Content Analysis of Tobacco, Alcohol, and Other Drugs in Popular Music

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Abstract

Objective—To perform a comprehensive content analysis of substance use in contemporary popular music.

Design—We analyzed the 279 most popular songs of 2005 according to *Billboard* magazine. Two coders working independently used a standardized data collection instrument to code portrayals of substance use.

Outcome Measures—Presence and explicit use of substances and motivations for, associations with, and consequences of substance use.

Results—Of the 279 songs, 93 (33.3%) portrayed substance use, with an average of 35.2 substance references per song-hour. Portrayal of substance use varied significantly (*P*<.001) by genre, with 1 or more references in 3 of 35 pop songs (9%), 9 of 66 rock songs (14%), 11 of 55 R&B/hip-hop songs (20%), 22 of 61 country songs (36%), and 48 of 62 rap songs (77%). While only 2.9% of the 279 songs portrayed tobacco use, 23.7% depicted alcohol use, 13.6% depicted marijuana use, and 11.5% depicted other or unspecified substance use. In the 93 songs with substance use, it was most often motivated by peer/social pressure (45 [48%]) or sex (28 [30%]); use was commonly associated with partying (50 [54%]), sex (43 [46%]), violence (27 [29%]), and/or humor (22 [24%]). Only 4 songs (4%) contained explicit antiuse messages, and none portrayed substance refusal. Most songs with substance use (63 [68%]) portrayed more positive than negative consequences; these positive consequences were most commonly social, sexual, financial, or emotional.

Conclusions—The average adolescent is exposed to approximately 84 references to explicit substance use daily in popular songs, and this exposure varies widely by musical genre. The substance use depicted in popular music is frequently motivated by peer acceptance and sex, and it has highly positive associations and consequences.

> If music be the food of love, play on; Give me excess of it, that, surfeiting, The appetite may sicken, and so die. That strain again! It had a dying fall: O, it came o'er my ear like the sweet sound That breathes upon a bank of violets, Stealing and giving odour!
>
> William Shakespeare, *Twelfth Night*

Although the influence of music on human beings was recognized even before the time of Shakespeare, current technological and social changes dramatically magnify that influence. While 15- to 18-year-old adolescents are forming health attitudes and behaviors that will last a lifetime, they are exposed to 2.4 hours of music per day, according to a large nationally representative study.[1] There are few limits to access; 98% of children and adolescents live in homes with radio and CD or MP3 players, and 86% of 8- to 18-year-old children and adolescents have CD or MP3 players in their bedrooms.[1] These figures have increased substantially even over the past decade.[1,2]

There is convincing evidence that exposure to certain media messages increases substance use in adolescents.[3–10] For instance, viewing smoking in movies prospectively predicts a substantial proportion of adolescent smoking initiation.[4,11] Similarly, exposure to smoking-related media promotions is associated with smoking initiation.[5–8,12] Alcohol use in movies and promotions is also linked to actual alcohol use.[4,13–15]

While the most frequently studied genres for this research include movies, television, and advertising, health behavior theory strongly supports a link between music exposure and substance use. According to the social learning model, human beings learn not only by direct experience but also by exposure to modeled behavior, such as that represented in popular music.[16–18] This theory further suggests that individuals exposed to representations of substance use would be more likely to perform those behaviors themselves if they are linked with (1) motivations that are relevant, (2) associations that are desirable and familiar, and (3) consequences that are positive.[16–18] Music is well-known to connect deeply with adolescents and to influence identity development, perhaps more than any other entertainment medium.[19–22]

In addition, prior work suggests that references to substances of abuse in music are common. Several years ago, a content analysis published by the Office of National Drug Control Policy[23,24] showed that multiple messages related to substance use are present in music lyrics and music videos. Of the top 1000 popular songs they studied, 18% referenced illicit drugs and 17% referenced alcohol.[23] Another report[24] found that, of 258 popular music videos, 20% verbally referenced illicit drugs and 37% displayed alcohol. In every case, marijuana was the illicit drug most commonly represented.[23,24]

However, to our knowledge, no comprehensive content analysis of substance use in popular music lyrics has been published in the peer-reviewed medical literature. Furthermore, popular music is rapidly changing, and it has been more than a decade since the previous data described were collected. This is a particularly important omission because popular music exposure is increasing among young people.[1] Finally, a more comprehensive and theoretically based content analysis may more completely capture relevant factors, such as the motivations, associations, and consequences associated with substance use in popular music.

The purpose of this study was to perform a comprehensive content analysis of contemporary popular music, focusing on the presence and use of substance use and on the motivations, associations, and consequences of substance use. Based on prior data,[23–25] our a priori hypothesis was that alcohol and marijuana would be more commonly represented than tobacco. We also hypothesized that representation of substance abuse would differ among genres, and that use would be commonly juxtaposed with motivations, associations, and consequences likely to be deemed positive by adolescents.

METHODS

SAMPLE SELECTION

We used *Billboard* magazine to identify the most popular songs of 2005.[26] *Billboard* annually uses an algorithm that integrates data from sales and airplay to determine the top songs according to exposure. Sales data for this algorithm are compiled by Nielsen SoundScan from merchants representing more than 90% of the US music market, including sales from music stores, direct-to-consumer transactions, and Internet sales and downloads. *Billboard*'s airplay data use Nielsen Broadcast Data Systems, which electronically monitors radio stations in more than 120 representative markets across the United States. Integrating these data, *Billboard* reported the following youth-relevant lists of popular song titles in 2005: the "Pop 100" (n=100), the "*Billboard* Hot 100" (n=100), "Hot Country Tracks" (n=60), "Hot R&B/Hip-Hop Songs" (n=100), "Hot Rap Tracks" (n=25), "Mainstream Rock Tracks" (n=40), and "Modern Rock Tracks" (n=40). The lists are closed out at year end, after which time the song rankings do not change. Because some songs were included on more than 1 chart, only 279 unique songs composed this sample. Additional popular charts, such as the "Adult Top 40," were also available, but these songs were not included in this analysis because we were primarily interested in youth exposure to popular music.

CODING PROCEDURES

For each of the 279 songs, we coded multiple elements related to substance use. These measures were selected based on a comprehensive search of prior relevant content analyses of media[10,23,24,27] and inclusion of other measures based on the social cognitive theory (such as motivations for, associations with, and consequences of substance use).[16–18] Two coders familiar with popular music then independently analyzed the lyrics of each song for content related to each of the measures. Before the content analysis, each coder was given lists of frequently used substance use slang terms.

We computed interrater agreement and κ statistics[28] for each of the data elements coded and found a minimum of 74% agreement for all variables. In all interrater disagreements, we used 2 new confirmatory coders (M.V.C. and A.A.A.) to independently code each of the items on which the previous coders did not agree (blinded to the prior responses). When the confirmatory coders both agreed with 1 of the original coders, the coding of that individual was recorded. However, when the confirmatory coders disagreed with each other or agreed with each other but not with 1 of the initial coders, the item was discussed by the coders and the principal investigator of the project (B.A.P.) to achieve a consensus.

MEASURES

General Measures and Determination of Primary Genre—We coded descriptive information related to each song from *Billboard*'s records, including song title, artist, album, song length in minutes and seconds, sex of singer, and primary song genre. Because songs are often associated with more than 1 genre, we used the following standardized approach to identify the primary genre. First, we determined its highest position at any time on each of the *Billboard* charts we analyzed. All songs were assigned to a primary genre based on their

highest ranking on a specialty chart, regardless of the ranking on the "pop" or "hot" charts. For example, Gwen Stefani's song "Hollaback Girl" peaked at No. 1 on the pop 100 chart, No. 1 on the hot 100 chart, and No. 8 on the R&B/hip-hop chart and it was, therefore, classified as an R&B/hip-hop song. Only songs that never reached any specialty chart but did reach the pop and/or hot charts were defined as pop. We combined "modern rock" and "mainstream rock" because the line between these charts has become less distinct over the past 2 decades. Using this approach, each song was clearly and uniquely defined as country (n=61), pop (n=35), R&B/hip-hop (n=55), rap (n=62), or rock (n=66).

Substance Use Measures—We coded any clear reference to substance use (Table 1, example 1). We also coded 3 types of references that were not necessarily associated with explicit use: figurative, place, and wallpaper (Table 1, examples 2–4).

For each song with explicit substance use, we recorded the specific substance(s) mentioned (ie, tobacco, alcohol, marijuana, cocaine and other stimulants, heroin and other opiates, hallucinogens, inhalants, prescription drugs, over-the-counter drugs, and nonspecific substances) and the number of references to each substance. We report tobacco, alcohol, and marijuana separately and combine all other substances because they were less commonly reported.

Motivations, Associations, and Consequences—Each song with a reference to substance use was then coded on 3 domains that were informed by the social learning model: (1) motivations for use, (2) associations with use, and (3) consequences of use.[16–18] Based on pilot testing and the work of others, we used a dichotomous variable to indicate the presence or absence of the following motivations: peer/social pressure, sex, mood management, financial, and addiction/craving.[23] Similarly, dichotomous variables were used to indicate whether the substance use was associated with violence, sex, humor, par-tying, dealing/trafficking, a reference to a specific brand, operation of a vehicle, refusal to use, and limit setting. To be coded positively, the association had to be present in the song and directly associated with the substance use (Table 1, examples 12–15). We judged consequences of substance use across 7 dimensions: mental, emotional, physical, social, legal, financial, and sexual. We used a 5-point scale from −2 to 2 to indicate the degree to which the consequences were positive or negative. For ease of display and interpretation, we ultimately collapsed these responses into 3 categories: negative (−1 or −2), neutral (0), and positive (1 or 2).

References to Substance Use per Unit Time—To quantify the density of substance use per time by song and music genre, we divided the number of references to each substance in a song by the duration of the song in hours. For songs that had multiple references (eg, in the song's chorus), we counted each mention as a separate reference (Table 1, examples 5–8).

ANALYSIS

We used χ^2 tests to determine if there were statistically significant differences between the proportion of songs that contained any mention of substance use among the 5 primary musical genres (country, pop, R&B/hip-hop, rap, and rock). When χ^2 tests were statistically significant, we used post hoc testing to determine if there were significant differences between specific genres. We then examined the songs with documented substance use (n=93) to determine what proportion had each of the motivations and associations with use and the proportion of songs that manifested negative, neutral, or positive consequences of substance use. We used χ^2 tests and post hoc testing to determine if there were statistically

significant differences between genres. We used a 2-tailed *P* value of <.05 to define statistical significance.

RESULTS

SUBSTANCE USE

Overall, 116 of the 279 unique songs (41.6%) had a substance use reference of any kind (explicit, figurative, place, or "wallpaper"). Ninety-three songs (33.3%) contained explicit substance use references. Alcohol use was referenced most frequently, followed by marijuana use and use of other substances (illicit, prescription, or nonspecific substances) (Table 2). Tobacco use, mentioned in only 2.9% of songs, accounted for the least number of substance use references. References to explicit use of alcohol, marijuana, and other substances varied significantly by song genre, with rap songs containing the highest frequency of references to each of these substances.

MOTIVATIONS FOR AND ASSOCIATIONS WITH SUBSTANCE USE

The motivations for substance use represented most commonly among all songs were peer/ social pressure, sexual, and financial (Table 3). Except for peer/social pressure, each of the motivations differed significantly by song genre. Sexual motivations were most common in R&B/hip-hop and rap songs. Mood management as a motivation was highest in rock, pop, and country songs. Financial motivations were highest in rap and R&B/hip-hop songs, and addiction/craving was most commonly portrayed in rock songs.

The most common elements associated with substance use were partying, sex, violence, dealing/trafficking, and humor (Table 3). Of the 93 songs, 17 associated substance use with a specific brand name and 15 associated substance use with use of a vehicle. Only 4 songs contained a specific antiuse message, and none portrayed refusal to use a substance. Most associations differed significantly by genre. Humor, for example, was much more commonly associated with substance use in country and pop songs than in rap and rock songs. Dealing and/or trafficking was common among rap songs but was not found in the other 4 genres. Finally, all 4 songs with antiuse messages were rock songs.

CONSEQUENCES OF DEPICTED USE

Overall, of the 93 songs with substance use, 15 (16%) portrayed more negative than positive consequences, whereas 63 (68%) contained more positive than negative consequences (*P*<. 001). In almost half (45 [48%]) of the songs, the social consequences were positive, compared with only 7 (8%) in which consequences were negative (*P*<.001). Sexual (30 [32%] vs 2 [2%]; *P*<.001), emotional (14 [15%] vs 5 [5%]; *P*=.04), and financial (22 [24%] vs 0; *P*<.001) consequences were also more likely to be positive than negative (Figure). In contrast, legal (0 vs 8 [9%]; *P*=.005) consequences were more likely to be negative than positive. Mental consequences were no more likely to be positive than negative (6 [7%] vs 8 [9%]; *P*=.59), as were physical consequences (5 [5%] vs 10 [11%]; *P*=.20).

SUBSTANCE USE PER UNIT TIME

There were a mean of 35.2 references to explicit substance use per song-hour in our sample, ranging from 2.1 references per hour in pop music to 104.5 references per hour in rap music (*P*<.001) (Table 4). Alcohol references were most common in country and rap songs. References to marijuana and other substances were most common in rap songs.

COMMENT

This study demonstrates that explicit substance use is represented in about one-third of the most popular songs in the United States, with alcohol and marijuana referenced most frequently. Overall, explicit substance use is portrayed most frequently in rap music (48 of 62 songs [77%]) and least frequently in pop music (3 of 35 songs [9%]). Substance use is most commonly motivated by peer/social pressure and sex, and it is associated with partying and sex. The social, sexual, emotional, and financial consequences of use are more commonly depicted as positive than negative, whereas the legal and physical consequences of use are generally depicted as more negative than positive.

Because adolescents aged 15 to 18 years are exposed to an average of 2.4 hours of popular music per day,[1] our results suggest that the average adolescent is exposed to approximately 84 references to explicit substance use per day, 591 references per week, or 30 732 references per year. This represents a pervasive source of exposure to positive portrayals of substance use. Furthermore, exposure varies substantially by genre: the average adolescent listening wholly to pop would be exposed to 5 references per day, whereas the average adolescent listening wholly to rap would be exposed to 251 references per day.

Our findings were consistent with previous studies showing that alcohol and marijuana use are far more common than tobacco use in popular music. The frequency of tobacco references (2.9%) found in our study was nearly identical to that previously reported.[23] However, the reference rate to alcohol that we documented (23.7%) was higher than the 17% reported by Roberts et al.[23] There are several possible explanations for these differences in findings. First, portrayal of alcohol use in popular music may be increasing. Second, we only examined the top 279 popular songs, whereas Roberts et al examined 1000 songs. It is possible that the more popular songs contain more references to alcohol. Finally, it is possible that our rigorous method may have been more sensitive in identifying references to alcohol compared with other studies. Often, popular slang terms are used to represent alcohol (*sauce*, *hooch*, and *juice*) and marijuana (*dro*, *chronic*, and *haze*) that many youth understand well but with which some coders may not be familiar. By using a complex method involving 4 coders, we may have captured a more complete set of references to substance use.

Documentation of a growing exposure of adolescents to substance use in popular music suggests that further study of the actual effect of this exposure is warranted. Because recent data indicate that exposure to film smoking is one of the strongest risk factors for smoking initiation and progression,[4,29] it is reasonable to hypothesize that exposure to substance use in music is also a strong risk factor for substance use initiation and progression. Although music lacks the visual element of film, adolescent exposure to music is much more frequent, accounting for an average of 16 hours each week, compared with about 6 hours each week. [30] In addition, music is known to be highly related to personal identity; young people often model themselves in terms of dress, character, and behavior after musical figures.[21,31,32]

In view of the heavy exposure young people have to substance use in popular music, health education related to substance use may need to be rethought. Currently accepted health education regarding substance use in ninth grade traditionally uses approximately 6 hours over a year.[33] However, this study would imply that during that same year the average young person would be exposed to an estimated 30 000 references to substance use in popular music. Health educators, health professionals, and curriculum designers may want to be familiar with the messages young people are receiving regarding substance use in their music so that they can best respond to those messages. Also, this large disparity between the exposure to substance use in popular music and substance abuse education suggests that

simply "fighting fire with fire" is not likely to be feasible. Instead, we may need to find creative ways of generating doubt in the minds of young people as to the veracity of the positive substance use messages they receive in their media. One way of doing this might be to include in anti–substance abuse programming more "media literacy," in which young people learn to analyze and evaluate the media to which they are frequently exposed.[34–36]

Our results also show that substance use in popular music is commonly associated with some positive and some negative consequences. However, the negative consequences manifested (legal and physical) are ones that are generally not as concerning to adolescents as the positive consequences (social, sexual, emotional, and financial). Developmentally, many adolescents are not concerned about legal and physical ramifications of actions because they often consider themselves "invincible" with regard to these realms.[37] However, they are simultaneously concerned about social, sexual, emotional, and financial issues.[38–40] Thus, whereas current health education often emphasizes physical and legal ramifications of substance use, it might be preferable to instead focus on rebutting the positive consequences (social, sexual, emotional, and financial) of substance use portrayed in popular music.

Finally, our results show that different genres portray different (1) substances, (2) amounts of substances, and (3) motivations for, associations with, and consequences of use. This is likely to be because of a number of social, political, and economic factors. Research will be necessary to determine more specifically the reasons for these differences. Meanwhile, this information can be used to our advantage in developing health promotion materials and campaigns for young people. For instance, because rap music most frequently contains references to marijuana use, this population may need targeted education regarding the dangers of marijuana use. A rap artist might be the ideal spokesperson for this public health message.

Our study was limited in that it focused on 1 year of popular music. However, we had sufficient power to detect differences of interest with the available data. Still, it will be important to continue to follow popular music content longitudinally using rigorous methods. In addition, this study did not assess the effect of popular music messages on young people; rather, it focused on analysis of the content. Future studies should address more carefully the effects of these messages on their audiences, in terms of knowledge, attitudes, and practices. Also, the coding of elements, such as motivations, associations, and consequences, can be subjective. It is for this reason that we used a detailed and comprehensive coding method in which (1) both initial coders coded all songs, rather than overlapping only somewhat; (2) 2 confirmatory coders scrutinized each and every discrepancy, blinded to previous ratings and to each other; and (3) a committee involving coders and the principal investigator resolved any remaining discrepancies. Finally, we did not examine the visual elements of these songs, such as their music videos, CD covers, or Web sites. Although these are interesting areas to explore in future studies, the purpose of this study was to focus on the song lyrics.

In summary, children and adolescents are heavily exposed to substance use in popular music, and this exposure varies widely by genre. Substance use in music is frequently motivated by peer acceptance and sex, and it has highly positive associations and consequences. Research is needed to (1) determine the potency of exposure to substance use messages in music in adolescents and (2) determine the effects of various types of substance abuse messages, such as those with certain associations and consequences. If future studies determine an impact, we will need to consider the potential for media literacy and other educational interventions to reduce the impact of these messages on adolescent substance use.

Acknowledgments

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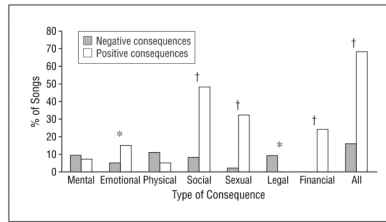
Figure.
Consequences of substance use in popular music. These analyses included only the 93 songs with substance use. There were no songs that contained positive legal consequences and no songs that contained negative financial consequences. Negative and positive percentages in each category do not total 100 because many songs did not contain either a positive or negative consequence of a given type. The data for "All" demonstrate that 15 (16%) songs had more negative than positive consequences and that 63 (68%) songs had more positive than negative consequences. * indicates *P*<.05; †, *P*<.001.

Table 1

Substance Use Examples

Example No.	Coding	Example Lyrics[a]
1	Explicit substance use	"Nigga I can see the **coke** in your nose/…Cook, **coke**, **crack**, niggaz fiend for that…It's guaranteed you gonna die/You might get missed/For maybe 2 or 3 hours 'til they **light their spliffs**/And that **coke** will get you a long time/But when I let 'em know the **dope** is out/It's like America Online"
2	Figurative substance reference (not explicit use)	"Back at it, this cat is the wit and the charm/Taking you higher, **like a syringe hittin' ya arm**"
3	Place commonly associated with substance use (not explicit use)	"Hit **the club** and get one of them broads"
4	"Wallpaper" reference to a substance (not explicit use)[b]	"Driving down the interstate/Running thirty minutes late/Singing **Margaritaville** and minding my own"
5	Tobacco use (2 references)[c]	"While he's having a **smoke**/And she's taking a **drag**"
6	Alcohol use (5 references)	"She can handle any **champagne** brunch/Bridal shower with **Bacardi punch**/**Jello shooters** full of **Smirnoff**/But **tequila** makes her clothes fall off"
7	Marijuana use (7 references)	"**Puff**, **puff** pass nigga roll that **blunt/Let's get high** nigga **smoke us one**/…Front row full of that **dro**/…With a bag of **kush** that costs six-fifty/…**Mary Jane**…"
8	Nonspecific substance use (3 references), opiate use (1 reference), or marijuana use (2 references)	"I got the **product**/**Narcotics** for the customers homie/Fiends open they be **smoking like a muffler** homie/I get cake from selling **buds** or **haze**…I'm **on the grind**"
9	Substance use motivated by peer/social pressure	"They see that I'm a star/Now they wanna sit in my car/Now they wanna count my G's, **smoke my weed** and **sip my bar** now"
10	Substance use motivated by mood management	"Billy's at the bar, he's been there all night/**First ten beers he's had, since her goodbye**/She left him broke, in his new truck/He don't smoke, but he lights one up/Temporary fix, for his headache/**He's hurting bad, but he's feeling great**"
11	Substance use motivated by addiction or craving	"**Got medication, a new addiction**…/I had a **relapse**, I'm bad at **rehabs**/It ruins everything"
12	Alcohol use associated with violence	"What the hell **I had one more shot**/Then I winked at a boy at the end of the bar/Guess I mighta musta gone a little too far/Cause a big ole girl walked outta the blue/10 foot 2 with a bad attitude/Stepped right up and **knocked out my tooth**"
13	Alcohol and marijuana use associated with sex	"Buck pass the **blunt**/These G-Unit girls just wanna have fun/Coke and **rum**/Got **weed** on the ton/I'm bangin with my hand up her dress like, unh/I'll make her cum/**Purple haze** in my lungs"
14	Marijuana use associated with operation of a vehicle	"Sit you on some **leather seats** while **blowing green**/And **switching lanes**"
15	Substance use associated with dealing/trafficking	"Its some Boyz N Da Hood **sell anything for profit**/Five in the morning on the **corner clockin'**/…Dem Boyz got **work**, Dem Boyz got **yay**/Dem Boyz got **purp**, Dem Boyz got **haze**/…Dem Boyz got **blocks**, Dem Boyz **getting paid**"
16	Positive emotional consequences of substance use	"Grabs him a girl and he holds on tight/He's chasing everything in sight/He'll fall apart when he gets home/But **right now his worries are gone**/Life looks **good, good, good**/Billy's got **his beer goggles on**"
17	Positive social consequences of substance use	"We **pop chris** my niggas and still **drink beer**/What did you expect man I came from nothing/Real street niggas wouldn't change for nothing"
18	Positive sexual consequences of substance use	"We can **sip something 'til we both be buzzed**/Couple good jokes, a few **brouhaha's**/This is how I'm a do you mama/First I'm a put you on your back and make you scream out (baby) …just like I put you on the track/Then I'm a lay you on your side/And slowly stroke you while you telling me the way you feel inside"
19	Negative physical consequences of substance use	"Friday is when you left me/So **I drank myself to sleep**/And Sunday I never woke up"
20	Negative legal consequences of substance use	"First they give us the work/Then they throw us **in jail** (Ayy)/Road trip ya/**I'm trafficking in the white**/Please Lord don't let me go to **jail** tonight/…Them alphabet boards got us **under surveillance**/They lock us in **cages**/The same nigga that's a star when you put 'em on stages/…Cause if you lookin' for me you can find me on the block disobeyin' the law"

[a]These are illustrative and not comprehensive (ie, these same lyric examples contain other elements that were coded but do not appear in the chart). The boldfaced terms signify the coding item.

[b]This was considered a reference to a substance "on the wallpaper" because the term *margarita* is used but no actual substance use is taking place. This was not coded as explicit use.

[c]The song context makes it clear that this is tobacco, not marijuana.

Table 2

References to Substances by Song Genre

Type of Reference	Specific Genre						P Value	All Genres (N=279)[a]
	Country (n=61)[a]	Pop (n=35)[a]	R&B/Hip-Hop (n=55)[a]	Rap (n=62)[a]	Rock (n=66)[a]			
Any substance reference[b]	25 (41)	5 (14)	15 (27)	56 (90)	15 (23)		<.001	116 (41.6)
Explicit substance use[c]	22 (36)	3 (9)	11 (20)	48 (77)	9 (14)		<.001	93 (33.3)
Tobacco use	3 (5)	0	1 (2)	3 (5)	1 (2)		.48	8 (2.9)
Alcohol use	20 (33)	2 (6)	7 (13)	33 (53)	4 (6)		<.001	66 (23.7)
Marijuana use	1 (2)	0	3 (5)	33 (53)	1 (2)		<.001	38 (13.6)
Use of other illicit drugs, prescription drugs, or nonspecific substances[d]	2 (3)	2 (6)	3 (5)	23 (37)	2 (3)		<.001	32 (11.5)

[a] Data are given as number (percentage) of each song genre.

[b] Includes (1) actual use, (2) figurative use, (3) use of a place where substances are commonly used, and (4) a "wallpaper reference."

[c] Includes actual substance use only.

[d] Other illicit drugs include cocaine or amphetamines, opiates, and hallucinogens. Although we searched for inhalants and other psychotropic substances, none were noted.

Table 3

Motivations for and Associations With Explicit Substance Use by Song Genre[a]

Motivation or Association	Specific Genre					P Value	All Genres (n=93)[b,c]
	Country (n=22)[b]	Pop (n=3)[b]	R&B/Hip-Hop (n=11)[b]	Rap (n=48)[b]	Rock (n=9)[b]		
Motivations for use							
Peer/social pressure	9 (41)	1 (33)	6 (55)	28 (58)	1 (11)	.10	45 (48)
Sexual	2 (9)	0	6 (55)	20 (42)	0	<.001	28 (30)
Financial	0	0	1 (9)	22 (46)	0	<.001	23 (25)
Mood management	6 (27)	1 (33)	0	1 (2)	8 (89)	<.001	16 (17)
Addiction or craving	0	0	1 (9)	3 (6)	3 (33)	.03	7 (8)
Associations with use							
Partying	10 (45)	1 (33)	8 (73)	31 (65)	0	<.001	50 (54)
Sex	9 (41)	0	6 (55)	27 (56)	1 (11)	.05	43 (46)
Violence	3 (14)	1 (33)	2 (18)	21 (44)	0	.02	27 (29)
Dealing or trafficking	0	0	0	23 (48)	0	<.001	23 (25)
Humor	14 (64)	1 (33)	2 (18)	5 (10)	0	<.001	22 (24)
Specific brand reference	4 (18)	1 (33)	2 (18)	10 (21)	0	.61	17 (18)
Use of a vehicle	4 (18)	0	2 (18)	8 (17)	1 (11)	.93	15 (16)
Explicit antiuse message	0	0	0	0	4 (44)	<.001	4 (4)
Limit setting	1 (5)	0	0	0	0	.52	1 (1)
Refusal to use a substance	0	0	0	0	0	>.99	0

[a] Among only songs with substance use (n=93).

[b] Data are given as number (percentage) of each song genre.

[c] Data are heavily weighted by those genres with more representation of substance use (eg, rap and country).

Table 4

Number of References to Substance Use per Song-hour by Genre

Substance Type	Country	Pop	R&B/Hip-Hop	Rap	Rock	All Genres
Tobacco	0.9	0	0.1	1.2	1.0	0.7
Alcohol	30.1	1.0	8.7	21.6	2.0	13.7
Marijuana	1.1	0	3.3	38.3	0.2	11.4
Other substances[a]	1.6	1.0	1.8	43.4	3.6	11.4
Any substance	33.7	2.1	14.0	104.5	6.8	35.2

[a]Includes cocaine, opiates, hallucinogens, prescription drugs, and nonspecific substances.