisition of cultural information as "a process of transformation and reinterpretation that may be affected by the receiver's cognitive biases, pre-existing knowledge, individual learning, or the dynamics of communication and interaction between sender and receiver. Consequently, directional cultural change is seen as resulting from the directional transformation of information by individuals" (Mesoudi 2021).

Mesoudi (2021) argued that both approaches could work together, and are thus not mutually exclusive. Alternatively they may "operate on different domains of culture" (Mesoudi 2021).

## 2. Understanding cultural processes and transmission.

Social learning (ie: observing others or direct teaching), as opposed to individual learning (eg: trial and error), is "a fundamental requirement to cultural evolution" (Kuijper et al 2021 p1).

There is an interest in environmental conditions that favour selection of social over individual learning, and "a mixture of both social and individual learning is expected to evolve in fluctuating environments" (Kuijper et al 2021 p1).

Kuijper et al (2021) produced computer simulations to show the different types of learning and factors in a population. In fluctuating, but predictable environments, horizontal social learning (ie: learning from members of the same generation) proved most important. In predictable environments, "prestige biases" (ie: learning from prestigious individuals) and "conformity biases" (ie: follow the group majority) were favoured. In unpredictable environments, other factors prevailed (eg: individual learning).

"The human capacity to use social information is

fundamental to our species' cultural evolution – arguably humankind's key adaptive asset. It affords enormous cognitive benefits, allowing individuals to avoid the costs of individual exploration, and most importantly, to avail themselves of collective progresses no individual could have made on their own" (Morin et al 2021 p1). This is the theory. But individuals, Morin et al (2021) argued, "use social information sub-optimally. Specifically, they do not use it enough" (p2).

Morin et al (2021) reviewed experimental evidence that showed that adults "give less weight to social information when it conflicts with a belief that they hold based on previous knowledge, or with a piece of private information provided by the experimenters to them but not to others" (p2). The researchers named this, "egocentric discounting", and described the experimental tasks used, including:

a) Advice-taking paradigm - Participants are asked to give quantitative judgments that they do not know the answer to (eg: the distance between London and Paris). Then they are told of another participant's guess ("advisor") before being allowed to make a second estimate themselves. Participants adjust their second guess only slightly towards the other participant's guess. "The normative strategy in such tasks, for the second answer, is to average, ie: to move halfway towards the other participant's guess, unless one has reasons to think the advisor is clearly more (or less) knowledgeable than oneself" (Morin et al 2021 p3).

b) Two-armed bandit problems - Participants are presented with two options (A and B) that give different rewards. The pay-off of each is not disclosed, but participants are told about the choices of others. Individuals tend to underuse the information from others and try to learn the pay-offs by "hit and miss" (ie: individual rather than social learning).

Morin et al (2021) asked: "Why do we not trust others as much as we ought to?" (p4). They offered some possible answers, including:

i) The above-mentioned experimental tasks lack ecological validity. "Non-laboratory evidence that people fail to trust social information as much as would be useful for them includes studies of vaccine refusal, climate change scepticism, and resistance to mass persuasion attempts" (Morin et al 2021 p4).

ii) A product of individualistic (Western) cultures. "Overall, the literature shows some evidence for cultural modulations of egocentric discounting, but does not support seeing it as a Western peculiarity" (Morin et al 2021 p5).

iii) More weight on their own opinions, even when individuals are told another's guess was their own.

iv) Methodological issues - eg: lack of task engagement.

v) Evolutionary explanations for egocentric discounting:

- "Epistemic vigilance" - A default position of mistrust to avoid deceit or manipulation, unless information is provided about the reliability of the other's guess (eg: reasons for).
- "A producer-scrounger dilemma" - This is an idea from game theory to describe two strategies in a population. The advantage of using one strategy depends on the strategy used by others. "At equilibrium, these games typically yield a mixed population of producers (individual learners) and scroungers (social learners), where neither type does better than the other. Egocentric discounting might emerge from a producer-scrounger dilemma, as a response to the devaluation of social information which may occur when too many other agents rely on social learning" (Morin et al 2021 p6).

Morin et al (2021) ended: "There is little doubt that our species relies a great deal on social information, and that cultural transmission would be impossible if we did not use it. This makes the well-known phenomenon of egocentric discounting all the more puzzling" (p7).

Singh et al (2021) wanted to go beyond social learning to explain how and why culture evolves. "Growing evidence suggests that many mechanisms aside from social learning contribute to cultural evolution" (Singh et al 2021 pp1-2). These authors organised the mechanisms and factors into three levels of organisation:

i. Neural - related to the physiology of the brain.

ii. Cognitive-behavioural - related to mental processes and behaviour.

iii. Populational - related to groups and populations.

The researchers explored three aspects of cultural evolution using the above levels of organisation:

a. Emergence of culture - "Why so some species have culture, while others do not?" (Singh et al 2021 p2).

- Neural level - eg: neural mechanisms of learning common to all species that have cultures.
- Cognitive-behavioural level - eg: "the capacity to innovate, which generates cultural variation" (Singh et al 2021 p3).
- Populational level - eg: frequent interactions between individuals of a species, and so solitary species (eg: common octopus) are unlikely to have culture "because the stability of cultural traditions requires that individuals interact frequently" (Singh et al 2021 p3).

b. Cumulative cultural evolution (CCE) - "While the capacity for culture is present across a broad taxonomic range, the capacity for cumulative culture (ie: the repeated modification and social learning of cultural traits over successive generations) seems to be absent, or at least uncommon, in non-human species" (Singh et al 2021 pp3-4).

Neural level - eg: neural underpinnings of behavioural flexibility.

Cognitive-behavioural level - eg: capacity for future thinking and "mental time travel".

Populational level - eg: importance of group identity as a means of sharing information.

Smolla et al (2021) devised twelve questions for future research to help in understanding CCE (table 2.2).

1. What are the combinatorial properties that allow a seemingly unbounded generation of diversity and complexity in human cumulative cultural evolution?
2. What is the role of language, symbolism, and cognitive abilities in cumulative cultural evolution?
3. Can all types of cultural change be understood in evolutionary terms..., or do we need additional theoretical frameworks?
4. How can developmental psychology and related fields inform cultural evolution research?
5. What is the scope of cultural evolution in terms of mental abilities?
6. How does learning depend on an individual's lifetime and how has it co-evolved with life history?
7. Is it possible to provide a general theoretical account for the observed diversity of outcomes of human cultural evolution?
8. How can we define and recognise cultural adaptations, at what level are they manifested, and how can we use them to identify useful units of cultural evolution?
9. What could be a useful concept of fitness in cultural evolution, and, if it exists, how can it be used to study cultural evolution?
10. What new understanding can be gained from a systems approach that cannot be gained from considerations of simpler representations of culture?
11. How can the evolution of cultural systems be explored theoretically?
12. How do externalised information storage and processing [eg: books] affect cultural evolution?

(Source: Smolla et al 2021 pp5, 6 and 7)

Table 2.2 - Twelve questions for future research on CCE.

c. Cultural traits - "Why do cultural traits exhibit the features that they do?" (Singh et al 2021 p5).

- Neural level - eg: neural underpinnings of cognitive systems.
- Cognitive-behavioural level - eg: attentional biases and "supernatural" explanations of events.
- Populational level - eg: distribution of power within a group. "There are many ways in which

distributions of power can shape culture, but the most important is when individuals compete to institute and maintain self-serving rules. The form of these rules is frequently determined by the parties' relative abilities to enforce their preferences. Distributions of power explain, among many other outcomes, food taboos in small-scale societies, rules for how children should treat fathers, institutions of redistribution throughout Polynesia, and the political institutions of colonial powers and their local inheritors around the world" (Singh et al 2021 p6).

Singh et al (2021) ended thus: "Explanations for the existence, accumulation and design of cultural traditions benefit from a perspective that is both broad and deep, that both considers interactions among a web of factors and clarifies their contributions by probing their deeper workings. Not only does such a perspective reveal that a more diverse set of factors shapes culture, but it also suggests that explanations currently regarded as alternatives are, in fact, complimentary" (p6).

3. The use of comparative methods to study cultural evolution.

Cultural evolution assumes that features of a culture (eg: languages; social structures) "undergo innovation, modification and transmission" (Evans et al 2021 p1). These processes can be studied using phylogenetic methods (ie: "evolutionary trees" that "represent the common ancestry of populations and the splitting events that have occurred over the course of their history"; Evans et al 2021 p1).

The application of evolutionary trees to cultural evolution has limitations as Evans et al (2021) noted with this example: "the present-day global distribution of a cuisine like pizza, which came into being in late eighteenth-century Naples, reveals much about the history of migration and economics, and relatively little about the cultural inheritance of food preferences" (p6).

Another problem is that "many cultural traits do not leave any traces of their histories in the 'fossil' record" (Evans et al 2021 p6).

Evans et al (2021) ended: "One of the strongest appeals of cultural tree thinking is that it offers a possible way to illuminate the unobservable past and thus make causal inferences about the processes that have



shaped human history. However, throughout this paper, we have cautioned that inferring processes from pattern requires careful consideration and validation" (p9).

#### **2.4.1. Biological and Cultural Inheritance**

Kronfeldner (2021) explored the view that "cultural inheritance and biological inheritance are separate channels of inheritance, separate transmission systems which contribute to the similarities of organisms in populations in distinct ways..." (p1). This is known as "channelism".

But this does not mean that biological and cultural evolution do not interact. Take the example of dairy farming appearing in human evolutionary history. A favourable mutation allowed adults to digest cow milk for the first time, which encouraged dairy farming, and this fostered selection of mutations for lactose digestion. There were no genes for dairy farming. "The dairy farmers in the Levant who changed - through their cultural practices - the prospects for the selection of the genetic change that made lactose tolerance in adults possible, had quite some daily interactions with each other: they raised the cattle, produced milk, produced and used the pottery that allowed them to store the milk and make cheese (which they were able to digest easier since it contains much less lactose); they also guarded the cheese from being stolen or getting rotten, and so on. Most of these interactions involved social learning mechanisms" (Kronfeldner 2021).

The alternative view is that culture and cultural change are part of biological evolution in some way. Sociobiology, for instance, emphasises the dominance of biological evolution, while Griffiths and Gray (2004), say, accepted inter-linked processes (eg: "genetic inheritance" and "extra-genetic inheritance" which includes epigenetic inheritance and cultural inheritance).

In terms of the arguments for channelism, these include (Kronfeldner 2021):

i) Different transmission modes - Cultural inheritance involves vertical, oblique and horizontal transmission (Cavalli-Sforza and Feldman 1981), while biological inheritance is only vertical. "The vertical transmission mode runs from parents to offspring, while

the oblique mode operates between genealogically unrelated individuals of different generations. The horizontal mode limits the latter to individuals of the same generation" (Kronfeldner 2021).

Also cultural inheritance can change its mode of transmission while biological inheritance cannot (Kronfeldner 2021).

ii) The speed of change - Culture can change quicker than biology.

iii) Autonomous change of culture - Culture can change "without a concomitant change in the biologically inherited resources of the respective population" (Kronfeldner 2021).

iv) Different channels of inheritance - "one channel of inheritance is internal to the bodies and based on molecular processes involved in biological reproduction, while the other is more 'ephemeral': external to the bodies, happening between people, known since ages as: culture based on the social learning of ideas and behaviours" (Kronfeldner 2021).

Tables 2.3 and 2.4 summarise the key similarities and differences between biological and cultural evolution.

1. Evolution occurs in populations of individuals or units.
2. Generation of new variants based on existing traits.
3. Transmission of traits between individuals.
4. Evolution is the product of many of the above events.
5. Outcomes include complexity and adaptation.

(Source: Smolla et al 2021 box 1)

Table 2.3 - Five key similarities between biological and cultural evolution.

| DIFFERENCE                     | BIOLOGICAL EVOLUTION                                                     | CULTURAL EVOLUTION                                  |
|--------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------|
| Storage of information         | Genome                                                                   | Mental representations                              |
| Acquisition of traits          | Genetic traits are in place at the beginning of life (ie: fertilisation) | Continuous acquisition throughout life              |
| Transmission of information    | Physical copies (ie: genes)                                              | Through learning                                    |
| Sorting processes (ie: change) | Natural selection                                                        | Responses to social learning like conformity biases |
| Generation of variation        | Random                                                                   | Deliberate - eg: to solve a particular problem      |

Table 2.4 - Five key differences between biological and cultural evolution (Smolla et al 2021).

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