How Misogynistic is Rap?
Lyrical and Comparative Analysis of Misogyny in Rap Music

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Abstract

Rap is often stereotyped as one of the most misogynistic music genres, but whether or not this is true is unclear. Additionally, American rap's global influence is clear and it begs the question that, if rap really is as misogynistic as people say, is the spread of rap also conducive to the spread why are they writing such misogynistic songs? This study examines lyrics from songs of all genres, including rap, creating semantic vectors from these lyrics and comparing them with misogynist words and phrases. This approach aims to quantitatively assess the presence of misogyny in different music genres. This study concludes that rap does tend to have higher prevalence of misogynistic lyrics compared to other genres, with specific genres (e.g. Country and mixture of Pop, R&B, and Black Music) and artists (e.g. Elvis Presley and Michael Jackson) associated with greater misogyny in non-rap songs. However, it also suggests that this is phenomenon that is not caused by greater popularity of songs with misogynistic lyrics, but rather may be more deeply rooted in some cultural norm.

1 Introduction

Rap music is prolific within American society, especially among younger communities and minority demographics. However, it is also stereotyped as the most misogynistic genre of music, with many proponents of this argument citing popular rap songs with lyrics that objectify women.

Not only is it popular domestically, but rap songs have also been exceedingly popular in foreign countries, so much so that for many students, rap is used as a tool to help learn English language from a young age. This brings, along with rap music, a transmission of broader hip hop culture, which is frequently stereotyped to be extremely misogynistic, among other controversial topics. This begs the question: is the spread of rap music also spreading American misogyny to other countries? As one of America's biggest cultural exports, the question of misogyny in rap is an important one to ask and analyze, as a first step to seeing if Americans are also exporting misogyny along with their rap music. To this end we are asking:

1. Is rap music really more misogynistic than other music genres?

2. Is more misogynistic music more popular, and thus a better business model, or is this misogynistic content a reflection of American cultural and social norms?

To this end, we employ a methodology using Natural Language Processing (NLP) techniques to analyze the lyrics of rap and non-rap songs. Our approach involves creating semantic vectors from song lyrics and labeled misogynistic and non-misogynistic posts from Reddit. By comparing these vectors, we aim to quantify and compare the presence of misogynistic content in rap and other music genres. Additionally, we explore factors such as genre, artist, song duration, and tempo to understand their influence on misogynistic content in lyrics.

This study is significant as it moves beyond anecdotal claims and subjective interpretations, providing a data-driven insight into the nature of misogyny in rap lyrics. This project contributes to the broader discourse on the cultural impact of music genres and offers a nuanced understanding of the intersection between music, gender, societal norms, and the role that American cultural exports play.

1

For the first question, we have found that rap music does indeed tend to have a higher prevalence of misogyny in the lyrics. With respect to the second question, we found no correlation between the prevalence of misogynistic lyrics and the popularity of a song, and thus misogyny in music is not necessarily a good business model.

2   Related Work

The analysis of misogyny in music, particularly in rap, has been a topic of interest in various previous studies.

Notably, Weitzer and Kubrin's "Misogyny in Rap Music: A Content Analysis of Prevalence and Meanings" offers a comprehensive content analysis of misogynistic themes in rap lyrics. They clarified that rap is one of the most diverse genres of music, which has often been a method to communicate politically progressive, consciousness-raising, and liberating ideas, and that it should not be defined by a few instances of popular, but misogynistic, songs within the genre.

Sam de Boise's study on misogyny in music-related online forums offers a unique perspective on how misogynistic narratives are perpetuated in music communities. In his paper, he concludes that those who espouse misogynistic views are not more likely to prefer rap or hip hop, but are drawn to a wide range of music genres, including Country & Western, rock, electronic dance music (EDM). Diving deeper, within lyrics themselves, these same people tended to prefer lyrics which emphasized masculinist worldviews, along with a fast tempo and high volumes, which signify aggression. They tended to avoid those slower-paced, gentler songs which emphasized love, romance, and friendship, as is common of indie, pop, and rhythm and blues (R&B)-genre music.

Another crucial study is by Lorenzo et al., titled "Large Scale Analysis of Gender Bias and Sexism in Song Lyrics," which found a significant presence (23.7%) of sexist passages in song lyrics, particularly in hip hop, R&B, and soul songs. Which interestingly, has increased over the past five decades.

These studies collectively offer a comprehensive background against which our research is positioned, underscoring the relevance and necessity of our work in understanding misogyny in rap music. In many ways, our investigation can be seen as an extension of the work done by these researchers.

3   Data

Three datasets were gathered from Kaggle. The initial dataset of rap song lyrics contains 4,578 lyrics from popular rappers like Drake, J Cole, and Lil Wayne. Since these are primarily popular rappers who have had successful careers, they are a good representation of the rap industry.[1]

There is also another dataset, this time, comprising of non-rap lyrics from 78 other music genres. This dataset contained 379,893 lyrics from 4,239 artists. [2]

Finally, from Kaggle, another dataset of song popularity data was utilized. This one provided a list of 13,070 songs along with a song popularity score, on a scale of 1 to 100, and the duration of each song.[3]

Previous researchers have put together a dataset of misogynistic words and phrases that comes from 12 of Reddit's well-known misogynistic communities. Utilizing a BERT model with 93% accuracy, Guest et. al. identified and classified 699 unique instances of threatening and/or derogatory language as well as gendered personal attacks, creating a dataset of misogynistic language, making a distinction between gender-motivated comments and non-gender motivated ones. This was a cross-domain dataset[4].

Finally, we manually labeled a set of 200 rap lyrics as misogynistic or not, creating a smaller, but in-domain dataset for use in cross-domain and in-domain prediction comparison.

4   Methods

This study employs Natural Language Processing (NLP) techniques for analyzing the presence and extent of misogynistic content in rap music lyrics, comparing it with other music genres.

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[1] https://www.kaggle.com/datasets/rikdifos/rap-lyrics
[2] https://www.kaggle.com/datasets/neisse/scrapped-lyrics-from-6-genres.

[3] https://www.kaggle.com/datasets/yasserh/song-popularity-dataset
[4] https://github.com/ellamguest/online-misogyny-eacl2021

Data Preparation: The datasets were first cleansed and vectorized using Word2Vec and Bag of Words.

Semantic Analysis: Word embeddings were used to transform all textual data – including rap and non-rap lyrics and labeled misogynistic posts from Reddit – into semantic vectors, facilitating quantitative comparison of lyrics.

Cosine Similarity Computation: Cosine similarity scores between the semantic vectors of rap and non-rap lyrics and those of the misogynistic Reddit posts were calculated, quantifying the closeness of song lyrics to misogynistic language.

Hypothesis Testing: Null hypotheses were formulated based on four variables: genre, artist, song duration, and tempo. The Two-Sample Kolmogorov-Smirnov (KS) Test was employed to statistically assess differences across these variables.

Classifier Development and Comparison: A logistic regression classifier was trained using the labeled Reddit posts dataset for cross-domain prediction. Furthermore, 200 rap lyrics were manually labeled to develop an in-domain classifier. Comparing these classifiers provided insights into the generalizability and specificity of misogynistic content detection.

5 Results

5.1 Analysis of Misogynistic Content Across Music Genres:
Cosine similarity was calculated between the lyrics and misogynistic words dataset to measure the presence and extent of misogynistic content. As the cosine similarity grows, it indicates a higher similarity between the lyrics vector and the misogynistic sentences, which further implies the stronger sense of misogyny.

The distribution of cosine similarities for rap and non-rap songs with our misogynistic words dataset can be seen in *Figure 1*.

The confidence intervals for rap songs & misogyny (0.487, 0.489, 0.492) were slightly higher than those for non-rap songs & misogyny (0.445, 0.451, 0.456).
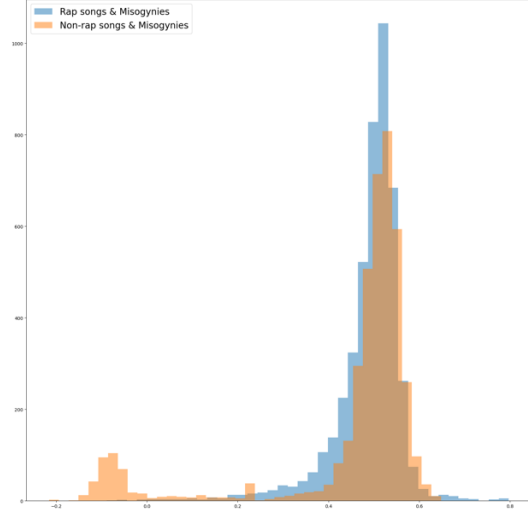

Figure 1: Cosine similarity scores of rap (blue) and non-rap (orange) song lyrics with the Reddit dataset of misogynistic words & phrases.

From *Figure 1,* there exists a bimodal distribution for cosine similarity of non-rap song lyrics and misogynistic sentences: one mode with lower misogyny and the other one with higher. The unimodal distribution of rap song lyrics (in blue) and misogynistic sentences is, on average, slightly lower than the more misogynistic mode (in orange) associated with non-rap songs, indicating its smaller cosine similarity and a slightly weaker sense of misogyny. Even though this small difference in confidence intervals suggests that while rap music may have, on average, a slightly higher association with misogynistic content than non-rap music, the difference is not substantial, and rap music does not have a significantly greater proportion of obviously misogynistic lyrics than the group of non-rap songs appearing in the more misogynistic mode.

5.2 Examination of Contributing Factors:
The Kolmogorov-Smirnov (KS) Test was used to explore various factors such as genre, artist, song duration, and tempo to understand their impact on the distribution of misogynistic content. Specifically, using a KS Test is able to provide an indication that whether those factors contribute to the difference seen in the bimodal distribution quantifying the misogyny of non-rap songs. The results are found in *Table 1* below.

Distribution Test	KS Statistic	P-Value
Genre	0.3403	$6.255 * 10^{-17}$
Artist	0.2961	$9.948 * 10^{-19}$
Song Duration	0.0578	0.1143
Tempo	0.0316	0.7808

Table 1: Results of the KS tests.

For the genre and artist distributions, the KS test showed significant differences in genre and artist distributions between the two modes of misogynistic content (KS Statistic for Genre: 0.3403, P-value: 6.25e-17; KS Statistic for Artist: 0.2961, P-value: 9.95e-19). This allows us to reject the null hypotheses for these two, meaning that genre and artist of a song both contribute to the significant difference between the bimodal for the non-rap and misogyny cosine similarity distribution.

For the song duration and tempos, the test indicated no significant difference in song duration and tempo (KS Statistic for Song Duration: 0.0578, P-value: 0.1143; KS Statistic for Tempo:0.0316, P-value: 0.7808).

These results indicate that both genre and artist are influencing the misogyny of non-rap songs such that there exist certain genres and artists generally producing higher misogynistic lyrics in the field of non-rap songs. Country, Mixture of Pop, R&B, & Black Music, and Indie are the most misogynistic non-rap genres. Reggaeton and J-Pop/J-Rock appear the most in the less misogynistic mode. Among artists, Elvis Presley, Michael Jackson, and Rihanna are the non-rappers whose lyrics are more misogynistic, while Shakira and Maná are the artists with the most songs in the less misogynistic modal.

5.3   Cross Domain Prediction: Since labeled data for the songs was missing but labeled data for non-lyrical text was available, a cross-domain prediction task was conducted using the labeled Reddit dataset for misogynistic (M) and non-misogynistic (NM) groupings. This was conducted for cross-domain prediction (*Table 2*), with a train/test split of 80/20, and on a set of 200 manually labeled rap songs for in-domain prediction (*Table 3*), with a train/test split of 50/50. Comparing the prediction results informs the effectiveness of the two approaches.

	Precision	Recall	F1	Support
M	0.79	0.54	0.64	147
NM	0.94	0.98	0.96	1167
Accuracy			0.93	1314
Macro avg	0.87	0.76	080	1314
Weighted avg	0.93	0.93	0.93	1314

Table 2: Cross-domain classifier results.

	Precision	Recall	F1	Support
M	0.70	0.53	0.60	36
NM	0.77	0.88	0.82	65
Accuracy			0.75	101
Macro avg	0.74	0.70	0.71	101
Weighted avg	0.75	0.75	0.74	101

Table 3: In-domain classifier results.

These results verified that the cross-domain classifier is more accurate than the classifier using a smaller set of in-domain data, so that applying the cross-domain classifier in predicting misogyny is effective in this circumstance where we lack in-domain data. In general, 34% of the rap songs were classified as misogynistic while only 13.6% of the non-rap songs were classified as the same.

5.4   Popularity and Misogyny in Music: We further investigated whether the incorporation of misogynistic lyrics coincides with a greater popularity in non-rap songs. Regression analysis was conducted to examine the relationship between song popularity and misogyny as measured by both cosine similarity and predicted misogyny probability.

The regression analysis yielded slopes of 1.7367 and -0.0035 for the relationship between misogynistic content and song popularity. The high p-values (0.3226 and 0.9972) and negligible R-squared values (0.0002 and 0.0000) indicate that there is very little to no correlation between misogynistic lyrics and song popularity.

These findings suggest that the use of misogynistic lyrics in songs does not coincide with greater popularity of the songs. This suggests that misogynistic songs are not more popular, and that it is unlikely that they are being written with misogyny for business reasons.

6 Discussion

There are a number of limitations or quirks of the nature of the data we are working with that may have hindered our analysis.

Slang, as well as non-standard English, is commonly used in music to fit a specific rhythm or meter. This is especially true in rap, manifesting itself in extraneous words that rhyme but have no meaning or a new interpretation and usage of the word. Word2Vec is unable to fully comprehend these non-standard uses of English, and thus during sentiment analysis, the lyrics may be misinterpreted.

The labeling process, both in the Reddit dataset and our manually labeled set of 200 lyrics, is subject to interpretation. What may be considered misogynistic to one person may not be to another. This variability in what it means to be misogynistic may create inconsistencies with out classifiers and each stage of our analysis.

We were also constrained by our dataset, both by its size and scope. We had a large, cross-domain dataset in the form of the Reddit data, but there exists no large, reliable labeled dataset of misogynistic lyrics in songs. In wake of this, we labeled our own dataset, which is subject to our own interpretations of what is or isn't misogynistic. Additionally, to perform more cultural analytics on our rap song lyrics, we would need far more data than is realistic for the scope of this project.

We randomly sampling lyrics, both classified as misogynistic, each from the rap and non-rap lyrics to examine whether our classification model is accurate, given human interpretation. For instance, *"y'all give fuck punk bitch stank cause breath always stank every time take drank's downin', I'm drownin' let hit joint I'll clownin' everybody else."* from the rap song lyrics is classified as misogynistic by our model. It is obvious that the misogynistic words appear in the lyrics, but the meaning behind those words may not be misogynistic. In this particular verse, it just seems to be a random collection of words. In non-rap song also, for example, *"Early morning, she wakes up Knock! Knock! Knock! On the door It's time for makeup, perfect smile It's you they're all waiting for. They go Isn't she lovely this Hollywood girl?" And they say she's so lucky, she's a star But she cry, cry, cries In her lonely heart, thinking If there's nothing missing in my life Then, why do these tears come at night?"* This verse clearly has some underlying misogynistic themes, including the idea that women must be dolled up , presentable, and camera-ready in order to be admired. The classifier is likely picking up on this expressed idea and equating it with misogyny.

One thing to notice from our classification is that in rap songs, though the cosine similarity is slightly higher for rap and there is higher percentage of songs being classified as misogynous for rap songs, the misogynous words/ expressions are generally more abusive and direct. In contrast, in non-rap songs, the misogynous expressions are more indirect and reflect more so on an underlying misogynistic theme. Our classification model is also limited. One possible reason why our classifier has low recall score in predicting misogynistic words is that it sometimes associates non-misogynistic phrases that describes women, love, and sex with misogyny. Here is an example: *"Summer rain taps at my window West wind soft as a sweet dream My love warm as the sunshine Sittin' here by me, She's here by me She stepped out of the rainbow Golden hair shinin' like moon glow Warm lips soft as a soul Sitting here by me, yeah She's here by me."* This is a song expressing love, but it is classified as misogynistic. By our reasoning, this could be that it associates some phrases, perhaps those phrases that men use to describe women, to be misogyny.

7 Conclusion

This study demonstrates the prevalence of misogyny in rap music compared to other genres. Particularly, there is a slightly higher association between rap and misogyny than with other genres of music, though certain non-rap genres and artists produce greater misogyny than found in rap. Our findings challenge the stereotype of rap music as a more misogynistic music genre and suggests that misogynistic lyrics are a broader phenomenon within the music industry.

Additionally, we also demonstrated that the continued increase and use of misogyny in song lyrics is unlikely to contribute to a song's popularity. Therefore, it is unlikely that misogynistic lyrics are written from a business standpoint. Our findings also suggest that factors like melody, rhythm, and the artist's brand may play more critical roles in a song's success than its lyrical content. This should challenge any assertion that misogynistic content contributes to commercial success and vice-versa.

These findings have extended prior works by other researchers looking to investigate the prevalence of misogyny within music, expanding upon how prevalent it is in rap specifically, as well as investigating any potential social implications that misogyny may have.

The results highlight the complexity of the relationship between music, culture, and societal norms, suggesting that the dynamics of musical popularity and cultural expression are far more intricate than the limited perspectives and generalizations that are often asserted on specific musical genres.

Acknowledgements

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