

Sex and drugs in popular movies: an analysis of the top 200 films

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J R Soc Med 2005;98:464–470

SUMMARY

We analyse the portrayal of sex and drug use in the most popular movies of the last 20 years using the Internet Movie Database list of the top 200 movies of all time. Films released or set prior to the HIV era (pre 1983), animated, not about humans or G/PG rated, were excluded. Films were reviewed by one of two teams of two observers using a data extraction sheet tested for inter-rater reliability. Sexual activity, sexually transmitted disease (STD) prevention, birth control measures, drug use and any consequences discussed or depicted were recorded.

There were 53 sex episodes in 28 (32%) of the 87 movies reviewed. There was only one suggestion of condom use, which was the only reference to any form of birth control. There were no depictions of important consequences of unprotected sex such as unwanted pregnancies, HIV or other STDs. Movies with cannabis (8%) and other non-injected illicit drugs (7%) were less common than those with alcohol intoxication (32%) and tobacco use (68%) but tended to portray their use positively and without negative consequences. There were no episodes of injected drug use.

Sex depictions in popular movies of the last two decades lacked safe sex messages. Drug use, though infrequent, tended to be depicted positively. The social norm being presented is concerning given the HIV and illicit drug pandemics.

INTRODUCTION

The movie industry influences the perceptions of billions of people around the world. The top 200 movies in cinematic history have grossed in excess of \$70 billion US dollars¹ in box office takings alone: with globalization and the proliferation of home-based media technologies movies

are becoming ever more accessible to wider audiences. Movies often address and depict health-related behaviours and have the potential to model conduct and communicate normative propositions about matters such as unsafe sex and recreational drug use as well as health-promoting messages about these issues.

The World Health Organization (WHO) reported that in 2003 there were over 40 million people living with HIV/AIDS including 5 million newly infected with HIV.^{2–3} Addressing this problem in part requires population behaviour change relating to unsafe sexual practices and injected drug use. Social Cognitive Theory suggests that social norms are an important factor to consider when advocating behaviour change.⁴ Observation of influential role models and the consequences of their actions affects our behaviour. This observational learning contributes to the individual's confidence in their own ability to change their behaviour.⁵ However, public health campaigns advocating safe sex practices are often not complemented by social campaigns designed to change the social norm of unprotected sex.

Despite the magnitude of the HIV/AIDS problem only around half of American men who have sex with men and who use injected drugs report that they always use a condom.⁶ Indeed, given recall bias, this figure is likely to be inflated. Condoms are the most effective method to reduce the spread of sexually transmitted diseases (STDs) other than celibacy,⁷ and their use is advocated by international bodies including the Centers for Disease Control⁸ and WHO.⁹ Despite this knowledge, condoms are consistently not the norm in sexual practice.¹⁰

There is convincing evidence that the entertainment media influences behaviour. This explains why product placement is an important form of advertising for tobacco companies.¹¹ Smoking in movies promotes the uptake of smoking by adolescents¹² and a dose–response relationship has been demonstrated for television viewing and initiation of smoking in the young.¹³ This has led to the call to use ratings to restrict access to movies with smoking.¹⁴ An association has been posited between television viewing and alcohol consumption in adolescents.¹⁵ A survey of American teenagers who engaged in risky behaviours, including sexual intercourse and drug use, showed they spent more time watching television than their peers.¹⁶ Recently, there has

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been renewed concern about the impact on children of constant exposure to violence in the mass media,¹⁷ reflecting concerns raised by the Surgeon General of America three decades ago.¹⁸

There is a paucity of data specifically addressing popular movies and their impact on population sexual and drug taking behaviour. The recent National Youth Anti-drug Media Campaign content analysis found that most popular movies depicted alcohol and smoking and many depicted illicit drug use.¹⁹ Cross-sectional survey data have shown an association between black adolescent American females' exposure to X-rated movies and negative attitudes towards safe sex practices.²⁰ Given that adolescents spend between 3–6 hours every day watching various forms of media entertainment^{21–23} (more time than any activity except sleep), a better understanding of the content of these messages is long overdue.

METHODS

We used the Internet Movie Database [www.imdb.com] list of the top 200 movies of all time worldwide, from 30 September 2003.¹ This list was produced using international box office gross receipts without adjusting for inflation. Our assumption was that box office takings were a proxy for viewing numbers.

Exclusion criteria

To avoid viewing movies unlikely to depict sex or drug use or which reflected the pre-HIV era, five pre-determined exclusion criteria were applied (Table 1). The impact of HIV on world health became evident soon after its identification in 1981^{24,25} and so films released or set before 1983 were excluded. We also excluded animated films, as audiences are less likely to identify with their characters, although we note they often show smoking and alcohol.²⁶ Similarly, Australian Office of Film and Literature Classification G (General) and PG (parental

guidance) rated films were excluded—they very rarely depict sexual acts. Had we used the British Board of Film Classification ratings this would only have made a 3% difference to the excluded movie list. From the original list of the top 200 movies, 113 were excluded leaving 70 M rated (Mature Audience) and 17 R rated (restricted) movies for review.

Data extraction sheet design

Data extraction sheets were designed in the pilot phase to enable recording information about each episode of apparent sexual intercourse and the total counts of cannabis, non-injected, and injected drug use. Smoking and alcohol use have been previously reported^{27–29} and so only their presence was recorded in this study. Alcohol intoxication rather than consumption was noted, as responsible use is not harmful to health. A 'comments' section was included to record quotes with sex-related public health messages (see Appendix 1).

Defining an act of sexual intercourse presented coding challenges as these movies were designed for mass release to worldwide audiences and rarely depicted explicit scenes. Reviewers were instructed to code any episode in which an overtly sexual physical encounter either took place or was implied which could potentially result in an unwanted pregnancy or the transmission of an STD.

Pilot phase

Six films were reviewed in the pilot phase with an 88% (95% CI³⁰ 67–97%) concordance for the data points relating to sex depictions. Discrepancies related to estimated character ages and one to whether or not there were social consequences resulting from a sexual encounter. There were similar differences with the drug depictions and misunderstandings between the reviewers were clarified before the study phase.

Study phase

The movies included were reviewed by one of two teams of reviewers. Each team had two members who participated in the data extraction sheet formulation. The names of main characters were recorded prior to watching the movie to avoid recall bias affecting their classification (main/supporting/background). Two reviewers watched each film to minimize omissions due to concentration lapses. Each movie was watched through to the ending credits. Where available, the longer director's cuts and extended versions were viewed in preference to standard releases.

Inter-rater reliability phase

After all included movies had been reviewed we analysed inter-rater reliability. This was not randomized as many

Table 1 Top 200 box-office movies of all time

Criteria	No. (%)
Excluded	
Released prior to 1983	15 (8)
Set prior to 1983	24 (12)
Animated films	14 (7)
Films about non-humans	0 (0)
G or PG rated films	60 (30)
Included	87 (44)
Total	200 (100)

movies would not have any depictions of sex or drug use, and therefore a comparison between the two reviewing teams would be biased towards agreement. Coders could not be blinded to movie selection for the inter-rater comparison as we used the five movies from each reviewing team's list with the most episodes of sex and drug use. The other team then reviewed these movies.

The agreement of each individual data point recorded by each team for each of these 10 movies was compared. The total concordant data points were divided by the total number of data points to give an overall percentage inter-rater reliability.

RESULTS

Sixty-five of 87 movies (75%) depicted a negative health behaviour defined as: unprotected sex (32%); use of cannabis (8%); non-injected illicit drug use (7%); smoking (68%); or alcohol intoxication (32%). Assuming all excluded movies had no incidents showing sex or drug use, at least a third (33%) of the 200 most popular movies of the last 20 years depicted negative health behaviours.

Sex depictions

There were 28 movies that depicted one to seven episodes of sexual intercourse, giving a total of 53 individual episodes. Depictions were, typically, new heterosexual adult partners engaging in vaginal sex (40% episodes). There was one scene of homosexual (oral) sex.

There were 16 movies which depicted unprotected sex between new partners and a further 11 which depicted unprotected sex between married, *de facto* or regular partners. There was only a single sex episode in which condoms were assumed to have been used, given a previous discussion between the characters, but no episodes of definitive use. This single episode was also the only time any form of birth control was used in the 45 episodes of sex which could have resulted in pregnancy. Therefore, in 98% of sexual episodes in which pregnancy was a possible outcome, no form of birth control was used or suggested (Table 2).

In 47 of 53 sex episodes (89%) no clear consequences were portrayed. In two episodes there were social problems for the characters, such as marital discord from discovered infidelity, and social embarrassment. In two episodes a partner was murdered during the act (one was a rape). In one episode a participant was injured by violent but consensual sex. In one episode a car accident resulted from oral sex while driving. None of the movies portrayed HIV transmission, other STDs or unwanted pregnancies.

There were several references to condoms using terms such as 'rubbers' and 'protection'. There were also some references to the spread of STDs ('disease-spreading whore'

Table 2 Summary of sex depictions (N=53)

Feature	No. (%)
Youngest participant age	
Adolescent (≤ 18)	0 (0)
Young adult (19–25)	13 (25)
Older adult (> 25)	40 (75)
Nature of partnership	
Multiple partners	2 (4)
Heterosexual partnership	49 (92)
Homosexual partnership	1 (2)
Unclear	1 (2)
Relationship	
Married/ <i>de facto</i>	6 (11)
Regular partners	9 (17)
New partners	37 (70)
Unclear	1 (2)
Type of sex depicted	
Vaginal	45 (85)
Anal	0 (0)
Oral	7 (13)
Unclear	1 (2)
STD prevention	
Condoms used	0 (0)
Condoms discussed	1 (2)
Definitely no condom	38 (72)
Unclear	14 (26)
Birth control	
Condom	1 (2)
No birth control	44 (83)
No risk pregnancy	8 (15)
Consequences	
None depicted	47 (89)
Social problems	2 (4)
Murder	2 (4)
Physical harm	1 (2)
Car accident	1 (2)

and 'I get checked every month'). Promiscuous behaviour was glorified ('I got laid 23 times this year', 'He's called rabbit 'cos he likes to fuck a lot') and celibacy was ridiculed ('If he decides to take the lock off his cock'). There were scant references to birth control (robot prostitute: 'You're not going to get us pregnant').

Drug depictions

Seven of the 87 movies (8%) depicted between one and 10 episodes of cannabis usage (mean=3.9, SD=3.58). There were a total of 27 distinct episodes which involved mainly adult characters (74%) who were not in main roles (77%). Cannabis usage was shown in a positive light in 14 episodes

Table 3 Summary of drug depictions (N=27)

Feature	Cannabis No. (%)	Non-injected drug use No. (%)
Youngest age of user		
Adolescent (≤ 18)	0 (0)	0 (0)
Young adult (19–25)	20 (74)	0 (0)
Older adult (> 25)	7 (26)	13 (100)
Character significance		
Main	6 (22)	4 (31)
Supporting	12 (44)	1 (8)
Background	9 (33)	8 (62)
Nature of depiction		
Positive	14 (52)	10 (77)
Negative	0 (0)	0 (0)
Neutral	13 (48)	3 (23)
Consequences		
None depicted	27 (100)	12 (92)
Murder	0 (0)	1 (8)

(52%), a neutral light in 13 (48%), with no negative depictions. There were no negative consequences from cannabis use depicted (Table 3).

Six of the 87 movies (7%) depicted non-injected illicit drug use. Within those movies the number of episodes of non-injected illicit drug use ranged between one and five episodes (mean=2.2, SD=1.60), with a total of 13 individual episodes. Depictions were typically of an older adult in a background role and portrayed in a positive light. In three of the 13 episodes the portrayal was neutral but none of the portrayals were considered to be negative. The only consequence depicted was a murdered addict.

At least one character was seen smoking in 59 (68%) of the movies and intoxicated with alcohol in 28 (32%). No movies depicted injected drug use.

Inter-rater reliability

There was an overall data point concordance between the two reviewing teams of 86% (95% CI 83–89%), with 79% (95% CI 74–84%) concordance for the sex depictions and 90% (95% CI 87–93%) concordance for the drug depictions.

Of 594 individual data points there were 45 differences between teams in the coding of sexual episodes. There were 15 'no condom' versus 'don't know' discrepancies. Another two disagreements related to the youngest participant's age, one to an incorrect 'no condom' oral

sex misclassification (rather than 'no chance of pregnancy') and eight partner misclassifications ('regular' versus 'new'). These issues accounted for the majority of differences between the two teams. Importantly, there were no disagreements between the teams as to whether condoms were used or whether important health consequences of unprotected sex, such as HIV, STDs and unwanted pregnancies, were portrayed.

The majority of the 37 differences in the drug use section also related to the character's age and status in the film (main, supporting or background). There were 'positive' versus 'neutral' differences but neither team scored drug taking as portrayed in a 'negative' light.

Excluding these differences would increase the overall inter-rater reliability to 95%.

DISCUSSION

This study highlights how popular movies over the last two decades have commonly depicted negative health behaviours such as unprotected sex between new partners, cannabis use, non-injected drug use, smoking, and alcohol intoxication. Only one in four movies reviewed was free from any of these depictions. It is remarkable that although one in three popular movies depicted sexual intercourse there was only one instance in which a condom may have been used. This is despite sexual intercourse rarely being depicted in monogamous relationships as found by Greenberg.³¹

There were no references to important consequences of unsafe sex such as HIV transmission, spread of other STDs or unwanted pregnancy. The only consequences depicted were arguably irrelevant to public health (e.g. social embarrassment). Comments made by characters during the movies reinforced promiscuity and ridiculed monogamy and celibacy consistent with previous research.³²

Movies depicted drug use far less commonly than unprotected sex, with the exception of smoking (68%) and alcohol intoxication (32%). These findings reinforce previous studies that have documented the prevalence of smoking¹¹ and alcohol in the mass media.³³ However, a previous study reported a higher proportion of movies (98%) depicting negative health behaviours.¹⁹ This was due to their inclusion of any alcohol consumption and any use of over-the-counter or prescription medicines. This is the first study to demonstrate both the tendency to depict the use of these drugs in a positive light and not to depict any consequences arising from the use of these drugs contrasting with Terre *et al.*³⁴ Interestingly cannabis tended to be used by younger characters and injected drug use was absent, perhaps reflecting the target audiences.

A recent analysis of sex on television found that fewer (14%) shows depicted or strongly implied sexual

APPENDIX 1: Data Analysis Sheets

SEX	Reviewers	O HG/SC O JA/TR	MOVIE. YEAR	RATING.			
Youngest age of participant	Partnership	Partner Status	Type of Sex	Sexually transmitted diseases (STDs) prevention	Type of birth control shown or implied ONLY MALE— FEMALE VAGINAL WHERE PREGNANCY POSSIBLE	Consequence side effects and outcomes	
1	<input type="radio"/> Adolescent <input type="radio"/> Young adult <input type="radio"/> Older adult	<input type="radio"/> Multiple <input type="radio"/> Heterosexual <input type="radio"/> Homosexual <input type="radio"/> Other	<input type="radio"/> Married/ <i>de facto</i> <input type="radio"/> Regular partner <input type="radio"/> New partner(s) <input type="radio"/> Other	<input type="radio"/> Vaginal <input type="radio"/> Anal <input type="radio"/> Oral <input type="radio"/> Other	<input type="radio"/> Condoms discussed <input type="radio"/> Condoms used <input type="radio"/> No condom <input type="radio"/> Don't know	<input type="radio"/> Condom <input type="radio"/> Barrier method (not condom) <input type="radio"/> Contraceptive pill <input type="radio"/> Rhythm method <input type="radio"/> NOT USED/IMPLIED <input type="radio"/> No chance of pregnancy	<input type="radio"/> HIV <input type="radio"/> Other STD (not HIV) <input type="radio"/> <u>unwanted</u> pregnancy <input type="radio"/> Social problems <input type="radio"/> NONE <input type="radio"/> Other
2	<input type="radio"/> Adolescent <input type="radio"/> Young adult <input type="radio"/> Older adult	<input type="radio"/> Multiple <input type="radio"/> Heterosexual <input type="radio"/> Homosexual <input type="radio"/> Other	<input type="radio"/> Married/ <i>de facto</i> <input type="radio"/> Regular partner <input type="radio"/> New partner(s) <input type="radio"/> Other	<input type="radio"/> Vaginal <input type="radio"/> Anal <input type="radio"/> Oral <input type="radio"/> Other	<input type="radio"/> Condoms discussed <input type="radio"/> Condoms used <input type="radio"/> No condom <input type="radio"/> Don't know	<input type="radio"/> Condom <input type="radio"/> Barrier method (not condom) <input type="radio"/> Contraceptive pill <input type="radio"/> Rhythm method <input type="radio"/> NOT USED/IMPLIED <input type="radio"/> No chance of pregnancy	<input type="radio"/> HIV <input type="radio"/> Other STD (not HIV) <input type="radio"/> <u>Unwanted</u> pregnancy <input type="radio"/> Social problems <input type="radio"/> NONE <input type="radio"/> Other
3	<input type="radio"/> Adolescent <input type="radio"/> Young adult <input type="radio"/> Older adult	<input type="radio"/> Multiple <input type="radio"/> Heterosexual <input type="radio"/> Homosexual <input type="radio"/> Other	<input type="radio"/> Married/ <i>de facto</i> <input type="radio"/> Regular partner <input type="radio"/> New partner(s) <input type="radio"/> Other	<input type="radio"/> Vaginal <input type="radio"/> Anal <input type="radio"/> Oral <input type="radio"/> Other	<input type="radio"/> Condoms discussed <input type="radio"/> Condoms used <input type="radio"/> No condom <input type="radio"/> Don't know	<input type="radio"/> Condom <input type="radio"/> Barrier method (not condom) <input type="radio"/> Contraceptive pill <input type="radio"/> Rhythm method <input type="radio"/> NOT USED/IMPLIED <input type="radio"/> No chance of pregnancy	<input type="radio"/> HIV <input type="radio"/> Other STD (not HIV) <input type="radio"/> <u>Unwanted</u> pregnancy <input type="radio"/> Social problems <input type="radio"/> NONE <input type="radio"/> Other

Comments (note any comments relating to sex, condom use and/or birth control)

intercourse than we found in movies. However, an increasing number (15%) included a safe sex message contrasting with our findings.³⁵

Deciding whether a scene depicts a sexual encounter and whether safe sex practices were adopted will always be subjective. Different audiences can sometimes interpret the same scenes differently and discerning this was beyond the scope of our study. Data are required on how different subpopulations respond to the public health messages in the media and which subpopulations are watching what movies. Such analyses would be more appropriately conducted using different methodologies (e.g. focus groups). We also acknowledge that no attempt was made to differentiate

fleeting depictions with more influential prolonged depictions of the negative health behaviours we studied.

The regular exposure to unprotected sex with new partners and recreational drug use by influential movie stars in combination with an absence of negative consequence from these actions must be considered in the context of the difficulty experienced by public health advocates in changing population behaviours. This observational learning, using Social Cognitive Theory, may exert a significant competing influence to the safe sex and 'just say no' messages propounded by some optimistic public health officials. Unsafe sex and recreational drug use in movies could potentially have a similar effect to the

APPENDIX 1 (*Continued*)

DRUGS	Reviewers	<input type="radio"/> HG/SC	MOVIE.....									
		<input type="radio"/> JA/TR										
Main (Billed) characters												
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">YES</td> <td style="text-align: center;">NO</td> </tr> <tr> <td>Any Smoking</td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td>Alcohol/Intoxication</td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> </table>			YES	NO	Any Smoking	<input type="radio"/>	<input type="radio"/>	Alcohol/Intoxication	<input type="radio"/>	<input type="radio"/>
	YES	NO										
Any Smoking	<input type="radio"/>	<input type="radio"/>										
Alcohol/Intoxication	<input type="radio"/>	<input type="radio"/>										

	Age (counts)	Tot n	Character (counts)	Tot n	Depiction (counts)	Tot n	Consequences (document each one)	Tot n
C A N N A B I S	Adolescent Young adult Older adult		Main Supporting Background		Positive Negative Neutral		<input type="radio"/> Yes (describe each separately)	
I L L I C I T	Adolescent Young adult Older adult		Main Supporting Background		Positive Negative Neutral		<input type="radio"/> Yes (describe each separately)	
I N J E C T E D	Adolescent Young adult Older adult		Main Supporting Background		Clearly new needle Clearly shared needle Unsure		<input type="radio"/> Yes (describe each separately)	
Adolescent=0–18, school or similar age Young adult=19–25, e.g. university age Older adult=all other adults			Main=given billing in movie credits Supporting=other regular cast members Background=all others, e.g. crowd scene		See reviewer instructions for details		If 2 or more negative consequences for a single episode of drug use then (bracket together)	

influence of media on smoking,^{12,13} alcohol¹⁴ and violent behaviours.¹⁷

CONCLUSION

The most popular movies of the last two decades often show normative depictions of negative health behaviours. The motion picture industry should be encouraged to depict safer sex practices and to depict the real consequences of unprotected sex and illicit drug use.

Acknowledgments We thank Jeevaka Amaranath and Tristan Rappo for assisting with movie reviewing and the Internet Movie Database for permission to use their top 200 movie list.

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