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**The evidence of harm to adults relating to exposure to
extreme pornographic material:
a rapid evidence assessment (REA)**

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Executive summary

Background

This document reports on a rapid evidence assessment (REA) of the evidence of harm to adults relating to exposure to extreme pornographic materials. It was conducted for the Home Office and Department of Health as part of a programme of research being conducted by the Department of Health on the health and mental health effects of prostitution, pornography and trafficking, rape and sexual assault, and sexual offending. This REA was commissioned by the Home Office before the Ministry of Justice was formed.

Terms of reference of the REA

The terms of reference of the REA were to 'examine the possibility of a relationship between exposure to extreme pornographic material and subsequent commission of sexual and violent offences'.

Extreme pornographic material was defined as 'actual scenes or realistic depictions of: explicit intercourse or oral sex with an animal, explicit sexual interference with a human corpse, explicit serious violence in a sexual context and explicit serious sexual violence'.

The REA addressed three research questions:

- i. What effects does viewing extreme pornographic material have on those adults who access it?
- ii. In particular is there any evidence that it causes or contributes to sexual or violent offending?
- iii. Is there any evidence that those adults who participate in making extreme pornographic material are harmed by their involvement?

Summary of key findings

- The REA supports the existence of some harmful effects from extreme pornography on some who access it. These included increased risk of developing pro-rape attitudes, beliefs and behaviours, and committing sexual offences. Although this was also true of some pornography which did not meet the extreme pornography threshold, it showed that the effects of extreme pornography were more serious.
- Men who are predisposed to aggression, or have a history of sexual and other aggression were more susceptible to the influence of extreme pornographic material. This was corroborated by a number of different studies using different methods and different samples.
- The REA found no formal research studies of the effects on those who participate in making extreme pornography.

Description of included studies

The majority of research on pornography effects has been experimental studies conducted under laboratory conditions. This report is based on five correlational meta-analyses identified in the REA which covered this literature and included the effects on individuals of sexually violent pornography. Two of these also covered non-experimental studies. The five meta-analyses (in chronological order) covered:

- aggression after exposure to pornography in the laboratory (1995);
- exposure to pornography and acceptance of rape myths - including both experimental and non-experimental studies (1995);
- reactions of criminal sex offenders to pornography (1999);

- research on the effects of pornography published between 1962-1995 (2000);
- pornography consumption and attitudes supporting violence in non-experimental studies (2006).

Meta-analysis involves using statistical summarising techniques to provide an aggregation of existing evidence. The goal is to provide a quantitative summary of comparable data and show the homogeneity of the averages obtained. This increases the sample size to a level from which it is possible to generalise from the findings obtained. One hundred and twenty-four individual studies are included within these five meta-analyses.

This report is also based on 48 primary studies identified in the REA. Sixteen of these were also included in one or more of the meta-analyses. Thirty-two were not included in any of the meta-analyses and are unique to the REA. This report comprises a collation of descriptive summaries of selected studies and a summary of the findings, highlighting gaps in knowledge.

To address the second REA question of extreme pornographic material as a contributing or causal factor in sexual or violent offending, the report also summarises and critically assesses theoretical and conceptual models of the role of pornography in the aetiology and processes of sexual offending. Emphasis is placed on more complex conceptual frameworks which move away from simplistic cause and effect formulations.

Findings

The findings of the meta-analyses indicated an increased susceptibility to the influence of pornographic material on men who are measured as having a combination of high predisposing aggression levels, past histories of sexual and other aggression, self-reported likelihood to rape and sexual arousal to rape depictions.

The findings of the meta-analyses were corroborated by other studies included in the REA, specifically: 22 additional experimental studies involving primarily male students; two additional surveys conducted with men; one case series study comparing known (male) sex offenders to other men (assumed non-offenders); four surveys of women (on their experience of being victimised through men's use of pornographic material that meets the REA definition of being extreme); two qualitative studies of the effects of such pornography on women and one qualitative study of serial sexual killers.

With regard to the effects on those involved in the making of extreme pornographic material, no formal research was identified by the REA to evidence this. However, other sources of information have been drawn upon to illustrate the nature of the harm experienced by those involved – such as documentary evidence of visible harm, and testimony given by victims in legal evidence.

This real life experience complements the findings from the REA that found harmful effects of extreme pornographic material on some of those who access it. This includes effects on those who have been convicted of sexual and violent offending.

All five of the meta-analyses also found harm effects for some material that does not meet the criteria of 'extreme' pornography. However, they found that harm effects are most negative for pornography that depicts or enacts explicit serious sexual violence, explicit serious violence in a sexual context, or explicit intercourse or oral sex with an animal (bestiality).

No relevant research was identified in the REA that investigated the effects of pornographic material depicting explicit sexual interference with a human corpse.

Value of the REA

The REA has been able to benefit from and build on the findings of five high quality meta-analyses. It has also been able to consider 32 studies not previously reviewed in the meta-analyses. These include surveys of women and qualitative studies with both victims and offenders. Altogether by reporting on the meta-analyses, the REA effectively covers the one hundred and sixty-one studies listed in Annex E.

The findings of the REA are a significant step in clarifying the position in an area subject to previous academic dispute about the findings of specific studies, and the status of the experimental – and other – research as evidence of harm.

Use of the REA definitions of extreme pornographic material, of inclusion and exclusion criteria and methodological appraisals has provided consistency in the selection of studies, and helped to assure the quality of the studies selected.

The statistical methods employed in meta-analyses and the triangulation of methods and samples in the REA have also addressed some of the issues concerning external validity of experimental studies.

Gaps in knowledge identified by the REA

There were a number of significant gaps in knowledge identified in the process of conducting the REA. These include:

- the psycho-social and physical effects of extreme pornographic material on victims who are used in its making, or exposed to it, or victimised as a result of some men's exposure to it;
- the effects of exposure to extreme pornographic material on young people, both as (a) de facto sex education, and the implications of this for their sexual and psychological health, and (b) its influence on young people who sexually abuse;
- the links between prostitution and pornography, and the trade and traffic in women and children and adolescents of both sexes for these purposes;
- the extent of extreme pornographic material and its content across the media, and in particular the internet; and
- the lack of studies which sample from the general population, including public perceptions of extreme pornographic material.

Conclusions

Pornography raises complex moral and political issues and strong feelings amongst those with opposing views. Taken together, however, the methodologies employed and the findings of studies reported in the REA provide a scientific basis on which to consider the harm effects on victims, including the damage it does to the attitudes, beliefs, fantasies, desires and behaviour of some of those who use it.

1. Background and methodology

Introduction

This document reports on a rapid evidence assessment (REA) of the pornography effects literature (Home Office, 2006). The REA was conducted for the Home Office and the Department of Health as part of a programme of research being undertaken by the Department of Health on the health and mental health effects of domestic and sexual violence and abuse, including prostitution, pornography and trafficking, rape and sexual assault, and sexual offending (Itzin, 2006). The review covers international, as well as UK, literature. This REA was commissioned by the Home Office before the Ministry of Justice was formed.

HO tender specification for a Rapid Evidence Assessment (REA)

The REA requirements set out in the tender specification were to identify, review and assess any evidence of harm associated with extreme pornographic material.

The definition of extreme pornographic material (EPM) for purposes of the REA covered only material involving 'actual scenes or realistic depictions of:

- explicit intercourse or oral sex with an animal;
- explicit sexual interference with a human corpse;
- explicit serious violence in a sexual context;
- explicit serious sexual violence.'

'Explicit' was further defined as 'intended to cover activity which can be clearly seen and is not hidden, disguised or implied'; serious violence as 'will involve or will appear to involve serious bodily harm in a context or setting which is sexual – for example, images of suffocation or hanging with sexual references in the way the scenes are presented' and serious sexual violence as 'will involve or will appear to involve serious bodily harm where the violence is sexual.' (Home Office, 2005, pp 20-25).

The terms of reference for the REA specified three research questions to be addressed.

- What effects does viewing extreme pornographic material have on those adults who access it?
- In particular, is there any evidence that it causes or contributes to sexual or violent offending?
- Is there any evidence that those adults who participate in making extreme pornographic material are harmed by their involvement?

Methodological issues

Over the years there have been apparently conflicting reviews of the pornography effects literature. This is reflected in various government inquiries conducted in the US (1970, 1986), Australia (1988), New Zealand (1989), and Canada (1985). Their conclusions have varied, with some finding evidence of harm and others finding the evidence equivocal. In the UK, the Williams Committee on Film and Theatre Censorship (1979) had concerns about the nature of some of the extreme pornographic material they had seen, but recommended restrictions on its display rather than its availability (Williams Committee 1979). The Home Office review commissioned in 1990 identified studies showing extreme pornographic material as a contributing factor in sexual offending and violence against women, but concluded that 'a causal influence cannot be substantiated from the evidence' (Howitt and Cumberbatch, 1990, pp.84-85).

The differing views have continued to fuel the debate about the potential harmful effects of pornography. In this context, a number of methodological issues have been raised as potential obstacles to making comparisons or generalisations, or to drawing unequivocal conclusions. These include:

- the large number of primary studies – totalling hundreds – conducted over a period of more than 30 years;
- inconsistency in the terminology used to describe the material being researched;
- sometimes insufficient information about the pornographic material being studied;
- problems with the representativeness of subject populations in the experimental research;
- uncertainty about the validity and reliability of the methods used to measure attitudinal, cognitive and behavioural effects, and the extent to which experimental effects can be extrapolated from research into real life;
- the exclusion – for ethical reasons – in many of the experimental designs of types of material which fall within the Home Office definition of extreme pornographic material;
- the large number of reviews of the pornography effects literature which vary in quality and coverage, with findings and conclusions that appear to conflict; and
- uncertainty in the scientific community about how to assess the impact of pornography consumption on behaviour in the absence of robust – and comparable – theories of aetiology and causality.

Given these factors, the efficacy of the research methods, the status of the research as evidence, and the conclusions that can be drawn have been uncertain. The REA methodology was designed to be transparent in addressing these methodological complexities, and sufficiently robust to command the respect of the international research community. Together the meta-analyses – and the REA – have addressed a number of the methodological problems identified when designing the REA. These are set out below.

The power of meta-analysis

The REA benefited from the availability of five high quality meta-analyses. Meta-analysis offers a methodology that provides explicit standards for the judgements and conclusions and permits others to replicate, and verify the accuracy and validity of any conclusions offered. It involves using statistical summarising techniques to provide an aggregation of existing literature, and a quantitative summary of comparable data. The statistical procedures employed enable the averaging of effects across studies, with the resulting average simulating the effect of increasing the available sample size, and therefore providing more robust results. This increases the statistical significance of effects that are tested and observed. Significance is a statistical term that tells how confident one can be that a difference or relationship exists and that that relationship is not a result of chance. The sample sizes in the five meta-analyses reported in the REA are (chronologically): 2011, 4268, 4642, 12,323 and 3368.

Stringent quality criteria are applied to the selection of scientifically robust and comparable quantitative studies for inclusion in meta-analyses. Findings are statistically significant provided there is homogeneity between studies of participants, interventions, comparators and outcomes (see Allen, D'Alessio and Brezgel, 1995a pp 264-265; Allen *et al.*, 1995b p 12).

Statistical significance of included findings

All findings reported in the REA from the meta-analyses were based on homogeneous results and statistically significant effects. All findings reported from individual primary quantitative studies included in the REA and summarised in this report were based on statistically significant effects. No findings that were not statistically significant have been reported except for studies with nil findings (see below).

External validity

A major unresolved issue concerning the pornography effects literature has been the external validity of the experimental studies. This includes the representativeness of North American university samples, the reliability of information provided by sexual offenders, and the ability to generalise from laboratory studies.

Uncertainty about experimental research methods

Some of the concerns about validity and reliability have been addressed by the statistical methods employed in the meta-analyses (see above).

The representativeness of North American male university student samples

The North American male students studied in the 1980s represent a demographically homogeneous group whose characteristics would have varied little by institution or geographical setting, and the material to which they were exposed would have been similarly of that period. Malamuth, Addison and Koss (2000) have argued that 'the use of college students as subjects would actually result in 'serious under-estimation of pornography-induced harm' in the general population' (p 57). However, the findings of studies with male students are corroborated by the behaviour of men reported in the victimised women surveys.

The reliability of information provided by convicted sexual offenders

Critics have argued that information obtained from sexual offenders cannot be taken as reliable. However, Allen, D'Alessio and Emmers-Sommers (1999) point out that 'convicted sex offenders have [in self reports] an incentive to under-estimate their frequency of use, either intentionally or unintentionally'. For 'physiological measures, however,' they argue that 'the reverse is true: convicted sex offenders would have every incentive to demonstrate minimal reactions, yet they fail to do so'. This indicates, in their view, that 'the effects may, in fact, understate the link between sexual practices of criminal offenders and their reactions to sexual material' (p 158).

The ability to generalise from laboratory studies

Allen, D'Alessio and Brezgel (1995a) identified a number of concerns about the ability to generalise from laboratory studies as a 'systematic factor occurring across all the investigations'. These factors include 'the distinctions between aggression and sexual aggression that are not made, likewise the differences between anger associated with sexual as distinct from other aggression, and the laboratory context as distinct from the social context' (p 18). The 'central question' wrote Allen, D'Alessio and Emmers-Sommers (1999), given their meta-analysis of the non-experimental studies had not replicated their findings from the experimental research, is 'whether the findings of laboratory experiments indicate anything about the world outside the laboratory' (pp 156-157). This question has been significantly addressed by the meta-analysis of the non-experimental studies conducted by Hald *et al.* (2006) which found similar effects for pornographic material depicting explicit serious sexual violence, explicit serious violence in a sexual context and bestiality consumed outside the laboratory.

Other methodological issues

The large number of primary studies

The use of inclusion criteria in the REA helped to reduce the numbers and to assure the quality of the studies selected for analysis and assessment.

The large number of reviews, which vary in quality and coverage, and draw different apparently conflicting conclusions

The quality issue has been addressed within the REA by excluding all reviews except systematic reviews (none was found) and meta-analyses, by methodological appraisal of all studies and by exclusion of studies that did not meet the quality standard. The inclusion in the REA of only studies of effects on individuals has identified a consistency in the findings of this body of research.

The status of studies finding nil effects or conflicting findings

The findings from individual studies reporting nil effects need to be judged now in the context of the findings of the meta-analytic study by Oddone-Paolucci, Genuis and Violato (2000) which calculated that it would take a further 284 studies with a null result before the findings of their meta-analysis of 46 studies could be reasonably ascribed to sampling bias (p 51).

Inconsistency in the terminology used to describe pornographic material

Using the REA definition of extreme pornographic material has contributed to greater consistency in the findings reported from studies selected for assessment in the REA.

Insufficient information in the studies about the nature of the material employed

The REA addressed this by contacting the authors for clarification where possible, and then including relevant studies, and excluding those which did not meet the REA definition of extreme pornographic material. However, given the age of some studies, it is not possible to wholly resolve these issues.

Contrary to expectations, it was found that in 30 of the 48 primary studies included, the content of the extreme pornographic material used was described in graphic detail. Direct quotes of these explicit descriptions have not been repeated in this report because the nature of the material was 'too extreme'. Instead it has been described in more neutral terms. This has been done to avoid the risk that these descriptions would function as extreme pornographic material for the reader, producing sexual arousal and orgasm to material that depicts or enacts serious sexual violence, explicit serious violence in a sexual context or explicit intercourse or oral sex with an animal (bestiality).

In all cases in the REA, the nature of the pornographic material employed is specified in each of the summaries. Two considerations should be noted: (i) that the pornographic material used in laboratory studies is likely – for ethical reasons – to be less extreme than that accessed outside, and (ii) the pornographic material accessible now, in particular on the internet, is likely to be more extreme than that available in the 1980s. This would suggest that the REA findings are an under-estimate of the harm effects.

Rapid Evidence Assessment (REA): Study design

Within the timescales and resources available, a full systematic review was not possible. Instead, the design drew on aspects of systematic review methodology. The inclusion and exclusion criteria (in Annex A) were established with the Home Office.

Only correlational studies involving measurement at the level of the individual were included. Correlational studies at group or population level were not included. These studies were excluded in view of the inability of such designs to allow any detailed exploration of hypotheses in relation to causality, and the danger of ecological fallacy – the bias that may occur because an association observed between variables on an aggregate level does not necessarily represent an association that exists at an individual level (see for example, Greenland and Robins 1994).

Papers reporting literature reviews were only included if they were systematic literature reviews or meta-analyses. Other reviews of the pornography effects literature which did not meet these methodological standards were not included.

The inclusion and exclusion criteria were applied to each study by one of four reviewers based on the abstract.¹ A random sample consisting of the first 20 decisions for each reviewer was checked for agreement.

¹ The REA resources did not allow for independent review of the abstracts of each study identified. There was complete agreement on the assessment of the abstracts randomly selected for checking.

Full papers were ordered for all studies that met the inclusion criteria on the basis of the abstract, and for any where it was unclear from the abstract whether the study met the criteria or not.

Methodological appraisal criteria for quantitative and qualitative studies were developed based on a modified version of the Critical Appraisal Skills Programme (CASP) tools. For *qualitative* studies the Cabinet Office framework consists of ten questions covering rigour, credibility and relevance of the studies². For *quantitative* studies, suitably modified versions of the CASP tools for critical appraisal of study methodologies were used³, supplemented by other relevant approaches. The methodological appraisal evaluation tables employed are included in Annex B.

Methodological appraisals were conducted on the following categories of study.

- Qualitative studies.
- Quantitative studies including:
 - cohort studies both with and without a comparison group;
 - correlational studies at the level of individuals (rated as cohort or comparison group studies as appropriate);
 - meta-analyses.

Each study subject to methodological appraisal was scored as a percentage of the maximum score available for that type of study design. This allowed comparisons across studies with different designs, assessed against different criteria (Feder *et al.*, 2006). Study quality and strength of design were independently assessed by one of four reviewers. A random sample of 22 methodological appraisals was checked, and the concordance rate was 92 per cent⁴.

Data extraction was conducted by the four reviewers on studies scoring over 50 per cent, using the table in Annex C. A number of first authors of included articles were asked to clarify data or for missing data, about the pornographic material employed in their study.

Summary of studies identified and included

The Department of Health Library online database, supplemented by studies from hand searching relevant bibliographies, identified 3,325 studies⁵. Contact with the authors of the meta-analyses produced an additional meta-analysis submitted for publication in 2006.

Full papers were requested for 310 studies⁶, all of which were subject to methodological appraisal using the criteria in Annex B. Two hundred and fifty-seven studies were excluded which:

- did not employ extreme pornographic material; or
- directly address the REA research questions; or

2 The unmodified tool is shown in NHS Learning and Development Public Health Resource Unit. CASP appraisal tool for Qualitative Research. <http://www.phru.nhs.uk/casp/qualitat.htm>

3 <http://www.phru.nhs.uk/casp/appraisa.htm>

4 The REA resources did not allow for parallel independent blind ratings of the methodological appraisals. The concordance rate was based on random checks.

5 Online databases included Medline, ASSIA, ABBS, CSA, CJA, PAIS International (Public Affairs Information Services), IBSSm, Psycinfo, NCJRS (The National Criminal Justice Reference Service), C2-SPECTR, SwetsWise. Print sources included: journals, textbooks, hand searching (e.g. British Library, BPLES, Home Office library). Search terms were: *Violence/ pornography/ violent pornography/ explicit pornography/ sexual violence/ sex offences/ internet-pornography/ psychosexual behaviour/ rape/ extreme pornography/ necrophilia/ X-rated, hard-porn/ obscenity/ male violence/ bestiality/ zoophilia/ hardcore/ exposure/ effect/ damage/ psychological/ mental/ depraved/ torture/ harm/ murder/ evidence/ behaviour aggression/ gratification/ incest/ erotomania/ sexual dysfunction/ erotica/ rape/ sadomasochism*. The total number of studies identified included some duplication which the search procedure had not been able to eliminate.

6 If there was any doubt about inclusion based on the abstract, the full paper was requested.

- scored zero on the first two methodological appraisal screening questions; or
- scored under 50 per cent in the methodological appraisals.

Five meta-analyses and 48 papers reporting on primary studies (53 in total) met the REA selection and quality criteria. Sixteen of the primary studies are also included in one or more of the meta-analyses and 32 are unique to the REA. The meta-analyses identified in the REA were correlational. No randomised control trials (RCTs) or systematic reviews were identified. All studies included in the REA were conducted in North America (US and Canada).

The REA brings together for the first time the findings of the five following meta-analyses.

- Allen, D'Alessio and Brezgel (1995a) Aggression after exposure to pornography in the laboratory;
- Allen *et al.*, (1995b) Exposure to pornography and acceptance of rape myths (including both experimental and non-experimental studies);
- Allen, D'Alessio and Emmers-Sommers (1999) Reactions of criminal sex offenders to pornography;
- Oddone-Paolucci *et al.*, (2000) Published research on the effects of pornography 1962-1995;
- Hald *et al.*, (2006) Pornography consumption and attitudes supporting violence (in non-experimental studies).

These – and the 48 primary studies – comprise all of the studies that were identified in the REA search which involved pornographic material depicting or enacting explicit serious sexual violence, explicit serious violence in a sexual context, or explicit intercourse or oral sex with an animal (bestiality) and which addressed the REA research questions.

All of the meta-analyses and 40 of the 48 primary studies also involved pornographic material that did not meet these definitions, but provided comparisons with or illustrated its relationship to extreme pornographic material. These findings are included in the summaries.

No studies involving only pornographic material that did not meet the REA definition have been included. No studies were identified in the REA search which investigated the effects of pornographic material depicting explicit sexual interference with a human corpse.

The findings of the REA assessment are structured around the three research questions. Following the hierarchy of evidence, the relevant meta-analyses are summarised in full first, followed by brief summaries of all 48 individual primary studies relevant to the particular research question, presented in chronological order, which:

- complement and extend the findings of the meta-analyses; or
- illustrate the issues to be addressed in the REA questions.

The five meta-analyses and 48 included primary studies fell into the following quality rating bands.

- 70 –100 per cent – 28 papers (including the meta-analyses).
- 50 – 69 per cent – 25 papers.

All studies scoring 70 per cent or over were judged to be high quality and have been included if they met the REA criteria. Studies scoring between 50 and 69 per cent were judged to be good quality. These have also been included in order to ensure that:

- the findings of all of the meta-analyses have been elaborated in a sufficient and a balanced way;
- the report included all studies involving pornographic material that met the definition of explicit intercourse or oral sex with an animal (bestiality);
- the report included studies with nil effects, as the REA would be vulnerable to criticisms of bias if none of these studies were included; and
- the REA was able to report on the effects of extreme pornographic material on women, and its use in the victimisation of women.

Full summaries for all 48 primary studies included in the REA are provided in Annex D with their methodological appraisal scores and (for quantitative studies) effect sizes. This represents the full body of evidence identified in the REA and used to reach the conclusions in this report.

Whether a summarised study is in the REA only or also in a meta-analysis is clearly indicated in the annex to avoid double counting. Excluded studies are marked with an asterisk in the references.

The table in Annex E lists 161 studies. These comprise the five meta-analyses and all of the primary studies included in one or more of them, together with all of the primary studies included in the REA. By reporting on each of the five meta-analyses as well as the 32 studies unique to the REA, the report covers the findings of all 161 studies.

2. Summary of REA studies

Research Question 1: What effects does viewing extreme pornographic material have on those adults who access it?

Two of the meta-analyses identified in the REA search analysed experimental studies employing comparison groups. Both included studies involving pornographic material depicting explicit serious sexual violence, explicit serious violence in a sexual context or explicit intercourse or oral sex with an animal (bestiality) on adults who access it.⁷ Their findings are summarised below with relevant points drawn from individual studies in the meta-analyses and from primary studies identified in the REA.

Experimental studies under laboratory conditions

Meta-analytic study one – The effects of pornography: aggression after exposure

Allen, D'Alessio, and Brezgel (1995a) examined the effects that exposure to pornography produced on aggressive behaviour under laboratory conditions. It included 30 papers, three of which reported two studies each, involving 2 011 individuals in total. The studies are listed in Annex E.

Pornography was defined in this review as: 'media material used or intended to increase sexual arousal, which generally has verbal or visual images of exposed sexual organs and depictions of sexual behaviours' (p 259). It considered three categories of pornography which were analysed separately and findings reported comparing the effects for each of the following.

- Nudity (a single person depicted with minimal or a complete lack of clothing but not engaged in a sexual activity).
- Non-violent sexual behaviour (including petting, autoerotica, and fondling of genitals as well as oral, vaginal or anal intercourse).
- Violent sexual behaviour (with the intent to injure or against a person's agreement) (p 267).⁸

In these studies, behavioural aggression involved an attempt by one person to injure another person physically, materially or psychologically. The design of most of the studies compared the level or amount of aggression of an experimental group (viewing sexually arousing material) to a comparison group (viewing material containing no sexually arousing material).

A variety of possible moderating conditions were considered including: level of sexual arousal, level of prior anger, type of pornography, gender of subject, gender of the target of aggression and medium used to convey the material. This meta-analysis found a homogeneous set of statistically significant effects showing that for the categories of material as defined above.

- Pictorial nudity reduced subsequent aggressive behaviour;
- consumption of material depicting non-violent sexual activity increased aggressive behaviour; and
- media depictions of violent sexual activity generated more aggression than those of non-violent sexual activity' (p 258)

⁷ Experimental studies involving sex offenders are summarised with the meta-analysis on criminal sexual offender reactions to pornography under Research Question 2 p 42.

⁸ Correspondence with the author confirmed that the material met the REA definition of extreme pornographic material.

Examples of laboratory studies on aggression following exposure to extreme pornographic material

Four primary studies identified in the REA and also included in this meta-analysis illustrate the methodologies employed and the nature of the findings of the early experimental research exploring aggression after exposure to extreme pornographic material, as defined by the REA, comparing the effects with non-violent material.

Donnerstein (1980) conducted an experiment designed to examine the effects of aggressive-erotic stimuli on male aggression towards females. The study involved 120 male students and the extreme pornographic material employed involved a graphic depiction of the rape of a woman at gunpoint (p 271). This study found statistically significant increases in aggression towards women following exposure to depictions of sexual aggression (p 274). Even non-angered subjects were aggressive towards the woman when she was depicted as enjoying the experience of being raped.

Zillmann, Bryant and Carveth (1981) conducted a study on pornography and aggression involving 40 male students which employed graphically explicit exposure to sadomasochism and bestiality (p 155). This study found a statistically significant increase in retaliatory aggression following exposure relative to no exposure.

Donnerstein and Berkowitz (1981) reported on two studies involving 160 male students, both designed 'to investigate whether the behavioural characteristics of the people in erotic films and the nature of the targets available for aggression afterward can affect subsequent aggression'. Pornographic material involved gang rape with physical violence, with the woman portrayed as 'smiling' in one, and in the other as 'suffering' (p 713). They found statistically significant effects in the shocks administered by the male to the female following exposure to sexually aggressive pornography (pp 19-20). The authors concluded that 'the addition of aggression to the sex in pornographic materials is probably more dangerous (in terms of possible aggressive consequences) than the display of "pure erotica" [and] could stimulate aggressively disposed men with weak inhibitions to assault available women' (p 722).

Meta-analytic study two – Exposure to pornography and acceptance of rape myths (RMA) in experimental studies

Allen *et al.*, (1995b) reviewed 24 studies with a total sample size of 4,268 (listed in Annex E). These aimed to test whether exposure to violent pornography under laboratory conditions was associated with increased acceptance of rape myths.

As with the previous meta-analysis, the definition of pornography used was 'material intended or expected to create sexual arousal for the receiver' and included both violent and non-violent pornography with findings reported comparing the effects of each.

Included studies had to involve the use of a measure of some type of rape myth acceptance (RMA), i.e. an examination of attitudes toward rape or the use of force against women in a sexual context. Examples of RMA scales used in included studies were:

- 'sexual callousness;
- attitudes towards inter-personal violence;
- adversarial sexual beliefs;
- perceptions of rape harm to victim;
- willingness to rape; or
- combinations of such scales' (p 13).

This meta-analysis found that for the included experimental studies:

- violent pornography increased the acceptance of rape myths consistently in experimental settings across all included studies;
- non-violent pornography also increased rape myth acceptance; but violent pornography increased rape myth acceptance more than non-violent pornography (p 19).

These increases were statistically significant. The authors concluded that there ‘exists an association in those studies using an experimental methodology between exposure to sexually violent material and acceptance of rape myths’ (p 22).

Examples of laboratory studies on the association between extreme pornographic material and rape

A number of the primary studies identified in the REA found significant correlations between exposure to pornographic material depicting explicit serious sexual violence, explicit serious violence in a sexual context, or explicit intercourse or oral sex with an animal (bestiality), and the effects of this on the attitudes, beliefs and behaviours of male students with regard to rape and rape victims.

The effects of sexual arousal to extreme pornographic material on force-oriented or high aggression men

Six primary studies on the effects of pornography involving explicit serious sexual violence and explicit serious violence in a sexual context on male students with a predisposition to aggression, which compared these with the effects of non-extreme material were identified in the REA. These studies, which scored on methodological appraisal respectively 83, 65, 65, 77.5 and 87.5 per cent, are unique to the REA, and are summarised here to elaborate the findings of the meta-analysis.

Malamuth (1981a) investigated rape fantasies as a function of exposure to sexually violent pornography with 29 male students who were initially classified on the basis of questionnaire responses as sexually force oriented or non-force oriented, then randomly assigned to exposure to rape or mutually consenting sexual material and subsequently asked to create their own fantasies. Self-reported sexual arousal during the fantasy period indicated that those who had been classified as force-oriented created more arousing fantasies after having been exposed to the rape material, while those classified as non-force oriented created fantasies associated with the consensual sexual material. These findings were statistically significant. They also reported greater likelihood to commit rape and an increase in rape fantasies as measured by penile tumescence and self-report, irrespective of their force orientation (p 33).

Two studies conducted by Barnes, Malamuth and Check (1984a, 1984b) examined the association between ‘psychoticism’ and rape proclivity in a ‘normal’ population of 145 male college students. This study found that males with high P scores were more sexually aroused by rape depictions compared to non-rape depictions than low P scorers based on both self-reports and penile tumescence (pp. 170-172). These findings were statistically significant.

Ceniti and Malamuth (1984) investigated the effects of repeated exposure to sexually violent or non-violent stimuli on sexual arousal to rape and non-rape depictions on 69 male students (p 537). Force-oriented subjects, when compared with control subjects, displayed a statistically significant increase in sexual arousal when exposed to sexually violent stimuli.

The two studies reported by Lohr, Adams and Davis (1997) involved heterosexual activity that ranged from consenting sexual activity to sadistic rape involving extreme physical as well as sexual violence with the raped woman resisting, but becoming physiologically aroused (p 232). Both studies involved 24 male

college students divided into two groups, one identified as 'sexually coercive' based on a rating scale and the other a 'control' group of non-sexually coercive males. It used both phallogometric indices to measure penile tumescence and subjective indices of arousal and erection. The studies found that the sexually coercive group showed statistically significant greater physiological arousal than did those in the control group in response to the rape scenarios involving verbal pressure, verbal threats, physical force and sadistic rape, and that coercive males had a lower threshold for sexual arousal, i.e. easily triggered to the consenting sex and all four of the rape scenarios.

Extreme pornographic material exposure and self-reported likelihood to rape

Three studies identified in the REA investigated the relationship between exposure to explicit serious sexual violence and explicit serious violence in a sexual context, and self-reported likelihood to rape, and made comparisons between this and non-extreme pornographic material when it was also employed.

Malamuth, Haber and Feshbach (1980) explored the effects of exposure to sexual violence on 53 male and 38 female students' reactions to rape by exposing them first to either a sadomasochistic or a non-violent version of the same sexual passage and then to a portrayal of rape at knife point with threats to cut the victim (p 124). The study found a statistically significant 'proclivity to rape' amongst male subjects based on their perceptions of the victim's pain. There was a significant correlation between self-reported tendency to commit rape and sexual arousal to both the sado masochism and the rape depictions. Fifty-one per cent of the male subjects said there was some likelihood they would do what was depicted if they could be sure of getting away with it, and 17 per cent would do so without that assurance (p 121).

Malamuth and Check (1983) reported on a study involving 145 male students exposed to depictions of sexually violent material in which the victim was either consenting or not consenting (p 57). They found that those who had scored high on likelihood to rape experienced greater arousal to the non-consenting sexual violence, both on the self-report measure and on the penile tumescence measure. These findings were statistically significant and showed that a minority of the population who were high scorers for likelihood to rape were more sexually aroused to...rape depictions (p 65).

Check and Guloien (1989) compared the effects of exposure to pornography defined as sexually explicit material which is violent (woman portrayed as enjoying rape) or non-violent but dehumanising and degrading, or non-violent and non-degrading on 117 male college students and 319 male non-student city residents. Statistically significant differences were found between subjects exposed to violent, and dehumanising pornography and subjects in the no-exposure condition, in terms of reported likelihood of rape and likelihood of forcing a woman into unwanted sex acts, with more than twice as many men in the exposure group reporting this. Interaction tests revealed that these effects occurred primarily for high P [psychoticism] scorers. High P scorers in general were also found to be 'more accepting of rape myths, have higher reported likelihoods of raping and forcing women into unwanted sex acts, and reported actually committing more acts of sexual aggression than did low P scorers' (p 177).

Effects of exposure to extreme pornographic material depicting women's sexual arousal and display of pleasure during rape

A number of experiments have been conducted to identify the specific characteristics of the rape depictions that influence sexual arousal. Seven studies identified in the REA compared men's sexual arousal to consenting sex and to rape depicting women's sexual arousal, and display of either pleasure or pain during the rape.

Malamuth and Check (1980a) investigated sexual arousal to rape as a function of the victim's perceived reactions with 75 male students. A rape portrayal in which the assailant perceived that the victim became sexually aroused was found to result in high sexual arousal (as indicated by penile tumescence) in

comparison to a rape emphasising the victim's abhorrence of the assault. These findings were statistically significant with sixty-eight per cent of the sample reporting 'they would act as the rapist did if they could be assured of not being punished (p 540)'.

Statistically significant findings were also reported by Malamuth and Check (1980b) in a study on the importance of women's arousal in sexual arousal to rape and consenting sex depictions. One hundred and forty-three male and female students were exposed to a range of depictions with the victim displaying arousal or disgust. The study found higher levels of subjects' arousal to the depiction of the rape victim's arousal.

Malamuth, Heim and Feshbach (1980) found that when the rape victim was depicted experiencing an involuntary orgasm the 135 male college students reported relatively high levels of sexual arousal. They concluded that 'the elicitation of sexual arousal within a violent context may result in a conditioning process whereby violent acts become associated with sexual pleasure, a highly powerful unconditioned stimulus and reinforcer which could possibly lead to changes in behaviour' (p 407).

Malamuth and Check (1985) reported additional findings from their study of 145 college males, that those exposed to a non-consenting woman's rape arousal depiction subsequently believed that a greater percentage of women would both enjoy being raped and enjoy being forced to do something sexual than subjects who were exposed to a non-consenting woman's rape disgust depiction. These findings were statistically significant. They also found that men with relatively higher inclinations to aggress against women were particularly likely to be affected by...depictions of rape myths' (p 299).

Ohbuchi, Ikeda and Takeuchi (1994) found in a sample of 72 male students that those with a high rape proclivity strongly believed rape myths such as women desire to be raped and enjoy it. A study by Norris *et al.* (1999) involving 119 males recruited from the local community found that a combination of 'hyper-masculinity' and alcohol consumption under laboratory conditions interacted with a rape myth text of a woman portrayed consuming alcohol and experiencing pleasure being raped. This combination of factors acted to reduce subjects' empathy for the rape victim. In both of these studies the effects were statistically significant.

Desensitisation, habituation and satiation effects of non-extreme pornographic material on the consumption and effects of extreme pornographic material

The two meta-analyses by Allen *et al.* (1995a and 1995b) found statistically significant negative effects associated with both sexually violent and non-violent material including sexual callousness, adversarial sexual beliefs, perceptions of harm to rape victims and self-reported willingness to rape (Allen, D'Alessio and Brezgel 1995a, p 271; Allen *et al.*, 1995b, p 21). This was also found in the three further meta-analyses summarised later in this report: Allen, D'Alessio and Emmers-Sommers, 1999 pp. 42-44) on sex offenders; Oddone-Paolucci *et al.* (2000 pp 52-53) on all pornography published between 1962 and 1995; and Hald *et al.*, (2006 p 36) on non-experimental studies.

Three studies identified in the REA complement and extend the findings of these meta-analyses by examining the desensitisation, habituation and satiation effects of non-violent pornography and illustrating its relationship to material involving explicit intercourse or oral sex with an animal (bestiality) or to explicit serious sexual violence (rape). (Zillmann and Bryant, 1982, pp 13-14; Zillmann and Bryant, 1986, p 560; Milburn, Mather and Conrad, 2000, p 645.)

Zillmann and Bryant (1982) found in a sample of 80 male and 80 female students, a statistically significant association between exposure to pornographic material and the trivialisation of rape (recommendations of significantly shorter prison terms for rapists) and a process of desensitisation resulting in increased male sexual callousness towards women. Milburn, Mather and Conrad (2000) examined the effects of exposure to non-violent pornographic material on the effects of exposure to sexually violent pornographic material with

137 male and female students and found that males who previously viewed the sexually objectifying material felt that the victim in the date rape scenario experienced pleasure and 'got what she wanted' (p 645). These findings were statistically significant.

The studies by Zillmann and Bryant (1982, pp 15-18) found normalisation of 'uncommon' sexual acts (e.g. anal sex, group sex, bestiality, sadomasochism), and that following 'considerable prior exposure to non-violent pornography, male subjects from both a university and city population of 160 'lost interest in it and elected to watch uncommon pornography involving bondage, sadomasochism and bestiality' (1986, p 572). These findings were statistically significant. Similar patterns were found in both student and city population samples.

Exposure to extreme pornographic material in laboratory studies with nil effects or conflicting findings

Five experimental studies identified in the REA did not find negative effects from exposure to the sexually violent pornographic material employed. All drew comparisons between exposure to extreme pornographic material (defined as 'sexually aggressive') and non-extreme pornographic material. Malamuth and Ceniti (1986) found that neither 'violent nor non-violent material affected laboratory aggression' (p 131). Fisher and Grenier (1994) found that 'no male subject in their first experiment produced a sexually aggressive fantasy' and in their second, 'subjects discontinued their participation' (p 35). Bauserman (1998) found that 'subjects responded most positively to egalitarian scenes and most negatively to the sexually aggressive scenes' (p 244).

Fisher and Grenier (1994) reported their nil effects findings in a paper challenging the findings of key experimental studies which had reported harm effects, claiming that previous findings had been selectively reported, when in their view, 'a highly inconsistent pattern of empirical findings emerged' (p 25).

Malamuth, Addison and Koss (2000) responded with concern that the Fisher and Grenier claims were being 'cited as ostensive proof that research in this area has not yielded any reliable effects'. They argued that 'most of the studies noted by Fisher and Grenier as failing to confirm effects of violent pornography actually reveal considerable evidence to the contrary' (p 87). Their paper included a critical analysis of the disputed experimental studies addressing the issues raised by Fisher and Grenier (1994). This is reproduced in Annex F for the clarification it provides about how the findings of experimental studies should be interpreted. They also argued that Fisher and Grenier's own study was 'seriously lacking in many areas [and regarded] its methodological shortcomings to be at least as serious as the weakest studies in this literature' (p 32). The second study they claimed to be of 'little scientific validity' as the investigators had failed to complete it (p 40).

Findings from non-experimental studies

Meta-analytic study three – exposure to pornography and acceptance of rape myths (RMA) in non-experimental studies

The meta-analysis conducted by Allen *et al.* (1995b) included both experimental and non-experimental studies. Their findings about rape myth acceptance in the 15 experimental studies were not replicated in their meta-analysis of eight non-experimental studies (pp 18-19). Hald *et al.* (2006) conducted a meta-analysis of nine non-experimental studies involving 3,368 subjects listed in Annex E. Four of these involved a re-analysis (and correction) of studies included in Allen *et al.*, (1995b) and five were additional studies. This meta-analysis found a statistically significant relationship between pornography consumption and Attitudes Supporting Violence (ASV) against women in non-experimental studies. In a sensitivity analysis based on type of pornography consumed, they found the strongest association was between violent pornography and ASV (Hald *et al.*, p 19).

Surveys of extreme pornography effects on male students

The REA identified five surveys of a total of 3786 male students, all of which involved at least some extreme pornographic material. Three compared the effects between pornographic material depicting explicit serious sexual violence and explicit serious violence in a sexual context, and non-extreme material.

In these studies extreme pornographic material included: rape involving both physical and sexual violence (Garcia, 1986, pp 379-380); violent [material] (which included bondage, torture and mutilation, and whipping, spanking or beating) and sexually violent rape and gang rape (Demaré, Briere and Lips, 1988, pp 143-144); and 'material depicting bondage, whipping and spanking without an explicit lack of consent [and] ... rape in which force is used and there is an explicit lack of consent' (Boeringer, 1994, p 291).

These studies found statistically significant correlations between exposure to sexually violent material of this nature amongst these samples and pro-rape attitudes and rape proclivity. Garcia (1986) found in a sample of 115 male students that 'correlations with the attitude towards rape measures were statistically significant and consistent with the idea that subjects with greater exposure to violent sexual materials endorsed beliefs that can be classified as a pro-rape orientation to a greater extent than subjects not exposed as much to these stimuli' (p 383).

Demaré, Briere and Lips (1988) found in a sample of 222 male students that 27 per cent reported a likelihood of raping or using force against a woman, and that 'the use of sexually violent pornography and acceptance of interpersonal violence against women were uniquely associated with self-reported likelihood of using force or rape' (p 140). These findings were statistically significant.

In the retrospective self-completion questionnaire survey conducted by Boeringer (1994) subjects included 477 male students. This study found 48 per cent reporting self-reported likelihood of rape. It also found that the majority had previously used verbal coercion to obtain sex, one-quarter had used alcohol or drugs to do this, and nearly one in ten had used force or threats of force (p 293)...with the group reporting high exposure to extreme pornographic material being six times more likely to report rape behaviour (p 297). The study concluded that 'overall exposure to sexually explicit materials appears to be a significant correlate with sexual aggression and rape proclivity...Higher exposure to pornography depicting violent rape behaviour appeared to be significantly related to both engaging in sexual aggression and believing oneself capable or likely to engage in sexual aggression...Violent pornography was also correlated with coercive sexuality and use of rape pornography was correlated with use of drugs or alcohol to obtain sex'. These findings were statistically significant.

Taken together these surveys provide some evidence that the real life experience of men's exposure to extreme pornographic material corroborates the findings of the experimental studies, and vice versa.

The two studies in which extreme pornography was only a small element of the material consumed nonetheless found that force-oriented men in a sample of 2972 college males who were frequent users were 'much more likely to have engaged in sexual aggression than their counterparts who consume pornography less frequently' (Malamuth, Addison and Koss, 2000, pp 79-80).

Hald *et al.* (2006) found 'an overall significant relationship between ASV (Attitudes Supporting Violence Against Women) and pornography consumption', with the strongest association between pornography consumption and attitudes supporting sexual violence against women occurring with those known to be already at high risk of sexual aggression' (p 19).

Extreme pornography effects on women

Experimental exposure involving women

There were very few studies identified in the REA that examined the effects of pornography on women. Some of the experimental studies involved female as well as male subjects. For example, the study by Malamuth, Haber and Feshbach (1980) found that, compared to male subjects, women felt more frustrated, offended, embarrassed, angered and negative following exposure to the rape stories (p 121). One experimental study involved only women exposed to both non-violent and violent pornography (at least some of which would meet the REA definition of extreme). This found that 'ratings for violent pornography were most negative, ratings for non-violent pornography were negative but less so than for violent pornography' (Senn and Radtke, 1990 p 146).

Qualitative studies of sexually violent pornography effects on women

Unlike the meta-analyses, the REA included qualitative research and identified two studies which involved the effects of extreme pornographic material on women. In one, words such as "terrified", "scared" or "disgusted" were used to describe their feelings when looking at this material (Shaw, 1999, p 203). In the other, women described the 'traumatic and devastating' effects they experienced on discovering the extreme nature of some of the pornographic material their partners were accessing' (Bergner and Bridges, 2002, pp 198-199).

Research Question 2: Is there any evidence that exposure to extreme pornographic material causes or contributes to sexual or violent offending?

There were three categories of research identified in the REA that addressed the question of evidence that exposure to extreme pornographic material causes or contributes to sexual or violent offending.

- Sexual offender research (including experimental and case study material).
- Findings from non-experimental studies.
- Surveys of women whose victimisation had involved the use of pornographic material depicting explicit serious sexual violence.

Research with male sexual offenders

Meta-analytic study four – reactions of criminal sex offenders to pornography

Allen, D'Alessio and Emmers-Sommers (1999) conducted a meta-analysis of 45 studies with a sample size of 4642 (listed in Annex E) on reactions of criminal sex offenders to pornography that specifically addressed research question two.

This used a definition consistent with the previous meta-analyses, i.e. 'material that intends to increase or has the effect of increasing sexual arousal', the 'lowest common denominator' of which generally involves 'explicit sexual descriptions or depictions of sexual behaviour or reproductive body parts' (pp 140-141). The material covered included both sexually violent and non-violent pornography and considered three basic types of dependent measures: a) frequency of use, b) age at first exposure to sexual material, and c) use of sexual material prior to or as part of some form of sexual behaviour (masturbation, consensual sex, coercive sex, or criminal sexual behaviour).

Based on studies involving self-report methods, this meta-analysis did not find substantial evidence that criminal sex offenders use pornography more often or at an earlier age than non-criminal comparisons (p 148)⁹. However, it did find that criminal sex offenders were more likely to perform sexual acts (masturbation, consensual or criminal sex) after viewing the material than control group men. The authors concluded that it is not the frequency of use of pornography that differentiates criminal sex offenders from comparisons but the behavioural actions subsequent to exposure (p 139).

In addition, criminal sex offenders reported higher levels of sexual arousal when viewing depictions of rape. The average effect indicated that sex offenders were much more aroused by sexual materials depicting coercion than were non-offender comparisons (p 155). These findings were statistically significant.

The authors tested a 'matching hypothesis' that 'the content of the material should match the interests of the participants', i.e. that rapists might experience arousal to consensual sex scenes, but would generally be more aroused by rape scenes. This was assessed using 23 estimates and found an average effect almost three times as large as the general average, indicating 'that there are correspondences among the content of the material, the sexual practices or preferences of the person, and the degree of sexual arousal generated by exposure to that material' (p 155). These findings were statistically significant.

The authors concluded that physiological measures of arousal indicate that 'sex offenders are generally more aroused by sexually explicit material than non-offenders', and that 'the correlation increased dramatically when the content of the material is matched to the crime committed by the individual' (p 139).

Findings from experimental studies with sexual offenders

Six primary studies identified in the REA reported on sexual offender use of pornographic material. Abel *et al.* (1977) compared 20 rapists' and non-rapists' sexual arousal to rape (at knife point involving physical as well as sexual violence) and non-rape pornography (p 898). They found that rapists were sexually aroused to rape depictions, and non-rapists were not. The method discriminated those rapists with the highest frequency of rape, those who had injured their victim, and those who chose children as victims' (p 895). The findings were statistically significant.

Quinsey, Chaplin and Varney (1981) conducted a study with a sample of 60 rapists and ten non-sex offenders in a maximum psychiatric institution in Canada with a control group of 20 non-patients, involving five rape narratives in which significant force and degradation were used with an unwilling female stranger (p 131). The study found that the rapists were the only group to respond more to the rape than the consenting sex. These findings were statistically significant.

Quinsey, Chaplin and Upfold (1984) compared the response of twenty sex offenders (two of whom had been charged with murder that occurred as part of a sexual assault) with ten non-sex offenders and ten men from the local community, using material depicting rape with extreme physical violence (p 653). The study found that rapists showed more sexual arousal to rape depictions and less to consenting sex stories than the control subjects. These findings were statistically significant. The authors concluded that the amount of violence in the rape descriptions is critical in differentiating rapists from non-sex-offenders (p 651).

Quinsey and Chaplin (1984) compared the sexual arousal of 15 rapists and 15 non-sexual offenders involving consenting sexual material and rape depicting victim experiencing pain or pleasure (p 169). This study found that 'non-rapists responded less to the victim suffer variable than to the victim enjoy variable, whereas the rapists showed no significant difference' (p 174).

⁹ Strictly speaking, the comparisons should be described as men who are not known to be offenders, as it is quite possible for such groups to contain undetected or previously convicted offenders. The comparisons then are between men who are convicted offenders and those whose offending/conviction status is unknown. Such a comparison is likely to be an under-estimate of the difference between offenders and non-offenders

Marshall (1988) combined experimental exposure in the laboratory to measure sexual arousal to rape and consenting sex depictions with self-reports taken from in-depth interviews about current and pubescent pornography use with 89 non-incarcerated sexual offenders in a treatment clinic and a control group of men not known to be offenders (p 274). The study found statistically significant differences with regard to whether the material served to instigate sexual offences. High frequency masturbators were far more likely to be current users and to use the material to instigate their crimes (p 283). Moreover, when compared to control groups, these offenders reported substantially greater use of sexually explicit material, and that current use was significantly related to the chronicity of their sexual offending (p 267).

Beauregard, Lussier and Proulx (2004) explored the developmental factors related to deviant sexual preferences among 118 adult rapists, employing rape depictions with physical violence and humiliation. The study found that arousal to both rape depictions was positively correlated with incest, use of pornography and deviant sexual fantasies (pp 151-161). The findings were statistically significant.

Sexual offender case series findings

The REA identified a high-scoring qualitative study by Jensen (1995) of 13 interviews with sex offenders. These are summarised in Annex D and provide comparisons between the content of the different kinds of pornography they use, the relationship between their pornography use and their offending, and how over time they progressed to using increasingly extreme pornographic materials (Jensen, 1995, pp 35-36).

Studies of victimised women

The majority of research on the effects of pornographic material depicting explicit serious sexual violence and explicit serious violence in a sexual context on sexual and violent offending has been with rapists in the criminal justice system. However, a further source of evidence of harm associated with pornographic material of this nature comes from research with women who have been victimised through their partners' use of this material.

The REA identified three studies involving such women. Sommers and Check (1987) surveyed 21 battered women from a shelter and a comparison group of 21 women from the university to investigate the role of pornography in the physical abuse of women. They found the partners of the battered women read or viewed significantly greater amounts of pornographic materials than the partners of the comparison group, and the 'battered women experienced significantly more sexual aggression at the hands of their partners than did women in the comparison group' (p 189).

Cramer *et al.* (1998) conducted a prospective cohort study of 198 women attending a public clinic who were pregnant and reported having been abused by their male partner in the year prior to or during pregnancy. Almost 41 per cent indicated that their abusers used sexually violent pornography, and the severity of violence used against women was highest for those women who reported that the abuser asked or forced them to look at, act out or pose for pornographic pictures (p 329).

Cramer and McFarlane (1994) conducted a survey of 87 'battered women filing charges against their male partner at the district attorney's office in a large metropolitan city' (pp 268-272). Pornographic material involved rape with physical violence. The study found a statistically significant association between men's use of violent pornography and physical [and sexual] abuse of women (p 271).

Silbert and Pines (1984) conducted a survey with 200 street prostitutes. Pornographic material included snuff (i.e. sexual murder) and rape with extreme physical and sexual violence. Out of 193 cases of rape, 24 per cent of victims mentioned allusions to pornographic material on the part of the rapist [who typically] referred to pornographic materials he had seen or read and then insisted that the victims not only enjoyed the rape but also the extreme violence.

These studies of women's real life victimisation associated with men's use of sexually violent pornography corroborate the findings of the experimental studies and the case study with sex offenders about the role of pornography in their offending behaviour. The difference is that the men in these studies were not a sample of convicted sex offenders, but partners of women purposively sampled through community settings.

Non-offender case series findings

The paper by Jensen (1995 above) also included case study data from 11 men who were not known or convicted sex offenders, but in a treatment programme for problematic pornography use. One he described as:

'...in many ways more dangerous to himself and others than most of the men in the sex offenders' group. It was clear from his statements that pornography had been a part of a lifetime of his sexual victimisation and sexual abuse of women. He had difficulty disengaging from the fantasy world of pornography and often imposed the narratives of pornography on his own life. The anger he felt toward women because of events in his life has been reinforced by the misogyny in pornography'

(Jensen 1995, p 46).

This finding, together with the findings of the surveys of men, demonstrate how the real-life experience of victimised women is corroborated by some men's real life (as distinct from the laboratory) use of sexual and physical violence associated with extreme pornographic material.

Research Questions 1 and 2: Effects on users and links with sexual and violent offending

A fifth meta-analysis identified in the REA included studies addressing both research question one (the effects of extreme pornographic material on those adults who access it) and research question two (whether this material contributes to sexual and violent offending).

Meta-analytic study five – published research on the effects of pornography 1962-1995

The meta-analysis by Oddone-Paolucci, Genuis and Violato (2000) reviewed 46 studies (listed in Annex E) with a sample size of 12 or greater (providing a total sample size of 12,323), which involved the use of a contrast or comparison group. The studies were published between 1962 and 1995 in academic journals (pp 48-50). Its aim was to determine the effects of pornography on: sexual deviancy, sexual perpetration, attitudes regarding intimate relationships and attitudes regarding rape myths. Pornographic material covered included:

- mild pornography of sexual activity without genitalia visible;
- erotica or explicit pornography of sexual activity with genitalia visible;
- violent pornography including depictions of rape, degradation, sexual aggression or sadism.

The paper did not analyse the data by category of pornography. However, given the overlap of studies within this and the previous meta-analyses and the studies included in the REA, it is clear that pornographic material depicting explicit serious sexual violence was found in each of the areas covered by this meta-analysis.

The authors described these results as 'clear and consistent [that] exposure to pornography puts one at increased risk for developing sexually deviant tendencies, committing sexual offences, experiencing difficulties in one's intimate relationships and accepting rape myths' (p 54).

Moreover, the authors computed ‘an estimate of the fail safe N to determine the number of [new] studies with clear findings in the opposite direction required to refute the present findings’ and reported that:

- 46 additional studies would be required to refute the results for sexual deviancy;
- 142 additional studies would be required to refute the results for sexual perpetration;
- 49 additional studies would be required to refute the results for intimate relationships; and
- 47 additional studies would be required to contradict the rape myth findings.

The authors concluded that ‘overall, 284 [as yet] unreported studies averaging a null result would be required before the present meta-analytic findings could be reasonably ascribed to sampling bias. Accordingly, the results of the meta-analysis are stable and generalisable’ (p 51). They argued that ‘these results suggest that the research in this area can move beyond the question of whether pornography has an influence on violence and family functioning’ (p 48).

The findings of this meta-analysis confirm those of the previous meta-analyses and the REA with regard to the experimental research and to the non-experimental surveys with men. Taken together they constitute a substantial body of mutually corroborative evidence of the harm effects of extreme – and other – pornographic material.

Research Question 3: Is there any evidence that those adults who participate in making extreme pornographic material are harmed by it?

The REA search did not identify any research studies that directly addressed the question of harm to those adults who participate in making pornography. However, there were a number of other sources that it is relevant to highlight and collate including:

- descriptions and content analyses reporting on the nature of extreme pornographic material;
- official inquiries to which women have given evidence of their abuse in pornography; and
- studies of serial sexual killers who have recorded the sexual violence, abuse and torture of their victims.

Documentary evidence

There is a strong argument that the content of extreme pornographic material is itself evidence of harm to those who have participated – or were used – in its making (Itzin 1992b). The status of these depictions as evidence has been regarded as ambiguous because it can be claimed that:

- it is not absolutely possible to prove that the violence is real and not performed or staged; or
- it is claimed that the violence was consensual; or
- that the woman was a willing victim.

However, testimony given by victims to official inquiries corroborates the documentary evidence of what is seen in extreme pornographic material. “This pornography has also been submitted as evidence of abuse or obscenity in court proceedings (Edwards 2000) and a government inquiry in the UK. (Williams Committee 1979).”

Victim evidence

In the US, Public Hearings were held by the City of Minneapolis in 1983 to support the introduction of civil rights legislation. Testimony was given by 57 individuals, the majority of them female victims of pornography. They included Linda Marciano known as Linda Lovelace, the 'star' of the film *Deep Throat*.

She described being seduced by a pimp and initiated into prostitution through a forced gang rape, held prisoner for two years, beaten physically, and forced at gunpoint to perform the sexual acts in the film. She was forced to smile in the film 'so' (as she testified) 'I look as though I am really enjoying myself...No one ever asked me how those bruises got on my body'. She said: 'Virtually every time someone watches that film, they are watching me being raped' (MacKinnon, and Dworkin, 1998, p 124). Linda Marciano was also used in the making of extreme pornographic material involving bestiality (Village Books *et al.*, v City of Bellingham, 1989, pp 21-22).

Perpetrator evidence

Sadistic sexual killers

Records kept by serial sexual killers of the sexual torture and murder they perpetrate on their victims include audio/video tape recordings of the rape, torture and murder of these victims. These constitute extreme pornographic material as produced by the perpetrators. As such, they provide evidence of the harm experienced by the victims in the making of such material, including in the case of serial sexual killers, of sexual murder (Dietz, Hazelwood and Warren, 1990).

3. Discussion

Summary of REA findings

This assessment of the pornography effects literature has identified evidence from different kinds of research conducted over a period of 30 years of harm associated with the use of extreme pornographic material that met the Home Office definition of explicit serious sexual violence, explicit serious violence in a sexual context, and explicit oral sex or intercourse with an animal (bestiality).

This includes the physiological, psychological, attitudinal, affective, cognitive and behavioural effects of this material on:

- populations of 'normal' (largely) male students in US and Canadian universities, and other men identified in the surveys of victimised women;
- (entirely) men convicted of sexual and/or violent offending; and
- (largely) female victims of sexual and violent acts perpetrated by users of such material, or used in its making.

The evidence of harm has come from psychological and social science research, including experimental studies conducted under laboratory conditions; surveys of men and women sampled from different settings; qualitative material including case studies and legal evidence given by victims; and the documentary evidence of sexual violence in the actual material of extreme pornography.

The summaries of the meta-analyses and primary studies identified in the REA provide clear evidence from the experimental research of a correlation between sexual arousal to sexually violent pornography and increases in sexually aggressive attitudes, beliefs and behaviours. These studies show that:

- sexually explicit materials which are produced to be arousing are in fact arousing, both to those known to be offenders and to (assumed) non-offenders.
- rapists are aroused by both forced and consenting sexual depictions, but they are much more aroused by depictions of coercion than non-criminal controls (Allen, D'Alessio and Emmers-Sommers, 1999, p 155). This correlation increased three-fold when the content of the material matched their crime (p 139).
- one-third of rapists report using forced sexual depictions as part of their deliberate pre-offence preparation (Marshall, 1988, p 280).
- men who are not known to be offenders are more aroused by consensual depictions than rapists, and less aroused by depictions of sexual aggression. However, when the victim is portrayed as 'enjoying' the rape, the depictions elicit higher arousal levels for both groups.
- statistically significant correlations were found between sexual arousal to rape depictions, rape fantasies, self-reported likelihood to rape or to use of force and past sexual aggression, in particular for men with a predisposition to aggression. All of these measures correlate with aggression towards women in the laboratory.

The findings from experimental research of pornography effects with both offender and non-offender (or offender status not known, presumed to be non-offender) men are corroborated by non-experimental studies. Surveys of men found correlations between exposure to violent sexual materials and:

- pro-rape attitudes;
- self-reported likelihood to rape or to use force;
- acceptance of rape myths;

- acceptance of interpersonal violence against women; and
- actual rape in previous acts of sexual aggression, including rape with physical aggression.

The effects were most adverse for men with a predisposition to aggression.

The findings of the laboratory studies and surveys of men are further corroborated by triangulation with the other research designs and samples evidenced in this report: by case study data from known sexual offenders and other men (whose offender status is unknown) and the findings of qualitative studies with women. What is found from research with men about pornography's influence on sexual aggression is corroborated by surveys of women whose victimisation was associated with men's use of sexually violent pornography, by qualitative studies with women, and the testimony of women given in legal proceedings. Laboratory research is corroborated by the real life experience of both victims and perpetrators.

Taken together, this triangulation of data points in the same direction: towards the harmful effects associated with exposure to extreme pornographic material, in particular for men with a predisposition towards, or a history of, sexual aggression.

In summary

The disputes in the academic literature about the accuracy and status of the findings from experimental research have been addressed to some extent now by the use of meta-analytical methods. Further clarity has been provided by the terms of reference and approach adopted by the REA, and its ability to triangulate findings from studies with different methodologies and samples. Inevitably there are limitations to what research can achieve, and in particular what research on pornography can achieve within the bounds of ethical practice and available methodologies. However, the findings of the meta-analyses and the REA provide a basis for developing shared understandings within the research community about the effects of pornography on individuals who use it, and its contribution to sexual and violent offending.

4. Conclusions and conceptual models

REA study conclusions

The REA has identified a large body of different kinds of research with findings of different kinds of harm associated with exposure to pornographic material depicting or enacting explicit serious sexual violence, explicit serious violence in a sexual context and/or explicit intercourse or oral sex with an animal (bestiality). This assessment has been able to draw on a series of high quality meta-analyses brought together and summarised for the first time in this report. Altogether the REA covers the:

- thirty-three studies in Allen, D'Alessio and Brezgel (1995a);
- twenty-four studies in Allen *et al.*, (1995b);
- forty-five studies in Allen, D'Alessio and Emmers-Sommers (1999);
- forty-six studies in Oddone-Paolucci, Genuis and Violato (2000); and
- nine studies in Hald *et al.*, (2006).

Taking account of the primary studies that are included in more than one of the meta-analyses, there are a total of 124 independent studies in the five meta-analyses covering both experimental laboratory studies and non-experimental studies.

A further 32 studies not included in any of the five meta-analyses above are included in the REA. These include:

- twenty-two additional experimental studies involving mainly student populations, including one study of women only;
- two additional non-experimental studies, both surveys of male students;
- one case series study of men including known sexual offenders and other men, not known to be sexual offenders;
- one qualitative study of serial sexual killers;
- two qualitative studies of pornography effects on women; and
- four studies of women's experience of men's sexual and violent offending associated with extreme pornographic material (as defined).

In addition, documentary and legal evidence of victims' experience of making such material is summarised.

Annex E shows which studies are included in each of the meta-analyses and in the REA. Altogether the REA covers the total 161 studies listed in this annex (including the five meta-analyses).

There were a number of gaps in knowledge identified in the process of conducting the REA. These include:

- the psycho-social and physical effects of extreme pornographic material on victims who are used in its making, or exposed to it, or victimised as a result of men's exposure to it;
- the effects of exposure to extreme pornographic material on young people both as:
 - de facto sex education, and the implications of this for their sexual and psychological health; and
 - its influence on young people who sexually abuse;
- the links between prostitution and pornography, and the trade and traffic in women and children and adolescents of both sexes for these purposes;
- the extent of extreme pornographic material and its content across the media, and in particular the internet; and

- the lack of studies which sample from the general population including public perceptions of extreme pornographic material.

Altogether the research reviewed in this report provides evidence of the negative psychological, attitudinal and behavioural effects on adults who access this material. These include (for men):

- physiological arousal (which conditions desire and orgasm to the content of the extreme pornographic material involved);
- psychological desensitisation, habituation and satiation leading to:
 - beliefs that women enjoy or desire rape;
 - lack of empathy with rape victims;
 - a preference for more extreme material;
- attitudinal effects:
 - rape myth acceptance;
 - pro-rape attitudes;
 - self-reported likelihood to use force or to rape;
- behavioural effects such as:
 - aggression in the laboratory after exposure;
 - using pornographic materials to prepare for sexual offences (for convicted rapists);
 - actual real life rape and sexual aggression (disclosed by men in surveys of (presumed to be) non-offenders, and identified in surveys of women who have been victimised by such men).

The research shows a proportion of the male population to be vulnerable to the effects of extreme pornographic material including those with a high predisposition to aggression, those reporting a likelihood of using force or committing rape, and those who report already having used force to obtain sex. Research testing theoretical models has identified a mutually-reinforcing relationship between extreme pornography as a causal factor in instigating sexual aggression, and a predisposition to sexual aggression creating an interest in extreme pornographic material.

The effects of pornographic material depicting explicit serious sexual violence and bestiality for women include:

- physiological arousal;
- largely negative emotional effects such as disgust and anger;
- psychological effects such as fear and anxiety; and
- as a result of men's use of or the making of such material:
 - physical assault;
 - sexual assault and rape;
 - death.

Between them, the meta-analyses and the REA are a significant step in clarifying the position in an area subject to previous academic dispute. For example, there has been progress in addressing the external validity of experimental studies, with findings of similar effects from the meta-analyses of non-experimental studies surveying college men.

Discussion of theoretical perspectives on the role of extreme pornography in the aetiology and processes of sexual offending

REA Research Question 2 asked: Is there any evidence that extreme pornographic material causes or contributes to sexual offending? The critical issue for public policy has been whether the findings of harm effects can be said to be 'causal' in the aetiology and processes of sexual and violent offending.

Howitt and Cumberbatch (1990) in their review of some of the research on the effects of pornography for the Home Office reported on studies that showed harm effects, but concluded that 'a causal link has yet to be clearly established' between pornography and sexual offending or violence against women (p 95).

The problem with the experimental research according to Malamuth, Addison and Koss (2000) is that 'cross-sectional correlational data cannot fully disentangle cause and effect relationships no matter how many statistical controls are applied'. This has led them to 'explore pornography consumption as a risk factor...for sexual aggression,' and they have argued for an approach that brings together and builds on 'the cumulative weight of evidence pertaining to different models' (pp 58-59).

This is possible now given the advances in conceptualising and theorising aetiology and causality that have taken place. The most recent formulations are of multiple, complex and inter-related factors in time and over time in the life of an individual, with pornography operating instrumentally in a number of ways in both creating a predisposition to and in triggering specific offences.

Clinical work with sex offenders has offered some insights into these processes. Building on the work of Finkelhor (1984), Wyre (1992) has developed a *14-stage model of sexual offending*. In this cycle of offending, the use of extreme – and other – pornographic material has been found to 'play a part at every stage': in predisposing some adolescent and adult males to commit abuse; in legitimising and normalising abuse; in creating and reinforcing fantasy, distorted thinking and false beliefs about victims of abuse; in reducing internal and external inhibitions to abuse; and in initiating and carrying out abuse' (Wyre 1992). These findings are supported by other clinicians working in this field (Bailey 2000; Print and Morrison 2000; Eldridge 2000).

In the treatment and management of sexual offenders, Marshall (2000) has found extreme – and other – pornographic material functioning in four ways.

- 'Pornography images having antisocial effects on sex offenders;
- pornography use counteracting the efforts of sex offenders to alter their pro-offending attitudes;
- pornography use making it that much harder for sex offenders to reduce their deviant interests; and
- sex offenders' continued use of pornography putting them at risk to re-offend' (p 62).

Marshall's recommendation of 'counselling [for] sex offenders about the wisdom of continued use of pornography and its relationship to their future risk'... emphasises concerns about the harmful effects of pornography and its role in the processes of offending (p 62).

Malamuth (1998) has developed a model of sexual aggression – the '*cumulative-conditional-probability confluence model*'. This conceptualises causality based on findings from research which have identified a combination of factors contributing to sexual aggression. These include childhood experiences of parental violence and child abuse together with high scores on rating scales on Sexual Promiscuity, Hostile Masculinity and Coercion Against Women measured in terms of sexual aggression using the Sexual Experience Survey and non-sexual aggression using the Conflict Tactic Scale (Malamuth *et al.*, 1991).

Testing for the role of pornography in the confluence model, Malamuth, Addison and Koss (2000) found that:

- '...even with all of the other previously identified "risk" predictors included or controlled for, the pornography variable add[ed] significantly to the statistical prediction of individual differences in sexual aggression;
- pornography use was comparable to several of the other predictors in the magnitude of its contribution to the equation as a significant statistical contributor; and (p 73)

- a bi-directional relationship exists between ‘both a) pornography as a contributing cause to aggression against women, and b) aggressiveness as a cause of interest in pornography’ (pp 58-59).¹⁰

The authors concluded that pornography was ‘a distinctive and uniquely causal factor amongst the other risk factors for sexual aggression’ (p 73).

Marshall and his colleagues have outlined ‘a comprehensive theory of the aetiology and maintenance of sexual offending that includes the childhood development of vulnerability which, in turn, leads to a variety of problems [with] conditioning processes resulting from both overt experiences and fantasies, shap[ing] and direct[ing] the developing offender’s beliefs, perceptions, rationalisations, and sexual interest’.¹¹ Marshall (2000) has described ‘the effects of any factor (including pornography use) being variable across individuals...because the occurrence of the factor is embedded in both an historical developmental sequence as well as various current states (for example, moods, desires, feelings of entitlement, stress)’ (p 72).

Itzin (2000b) has argued that this combination of factors creates a ‘*direction of causality*’ (although by no means inevitability) in the aetiology of sexual offending for some boys from experiences of childhood abuse and neglect, through complex developmental pathways. These involve both ‘predisposing’ and ‘trigger’ factors and a combination of individual and environmental factors, including in both cases, the effects of extreme – and other – pornographic material.

Marshall (2000) concluded that there is ‘some truth to both the proposition that pornography use directly instigates sexual offending and that it conveys messages that create pro-offending attitudes’ (p 71). He highlighted what he regarded as ‘pornography’s most insidious influence; namely the acceptance of the attitudes (some obvious, some more subtle) expressed in pornography. Pornographic depictions [he argued] distort the truth about the desires and sexuality of women and children, and legitimise men’s sense of entitlement, and the use of force, violence and degrading acts by the male actors’ (p 71). Marshall (2000) concluded on this basis that ‘pornography exposure may influence...the development of sexual offending in some men’, but ‘*not solely cause [it]*’ (p 74).¹² Similarly, Itzin (2002) has argued that whilst pornography cannot be regarded as solely causal in the aetiology of offending, nor is it incidental or circumstantial, and – taking account of all the motivating and mediating factors over time in the life of an individual – has conceptualised pornography as ‘instrumentally causal in the aetiology and processes of sexual offending’ (p 26).

Fundamental to this understanding is the role of extreme pornographic material in ‘predisposing some males to desire rape, or intensifying such desires’ (Russell 1992 p 323). Malamuth (1993) concluded from the research that: ‘... the type of messages conveyed within the portrayals (for example, violent, degrading) is crucial to the impact of the materials. Sexual explicitness *per se* [he argued] does not have harmful effects... However, when a message is presented within a sexually explicit context, it may have different effects than when presented within a non-explicit context, because the content is perceived differently and *because arousal is generated*’ (p 573).¹³ Malamuth (2003) described this process as:

... a kind of feedback loop [which] makes the connection between image and sexual arousal (satisfaction) a series of behaviours that become “hardwired” into both the emotional and physiological state of the person’ (pp 33-58).

10 See also Allen *et al.*, (1999) *op. cit.* who also employ the concept of bi-directional causality thus defined p 140.

11 Marshall, W. L. (2000) *op. cit.* See also Marshall, W. L. (1989) Pornography and Sex Offenders. In Zillmann, D. and Bryant, J. (Eds.) *Pornography: Research Advances and Policy Considerations*. Hillsdale, NJ: Erlbaum Publishers. Marshall, W. L. and Barbaree, H. E. (1990) An Integrated Theory of the Etiology of Sexual Offending. In Marshall, W. L. *et al.*, (Eds.) *Handbook of Sexual Assault. Op. cit.* 257-275; and Laws and Marshall (1990) *op. cit.*

12 Emphasis added.

13 Emphasis added.

This perspective is elaborated by the view expressed by Allen, D'Alessio and Brezgel (1995a) that the social learning processes involved in pornography consumption 'operate at a cognitive but not necessarily conscious level' (p 18). Itzin (2000b) has conceptualised these subconscious processes in terms of how 'the messages of pornography become *embodied* (and engendered) through arousal and orgasm and, having been thus conditioned, live on in feelings and fantasies in ways that are deeply embedded, highly salient and difficult to dislodge' (pp 419-424). Itzin (2002) concluded that:

*'the problem of pornography is that it corrupts not morals, but desire. It is the fusion of sexual arousal and orgasm with physical and/or sexual violence against women, and their objectification, commoditisation, dehumanisation, degradation and subordination which is both **intrinsically** and **instrumentally** the harm of pornography'* (p 23).

With regard to 'pornography's ...role in inciting sexual offences', Marshall (2000) concluded that 'it is the association between sexual arousal induced in the viewer and the depiction of specific sexual acts that facilitates a sexual interest in offending...consistent with...conditioning theory' (p 67). Laws and Marshall (1990) illustrated their conditioning theory on the role of pornography in the aetiology and maintenance of sexual offending with the case study in Annex F.

In summary

Pornography raises complex moral and political issues and strong feelings amongst those with opposing views. Advances in the available analytical methodologies have made it possible to evaluate the pornography effects research independent of these issues. Taken as a whole, the empirical and theoretical evidence of harmful effects associated with extreme pornographic material suggest a need to focus on those who are harmed by it, including the damage it does to the attitudes, beliefs, fantasies, desires and behaviour of those who use it.

